ONE WATER LA 2040 PLAN

VOLUME 8

Technical Support Materials

FINAL DRAFT | APRIL 2018

CITY OF LOS ANGELES

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VOLUME 8
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FINAL DRAFT • APRIL 2018

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READER GUIDE

SUMMARY OF ONE WATER LA

The One Water LA 2040 Plan (Plan) takes a holistic and collaborative approach to consider all of the City's water resources from surface water, groundwater, potable water, wastewater, recycled water, dry-weather runoff, and stormwater as "One Water." The Plan also identifies multi-departmental and multi-agency integration opportunities to manage water in a more efficient, cost effective, and sustainable manner.

The Plan represents the City's continued and improved commitment to proactively manage all its water resources and implement innovative solutions, driven by the Sustainable City pLAn. The Plan will help guide strategic decisions for integrated water projects, programs, and policies within the City.

PLAN ORGANIZATION

The One Water LA 2040 Plan consists of the following ten volumes:

- VOLUME 1 - Summary Report
- VOLUME 2 - Wastewater Facilities Plan
- VOLUME 3 - Stormwater & Urban Runoff Facilities Plan
- VOLUME 4 - LA River Flow Study
- VOLUME 5 - Integration Opportunities Analysis Details
- VOLUME 6 - Climate Risk & Resilience Assessment for Wastewater and Stormwater Infrastructure
- VOLUME 7 - Implementation Strategy Supporting Documents
- VOLUME 8 - Technical Support Materials
- VOLUME 9 - Stakeholder Engagement Materials
- VOLUME 10 - Programmatic Environmental Impact Report

The information presented in this Volume (Volume 8) includes a compilation of various Technical Memoranda (TMs) that provide technical support materials on the following two topics: Flow Conditions and On-Site Treatment Analysis. Specifically, information presented in this volume is summarized and referenced in:

- Summary of flows and demands in Chapter 4 of the Summary Report (Volume 1)
- Brief discussion of potential future on-site treatment and/or satellite plants Chapter 7 of the Summary Report (Volume 1)
- Discussion of potential future water reclamation plants in the Wastewater Facilities Plan (Volume 2)

VOLUME 8 OVERVIEW & ORGANIZATION

An overview of information presented in this volume is listed by topic in the table below.

Disclaimer: It should be noted that the information presented in these TMs represent interim work products and may therefore include minor discrepancies with the information presented in the Summary Report (Volume 1). The information presented in Volume 1 supersedes information presented in this Volume.

Topic	TM No. and Name	Content Overview
Flow Conditions	TM 1.2 - Existing Flow Conditions	Summarizes the existing flow conditions developed for the Citywide mass balance tool and provides a clear description on the data sources and key assumptions utilized to estimate the existing water, wastewater, recycled water, stormwater, and LA River flows.
	TM 2.1 - Future Flow Conditions	Summarizes the expected future flow conditions through year 2040 used as the future baseline for the City-wide mass balance tool. Provides a clear description on the data sources and key assumptions utilized to estimate the future water, wastewater, recycled water, stormwater, and LA River flows.

Topic	TM No. and Name	Content Overview
On-Site Treatment Analysis	TM 12.5.1 - Onsite Treatment Policy Survey	Evaluates onsite treatment policies other public agencies may have in place and documents which agencies have experience relevant to what LASAN is considering. Identifies available information regarding onsite treatment policies. Includes the results of research regarding onsite treatment policies that have been published that address feasibility in terms of financing and policy.
	TM 12.5.2 - Onsite Treatment Evaluation of Impacts	Evaluates impacts to the collection system, treatment plants, and financial impacts related to onsite treatment facilities. Facilities evaluated include the wastewater collection system, the water reclamation plants, and existing and planned potable reuse projects.
	TM 12.5.3 - Onsite Treatment Policy Recommendations	Develops policy recommendations and presents guiding principles for onsite treatment facilities.
	TM 12.6 - On-site Wastewater Treatment Plan Policy Study – Financial Impacts Study	Evaluates total dissolved solids (TDS) impacts to the City's wastewater system that would result from new brine dischargers and performs a case study of possible new charges to recover the costs, as a result of the potential use of on-site treatment facilities (OSTFs) and satellite treatment facilities.
Graywater	Graywater Impacts and Concerns	Describes LA Sanitation's technical research and perspectives on graywater that should be understood and considered that could have health, economic, operational, and environmental impacts on the wastewater and stormwater system.
Recycled Water Usage in Concrete	Evaluating Municipal Recycled Water Usage in Concrete Mixes	Evaluation of the City of Los Angeles' recycled water quality for use in concrete.
Climate Resilient Tree List	Climate Resilient Tree List	List of trees that are drought tolerant, require minimal water, and provide shade potentially reducing heat island effect.

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CITY OF LOS ANGELES

TECHNICAL MEMORANDUM NO. 1.2
EXISTING FLOW CONDITIONS

FINAL
July 2017

707 WILSHIRE BOULEVARD, SUITE 3920 • LOS ANGELES, CALIFORNIA 90017 • P. 213.489.1587 • F. 213.572.0361

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TECHNICAL MEMORANDUM
NO. 1.2
EXISTING FLOW CONDITIONS

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LIST OF ABBREVIATIONS

Abbreviation	Description
AF	acre-feet
AFY	acre-feet per year
BMPs	Best Management Practices
CIS	Coastal Interceptor Sewer
City	City of Los Angeles
DCTWRP	Donald C. Tillman Water Reclamation Plant
DPR	direct potable reuse
ECLWRF	Edward C. Little Water Recycling Facility
ET	evapotranspiration
FL	Foreman Line
FY	fiscal year
GIS	Geographic Information System
gpd	gallons per day
GWAM	Groundwater Augmentation Model
GWI	groundwater infiltration
HTP	Hyperion Treatment Plant
HWRP	Hyperion Water Reclamation Plant
IPR	indirect potable reuse
IRP	integrated resources plan
LADWP	Los Angeles Department of Water and Power
LAGWRP	Los Angeles-Glendale Water Reclamation Plant
LIU	local industrial user
LSPC	Load Simulation Program in C+
mgd	million gallons per day
MWD	Metropolitan Water District
NPR	non-potable reuse
OWTS	onsite wastewater treatment systems
RDI/I	rainfall dependent inflow and infiltration
RWQCB	Regional Water Quality Control Board
SCMP	Stormwater Capture Master Plan
SFEM	Sewer Flow Estimating Model
SIU	significant industrial user
TI	Terminal Island
TIRE	Terminal Island Renewable Energy
TIWRP	Terminal Island Water Reclamation Plant
TM	Technical Memorandum
UWMP	Urban Water Management Plan
VSL	Valley Spring Lane
WBMWD	West Basin Municipal Water District
WESD	Wastewater Engineering Services Division
WPD	Watershed Protection Division

EXISTING FLOW CONDITIONS

1.0 INTRODUCTION

1.1 Background of One Water LA

The City of Los Angeles (City) recently embarked on the One Water LA 2040 Plan. This plan will provide a strategic vision and a collaborative approach for integrated water management. In 2006, the City completed and adopted its first integrated water resources plan (IRP). This plan was the start of a paradigm shift for the City and resulted in significant achievements. Since then, the water landscape in the City has changed with increased demands, new regulations, and threats of climate change.

In response to these changes and to help achieve water sustainability, the City initiated the One Water LA 2040 Plan. This plan builds upon the success of the Water IRP, which had a planning horizon to year 2020. The One Water LA 2040 Plan takes a holistic and collaborative approach, to consider all water resources from surface water, groundwater, potable water, wastewater, recycled water, dry-weather runoff, and stormwater as "One Water." The plan identifies multi-departmental and multi-agency integration opportunities to manage water in a more efficient, cost effective, and sustainable manner.

The One Water LA 2040 Plan represents the City's continued and improved commitment to proactively manage all its water resources and implement innovative solutions, driven by the Sustainable City pLAn. The Plan will help guide strategic decisions for integrated water projects, programs, and policies within the City.

1.2 Purpose of Task 1

The purpose of Task 1 of the One Water LA project is to establish a baseline of the City's existing conditions with respect to water management, flows, and integration opportunities between City departments and outside regional agencies. This baseline will be used to identify and develop future water integration strategies for the One Water LA 2040 Plan.

The deliverables of Task 1 will clearly identify the City department roles and responsibilities with respect to water-related projects and programs (Technical Memorandum [TM] 1.1), quantify the existing water flow balance (TM 1.2), and summarize existing water-related projects and programs (TM 1.3).

1.3 Objectives of Technical Memorandum No. 1.2

The objective of this TM is to summarize the existing flow conditions developed for the City-wide mass balance tool and provide a clear description on the data sources and key assumptions utilized to estimate the existing water, wastewater, recycled water, stormwater, and LA River flows. The information presented herein provides a reference point for the mass balance model that will be used in Task 5 to evaluate the flow impacts of major water supply, water recycling, and stormwater management projects.

2.0 EXISTING SYSTEM FLOW BALANCE

This section describes the planning year and the sphere of influence of the data presented in this TM.

2.1 Planning Year

The planning year for existing system flows in this TM is 2015. The data presented herein for the 2015 flows have been derived using actual flow data from fiscal year (FY) 2014-15 as well as data from calendar year 2015. The specific source of data is further described in each section of this TM.

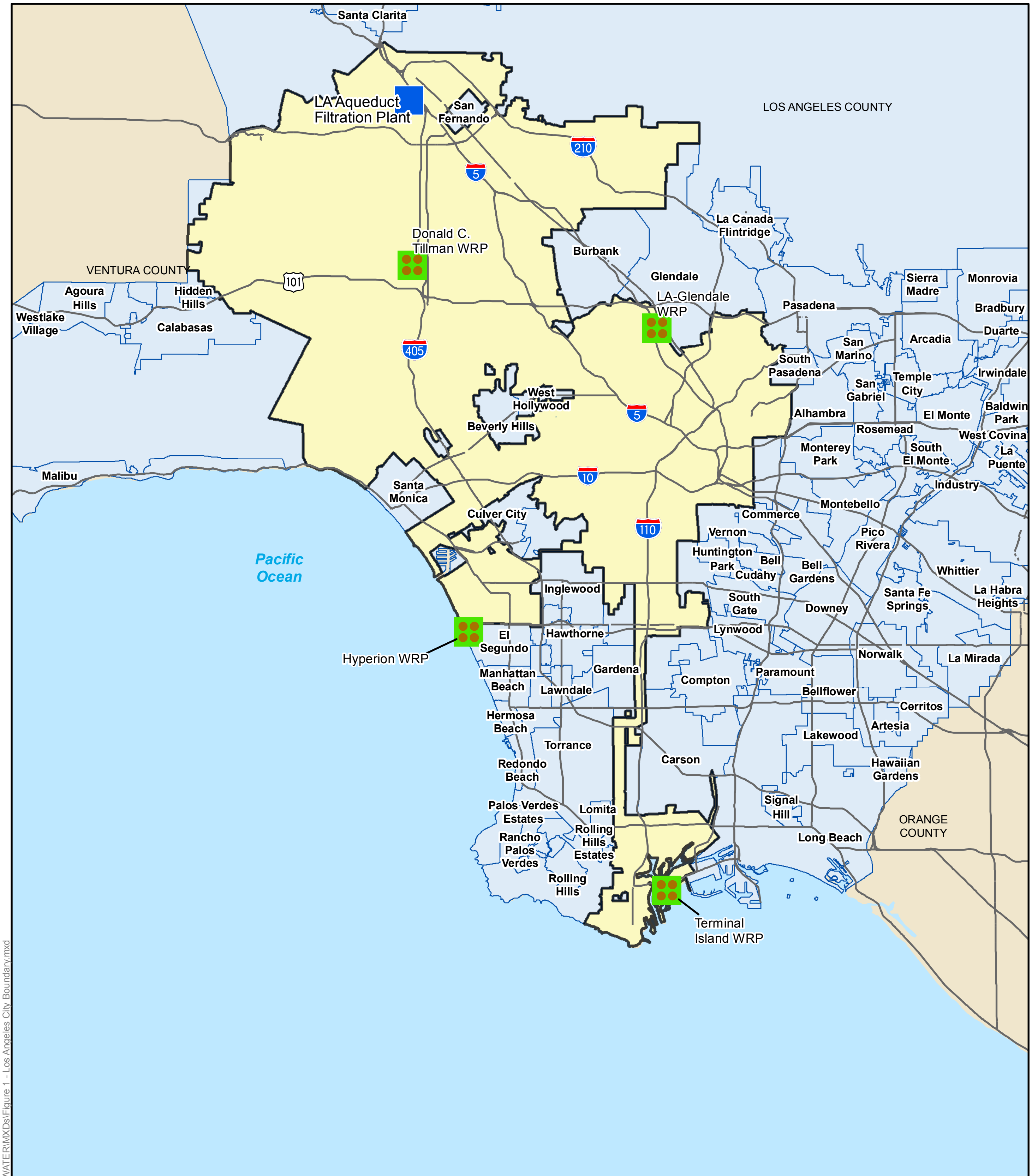
2.2 Sphere of Influence

Although the study area of the One Water LA 2040 Plan is focused on the City of Los Angeles boundaries, the sphere of influence extends beyond this City boundary, which is depicted on Figure 1. The City boundary encompasses an area of approximately 300,000 acres or 469 square miles, which is inhabited by approximately four million people.

The City overlays seven groundwater basins that partially extend beyond the City boundary as depicted on Figure 2. As shown, the largest basin is the San Fernando Basin which is located north of the Santa Monica Mountains. This basin is an important local water supply source for the City. The other two basins that are underlying the northern part of the City are the Sylmar Basin and the Verdugo Basin. Additionally, there are five basins located south of the Santa Monica Mountains. These are the Hollywood Basin, Santa Monica Basin, Eagle Rock Basin, West Coast Basin, and Central Basin. More details regarding each groundwater basin and their importance for the City's water supply is included in TM 2.2.

The watershed areas that are tributary to each of these basins are shown on Figure 3. As shown, there are 18 major watershed areas that drain water from outside the City boundaries into the City where it either percolated into the underlying groundwater aquifers or get discharged into the ocean via storm drains, creeks, and the LA River. The urban watershed areas are also depicted on Figure 3. The Regional Water Quality Control Board (RWQCB) has divided the LA River into six major reaches, which are depicted on Figure 4.

As shown on Figure 4, Reach 1 and Reach 2 are located outside the City boundary as well as many of the upstream creeks that feed into the LA River. Therefore, flows from outside the City boundary enter the City through the river, which ultimately discharges into the ocean outside once it reaches the City of Long Beach.



Legend

Existing Water Filtration Plant

Wastewater Reclamation Plant

LA City Boundary

Other City Boundaries

Major Highways

N

0 2.75 5.5 Miles

Figure 1 - Los Angeles City Boundary
One Water LA 2040 Plan
TM 1.2 - Existing Flow Conditions

Document Path: E:\KRC D DRIVE\LA ONE WATER\MXDs\Figure 1 - Los Angeles City Boundary.mxd

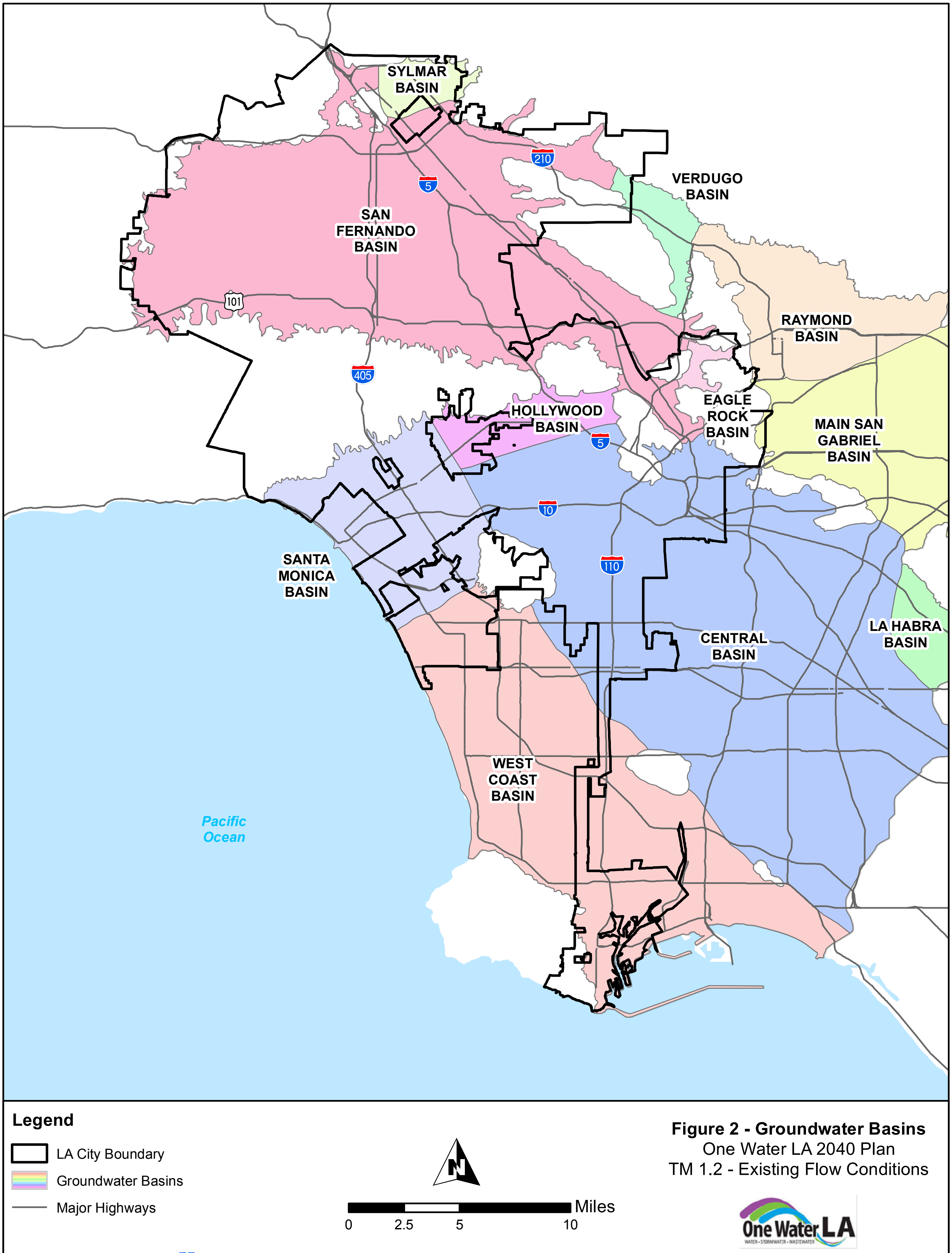
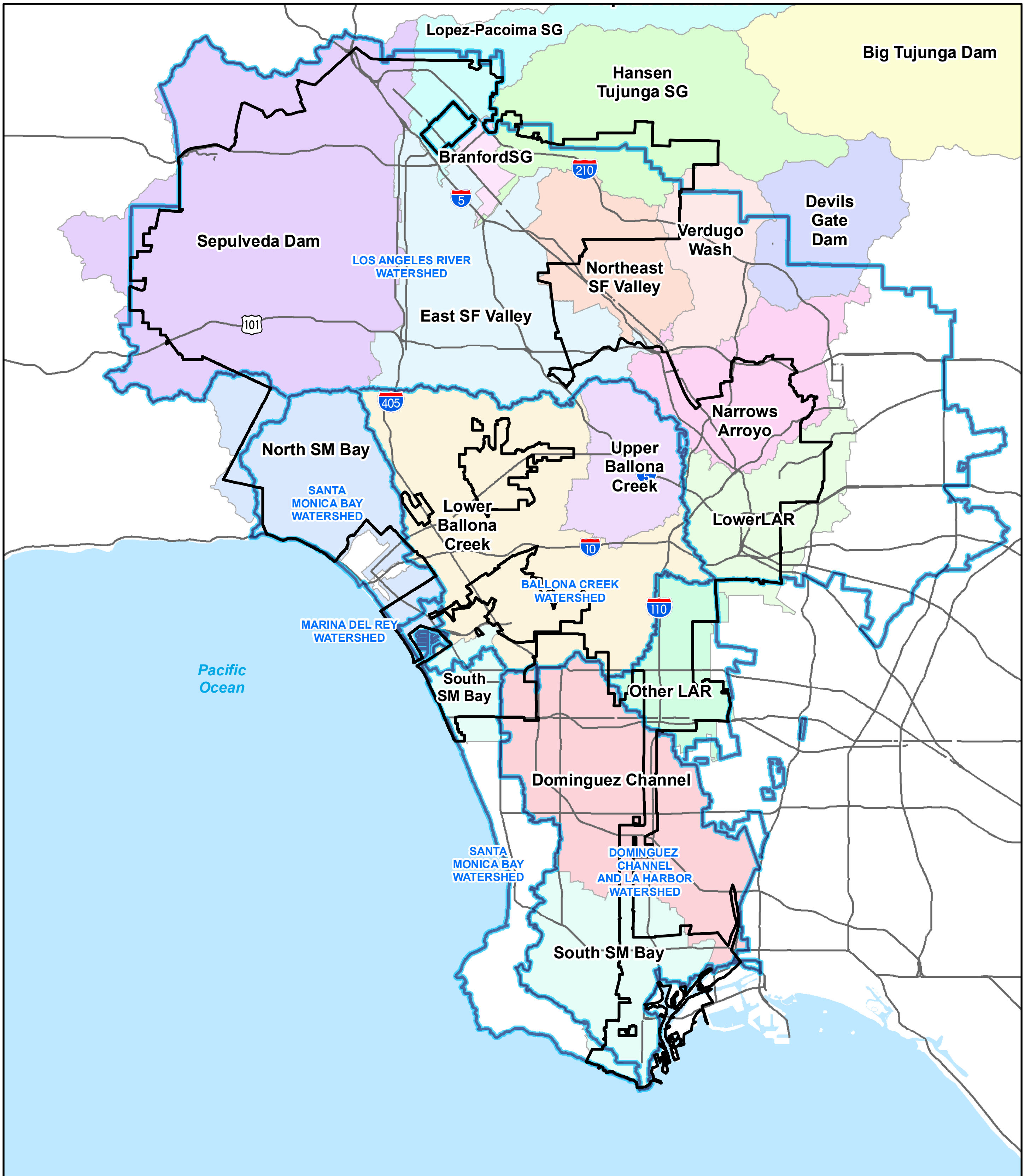


Figure 2 - Groundwater Basins
One Water LA 2040 Plan
TM 1.2 - Existing Flow Conditions



Legend

- LA City Boundary
- County Boundaries
- Major Highways
- Watersheds Source: SCMP
- Watersheds Source: EWMP Boundaries

N

Miles
0 2.5 5

Figure 3 - Watershed Areas
One Water LA 2040 Plan
TM 1.2 - Existing Flow Conditions

One Water LA
WATER • STORMWATER • WASTEWATER

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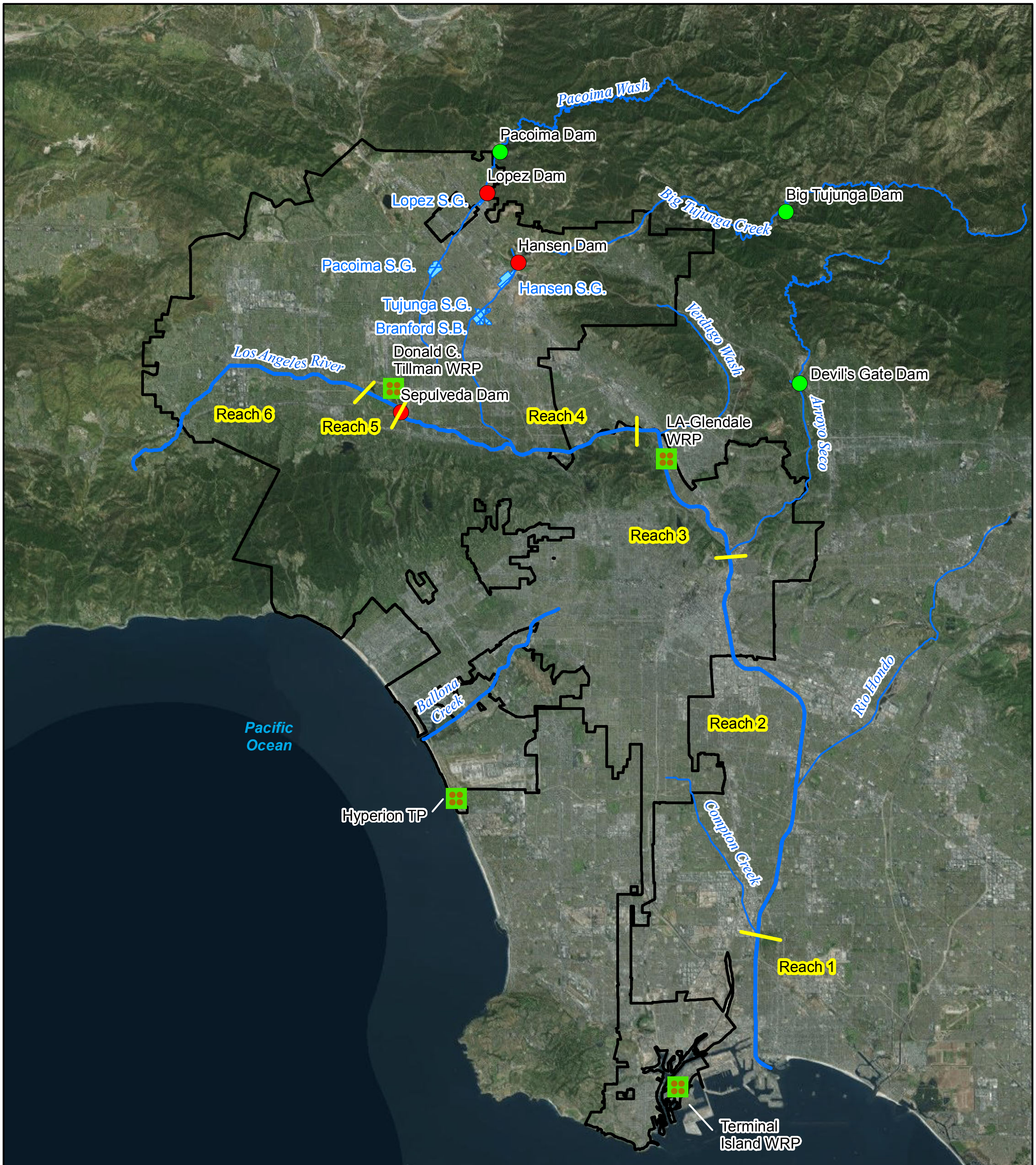


Legend

Figure 4 - LA River and Major Creeks
One Water LA 2040 Plan
TM 1.2 - Existing Flow Conditions

The City's potable water service area closely mirrors that of the City Boundary. The water service area encompasses approximately 306,000 acres or 478 square miles and is typically divided into the following four sub areas:

- Harbor
- Metro
- Valley
- Westside

The City's wastewater service area extends beyond the City boundary to the east and south as shown on Figure 5. In addition, there are areas that are currently not connected to the wastewater system, which have been excluded from the wastewater service area boundary. The City receives wastewater from 29 contract agencies that are located outside the City boundary, such as portions of the sewer flows from the cities of Glendale and Burbank. The City's wastewater service area encompasses approximately 305,000 acres or 477 square miles, of which 292,000 acres or 456 square miles are located within the City. The wastewater service area can be divided into the following seven major sewersheds:

- Hyperion Treatment Plant (HTP)
- Coastal Interceptor Sewer (CIS)
- Donald C. Tillman Water Reclamation Plant (DCTWRP)
- Foreman Line (FL)
- Los Angeles-Glendale Water Reclamation Plant (LAGWRP)
- Terminal Island Water Reclamation Plant (TIWRP)
- Valley Spring Lane (VSL)

For the purpose of this TM, both wastewater flows and water demands are presented by sewershed area to maintain a clear correlation of indoor water demands and wastewater flows. Recycled water flows are presented by the City's four wastewater treatment plants. Stormwater flows are presented by major groundwater basin and by river reach for the share of stormwater that reaches the LA River.

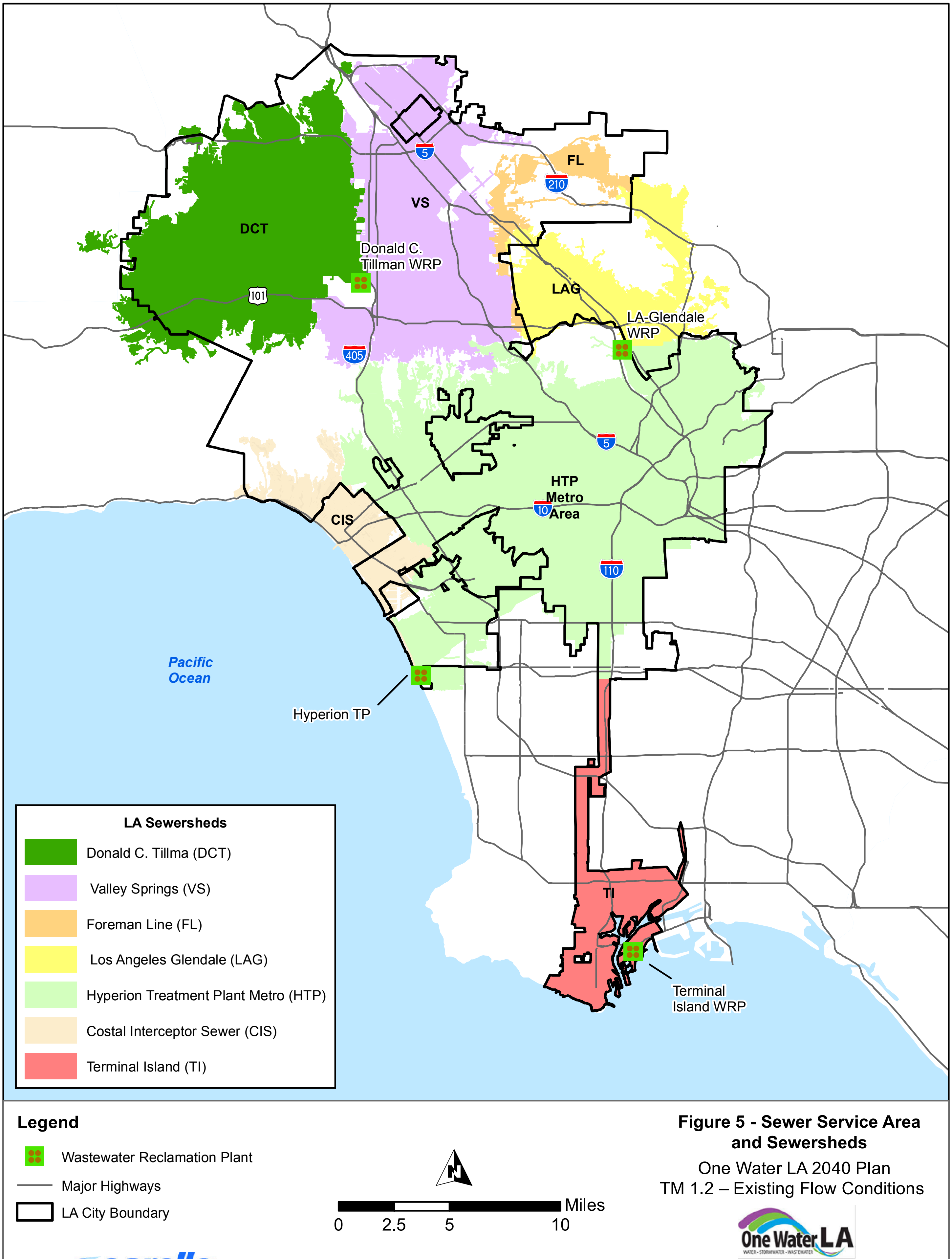


Figure 5 - Sewer Service Area and Sewersheds

One Water LA 2040 Plan
TM 1.2 – Existing Flow Conditions

2.3 Mass Water Flow Balance

This section describes the mass balance flow model, its flow components, and the model development process.

2.3.1 Mass Balance Flow Model

The purpose of the water mass balance model is to quantify all major water flows throughout the City. This tool will be used to access flow data for both existing and future conditions in 1-year increments for any period between 2015 and 2040. Due to the large impact of annual rainfall on the overall water balance, the model is designed to calculate the flow balance for three typical hydrologic conditions, corresponding to normal, wet, and dry years. The development of this City-wide mass balance model involved the following four major steps:

- Preparation of Water Flow Chart
- Data Gathering
- Model Design and Development
- Data Input & Validation

2.3.2 City-Wide Water Flow Chart

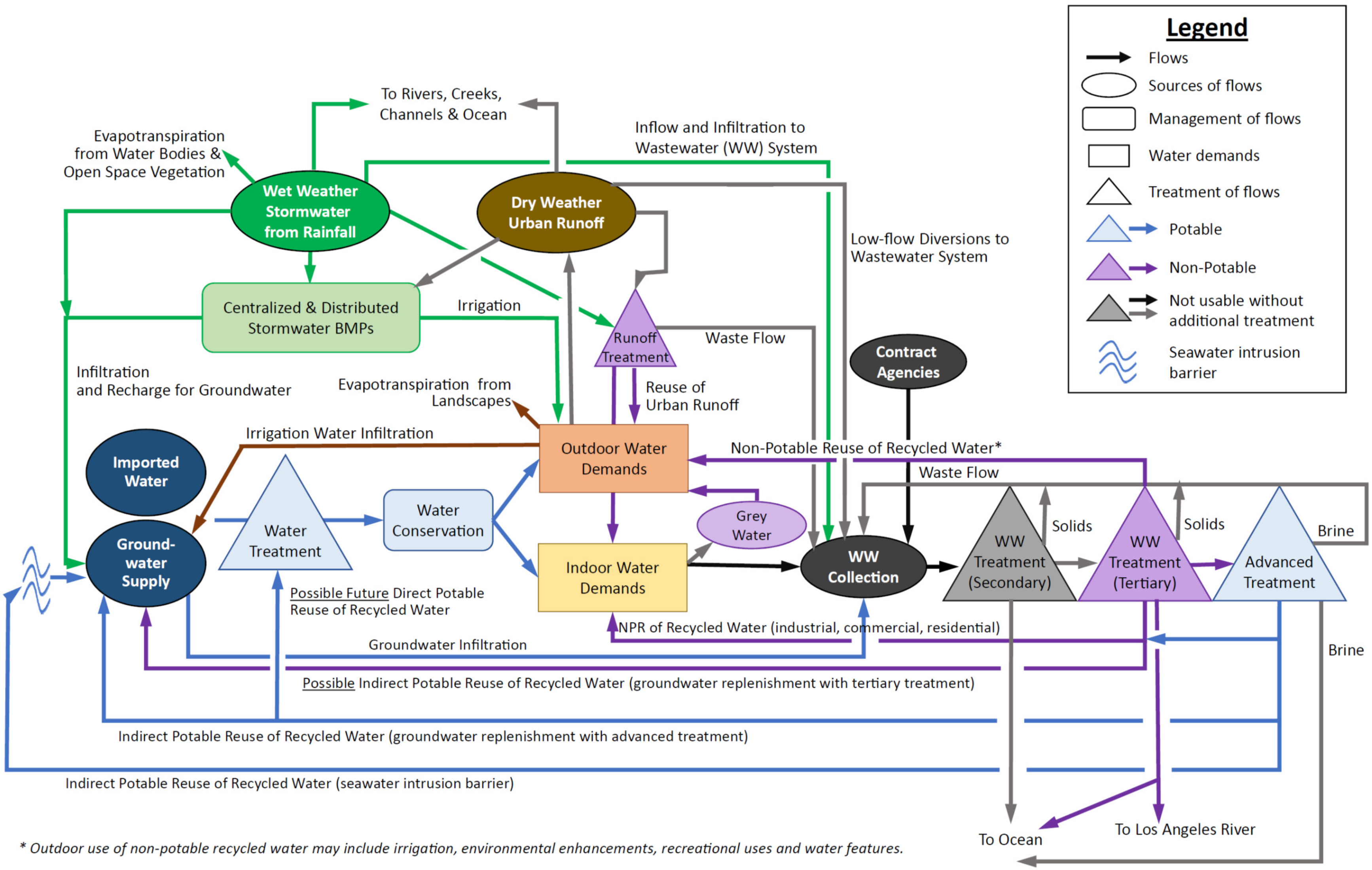
Although individual City Departments collect and maintain data for individual water flows, this data was never combined into a single model until the preparation of the Initial Water Balance TM, which was prepared as part of One Water LA Phase 1 (CDM:CH2M, 2015). The first step of the model development involved the preparation of a comprehensive flow schematic that tracks how water moves around the City based on the flow schematic developed for the Initial Balance Flow Report. The water balance flow chart from the Phase 1 study is shown on Figure 6. This flowchart was used to identify which flows would be included in the mass balance model, which resulted in the simplified water flow chart as shown on Figure 7. Subsequently, this flow chart was used to develop the comprehensive mass balance model flow diagram by sewer shed and treatment plant. This comprehensive flow diagram is shown on Figure 8 and depicts the framework or architecture of the Blue Plan-It Model.

2.3.3 Flow Components

The following major types of flow components shown on Figure 7 are included in the mass balance model. These flow components include:

- Two major imported water supply sources (MWDSC and LA Aqueduct).
- Three major groundwater basins (San Fernando, West Coast, and Central Basin).
- Potable water demands by sewer service areas (both indoor and outdoor use).
- Citywide water conservation.
- Wastewater Flows by sewershed area (for both residential and industrial users, as well as contract agencies).
- Wastewater Flows from 29 outside-agencies that discharge into the City's sewer system.
- Groundwater infiltration into the sewer system.
- Low-flow stormwater diversions into the sewer system.
- Wastewater discharges into the LA River and Pacific Ocean.
- Three wastewater reclamation facilities (DCTWRP, LAGWRP, and TIWRP) and one wastewater treatment plant (Hyperion Water Reclamation Plant [HWRP]).
- Six major reaches of the LA River.
- Stormwater generation (rainfall) by groundwater basin.
- Stormwater infiltration through Best Management Practices (BMPs) by groundwater basin.
- Evapotranspiration by groundwater basin from stormwater runoff and outdoor water use.
- Stormwater discharges into the LA River reaches and Pacific Ocean.
- Future treatment facilities, such as water reclamation plants and desalination plants.
- Future recycling projects, such as indirect potable reuse (IPR) through groundwater recharge and direct potable reuse (DPR) projects.

The flow components that were not considered in the mass balance model include groundwater cleanup projects, shallow groundwater pumping and disposal, and other direct uses of groundwater by private parties. These flow components were excluded from the mass balance model since they were not considered as major flow sources.



** Outdoor use of non-potable recycled water may include irrigation, environmental enhancements, recreational uses and water features.*

Figure 6 - Initial Mass Balance Flow Chart
One Water LA 2040 Plan
TM 1.2 - Existing Flow Conditions

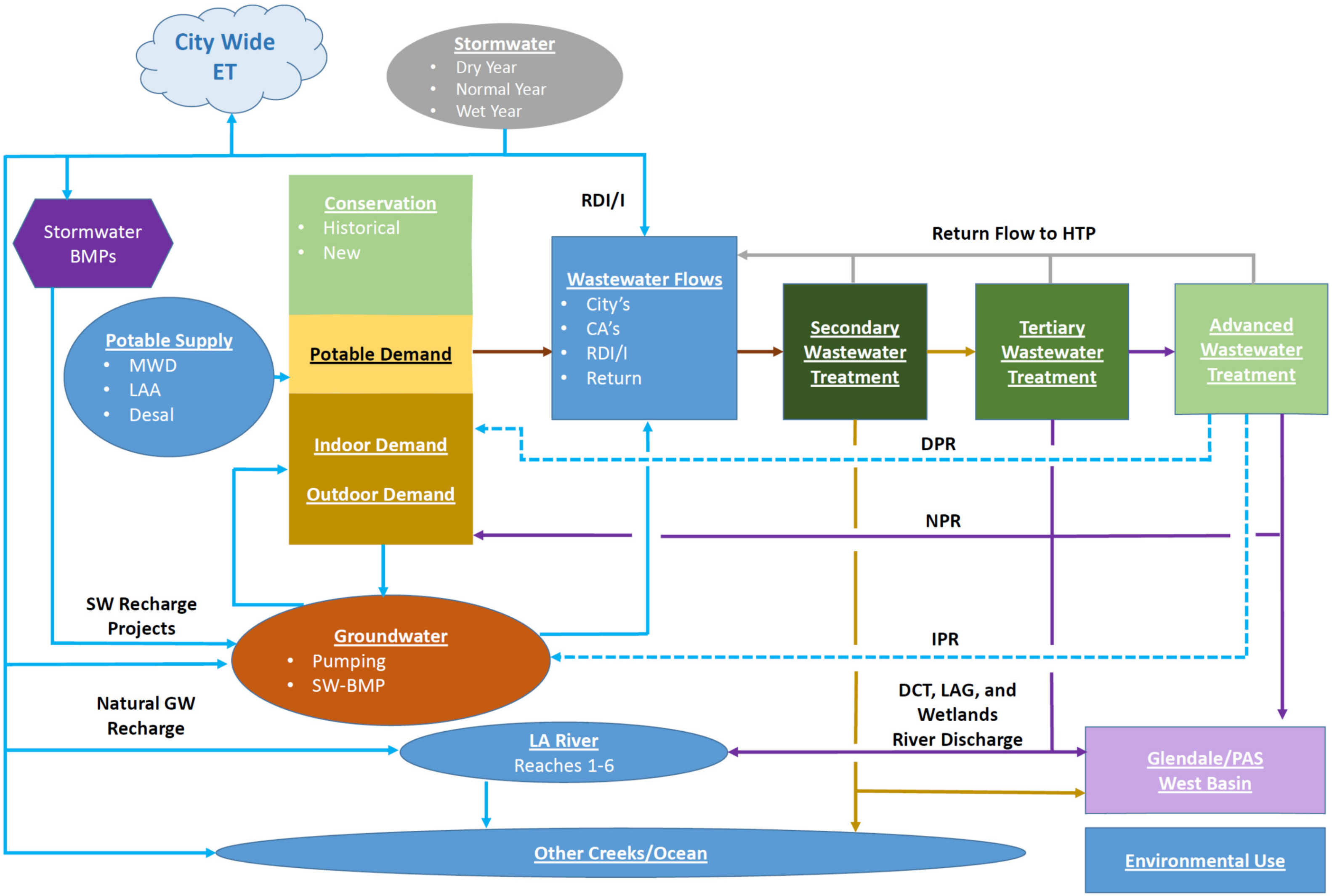


Figure 7 - Simplified Mass Balance Model Flow Chart (for Blue Plan-It Model)
One Water LA 2040 Plan
TM 1.2 - Existing Flow Conditions

One Water LA

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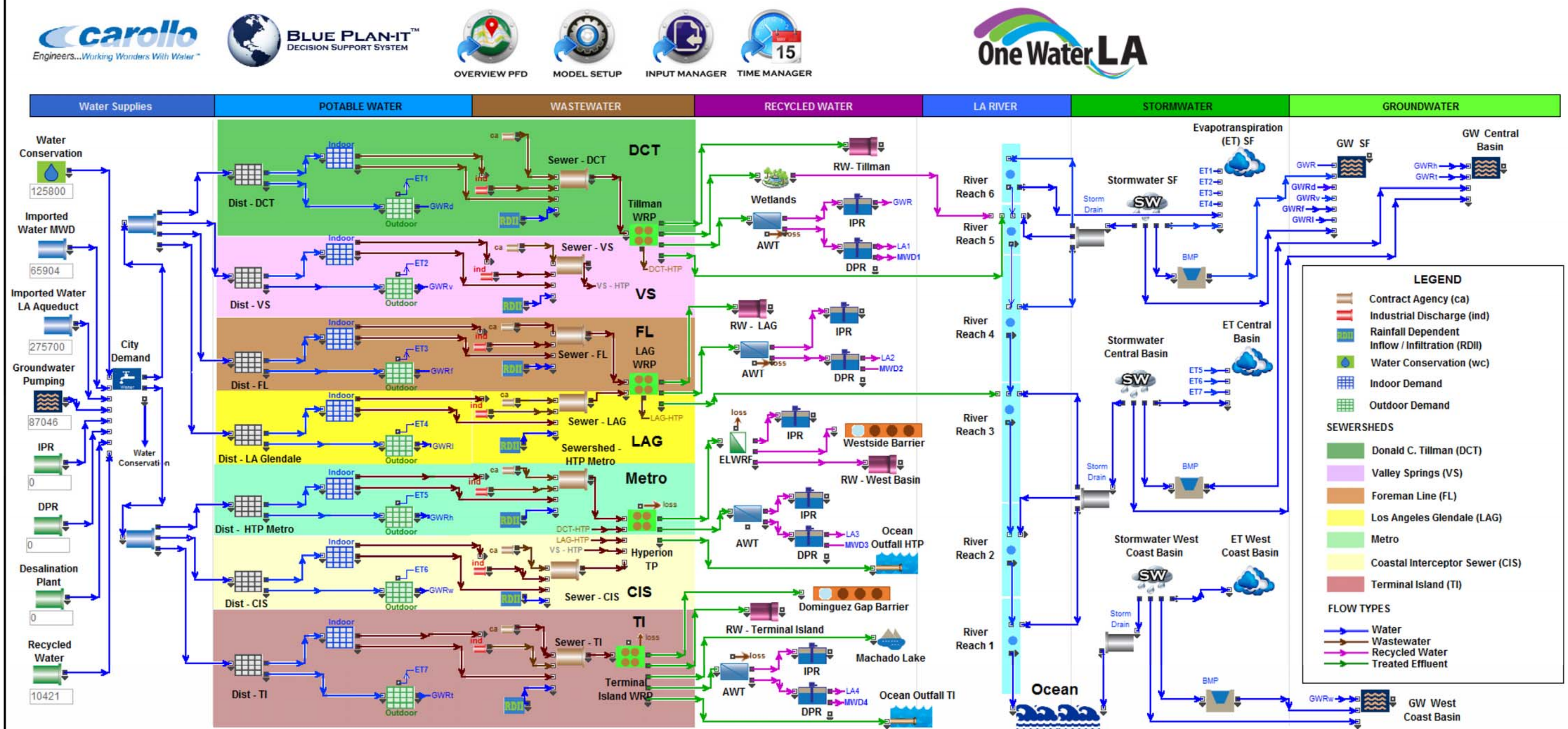

Figure 8 - Comprehensive Mass Balance Flow Diagram (from Blue Plan-it Model)

One Water LA 2040 Plan

TM 1.2 - Existing Flow Conditions

2.3.4 Mass Balance Model Development

Data Gathering

Once the flowchart was completed and validated with City staff, the model data needs were defined. This involved the identification of raw model input data, development of key assumptions and parameters, and methodologies to perform calculation of the flow estimates.

An extensive data gathering effort was completed with collaboration from multiple city departments. Many different data sources and other models were used to develop the model data inputs and calculation factors. This included wastewater flows from all four treatment plants, potable water demands, water conservation estimates, stormwater modeling, and utilization of the City's potable water distribution model and wastewater collection system models to obtain spatial allocations of demands and flows.

For each of the flow components described above, three different data sets were developed for future planning years. These data sets were based on the normal, wet, or dry year hydrologic condition, which are described and TM 2.1.

Model Design and Development

Each data set that was gathered contained data for the major planning years 2015, 2020, 2025, 2030, 2035, and 2040. In order to perform a year by year analysis on the water balance throughout the City, the data was broken into 1 year increments using linear interpolation between the major planning years using an Excel Workbook. By maintaining all critical input data and assumptions in MS Excel, the user of the model can easily update any of the data as new information becomes available. In addition, this workbook provides a way to transfer the data into the Blue Plan-it™ model.

The Blue Plan-it™ model was developed to input data from Excel, perform calculations on the input data, adhere to major assumptions, meet user inputted demands, and export results to excel. This model was developed using programing software called Extend Sim. As part of the model development, all the major flow components described in Figure 7 were added to the model. In the model, each of these flow components is referred to as "block." Each flow component or block was broken down into one of four model function categories which carry out specific functions in the Blue Plan-it™ model. The four model function categories are described below:

- Assumptions
- Calculated Values
- Demand Inputs
- Supply Inputs

The Blue Plan-it™ Input Sheet is color coded based on the above mentioned model function categories. Once a model function was assigned to the blocks, connections were made between them, which were based on their flow routing relationships.

Running the Model and Viewing Results

Every time the model is run, the user will first manually select the planning year and hydrologic condition. Once the model is run, the import/export function will transfer the proper data from the Blue Plan-it™ Input Sheet into the corresponding blocks based on the planning year and hydrologic condition selected. The model then runs a mass balance, based on the input supply, input demand, assumptions, and flow logic programmed into the model. Once the model calculations are completed, the results are automatically exported to output report tables and graphs in MS Excel.

2.3.5 Model Calibration

In order for the Blue Plan-it™ model to produce accurate results, the model was calibrated utilizing existing data from the year 2015. To initiate the calibration process, the treatment plant influent data that was provided by the City for each of the four wastewater treatment plants was evaluated and input into the model. However, there were two variables that largely influenced the flow routing within the mass balance model. These two variables included the indoor and outdoor demand split along with the sewershed flow split, which is described in further detail in the proceeding sections.

Indoor and Outdoor Demand Split

As shown on Figure 8, indoor and outdoor demand was split between the seven sewersheds. It was assumed that indoor water that is used is collected by the sewer system and conveyed to a treatment plant and that outdoor water that is used does not return to the sewer or treatment plant and remains onsite.

The percentage of indoor demand was calculated using the ratio of water returned to the treatment plant and the total billed usage. Since return flows to the treatment plants include flows from contract agencies, rainfall dependent inflow and infiltration (RDI/I), and wastewater return flows from DCTWRP and LAGWRP, the following flows must be deducted from the total wastewater influent when calculating the indoor demand.

The results from the indoor and outdoor demand split are listed in Table 1.

As listed in Table 1, the total indoor demand is 297,778 acre-feet per year (AFY) and the total City demand is 496,297 AFY. Therefore, the calculated indoor demand is approximately 60 percent and the outdoor demand is approximately 40 percent. These percentages were used systematically throughout the seven sewersheds in the model. The City's water demand that is listed in Table 1 was based on the 2015 billing data, which is approximately one percent different than the water demands presented in the 2015 Urban Water management Plan (UWMP) for FY 2014-2015.

Table 1 Indoor and Outdoor Demand Split Calculation
One Water LA 2040 Plan – TM 1.2

2015 Flow Parameter	2015 Flow (AFY)
Total Wastewater Flows	**378,145**
Contract Agency	55,371
Return Flow DCTWRP	15,228
Return Flow LAGWRP	2,846
RDI/I	6,922
Net City Wastewater Flows (Indoor Demand)	**297,778**
City Water Demands (from billing)	496,297
Indoor Demand Percent	**60.0%**
Outdoor Demand Percent	**40.0%**

Sewershed Flow Split

The sewershed flow split was computed using the Microsoft Excel Solver Add In Tool. The solver was set up to determine the flow at HTP, while adjusting the seven sewershed variables using the following set of constraints:

- The calculated flow at the LAGWRP, DCTWRP, and TI must be +/- 0.01 percent of the actual treatment plant flows.
- The total percent of splits for the seven sewersheds equated to 100 percent.
- Each individual percent split could not be less than 0 percent nor exceed 100 percent.

The solver was able to find multiple answers that satisfied the aforementioned constraints. However, the results for selected sewershed flow splits were radically different than expected. Therefore, additional constraints were added to the solver in order to derive the most logical sewershed flow splits. These additional constraints were derived from both spatial distributed water demand (derived from Los Angeles Department of Water and Power [LADWP] billing data) and sewershed areas. The maximum and minimum allowable percentages for sewershed flow splits were further limited based on this additional data. Figure 9 compares the final solver solution, as noted by "Calibrated Sewer Flows," which includes the spatially distributed water demand and sewershed areas.

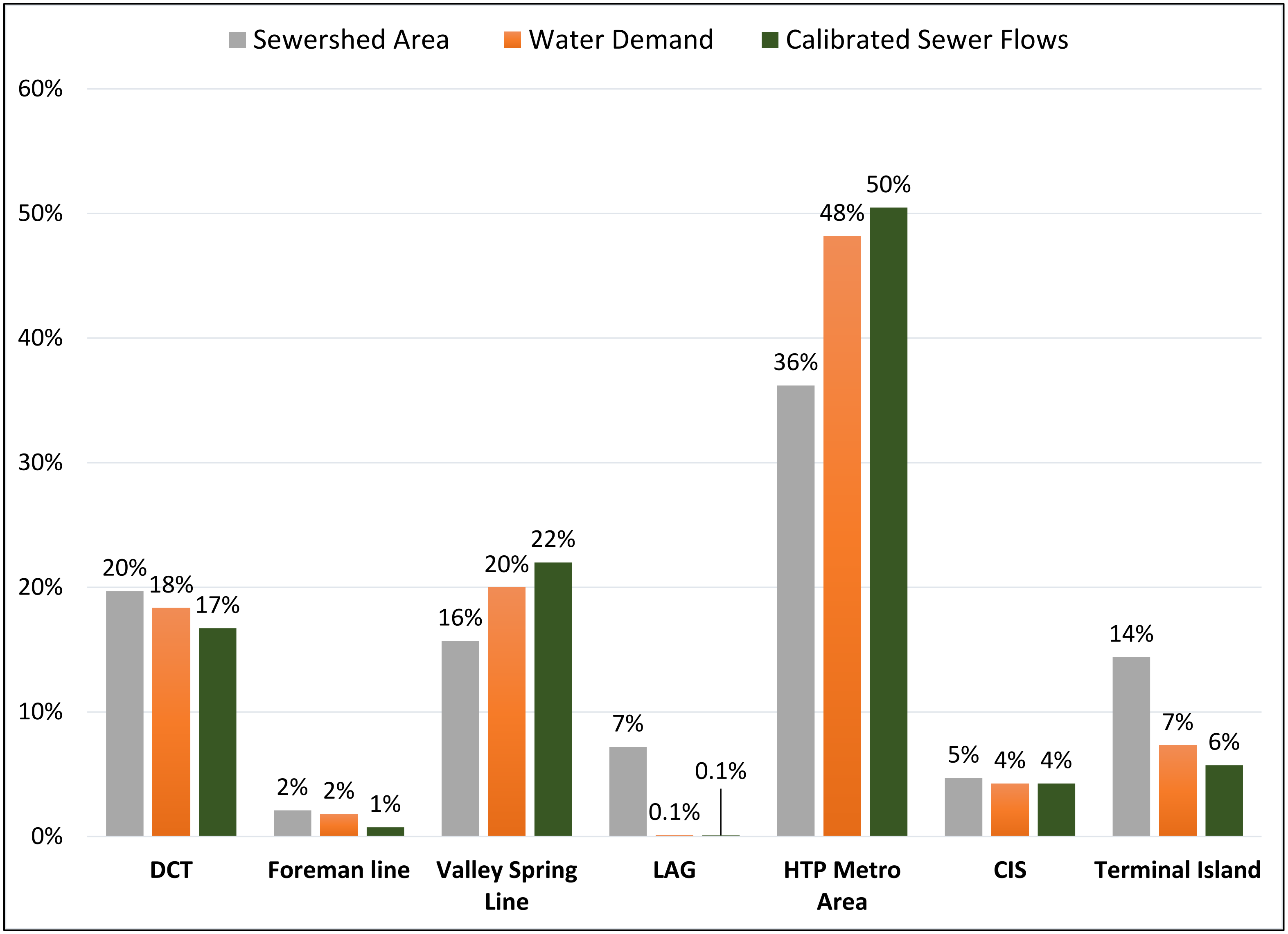

Figure 9 Calibrated Sewershed Splits

As shown on Figure 9, the comparison between the calibrated sewershed flow splits and the spatially distributed water demand was within 2 percent for each of the seven sewersheds. In addition, the Valley Springs and HWRP Metro sewersheds are smaller in area when compared to demands due to the high volume of contract agency flows, while the Terminal Island sewershed has a larger area and lower demand percentage due to areas with little to no demand and minimal contract agency flows.

Calibrated Treatment Plant Flows

The calculated 60 percent indoor to 40 percent outdoor water demand split was used in the Blue Plan-it™ model. In addition, the calibrated sewershed flow splits shown on Figure 9 were entered into the model along with the actual 2015 data from the 2015 UMWP. The results demonstrated that the predicted values in the model had a close correlation with the recorded wastewater treatment plant influent flow data from the four treatment plants. The calibration results are presented on Figure 10, which depicts that the recorded and calibrated flow values match.

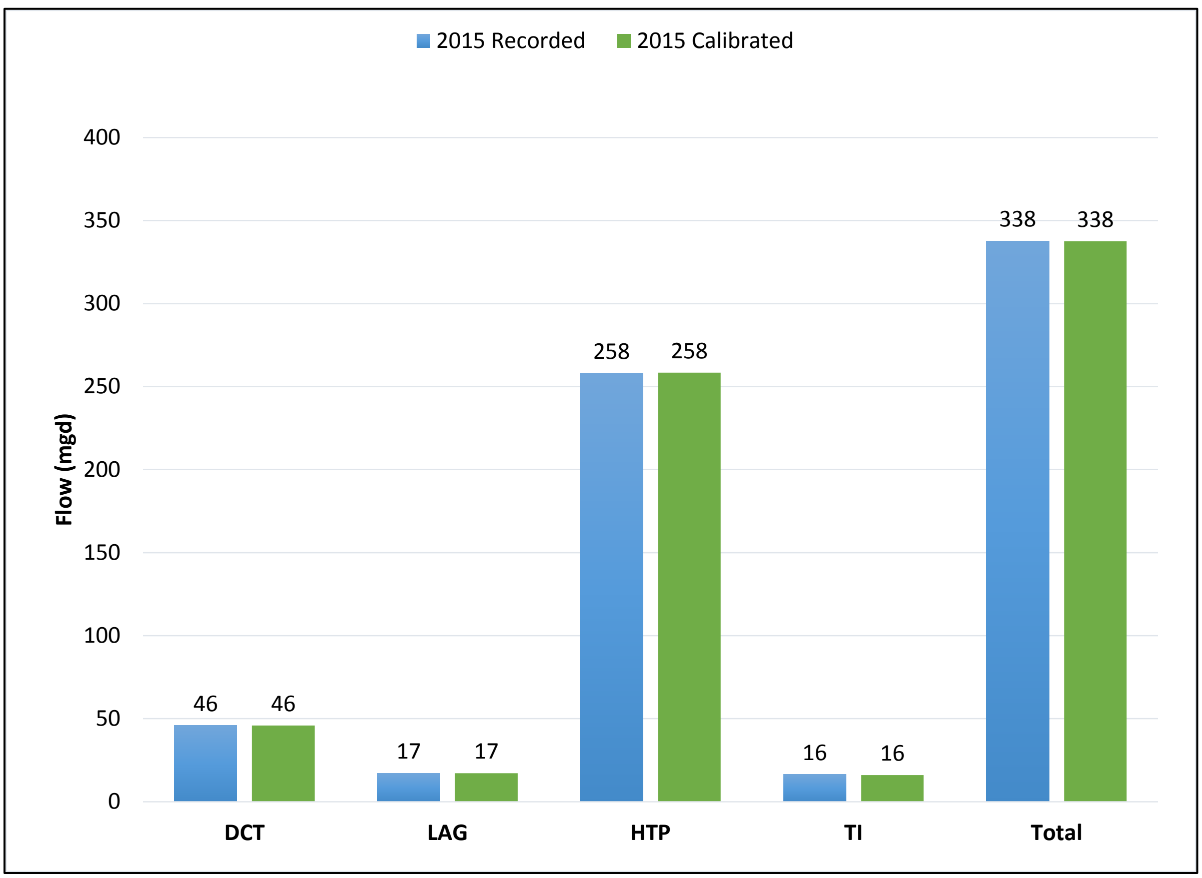

Figure 10 Calibrated Wastewater Treatment Plant Influent Flows

2.4 Hydrologic Conditions

The City of Los Angeles is divided among the Los Angeles River, Ballona Creek, Dominguez Channel, and Malibu Creek watersheds along with coastal areas that drain directly to the ocean. Most of the City drains to the Los Angeles River and Ballona Creek. Precipitation typically occurs between October and April, with rainfall rarely occurring during the summer, which is quantified as a water year. Therefore, the precipitation totals for water year 2015 occurred from October 1, 2014 through September 30, 2015. The amount of precipitation varies across the City and areas draining to the City. Higher precipitation volumes occur in higher elevation or inland areas and less precipitation occurs in lower elevation or coastal areas. The rainfall is either evapotranspired, infiltrated into the ground, or becomes runoff.

3.0 POTABLE WATER

This section describes the methodology and data sources used to calculate the existing potable water supplies and demands presented in this TM. Subsequently, the water supplies and demands are presented, while a comparison is presented at the end of this section.

3.1 Methodology

Potable water flows from LADWP's service area were divided into the four wastewater treatment plant service areas and the seven sewersheds shown on Figure 5. The key source documents utilized for the water demands and supplies presented in this TM are the 2015 UWMP along with production and billing data provided by the City. The 2015 UWMP provides supply data for LADWP's entire water service area. Initially, to estimate the distribution of water demands by major sewershed, the total 2010 UWMP demands were prorated based on the water demand area distribution of the seven major sewersheds. Subsequently, this distribution was adjusted during the model calibration process to match the sewer influent flows at the wastewater treatment and reclamation plants. The water demands and wastewater flows from the model calibration are presented in Section 2.3.

The calibrated flow percentages listed in Table 2 were used to distribute the total indoor and outdoor water demands by sewershed in the mass balance model.

Table 2 Water Demand Distribution by Sewershed
One Water LA 2040 Plan – TM 1.2

Sewershed/Wastewater Treatment Plant Area	Basin Area (Acres)	Basin Area of Total (%)	Calibrated Flow Split (%)
LA-Glendale (LAGWRP)	19,625	7.2%	0.1%
Foreman Line (FL)	5,949	2.1%	0.8%
Valley Spring Lane (VSL)	42,769	15.7%	22.0%
Donald C Tillman (DCTWRP)	53,686	19.7%	16.7%
Coastal Interceptor Sewer (CIS)	12,721	4.7%	4.3%
Metro (HWRP)	98,728	36.2%	50.2%
Terminal Island (TI)	39,145	14.4%	5.9%
Total	**272,623**	**100.0%**	**100.0%**

Note:
(1) Based on updated calibration of wastewater flows in mass balance model.

To determine the amount of treatment plant influent, flow splits per sewershed to each of the four treatment plants were used, as well as the estimated return flows from DCTWRP and LAGWRP to HWRP. These flow split assumptions are listed in Table 3.

Table 3 Wastewater Flow Split by Sewershed
One Water LA 2040 Plan – TM 1.2

Sewershed	DCTWRP(2)	LAGWRP	HWRP	TI
LA-Glendale (LAGWRP)	0%	100%	0%	0%
Foreman Line (FL)	0%	100%	0%	0%
Valley Spring Lane (VSL)	0%	0%	100%	0%
Donald C Tillman (DCTWRP)	100%	0%	0%	0%
Coastal Interceptor Sewer (CIS)	0%	0%	100%	0%
Metro (HWRP)	0%	0%	100%	0%
Terminal Island (TI)	0%	0%	0%	100%
Weighted Flow (%)	**17%**	**1%**	**76%**	**6%**

Notes:
(1) Based on Initial calibration of wastewater flows in mass balance model.
(2) DCTWRP was operating at 50 percent of normal operating conditions.

3.1.1 Potable Water Flow Components

Potable water flow components consist of potable water demands and potable water supplies. The City's existing supply sources are:

- Imported water from Metropolitan Water District (MWD);
- Imported water via the Los Angeles Aqueduct from the Owens Valley in the Eastern Sierras;
- Groundwater from the San Fernando Basin, Sylmar Basin, and Central Basin

Potable water demands are separated into the following three categories:

- Indoor water demands
- Outdoor water demands
- Water conservation

3.1.2 Data Sources

The main source of information used for the potable water supplies and demands presented in this TM are obtained from Draft 2015 UWMP from LADWP along with production and billing data provided by the City.

3.1.3 Key Assumptions

The following key assumptions were used for the water demands presented in this section:

- Data for 2015 is based on data listed in LADWP's Draft 2015 UWMP.
- The indoor water use was determined to be 60 percent for the year 2015, which was based on the calibration of the Blue Plan-it™ model.
- The outdoor water use was determined to be 40 percent for the year 2015, which was based on the calibration of the Blue Plan-it™ model.

The following key factors were used for the water supplies presented in this section:

- Imported water from MWD is inclusive of water purchases.
- Imported water from Los Angeles Aqueduct water includes the Owens Valley in the mass balance model and raw water transfers from MWD.
- The groundwater flow and the flow from the LA River are modeled as being separate from one another.
- Conservation is included as a supply source in the mass balance model, which utilized in future planning years.

3.2 Existing Potable Water Supplies

The existing water supplies listed the 2015 UWMP are discussed in the proceeding sections. It should be noted that the actual water supplies in FY 2014-2015 were much lower than the projected water supply needs for the year 2015 as presented in the 2010 UWMP due to the lower demands in response to the ongoing state-wide drought and mandatory water conservation measures. Based on 2015 UWMP, a total of 513,540 AFY of water was supplied to the City, which includes irrigation and industrial recycled water usage. This is nearly 17 percent less than the projected water supply need of 617,520 AFY for dry year conditions listed in the 2010 UWMP as well as the water supply needs of 580,620 AFY for normal year conditions.

3.2.1 Imported Water from Metropolitan

The 2010 UWMP projected the amount of imported water from MWD of Southern California for the normal and wet-year scenarios to be 288,120 AFY in the year 2015. Under the dry-year scenario, imported water from MWD was projected to be 528,500 AFY. As listed in the 2015 UWMP, the actual amount of water imported from MWD in FY 2014-2015 was 362,607 AFY. This falls between the imported water needs of normal and dry year conditions as projected in the 2010 UWMP.

3.2.2 Imported Water from LA Aqueduct

The 2010 UWMP projected the amount of imported water from the LA Aqueduct to be 252,000 AFY in the year 2015 for the normal and wet year scenarios. Under the dry-year scenario, imported water from the LA Aqueduct was projected to be substantially lower at 48,520 AFY. As listed in the 2015 UWMP, the actual amount of water imported from the LA Aqueduct in FY 2014-2015 was 53,546 AFY. This falls between the imported water needs of normal and dry year conditions as projected in the 2010 UWMP.

3.2.3 Groundwater

The 2010 UWMP projected the amount of groundwater for the year 2015 to be 40,500 AFY for the normal, wet, and dry year scenarios. In the 2010 UWMP, groundwater was provided from the San Fernando Basin at 25,500 AFY and the Central Basin at 15,000 AFY. No groundwater was pumped from the West Basin. As listed in the 2015 UWMP, the actual amount of local groundwater pumped in FY 2014-2015 was 87,046 AFY to minimize drought impacts. This is nearly double the amount projected in the 2010 UWMP for all hydrologic conditions.

3.2.4 Total Potable Water Supply Mix

The total potable water supply mix for FY 2014-2015 is provided in Table 4. The total water supplies equated to approximately 503,199 AFY.

Table 4	Water Supply Mix One Water LA 2040 Plan – TM 1.2			
Year	**Imported MWD (AFY)**	**Imported LA Aqueduct (AFY)**	**Ground Water (AFY)**	**Total (AFY)**
2015 (Actual FY)(1)	362,607	53,546	87,046	503,199

Note:

(1) These values came from the Draft 2015 UWMP. There is a 1.4% increase in the recorded supplies from the Draft to the Final 2015 UWMP.

Based on the water supply summary provided in the Draft 2015 UWMP, the City's actual potable water supply was approximately 23 percent lower than the projected dry year water demand for year 2015 listed in the 2010 UWMP. The substantial reduction in water use is the result of water conservation success in response to the state-wide drought and the associated water conservation mandates and programs.

3.3 Existing Water Demands

Existing water demands are based on the City's billing data for calendar year 2015. Demands are split between the indoor and outdoor usage determined during the model calibration effort, which are listed in Table 5. The estimated water demands for graywater systems were not included.

Table 5	Demand Distribution Factors One Water LA 2040 Plan – TM 1.2		
Year	**Indoor Demand (%)**	**Outdoor Demand (%)**	**Total (%)**
2015 (Actual FY)	60.0	40.0	100.0

3.3.1 <u>Indoor Water Use</u>

As discussed in Section 2.3, the indoor water use for FY 2014-2015 was approximately 60 percent of the total demand. Table 6 summarizes the indoor water use by sewersheds.

As shown in Table 6, the indoor water use was approximately 296,778 AFY for the year 2015. This is 21 percent lower than the projected indoor water demand (375,028 AFY) listed in the 2010 UWMP for the year 2015. The indoor water usage within the Metro HWRP and VSL sewersheds was approximately 72 percent of the total indoor water usage. The remaining 28 percent of indoor usage was from DCTWRP, FL, LAGWRP, CIS, and TI sewersheds.

Table 6 Indoor Water Use by Sewershed
One Water LA 2040 Plan – TM 1.2

Sewershed[1]	2015 Demand[2] (AFY)
LA-Glendale (LAGWRP)	298
Foreman Line (FL)	2,436
Valley Spring Lane (VSL)	65,511
Donald C Tillman (DCTWRP)	49,723
Coastal Interceptor Sewer (CIS)	12,656
Metro (HWRP)	149,625
Terminal Island (TI)	17,529
Total[1]	**297,778**

Notes:
(1) Does not include contract agency flows.
(2) Demands based on the Draft 2015 UWMP (LADWP, 2016). Values vary from Table 1 due to rounding.

3.3.2 Outdoor Water Use

As discussed in Section 2.3, the outdoor water use for the year 2015 was approximately 40 percent of the total demand. Table 7 summarizes the outdoor water use by sewersheds.

Table 7 Outdoor Water Use by Sewershed
One Water LA 2040 Plan – TM 1.2

Sewershed[1]	2015 Demand[2] (AFY)
LA-Glendale (LAGWRP)	199
Foreman Line (FL)	1,624
Valley Spring Lane (VSL)	43,674
Donald C Tillman (DCTWRP)	33,149
Coastal Interceptor Sewer (CIS)	8,437
Metro (HWRP)	99,750
Terminal Island (TI)	11,686
Total[1]	**198,519**

Notes:
(1) Does not include contract agency flows.
(2) Demands based on the Draft 2015 UWMP (LADWP, 2016). Values vary from Table 1 due to rounding.

As shown in Table 7, the outdoor water use was approximately 198,519 AFY for FY 2014-2015, which is 12 percent lower than the projected water demand (224,541 AFY) under the normal/wet-year scenario conditions and 24 percent lower than the projected demand (260,526 AFY) under the dry-year scenario conditions listed in the 2010 UWMP. The outdoor water usage within the Metro HWRP and VSL sewersheds was approximately 72 percent of the total outdoor water usage. The remaining 28 percent of outdoor usage was from DCTWRP, FL, LAGWRP, CIS, and TI sewersheds.

3.3.3 Graywater Systems

Graywater is gently used water from bathroom sinks, showers, tubs, and washing machines. Graywater may contain traces of dirt, food, grease, hair, and certain household cleaning products, but is not water that has come into contact with feces, such as water from toilet flushing. While graywater may look "dirty," it is a safe and even beneficial source of irrigation water in a yard.

Although graywater use is not estimated in LADWP's 2010 UWMP, it is important to note its use with respect to its water use efficiency potential. Between 2010 and 2015, the City of LA has issued 45 graywater system permits. This includes graywater piping systems for commercial sites, apartment complexes, and single family dwellings. It should be noted that only commercial sites require a permit from the City of Los Angeles' Department of Building and Safety, and therefore the total number of graywater systems is likely much higher.

The use of graywater for non-potable purposes such as outdoor irrigation could directly offset potable water demands. However, graywater use also reduces wastewater flows received by the City's four wastewater treatment plants, which have the ability to treat this water to much higher water quality standards. As wastewater flows in the City have been declining, central wastewater treatment that allows high-end wastewater recycling opportunities, such as IPR, are typically preferred to maximize the use of existing wastewater collection and treatment infrastructure. However, graywater systems may provide important water use efficiency benefits in areas that are not connected to the City's sewer system. Additionally, graywater systems can promote public awareness of water scarcity and reduce outdoor water use.

The total amount of potable water offset by the City's existing graywater systems is not measured and very difficult to estimate. Of the 680,000 water accounts within the City, 45 sites are recorded as having a graywater system. Given that graywater use could only offset a small portion of the total water consumption of each account, it can be concluded that graywater systems currently have an insignificant impact on the City-wide water demands.

3.3.4 Total Water Demand Summary

The total water demand includes the sum of the actual billing data for the year 2015, which is split between indoor use and outdoor use in Table 8. The total water demands are approximately 496,297 AFY for the year 2015.

Table 8 2015 Water Demands
One Water LA 2040 Plan – TM 1.2

Hydrologic Condition	Indoor (AFY)	Outdoor (AFY)	Total (AFY)
2015 (Actual)	297,778	198,519	496,297

Note:
(1) Demands based on the Draft 2015 UWMP (LADWP, 2016). Values vary from Table 1 due to rounding.

3.4 Summary

A summary of the 2015 supply and demands are compared in Table 9. The supply and demand difference, which is 6,902 AFY (or approximately 2 percent of the total) is due to water loss and a result of utilizing FY 2014-2015 for the supply data and calendar year 2015 for the billing demand data.

Table 9 Water Supply and Demand Comparison
One Water LA 2040 Plan – TM 1.2

Hydrologic Condition	2015 Water Supply(1) (AFY)	2015 Water Demand(2) (AFY)	Difference Between Supply and Demand (AFY)
2015 (Actual)	503,199	496,297	6,902

Notes:
(1) Data obtained from Table 4
(2) Data obtained from Table 8

4.0 WASTEWATER

This section describes the methodology and data sources used to calculate the existing wastewater flows presented in this TM. Subsequently, the wastewater flows by sewershed and treatment plant tributary area are presented.

4.1 Methodology

Wastewater flows have been calculated for the City for calendar year 2015 and include the contract agency contributions. The generated flows were calculated for each of the major sewersheds depicted on Figure 5 utilizing the water demand distribution percentages by sewershed as listed in Table 2. It was assumed that the wastewater flows generated within the City service area are equal to the indoor water demands listed in Table 6. The additional wastewater flow components described in Section 4.1.1 were added.

The resulting RDI/I flows were derived from a modeled tributary area calculation that roughly estimates rainfall infiltration into the wastewater collection system based on infiltration factors for each basin. The distribution of the total rainfall infiltration by sewershed is listed in Table 10.

Table 10 RDI/I Distribution by Major Sewershed
One Water LA 2040 Plan – TM 1.2

Sewershed	RDI/I(1) Percentage
LA-Glendale (LAGWRP)	2%
Foreman Line (FL)	1%
Valley Spring Lane (VSL)	24%
Donald C Tillman (DCTWRP)	17%
Coastal Interceptor Sewer (CIS)	9%
Metro (HWRP)	39%
Terminal Island (TI)	8%
Total(1)	**100%**

Note:
(1) Based on the average Normal (2001), Wet (2005), Dry (2007), and year 2014 model runs.

4.1.1 Wastewater Flow Components

The total wastewater flow is a combination of the following components:

Wastewater produced by individuals, businesses, and institutions within the City of Los Angeles. Sources include toilets, showers, sinks, dishwashers, clothes washers, floor drains, and industrial equipment and processes. The City's wastewater flow is assumed to be equal to the indoor potable water demand as outdoor water demand does not contribute to the wastewater collection system.

Groundwater Infiltration (GWI) results when a groundwater table that is above a sewer pipe causes the groundwater to leak into the sewer pipe through joints or cracks/breaks. Groundwater tables typically fluctuate seasonally, so the GWI will also often fluctuate seasonally. GWI is not affected directly by storm events. While GWI has been historically included in the City's wastewater estimation methodology, the basis for this value is being reconsidered and, as such, GWI has not been calculated separately and is included as part of the other flow components in this study.

Contract Agency Wastewater Flows are generated by cities, unincorporated county, federal, and other jurisdictions outside the boundaries of the City of Los Angeles. The City receives wastewater from 29 contract agencies that is conveyed and treated by the City's collection and treatment systems. The contract agencies' flow estimates are based on actual gauged flow into the City's collection system.

Industrial Discharge Flows can be divided into the following two categories:

- Local industrial user (LIU) are customers that discharge less than an average of 25,000 gallons per day of process wastewater, are only subject to the City's local limits, and do not adversely affect the City's wastewater treatment operations.

- Significant industrial user (SIU) are industrial customers that conduct processes subject to EPA Federal Categorical Pretreatment regulation, or that discharge an average of 25,000 gallons per day (gpd) or more, or are designated by the City as an SIU because of potential adverse impact to the sewer system.

Stormwater Infiltration is the results of RDI/I, which is rainfall runoff that then penetrates the sewers directly (inflow) via maintenance hole cover leaks or holes, cross-connected storm drains, or other direct means, and indirectly (infiltration) through soil saturation and migration of water through pipe cracks, joints, etc.

Dry Weather Runoff is the captured surface runoff from streets, and ultimately storm drains, that is then pumped into the wastewater collection system via low flow diversion structures. Dry weather surface runoff can have very high bacterial contamination, and the quantity of flow is generally small enough that the diversion of these flows into the collection system is not burdensome. If flows become too large, the low flow diversions are shut off, and the runoff continues through the storm drain system and is ultimately discharged into a creek, channel, settling/recharge basin, or the ocean.

All of these components have been summed by area to produce total wastewater flows by sewershed.

4.1.2 <u>Data Sources</u>

The following data sources were used to estimate the wastewater flows presented herein:

- Potable water demand data for the City of Los Angeles were obtained from LADWP's Draft 2015 UWMP and billing data provided by the City.

- Industrial wastewater flows were provided by the IWMD via the Wastewater Engineering Services Division (WESD).

- Contract agency dry weather wastewater flows were provided by WESD.

- Rainfall data used to calculate the stormwater RDI/I were downloaded from the website of the Western Regional Climate Center: http://www.wrcc.dri.edu. The specific gauge used was "LOS ANGELES DWTN USC CAMPUS, CALIFORNIA (045115)"; the period of record for this gauge is 07/01/1877 to 01/20/2015.

- Low flow diversion data were received from the Watershed Protection Division (WPD) via WESD as Geographic Information System (GIS) data, and with relevant attributes that were imported into a Microsoft Excel spreadsheet and summarized.

- GIS files of watershed tributary areas and primary planning basins were provided by WESD.

4.1.3 Flow Estimating Methodology

The wastewater flow estimation methodology for each of the component flows is described below.

- **Base Wastewater Flows:** Base wastewater within the City (excluding contract agencies) was derived through analysis of potable water demand based on records provided by LADWP. The indoor water use was estimated as 60 percent of the total water demand under existing conditions. The base wastewater flow was calculated by deducting the industrial wastewater flow discharges from the total indoor water demands.

- **Industrial Flow Discharges**: Industrial discharge data was provided by City staff and contain permitted flows (in the case of LIUs) and gauged or recorded flows (in the case of SIUs). There are 200 SIUs, and 15,410 LIUs in the City's database. The SIU table contained the destination treatment facility for each IU, so flows were grouped by sewershed. The LIU table had numerous gaps in the destination treatment facility entries. Many (467) IUs discharge outside the City (to Los Angeles County Sanitation Districts' sewers), and were removed from flow accumulation. An additional 165 LIUs did not have a destination treatment plant listed, so flows from these were tallied separately, and evenly distributed between all treatment plants (these IUs totaled only 0.3 percent of the total LIU flows, so they are relatively insignificant). LIU flows were grouped by sewershed, and added to the SIU flows.

- **Contract Agency Flows**: Gauged contract agency flows were received from WESD, and used directly. The sewershed of each contract agency was determined through GIS analysis, and the agency flows were then grouped by sewershed.

- **Stormwater Infiltration**: The total RDI/I amount for the entire City, including contract agencies, was initially estimated by applying a rainfall depth over the sewered areas of the City (and contract agencies), and then applying a percentage to the volume that represents the portion of the rainfall volume that enters the collection system. A relatively dry year (2007) and a relatively wet (2005) year were identified and used.

The rainfall depth reported by a single rain gauge for the entire year was assumed to apply to the entire City. The total estimated amount of stormwater infiltration was separated as follows:

- ***RDI/I from Contract Agencies***: The RDI/I volumes were calculated by running the rainfall data from each entire year through the DHI Hydrology Engine, which has been calibrated for the City's Mike Urban hydrodynamic model. The RDI/I volumes were produced for the Mike Urban model nodes, and were grouped and accumulated by sewershed. This approach provides a more accurate estimation of RDI/I flow volumes and will be used for dry (2007), wet (2005), normal (2001) and existing (2015) conditions.
- ***RDI/I within the City***: The areas of the City that contributed to RDI/I were represented in a GIS file that was generated by the City's SFEM model. These areas were created by tracing all primary and secondary sewer pipes, and buffering the pipes to generate an area. Areas that do not have sewer connections do not contribute to RDI/I.

- **Wastewater Losses:** Wastewater losses are influent flows that are removed during the treatment process and do not contribute to the final effluent flows. For DCTWRP and LAGWRP, these include flows with high solids concentrations (primary sludge, scum, waste-activated sludge, and filter backwash water) that are returned to downstream sewers for treatment at HWRP. Currently for DCTWRP, this also includes some primary effluent. Based on the calendar year 2015 plant flow data provided by WESD, some flows are bypassed to HWRP, approximately 30 percent and 15 percent of influent flows at DCTWRP and LAGWRP, respectively. For HWRP and TIWRP, some influent water is tied up in the biosolids that are processed at these plants, estimated at 1 percent and 6 percent, respectively.

4.1.4 Septic Systems

Septic systems (Onsite Wastewater Treatment Systems - OWTS), do not contribute the wastewater flows other than through influences on GWI. However, as OWTS are eliminated, the sewage from households and others facilities will be introduced into the City's collection system. The 2015 OWTS Annual Report[1] identifies 12,659 OWTS (2015 OWTS Inventory Table, page 8). Of those OWTS, 2,271 residential systems and 130 commercial systems were identified as high risk (based on various criteria described in the report). A proposal[2] to connect 1,255 of the high-risk homes that currently have OWTS has identified an additional 0.3 million gallons per day (mgd) of wastewater to be added to the collection system. Septic system flows have not been included in the One Water wastewater flow projections as the magnitude of these flows is relatively insignificant.

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[1] Annual Progress and Implementation Report – Annual Report No. 10, April 1, 2014 – March 31, 2015, City of Los Angeles

[2] Proposition 1 Grant Application, Septic-to-sewer conversions in disadvantaged and highly-disadvantaged communities, City of Los Angeles

The existing flows that are discharged into OWTS's are not included in the mass balance model. However, future OWTS conversions and connections to the City's sewer system do need to be accounted for under future flow conditions.

4.1.5 Key Assumptions

The following are key assumptions related to the development of the base wastewater flows (i.e., excluding Stormwater Infiltration):

- Indoor water demands were calculated to be 60 percent of the total water demands.
- Industrial wastewater flow discharges are assumed to be part of the indoor potable water demand calculation. This means that all industrial wastewater flow discharges are assumed to obtain potable water demand from LADWP. Customers that have their own water supply source, such as local groundwater wells, would introduce new wet wastewater flows in addition to the flows summarized in Table 15 (page 35).
- Brine concentrate from advanced treatment (microfiltration/reverse osmosis) is assumed to be 20 percent of influent flows to the advanced treatment process.
- The estimated return flows from discharges from DCTWRP and LAGWRP are 30 and 15 percent, respectively.

The following are key assumptions related to the development of the wet weather flows:

- The distribution of the total rainfall infiltration by sewershed is listed in Table 10.
- The RDI/I volumes for contract agencies were calculated by running the rainfall data from each entire year through the DHI Hydrology Engine, which has been calibrated for the City's Mike Urban hydrodynamic model. The RDI/I volumes were produced for the Mike Urban model nodes, and were grouped and accumulated by sewershed.
- The areas of the City that contributed to RDI/I were represented in a GIS file that was generated by the City's Sewer Flow Estimating Model (SFEM).

4.2 Existing Treatment Plant Flows

Existing influent wastewater flows for each treatment facility are presented in the following subsections. These flows represent gauged values from calendar year 2015 and were provided by WESD. The calculated return flows to HWRP based on the key assumptions listed above, as well as the estimated discharges to the Ocean are shown in Table 11.

Table 11 Existing Treatment Plant Flows
One Water LA 2040 Plan – TM 1.2

Treatment Plant	Influent Flow (AFY)	Flow to LA River (AFY)[1]	Return Flows to HWRP (AFY)	Flow to Ocean (AFY)
DCTWRP	51,475	33,601	15,228	0
LAGWRP	19,265	12,473	2,846	0
HWRP	289,011	0	0	249,591
TIWRP	18,394	0	0	12,926
Total	**378,145**	**46,073**	**18,074**	**262,518**

Note:
(1) Flows from the River eventually discharge to the Ocean.

It should be noted that the total influent flow of 378,145 AFY is not the same as the total wastewater flow generated within the City's sewer service area, as the return flows from the DCTWRP and LAGWRP are double counted. Hence, the City's actual wastewater flow generated by City customers, contract agencies, and added flows from stormwater infiltration is approximately 360,071 AFY (378,145 - 18,074 AFY).

4.3 Existing Wastewater Flows

The existing wastewater flows are estimated by calculating the total of the following flow components that are each described in more detail below:

- City Sewer Flows. These flows include flows from residential, commercial, industrial users within the City water service area boundary.
- Contract Agency Flows. These wastewater flows are generated within the service areas of the City's 29 contracting agencies that discharge flows into the City's sewer collection system at various locations.
- Stormwater Infiltration. These are the estimated annualized flows that enter the sewer collection system during and following wet weather events.

4.3.1 City Base Sewer Flows

The total base sewer flows generated within the City boundary are based on the indoor water demand, which is based on the 2015 billing data from the City. As part of the data gathering effort for this TM, the flows of the major industrial wastewater dischargers were provided by City staff. By deducting these industrial wastewater flow discharges from the total estimated City wastewater flow, the non-industrial wastewater flows were estimated as shown in Table 12.

Table 12	**Existing City Base Sewer Flows One Water LA 2040 Plan – TM 1.2**
Flow Component	**2015 Flows (AFY)**
Non-Industrial Flows(1)	246,621
Industrial Discharges	51,157
Total City Base Sewer Flows	297,778

Notes:
(1) Calculated by deducting the industrial wastewater discharges from the total City sewer flow.
(2) Flows are distributed by sewershed and by Treatment Plant, as listed in Table 2 and Table 3.

As shown in Table 12, the total City base sewer flows is approximately 297,778 AFY, which is approximately 21 percent lower when comparing projected flows (375,028 AFY) for the year 2015 in the 2010 UWMP. This is due to ongoing water conservation within the City.

4.3.2 Contract Agency Flows

The list of the contract agencies, as well as a summarization of contract agency flows are included in Appendix B. Table 13 provides an overview of the total contract agency flows for the year 2015.

Table 13	**Contract Agency Flows One Water LA 2040 Plan – TM 1.2**
Year	**2015 Flows (AFY)**
2015 (Actual)	55,371

Note:
(1) Flows are distributed by sewershed and by Treatment, as listed in Table 2 and Table 3.

As shown, the contract agency wastewater flows were approximately 55,371 AFY for the year 2015. The flows to the City's treatment plants can be significantly higher during a wetter year.

4.3.3 Stormwater Infiltration

The amount of stormwater that infiltrates into the sewers varies with the amount of rainfall that occurs, which varies between a normal, wet, and dry year. Table 14 summarizes the total amount of stormwater infiltration for the year 2015 hydrologic conditions.

Table 14	Stormwater Infiltration One Water LA 2040 Plan – TM 1.2
Year	**Infiltration (AFY)**
2015 (Actual)	6,922

Note:
(1) Infiltration is distributed by sewershed and by Treatment Plant, as listed in Table 2 and Table 3.

As shown in Table 14, the amount of stormwater infiltration for the year 2015 was approximately 6,922 AFY. The stormwater infiltration during wet years can be much greater and more than double the amount of stormwater infiltration in normal years. Similarly, the amount of stormwater infiltration during normal years can be double the amount of stormwater infiltration during dry years.

4.3.4 Total Wastewater Flows

The total wastewater flows are presented in Table 15. As shown, the total wastewater flows for the year 2015 are approximately 360,071 AFY, which is consistent with the actual total wastewater treatment flow recorded in the year 2015, as described under Table 11.

Table 15	Total Wastewater Flows One Water LA 2040 Plan – TM 1.2
Wastewater Flow Type	**2015 Flows (AFY)**
City Base Sewer Flows(1)	297,778
Contract Agency Flows(2)	55,371
Stormwater Infiltration(3)	6,922
Total	**360,071**

Notes:
(1) Totals from Table 12
(2) Totals from Table 13
(3) Totals from Table 14

5.0 RECYCLED WATER

This section describes the data sources used to obtain the existing recycled water supplies and demands presented in this TM. Subsequently, the recycled water supplies and recycled water demands are presented.

5.1 Methodology

The recycled water flows discussed in this section refer to the effluent from each of the City's four WRPs. While all of the effluent has potential for beneficial use, currently (in fiscal year 2014-2015) only about 25 percent of the combined effluent from the plants is reused.

5.1.1 Recycled Water Flow Components

California's Title 22 regulations dictate the allowable uses associated with various levels of treatment (i.e., disinfected tertiary, disinfected secondary, undisinfected secondary). Disinfected tertiary is the minimum level of treatment for the beneficial uses to which the City's plant effluent is applied. Specific applications, such as groundwater basin injection, require higher levels of treatment (advanced treatment).

5.1.2 Data Sources

The current (FY 2014-2015) recycled water flows are based on data summarized annually by LA Sanitation's Wastewater Engineering Services Division (WESD, 2015). Flows reported include plant influent, effluent, and recycled water flows using monitored data obtained from the City's treatment plants. Reused effluent is combined into a single value representing flow that is beneficially used. Plant effluent that is not reflected in the reuse value is eventually discharged to the ocean.

Recycled water customer demands are detailed in LADWP's *Recycled Water Annual Report - Fiscal Year 2014-15* (LADWP, 2015a). Additionally, recycled water data from the current Urban Water Management Plan update process was provided by LADWP.

5.1.3 Recycled Water Uses

Recycled water use currently includes the following:

- Environmental uses,
- Non-potable reuse such as irrigation and industrial use,
- Seawater intrusion barrier injection
- Secondary effluent that is sold for further treatment and reuse.

5.2 Existing Recycled Water Supplies

The recycled supplies from each of the City's four WRPs are discussed below.

5.2.1 Donald C. Tillman WRP

DCTWRP produces disinfected tertiary recycled water. In FY 2014-2015, DCTWRP treated a total of 38,080 AFY (34 mgd) of influent sewage, of which 28,000 AFY (25 mgd) of recycled water was produced. Currently, most of the recycled water is put to beneficial use as environmental uses via the flow-through lakes at DCTWRP (Lake Balboa, the Japanese Garden and the Wildlife Lake), prior to discharge to the LA River

5.2.2 LA-Glendale WRP

LAGWRP also produces disinfected tertiary recycled water. In FY 2014-2015, LAGWRP treated a total of 15,450 AFY (14 mgd) of influent sewage, of which only 4,700 AFY (4.2 mgd) of recycled water was produced. Of this total, 50 percent is allocated to the City of Los Angeles and 50 percent is allocated to the City of Glendale. Most of the effluent in FY 2014-2015 was discharged to the ocean via the LA River.

5.2.3 Hyperion Treatment Plant

HWRP produces secondary effluent, a portion of which is further treated for reuse by West Basin Municipal Water District (WBMWD). In FY 2014-2015, HWRP treated a total of 294,560 AFY (263 mgd) of influent sewage, of which 39,200 AFY (35 mgd) was purchased by WBMWD for reuse. Currently, most of the plant effluent is discharged to the ocean.

5.2.4 Terminal Island WRP

TIWRP produces disinfected tertiary recycled water as well as advanced treated recycled water. In FY 2014-2015, TIWRP treated a total of 17,920 AFY (16 mgd) of influent sewage, of which 4,432 AFY (4 mgd) of recycled water was produced, used primarily at the Dominguez Gap Seawater Intrusion Barrier wells. Some of the waste concentrate from the membrane advanced treatment process is co-injected with biosolids at the Terminal Island Renewable Energy (TIRE) deep well injection project, with the balance discharged to the Los Angeles Inner Harbor, along with unused tertiary effluent.

5.3 Existing Recycled Water Demands

Recycled water demands can be separated into three categories, Title 22 Customers, WBMWD, and Seawater Intrusion Barriers. The existing use of recycled water for each category is discussed below.

5.3.1 City of LA's Recycled Water Demand (NPR)

As shown in Table 16, the City's non-potable reuse (NPR) demand in FY 2014-15 was 5,989 AFY.

Table 16 Existing Recycled Water Customer Demand One Water LA 2040 Plan – TM 1.2

Recycled Water Source Treatment Plant	Recycled Water Demand (AFY)
Donald C. Tillman WRP (DCTWRP)	2,647
LA-Glendale WRP (LAGWRP)	2,446
Hyperion Treatment Plant (HWRP)	895
Terminal Island WRP (TIWRP)	1
Total	**5,989**

Notes:
(1) Source: LADWP Recycled Water Annual Report, Fiscal Year 2014-15
(2) Terminal Island WRP demands do not include the Dominguez Seawater Intrusion Barrier

5.3.2 West Basin MWD's Recycled Water Demand

West Basin MWD purchased 35 mgd (or 39,200 AFY) of secondary effluent from HWRP in FY 2014-2015 and treats to various levels (tertiary, advanced, and higher purity for industrial use) based on customer water quality needs. WBMWD recycled water customers include the West Coast Basin Seawater Intrusion Barrier, irrigation customers, industrial customers, as well customers serviced by LADWP.

5.3.3 City of Glendale's Recycled Water Demand

The City of Los Angeles and the City of Glendale are each allocated 50 percent of the recycled water produced from LAGWRP. In FY 2014-15, the City of LA utilized approximately 2,446 AFY and the City of Glendale utilized approximately 1,500 AFY of recycled water for irrigation and dust control.

5.3.4 Seawater Intrusion Barriers

HWRP via WBWMD, and TIWRP discharge recycled water into the groundwater in locations where the ocean water meets the groundwater basins. This prevents ocean water from intruding into the groundwater basins. Table 17 quantifies the amount of recycled water used for the purpose of preventing ocean water intrusion. The Westside Barrier utilized approximately 14,300 AFY recycled water from HWRP via the Edward C. Little Water Reclamation Facility (ELWRF), while the Dominguez Gap Barrier utilized about 4,432 AFY of recycled water from TIWRP in FY 2014-15.

Hence, a total of 18,732 AFY of recycled water is reused through groundwater barriers for groundwater recharge. The Westside Barrier reuses approximately three times the amount of the Dominguez Gap Barrier.

5.3.5 Total Recycled Water Demand

The total use of recycled water from the City's four WRPs is summarized in Table 17. As shown, the City's recycled water demand is approximately 10,421 AFY. The City of Glendale's demand was approximately 1,500 AFY. WBMWD purchased approximately 38,305 AFY of recycled water for customer demand and injection. The City has plans to expand recycled water use as discussed in TM 2.1.

Table 17 Existing Recycled Water Demand Summary
One Water LA 2040 Plan – TM 1.2

Treatment Plant	City's Demand (AFY)	Glendale's Demand (AFY)(1)	WBMWD's Demand (AFY)(1)	Environmental Use (AFY)	Total Demand (AFY)
DCTWRP	2,647	0	0	26,317	28,964
LAGWRP(2)	2,446	1,500	0	0	3,946
HWRP(3)	895	0	38,305(4)	0	39,200
TIWRP	4,433(5)	0	0	0	4,433
Total	**10,421**	**1,500**	**38,305**	**26,317**	**76,543**

Notes:

(1) Recycled water that is supplied to other agencies outside of the City.
(2) The City of Glendale is allocated 50 percent of the effluent flows from LAGWRP.
(3) A total of 35 mgd of secondary treated water was purchased from HWRP and treated at ECLWRF. The WBWMD recycled water total (38,305 AFY) excludes demand sold to LADWP (895 AFY).
(4) The recycled water utilized for the injection of the Westside Barrier is purchased by WBMWD from HWRP.
(5) The recycled water utilized for the injection of the Dominguez Gap Barrier is from TI.

6.0 STORMWATER RUNOFF

This section describes the methodology and data sources used to estimate the existing stormwater flows presented in this TM. Subsequently, the estimated stormwater flows by major groundwater basin area are presented. This section concludes with the estimated stormwater flows and water reclamation discharges that enter the various reaches of the Los Angeles River.

6.1 Methodology

Stormwater flows have been estimated from modeling analysis using the Load Simulation Program in C+ (LSPC) model and the Groundwater Augmentation Model (GWAM). The modeling was conducted to estimate the distribution of the average annual incoming flows to the City between infiltration, evapotranspiration (ET), and runoff for 15 subwatersheds within the City under existing conditions. These predicted stormwater flows distinguish between stormwater that infiltrates into usable or unusable aquifers.

The modeling analysis was conducted for normal, wet, and dry year conditions.

6.1.1 Stormwater Flow Components

The following three main sources of water impact that contribute to the total amount of stormwater flow in the City:

- **Precipitation:** Defined as precipitation which falls over the City;
- **Run-on:** Runoff water from portions of the watersheds upstream of the City;
- **Irrigation:** Defined as water utilized for irrigation applied within the City.

These sources of stormwater inflows ultimately contribute to the following flow components for the mass balance model:

- **Natural Groundwater Recharge:** Stormwater that passively infiltrates into the ground through permeable surfaces. Some of the water that is infiltrated through permeable surfaces is infiltrated to usable aquifers (i.e. aquifers which can be pumped to serve as a source of potable water);
- **Evapotranspiration and Other Losses:** Stormwater that is used by plants or evaporated directly or infiltrated into perched aquifers or aquifers not usable by the City;
- **Stormwater Infiltration BMPs:** Stormwater that is infiltrated into groundwater basins via stormwater capture facilities; and
- **Stormdrain Discharges:** Stormwater flows that discharge into rivers and the ocean.

6.1.2 Data Sources

The main source of data used for this application was the Stormwater Capture Master Plan (SCMP) developed for LADWP, (Geosyntec, 2015).

The SCMP separated the City into 17 subwatersheds (15 of which are in the City) based on surface and subsurface hydrology, and provided an analysis of the existing distribution of the average annual flows in the City based on water years 1989 to 2011. The analysis was performed using two hydrologic models (LSPC and GWAM) of the City and the portions of each watershed that contribute to the City.

In addition to being broken down by subwatersheds, average annual infiltration volumes in the SCMP were also categorized by the usability (i.e. ability of the City to pump the aquifer to meet water supply demand) of the aquifer into which the stormwater infiltrates. The following three aquifer classes were developed to define the usability of local aquifers:

- Class 1: Aquifers most usable to the City. The San Fernando Basin was assigned to aquifer class 1;
- Class 2: Aquifers somewhat usable to the City. A large fraction of the Central Basin was assigned to aquifer class 2; and
- Class 3: Aquifers not usable to the City. The West Basin and the rest of the Central Basin were assigned to aquifer class 3.

6.1.3 Flow Estimating Methodology

The stormwater flow estimating methodology presented herein is based on the same average annual water balance with the same subwatersheds and aquifer classes defined in the SCMP. However, in order to tailor the results to the Blue Plan-it model, the results for each subwatershed were aggregated into the San Fernando, Central, and West Coast groundwater basins based on which of these three basins the portion of each subwatershed within the City overlies. Where necessary, the subwatersheds were distributed between multiple basins as presented in Table 18.

The LSPC model, methodology, and database developed for the SCMP was utilized to determine the water balance for the wettest water year and driest water years between 1989 and 2011. The wettest and driest water years were determined by quantifying the total precipitation over the City and the contributing portions of each of the watersheds for each water year between 1989 and 2011. The model includes precipitation from 71 rain gages. Therefore, the precipitation in the model is a good representation of rainfall over the entire City and contributing area. The wettest year was Water Year (WY) 2005 (October 1, 2004 through September 30, 2005) with 2,193,000 acre-feet of precipitation. The driest year was WY 2007 (October 1, 2006 through September 30, 2007) with 260,000 acre-feet of precipitation. The average annual precipitation volume for the period of record is 899,000 acre-feet. Note that this is the precipitation over the City and the portion of the watersheds that contribute runoff to the City and is therefore larger than the precipitation reported in the SCMP, which includes only the City area.

Table 18 Groundwater Basin Allocations for Stormwater Subwatersheds One Water LA 2040 Plan – TM 1.2

Subwatershed(1)	Aquifer Class	Dominant Groundwater Basin
Dominguez Channel	3	88% West Coast, 12% Central
Hansen-Tujunga SG	1	San Fernando
Lower LAR	2	Central
Narrows and Arroyo Seco	70% 1, 30% 2	San Fernando
North SM Bay	3	West Coast
South SM Bay/Pen	3	West Coast
Verdugo Wash	3	San Fernando
Northeast San Fernando Valley	1	San Fernando
East San Fernando Valley	1	San Fernando
Branford SB	1	San Fernando
West San Fernando Valley	1	San Fernando
Lower Ballona Creek	3	40% West Coast, 60% Central
Upper Ballona Creek	2	Central
Other LA River	50% 2, 50% 3	Central
Lopez-Pacoima SG	1	San Fernando

Note:
(1) These subwatershed boundaries are depicted on Figure 4 of the SCMP (Geosyntec, 2015).

Using the model developed for the SCMP, the precipitation, irrigation, and run-on from upstream of the City bounds were quantified for each of the subwatersheds for the wet and dry years in order to supplement the average annual results from the SCMP. The model was also used to quantify, for each subwatershed, the natural groundwater recharge volume, the volume infiltrated into stormwater BMPs, the volume discharged into the storm drain system, and the volume evapotranspired or lost to unusable aquifers. As described above, volumes for each subwatershed were aggregated by groundwater basin. The inflows and outflows by groundwater basin are presented below. Each of the volumes was calculated from model results using the method described below.

- Inflows:
  - **Precipitation:** Total precipitation over each subwatershed multiplied by the fraction of the subwatershed within the City;
  - **Run-on from Upstream of City:** Total runoff from the subwatershed minus the runoff from the fraction of the subwatershed within the City. For Hansen-Tujunga Spreading Grounds, this volume also includes all runoff from the Big

Tujunga Dam subwatershed. For the Narrows and Arroyo Seco subwatershed, this volume also includes the runoff from the Devil's Gate Dam subwatershed;

  - **Irrigation:** The difference in total inflow into the subwatershed between the model run with and without irrigation.

- Outflows:
  - **Runoff to Rivers/Ocean:** Runoff from the whole subwatershed minus the volume captured in centralized facilities;
  - **ET and Other Losses:** ET from the City area within the model plus the infiltration to aquifer class 3 and unclassified aquifers (infiltration from the lower soil zone for the part of the subwatershed within the City multiplied by the fraction of that area within aquifer class 3 or unclassified aquifers);
  - **Natural Groundwater Recharge:** Infiltration from the lower soil zone. This was further broken down into recharge in class 1 and class 2 aquifers by multiplying by the part of the subwatershed within the City multiplied by the fraction of that area within aquifer class 1;
  - **Stormwater Infiltration BMPs:** Volume infiltrated in the existing centralized facilities in the model. All of these are in Class 1 aquifers (all in the San Fernando Valley).

In the SCMP, an adjustment of the captured volume between infiltration and ET was made to the LSPC results after modeling based on GWAM modeling results. This adjustment only affected the split between ET and infiltration, and had no impact on runoff volumes. At this time, no adjustment of the dry and wet year LSPC results were made, as no GWAM model of the wet and dry years was included in the SCMP.

6.1.4 Los Angeles River Flow Methodology

To estimate flows in the Los Angeles River, six reaches were considered as shown on Figure 4:

- Outlet of Reach 6: Entry to Sepulveda Reservoir
- Outlet of Reach 5: Sepulveda Dam
- Outlet of Reach 4: Confluence with Verdugo Wash
- Outlet of Reach 3: Confluence with Arroyo Seco
- Outlet of Reach 2: Confluence with Compton Creek
- Outlet of Reach 1: Mouth of LA River

The model used for the SCMP did not include the entire Los Angeles River watershed. It only included the portion of the watershed which contributed flow to the City. The flow volumes for reaches 3 through 6 could therefore be obtained using the existing model. To estimate flows in reaches 1 and 2, the model used for the SCMP was expanded to include the entire Los Angeles River Watershed (including areas that do not contribute runoff to the City boundaries) to quantify the flow volume in each reach of the Los Angeles River. The flow volumes for reaches 3 through 6 from the expanded model were verified against the same reaches in the model used in the SCMP so that the expanded model matched the original SCMP model except for the additional watershed area. The flows at each of these reaches were determined directly using the total flow volume to the river segment in the model corresponding to the outlet of each reach.

6.1.5 Key Assumptions

Key assumptions used in the determination of these flows are similar to those used in the SCMP and include:

- Infiltration below the lower soil zone layer in the model becomes part of the groundwater basin.
- The wettest and driest years from 1989 to 2011 are representative of typical wet and dry years.
- Infiltration losses in the soft-bottom portions of the rivers are negligible on this scale.
- Groundwater recharge only occurs in Class 1 and Class 2 aquifers. Infiltration into Class 3 or unclassified aquifers is accounted for in 'ET and other losses'.
- Groundwater recharge was only accounted for in the spreading grounds including the Los Angeles County's LSPC model. These account for the largest share of spreading grounds in the City.
- In each subbasin which contained area within the City, all area outside City boundaries within the subbasin was assumed to be tributary to the City.

6.2 Existing Stormwater Inflows by Basin

The estimated existing stormwater flows are presented by major groundwater basin area and LA River reach in the following subsections.

6.2.1 Stormwater Flows

The inflows summarized by groundwater basin for use in the Blue Plan-it model are summarized in Table 19. As expected and as shown in Table 19, the total inflow is much higher on the wet year and lower on the dry year. The total wet year stormwater inflows are about double the normal year stormwater inflows and more than five times higher than the stormwater inflows generated during a dry year.

Table 19 Existing Normal Year Stormwater Inflows (Rainfall, Irrigation, and Run-On) One Water LA 2040 Plan – TM 1.2			
Groundwater Basin	**Normal Year (AFY)**	**Wet Year (AFY)**	**Dry Year (AFY)**
San Fernando Basin	494,138	1,120,769	219,321
West Coast Basin	172,212	365,460	69,388
Central Basin	165,049	354,143	71,635
Total	**831,399**	**1,840,372**	**360,344**

As shown in Table 19, the inflow into the San Fernando Valley groundwater basin is also much higher than the West Coast Basin or Central due the larger area within the City and the much larger area upstream that is outside City boundaries that contributes run-on.

Note that the values listed in Table 19 only reflect precipitation over the City and does not include the portion of the watersheds upstream that contribute runoff to the City as reported with the LSPC model. Hence the total stormwater flows listed in Table 19 are therefore lower than the precipitation reported under Section 6.1.3.

6.3 Existing Stormwater Outflows

Stormwater outflows for each groundwater basin are summarized in the following sections.

6.3.1 Natural Groundwater Recharge

Groundwater recharge useful to the City occurs in Class 1 and Class 2 aquifers. The San Fernando Basin is a large Class 1 aquifer, so most of the recharge occurs in that groundwater basin. The West Coast Basin is large, but is almost completely Class 3, so there is very little recharge occurring in usable aquifers for the City. The Central Basin is mostly Class 2, but is fairly small, so it contains a modest amount of usable recharge.

Table 20 Existing Year Natural Groundwater Recharge One Water LA 2040 Plan – TM 1.2			
Groundwater Basin	**Normal Year (AFY)**	**Wet Year (AFY)**	**Dry Year (AFY)**
San Fernando Basin	30,278	49,749	8,873
West Coast Basin	660	1,106	144
Central Basin	4,054	7,157	875
Total	**34,991**	**58,012**	**9,893**

6.3.2 Stormwater Infiltration BMPs

The existing stormwater infiltration BMPs included in the model are all in the San Fernando Basin. Therefore, this is the only groundwater basin where recharge is quantified in centralized facilities. As shown in Table 21, groundwater infiltration from centralized BMPs is estimated to be nearly 30,000 AFY under normal year conditions.

Table 21 Existing Year Groundwater Infiltration from BMPs One Water LA 2040 Plan – TM 1.2

Groundwater Basin	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
San Fernando Basin	29,365	69,427	4,636
West Coast Basin	0	0	0
Central Basin	0	0	0
Total	**29,365**	**69,427**	**4,363**

6.3.3 Stormdrain Discharges to Creeks, Rivers, and Ocean

The total runoff from the City and areas upstream of the City that is discharged to the ocean via creeks and the LA River is shown by each major groundwater basin in Table 22. This represents all of the runoff from the City and areas upstream of the City that reaches the rivers, creeks, and ocean that is not captured in stormwater capture BMPs.

Table 22 Existing Stormwater Discharge to Creeks and Ocean by Basin One Water LA 2040 Plan – TM 1.2

Groundwater Basin	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
San Fernando Basin	200,772	694,556	36,096
West Coast Basin	85,183	236,501	17,254
Central Basin	79,429	233,272	15,674
Total	**365,384**	**1,164,329**	**69,024**

The breakdown of this stormwater runoff from the City and areas upstream of the City that reaches the ocean flows is summarized in Table 23. The runoff from the City and areas upstream of the City that does not flow to the Los Angeles River flows to one of the other rivers or directly to the ocean from coastal areas.

Table 23 Existing Stormwater Discharge to Creeks and Rivers One Water LA 2040 Plan – TM 1.2

Stormwater Discharge Water Body	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
LA River	231,674	783,136	41,573
Other Creeks and Ocean	133,710	381,193	27,451
Total	**365,384**	**1,164,329**	**69,024**

As shown in Table 23, stormwater runoff to the Los Angeles River is much greater than (roughly double) the portion of stormwater flows to the Ballona Creek, Dominguez Channel, or other small coastal tributaries under all three hydrologic conditions.

6.3.4 Evapotranspiration

The estimated amount of stormwater evapotranspiration by major groundwater basin area is listed in Table 24. When comparing these values with the total stormwater inflow (rainfall) listed in Table 19, it can be concluded that a significant amount of stormwater is lost annually to evapotranspiration, ranging from 30 percent under wet year conditions to 48 percent and 75 percent under normal and dry year conditions, respectively.

Table 24 Existing Stormwater Evapotranspiration
One Water LA 2040 Plan – TM 1.2

Groundwater Basin	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
San Fernando Basin	233,612	306,638	166,317
West Coast Basin	86,290	127,486	50,869
Central Basin	81,540	113,520	54,441
Total	**401,442**	**547,644**	**271,627**

6.3.5 Summary

A summary of inflows and outflows of stormwater from the stormwater model are presented in Table 25. The values in this table are taken from other tables throughout the chapter and are noted in the last column of Table 25.

Table 25 Existing Year Stormwater Summary
One Water LA 2040 Plan – TM 1.2

Flow Category	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)	Source Table
Inflows(1)				
Rainfall, Irrigation, Run-On	831,399	1,840,372	360,344	Table 19
Outflows(1)				
Incidental Groundwater Recharge	34,991	58,012	9,893	Table 20
Infiltration in BMP's (Centralized and Distributed)	29,365	69,427	4,363	Table 21
LA River	231,674	783,136	41,573	Table 23
Other Creeks/Streams	133,710	381,193	27,451	Table 23
Evapotranspiration	401,441	547,645	271,627	Table 24
Total	**831,181**	**1,839,413**	**354,907**	

Note:
(1) The difference between the inflows and outflows are a result of continuity variances in the model, which is typical in watershed models.

As listed in Table 25, all outflows for normal, wet, and dry hydrologic conditions closely match the measured rainfall within the city.

6.4 Los Angeles River

Stormwater flows to the LA Rivers are summarized by river reach in the following sections.

6.4.1 Stormwater Inflows by Reach

The existing annual flow in each reach of the Los Angeles River is listed in Table 26 for all three hydrologic conditions.

The values are the volumes of flow added just within that reach, and do not include flow from upstream reaches. For example, Reach 1 is at the mouth of the Los Angeles River, so the total flow of 278,815 acre-feet (AF) is the flow volume at this location. However, the difference between the total flow at Reach 2 and the total flow at Reach 1 is 4,598 AF. Therefore, that is the flow added to the River in Reach 1. These flows include the entire Los Angeles River watershed, and therefore include flow from areas that are not within or upstream of the City in Reaches 1 and 2. They are therefore higher than the values in Table 23, which include flow only from the City and areas upstream of the City.

Table 26 Existing Normal Year Stormwater Inflow by LA River Reach
One Water LA 2040 Plan – TM 1.2

Condition	Reach 1 (AFY)	Reach 2 (AFY)	Reach 3 (AFY)	Reach 4 (AFY)	Reach 5 (AFY)	Reach 6 (AFY)	Total (AFY)
Normal	4,598	71,262	55,319	81,192	22,383	44,061	278,815
Wet	12,181	229,518	192,343	339,422	61,094	117,115	951,673
Dry	793	13,337	8,577	11,239	5,740	9,202	48,888

6.4.2 Water Reclamation Plant Discharges

The flows shown in Table 26 include only inflows from stormwater (precipitation, irrigation, and run-on from upstream of the City). They do not include discharges from the City's WRPs. As shown in Table 27, the DCTWRP discharges excess effluent to Reach 5, while the LAGWRP discharges to Reach 3. The flows for year 2015 are considered constant for all hydrologic conditions.

Table 27 Existing Wastewater Discharges to Ocean via LA River
One Water LA 2040 Plan – TM 1.2

Source Treatment Plant	Discharge Reach	Year 2015 (AFY)
DCTWRP	Reach 5	33,601
LAGWRP	Reach 3	12,473
Total		**46,074**

6.4.3 Total Flows by Hydrologic Condition

The estimated total stormwater flows to the Los Angeles River under the average annual year, a wet year, and a dry year are shown in Table 28. This total includes the stormwater inflow as well as the WRP discharges from DCTWRP and LAGWRP, but does not include evaporation or infiltration.

Table 28 Total Stormwater Inflow to LA River and Other Water Bodies
One Water LA 2040 Plan – TM 1.2

River Inflow Type	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
Stormwater Inflow	278,815	951,673	48,888
WRP Discharges	46,074	46,074	46,074
Total	**324,889**	**997,747**	**94,962**

7.0 EXISTING FLOW BALANCE SUMMARY

The existing flows presented in this TM are summarized in Table 29. The purpose of this table is to provide an order-of-magnitude summary of all major water flows in the City. The flows in this table are not intended to be summarized as they are different in nature. The table also provides a quick reference to the associated source data tables that are located throughout this TM.

Table 29 Existing Flow Summary
One Water LA 2040 Plan – TM 1.2

Year	Potable Water Supply (AFY)	Total Water Demands (AFY)	Wastewater Flows (AFY)	Recycled Water Demand (AFY)	Dry Year Stormwater Flows (AFY)
2015 (Actual)	503,199	496,297	360,071	76,543	354,907
Source Table	Table 4	Table 9	Table 15	Table 17	Table 25

As shown in Table 29, the City's total potable water supply for FY 2014-2015 was approximately 503,199 AFY, the total water demand for calendar year 2015 was approximately 496,297 AFY, the total wastewater flows for calendar year 2015 was approximately 360,071 AFY, and the total recycled water demand for FY 2014-2015 (including injection at the barriers) was approximately 76,543 AFY. As listed in the Draft 2015 UWMP, stormwater capture is currently an underutilized water resource. The majority of stormwater runoff is channeled into the ocean, while a small percentage is treated or infiltrated into local spreading basins. Based on the existing stormwater modeling analysis for a dry year, the estimated stormwater flows were approximately 354,907 AFY.

The amount of wastewater flows that reach the ocean through plant discharges at HWRP and TIWRP, as well as via the LA River and other creeks is summarized in Table 30.

Table 30 Wastewater flows to the Ocean
One Water LA 2040 Plan – TM 1.2

Year	Total Wastewater Flows (AFY)	Recycled Water Demand (AFY)	Wastewater Flows to Ocean(1) (AFY)	WRP Discharges to LA River (AFY)	Total Discharges to the Ocean(2)
2015 (Actual)	360,071	76,543	262,518	46,073	308,591
Source Table	Table 15	Table 17	Table 11	Table 11	n/a

Notes:

(1) Wastewater flows minus recycled water demand. Flows include plant losses and brine.
(2) Calculated by adding WRP discharges to the LA River from Wastewater Flows to ocean.

As shown in in Table 30, the total amount of wastewater that is estimated to reach the ocean is approximately 308,591 AFY. This flow includes the flows that reach the ocean via the LA River (46,073 AFY) and wastewater effluent flows that are directly discharged into the ocean at HWRP and TIWRP (262,518 AFY). As shown, roughly 15 percent of the City's wastewater flows reach the ocean via the LA River, while the remaining 85 percent are directly discharged. This flow presents a substantial reuse and local water supply opportunity that will be evaluated in subsequent tasks of the One Water LA 2040 Plan.

APPENDIX A – REFERENCES

BCWMG, 2015. Ballona Creek Watershed Management Group, 2015, *Enhanced Watershed Management Program for the Ballona Creek Watershed*, June 2015.

CDM:CH2M, 2015. CDM Smith and CH2M, *One Water LA Phase 1 - Initial Water Balance*, Draft Technical Memorandum, July 2015.

DCWMAG, 2015. Dominguez Channel Watershed Management Area Group, 2015, *Enhanced Watershed Management Plant for the Dominguez Channel Watershed Management Area Group*, June 2015.

LA, 2015. City of Los Angeles, Los Angeles County Flood Control District, County of Los Angeles, City of Santa Monica, City of El Segundo, 2015, Santa Monica Bay Jurisdictional Group 2 and 3 *Enhanced Watershed Management Program*, June 2015.

LADWP, 2011. LADWP, 2010 *Urban Water Management Plan, 2011.*

LADWP, 2015a. LADWP, *Recycled Water Annual Report - Fiscal Year 2014-15,* August *2015.*

LADWP, 2015b. LADWP, L*.A.'s Drinking Water Quality Report* - for the period of January 1 through December 31, 2014. 2015.

LADWP, 2015c. LADWP, *Stormwater Capture Master Plan*, August 2015.

LADWP, 2016. LADWP, 2015 *Urban Water Management Plan, 2016.*

MWMPA, 2015. Marina Del Rey Enhanced Watershed Management Program Agencies, 2015, Marina del Rey *Enhanced Watershed Management Program Plan*, June, 2015.

ULARG, 2015. Upper Los Angeles River EWMP Group, 2015, *Enhanced Watershed Management Program (EWMP) for the Upper Los Angeles River EWMP Group*, June, 2015.

WESD, 2015. Wastewater Engineering Services Division, Bureau of Santiation, City of Los Angeles*, Fiscal year 2014/15 Contract Agencies Flows*. 2015.

WESD, 2015. Wastewater Engineering Services Division, Bureau of Santiation, City of Los Angeles, *Fiscal year 2014/15 Industrial Wastewater Flows*. 2015.

WESD, 2015. Wastewater Engineering Services Division, Bureau of Santiation, City of Los Angeles*, Fiscal year 2014/15 recycled water flows*. 2015.

WESD, 2015. Wastewater Engineering Services Division, Bureau of Santiation, City of Los Angeles*, Watershed tributary areas GIS Data*. 2015.

WPD, 2015. Watershed Protection Division, City of Los Angeles, *Low flow Diversion GIS Data*. 2015.

WRCCC, 2015. Western Regional Climate Control Center, Reno Nevada, *Los Angeles DWTN USC Campus, California (045115).* 2015.

APPENDIX B – CONTRACT AGENCY FLOW SUMMARY

Contract Agency Flows											
		Flow (MGD)				Flow (afy)				Average	
Contract Agency	Sewershed	FY 2001 - 2002	FY 2005 - 2006	FY 2007 - 2008	FY 2014 - 2015	FY 2001 - 2002	FY 2005 - 2006	FY 2007 - 2008	FY 2014 - 2015	(mgd)	(afy)
Aneta Street	HTP	0.028	0.028	0.028	0.054	31	31	31	60	0.035	39
Beverly Hills	HTP	5.657	6.146	6.413	5.176	6,336	6,884	7,183	5,797	5.848	6,550
Burbank	LAG	3.874	2.402	1.028	0.826	4,339	2,690	1,151	925	2.033	2,276
Crescenta Valley	VSLI	0.000	2.003	1.690	1.332	0	2,244	1,892	1,492	1.256	1,407
CSD 4	HTP	5.657	5.365	5.195	4.472	6,336	6,009	5,818	5,009	5.172	5,793
CSD 5	HTP	0.852	0.849	0.850	0.677	954	951	952	758	0.807	904
CSD 16	HTP	0.543	0.508	0.511	0.418	608	569	572	468	0.495	554
CSD 27	CIS	0.144	0.144	0.144	0.059	161	161	161	66	0.123	137
Culver City	HTP	4.897	4.908	3.986	4.166	5,485	5,497	4,464	4,666	4.489	5,028
El Segundo	HTP	2.417	1.999	1.642	1.310	2,707	2,239	1,839	1,467	1.842	2,063
Federal Office Building	HTP	0.019	0.013	0.014	0.014	22	15	16	16	0.015	17
Glendale	LAG	17.910	17.549	17.419	13.649	20,060	19,655	19,509	15,287	16.632	18,628
Karl Holton Camp	DCT	0.016	0.016	0.014	0.014	17	17	16	16	0.015	17
La Canada	LAG	0.000	0.000	0.027	0.110	0	0	30	124	0.034	38
Las Virgenes	DCT	0.378	0.942	0.336	0.338	423	1,055	376	379	0.499	558
Marina Del Rey	CIS	1.589	1.517	1.345	1.264	1,780	1,699	1,506	1,416	1.429	1,600
San Fernando	VSLI	2.005	2.140	2.086	1.835	2,246	2,397	2,336	2,055	2.017	2,258
Santa Monica	CIS	9.877	11.881	11.962	12.155	11,062	13,307	13,398	13,613	11.469	12,845
Triunfo	DCT	0.135	0.151	1.725	0.136	151	169	1,932	152	0.537	601
Universal City	HTP	0.688	0.676	0.656	0.794	771	757	734	889	0.703	788
Veterans Administration	HTP	0.655	0.291	0.289	0.335	734	326	323	375	0.392	439
WLA Community College	HTP	0.036	0.034	0.031	0.037	40	38	35	41	0.035	39
CSD 9	TISA	0.263	0.264	0.264	0.245	295	296	296	274	0.259	290
City of Long Beach	TISA	0.036	0.085	0.085	0.023	40	95	95	26	0.057	64
Army Reserve Center	LAG	0.002	0.002	0.002	0.000	2	2	2	0	0.001	1
Army Reserve Training	LAG	0.003	0.003	0.003	0.000	3	3	3	0	0.002	3
Barrington Post Office	HTP	0.002	0.002	0.002	0.000	2	2	2	0	0.001	1
California National Guard	HTP	0.003	0.003	0.003	0.000	3	3	3	0	0.002	3
Veterans Memorial Park	DCT	0.001	0.001	0.001	0.000	1	1	1	0	0.001	1
Total		**57.686**	**59.92102**	**57.74944**	**49.43864**	**64,608**	**67,112**	**64,679**	**55,371**	**56.199**	**62,943**

Contract Agencies Summarized by Sewersheds						
Sewershed	FY 2001 - 2002 (afy)	FY 2005 - 2006 (afy)	FY 2007 - 2008 (afy)	FY 2014 - 2015 (afy)	Average (afy)	Average (%)
CIS	13,003	15,167	15,065	15,095	14,583	**23%**
DCT	593	1,242	2,325	547	1,177	**2%**
HTP	24,028	23,320	21,973	19,547	22,217	**35%**
LAG	24,404	22,351	20,696	16,336	20,946	**33%**
TISA	335	391	391	300	354	**1%**
VSLI	2,246	4,641	4,229	3,547	3,665	**6%**
Total	**64,608**	**67,112**	**64,679**	**55,371**	**62,943**	**100%**
Total Round	**65,000**	**67,000**	**65,000**	**55,000**	**63,000**	

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Final Draft:	6/10/2016
Final:	12/15/2017
Lead Author:	Inge Wiersema

CITY OF LOS ANGELES

TECHNICAL MEMORANDUM NO. 2.1
FUTURE FLOW CONDITIONS

FINAL
December 2017

707 WILSHIRE BOULEVARD, SUITE 3920 • LOS ANGELES, CALIFORNIA 90017 • P. 213.489.1587 • F. 213.572.0361

CITY OF LOS ANGELES

TECHNICAL MEMORANDUM
NO. 2.1
FUTURE FLOW CONDITIONS

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LIST OF ABBREVIATIONS

Abbreviation	Description
AF	acre-feet
AFY	acre-feet per year
BMPs	Best Management Practices
BWP	Burbank Water and Power
CBMWD	Central Basin Municipal Water District
CIP	Capital Improvement Plan
CIS	Coastal Interceptor Sewer
City	City of Los Angeles
DCTWRP	Donald C. Tillman Water Reclamation Plant
DGB	Dominguez Gap Barrier
DPR	direct potable reuse
ECLWRF	Edward C. Little Water Reclamation Facility
ET	evapotranspiration
EWMP	Enhanced Watershed Management Program
FL	Foreman Line
FY	fiscal year
GIS	Geographic Information System
gpd	gallons per day
GWI	groundwater infiltration
HTP	Hyperion Treatment Plant
IPR	indirect potable reuse
IRP	integrated resources plan
IU	industrial user
IWMD	Industrial Waste Management Division
LADWP	Los Angeles Department of Water and Power
LAGWRP	Los Angeles-Glendale Water Reclamation Plant
LA River	Los Angeles River
LIU	local industrial user
LSPC	Load Simulation Program in C+
LVMWD	Las Virgenes Municipal Water District
mgd	million gallons per day
MOU	Memorandum of Understanding
MWD	Metropolitan Water District
NPR	non-potable reuse
OWTS	onsite wastewater treatment systems
RDI/I	rainfall dependent inflow and infiltration
RWMP	Recycled Water Master Plan
RWQCB	Regional Water Quality Control Board
SCMP	Stormwater Capture Master Plan
SFEM	Sewer Flow Estimating Model

Abbreviation	Description
SIU	significant industrial user
TIWRP	Terminal Island Water Reclamation Plant
TM	Technical Memorandum
UWMP	Urban Water Management Plan
VSL	Valley Spring Lane
WBMWD	West Basin Municipal Water District
WESD	Wastewater Engineering Services Division
WPD	Watershed Protection Division

1.0 INTRODUCTION

1.1 Background of One Water LA

The City of Los Angeles (City) recently embarked on the One Water LA 2040 Plan. This plan will provide a strategic vision and a collaborative approach for integrated water management. In 2006, the City completed and adopted its first integrated water resources plan (IRP). This plan was the start of a paradigm shift for the City and resulted in significant achievements. Since then, the water landscape in the City has changed with increased demands, new regulations, and threats of climate change.

In response to these changes and to help achieve water sustainability, the City initiated the One Water LA 2040 Plan. This plan builds upon the success of the Water IRP, which had a planning horizon to year 2020. The One Water LA 2040 Plan takes a holistic and collaborative approach, to consider all water resources from surface water, groundwater, potable water, wastewater, recycled water, dry-weather runoff, and stormwater as "One Water." The plan identifies multi-departmental and multi-agency integration opportunities to manage water in a more efficient, cost effective, and sustainable manner.

The One Water LA 2040 Plan represents the City's continued and improved commitment to proactively manage all its water resources and implement innovative solutions, driven by the Sustainable City pLAn. The Plan will guide the City with strategic decisions for water resource related projects, programs, and policies that will make Los Angeles a resilient and sustainable City.

1.2 Purpose of Task 2

The purpose of Task 2 of the One Water LA project is to extend the horizon of the City's existing water management, flows, and integration opportunities developed in Task 1 to planning year 2040. The expected future changes to the existing baseline conditions will be described based on the anticipated implementation of other long-term planning documents, industry trends for water management, and climate change adaption measures.

The deliverables of Task 2 will quantify the future water flow balance (Technical Memorandum [TM] 2.1) and provide a summary of expected future conditions (TM 2.2).

1.3 Objectives of Technical Memorandum No. 2.1

The objective of this TM is to summarize the expected future flow conditions through year 2040 that are used as the future baseline for the City-wide mass balance tool. This TM provides a description on the data sources and key assumptions utilized to estimate the existing water, wastewater, recycled water, stormwater, and Los Angeles River (LA River) flows. The information presented herein provides a reference point for the mass balance model that will be used in Task 5 to evaluate the flow impacts of major water supply, water recycling, and stormwater management projects.

2.0 FUTURE SYSTEM FLOW BALANCE

This section describes the planning horizon and the sphere of influence of the data presented in this TM.

2.1 Planning Horizon

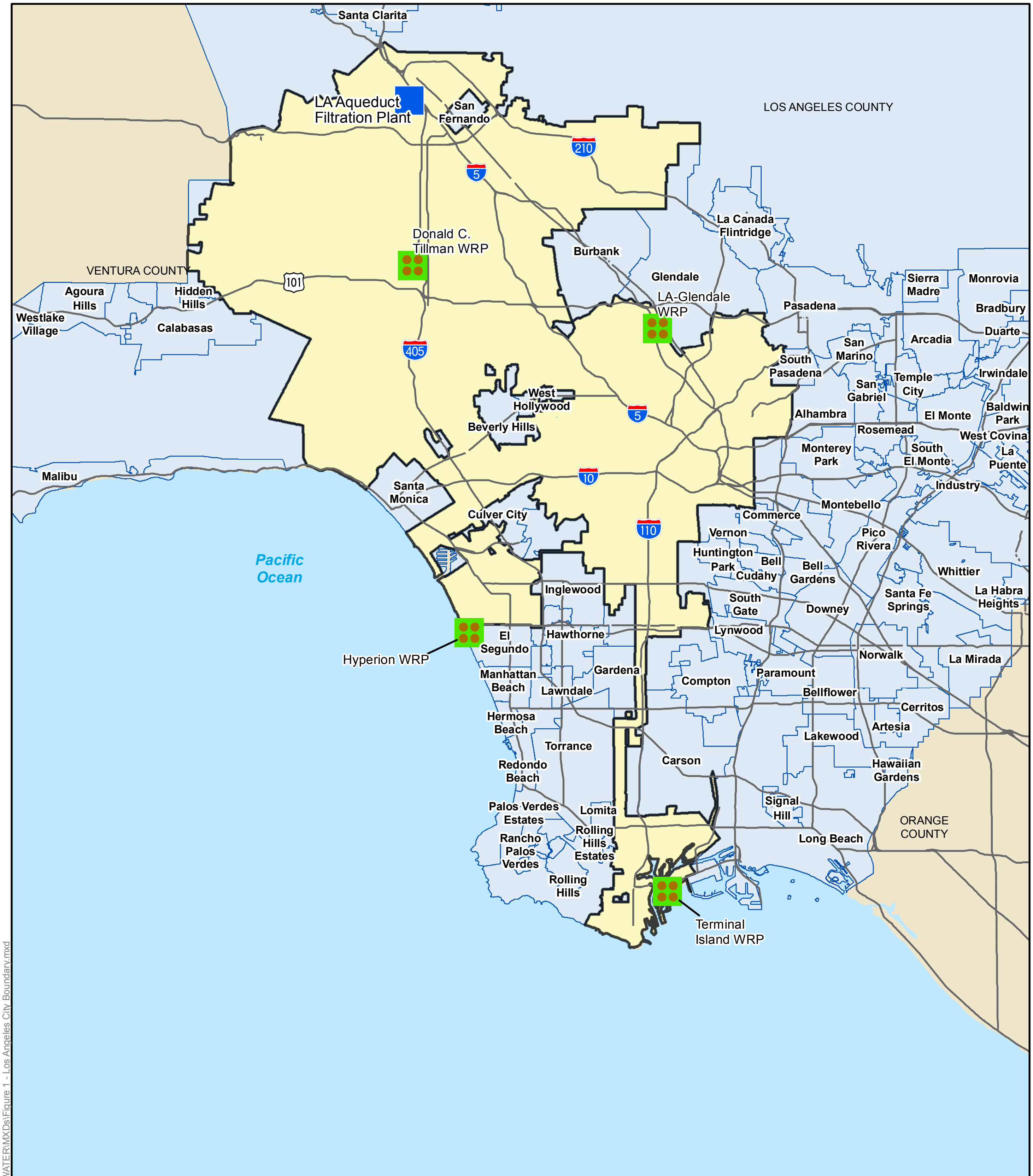
The planning horizon for the future system flows in this TM is 2040.

The water and wastewater flow projections presented herein are based on the 2015 Urban Water Management Plan (UWMP), which has a planning horizon of year 2040. The specific source of data is further described in each section of this TM.

2.2 Sphere of Influence

Although the study area of the One Water LA 2040 Plan is focused on the City of Los Angeles boundaries, the sphere of influence extends beyond this City boundary, which is depicted on Figure 1. The City boundary encompasses an area of approximately 301,500 acres or 465 square miles, which is inhabited by approximately four million people.

The City overlays seven groundwater basins that partially extend beyond the City boundary as depicted on Figure 2. As shown, the largest basin is the San Fernando Basin which is located north of the Santa Monica Mountains. This basin is an important local water supply source for the City. The other two basins that are underlying the northern part of the City are the Sylmar Basin and the Verdugo Basin. Additionally, there are five basins located south of the Santa Monica Mountains. These are the Hollywood Basin, Santa Monica Basin, Eagle Rock Basin, West Coast Basin, and Central Basin.



Legend

- Existing Water Filtration Plant
- Wastewater Reclamation Plant
- LA City Boundary
- Other City Boundaries
- Major Highways

N

0 2.75 5.5 Miles

Figure 1 - Los Angeles City Boundary
One Water LA 2040 Plan
TM 2.1 - Future Flow Conditions

Document Path: E:\KRC D DRIVE\LA ONE WATER\MXDs\Figure 1 - Los Angeles City Boundary.mxd

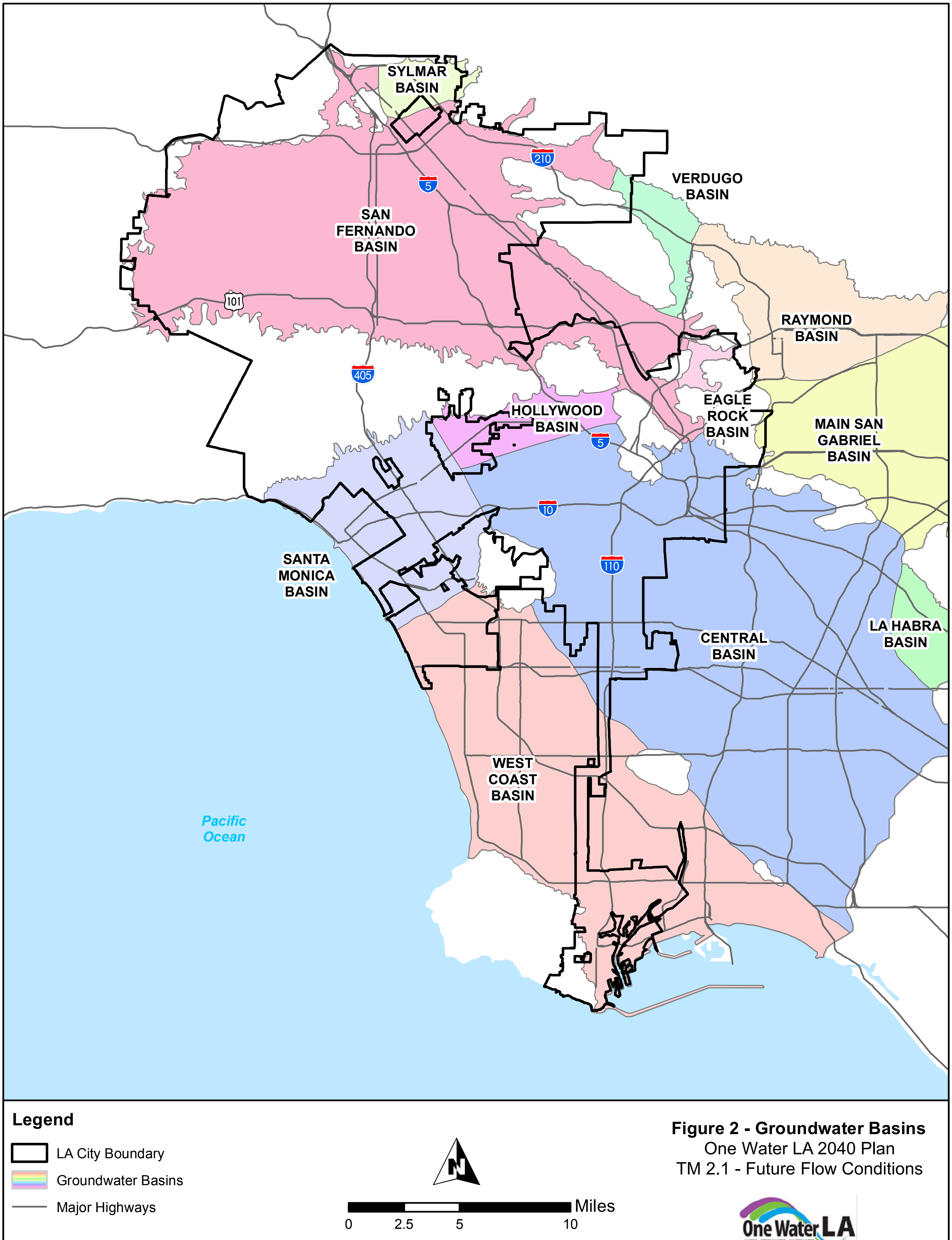


Figure 2 - Groundwater Basins
One Water LA 2040 Plan
TM 2.1 - Future Flow Conditions

The watershed areas that are tributary to each of these basins are shown on Figure 3. As shown, there are 18 major watershed areas that drain water from outside the City boundaries into the City where it either percolated into the underlying groundwater aquifers or get discharged into the ocean via storm drains, creeks, and the LA River. The urban watershed areas are also depicted on Figure 3. The Regional Water Quality Control Board (RWQCB) has divided the LA River into six major reaches, which are depicted on Figure 4.

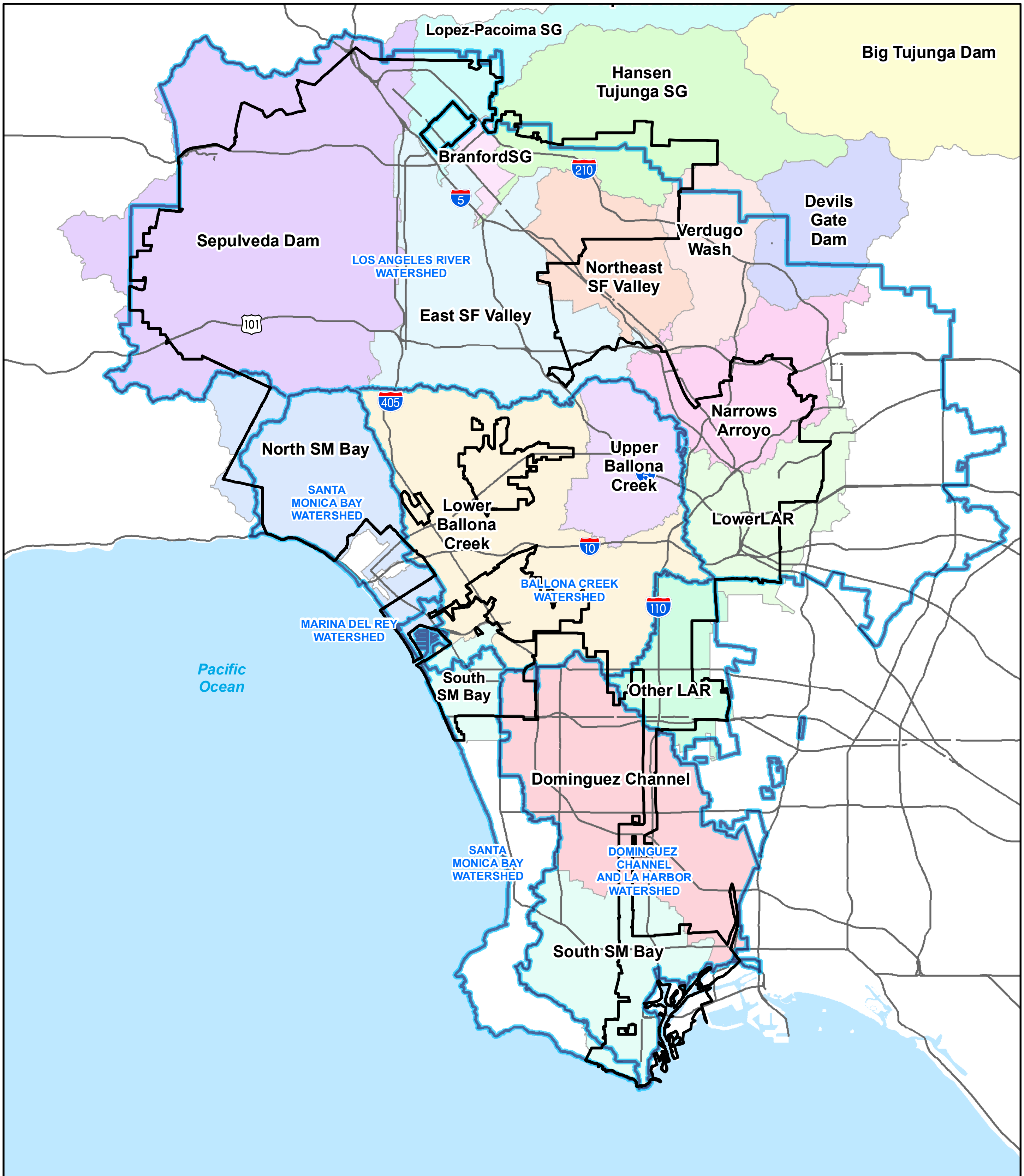
As shown on Figure 4, Reach 1 and Reach 2 are located outside the City boundary as well as many of the upstream creeks that feed into the LA River. Therefore, flows from outside the City boundary enter the City through the river, which ultimately discharges into the ocean outside once it reaches the City of Long Beach.

The City's potable water service area closely mirrors that of the City Boundary. The water service area encompasses approximately 306,000 acres or 478 square miles and is typically divided into the following four sub areas; Harbor, Metro Valley, and Westside.

The City's wastewater service area extends beyond the City boundary to the east and south as shown on Figure 5. In addition, there are areas that are currently not connected to the wastewater system, which have been excluded from the wastewater service area boundary. The City receives wastewater from 24 contract agencies that are located outside the City boundary, such as portions of the cities of Glendale and Burbank. The City's wastewater service area encompasses approximately 305,000 acres or 477 square miles, of which 292,000 acres or 456 square miles are located within the City. The wastewater service area can be divided into the following seven major sewersheds:

- Hyperion Treatment Plant (HTP)
- Coastal Interceptor Sewer (CIS)
- Donald C. Tillman Water Reclamation Plant (DCTWRP)
- Foreman Line (FL)
- Los Angeles-Glendale Water Reclamation Plant (LAGWRP)
- Terminal Island Water Reclamation Plant (TIWRP)
- Valley Spring Lane (VSL)

For the purpose of this TM, both wastewater flows and water demands are presented by sewershed area to maintain a clear correlation of indoor water demands and wastewater flows. Recycled water flows are presented by the City's four wastewater treatment plants. Stormwater flows are presented by major groundwater basin and by river reach for the share of stormwater that reaches the LA River.



Legend

LA City Boundary

County Boundaries

Major Highways

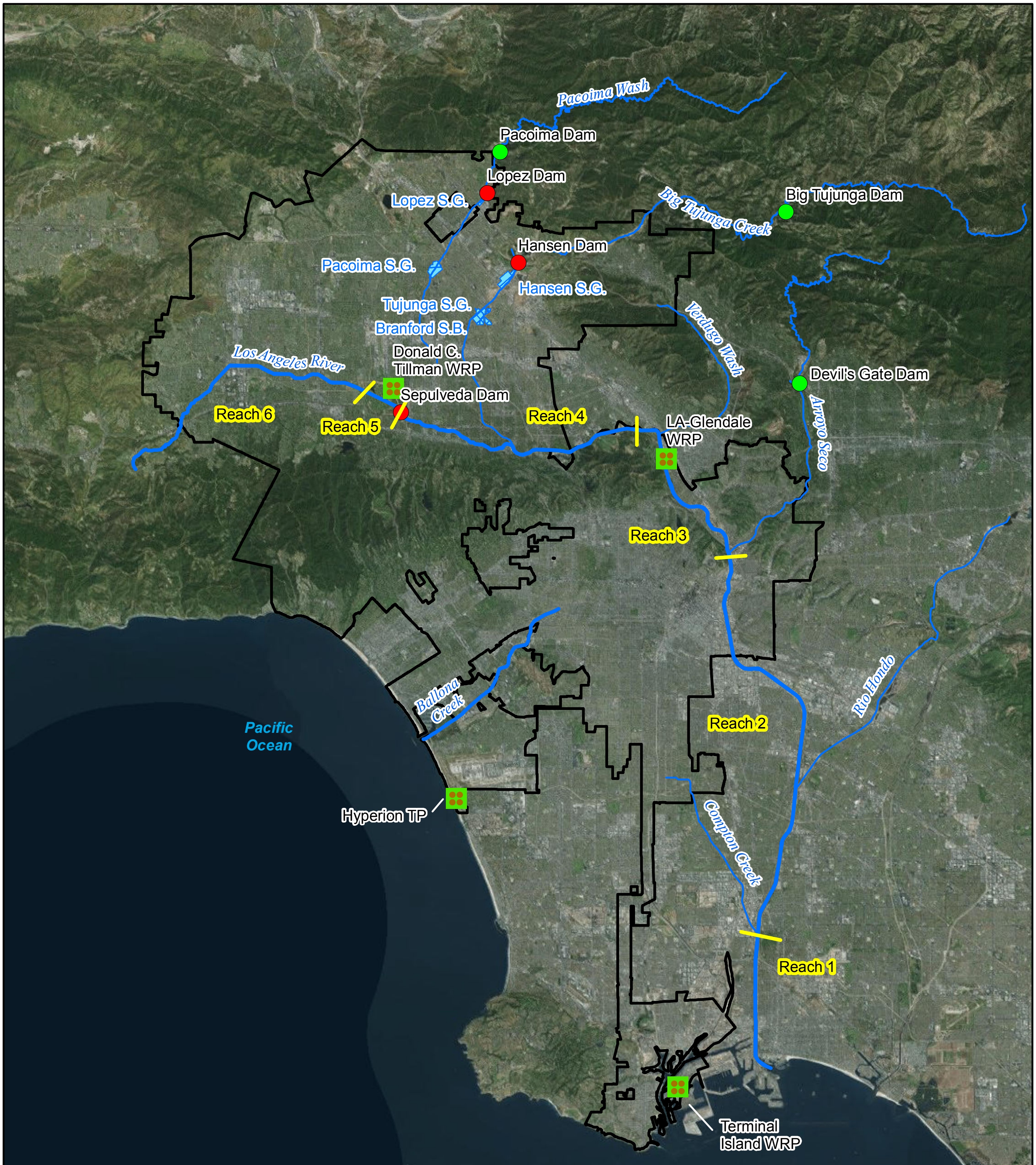
Watersheds
Source: SCMP

Watersheds
Source: EWMP Boundaries

N

Miles
0 2.5 5

Figure 3 - Watershed Areas
One Water LA 2040 Plan
TM 2.1 - Future Flow Conditions

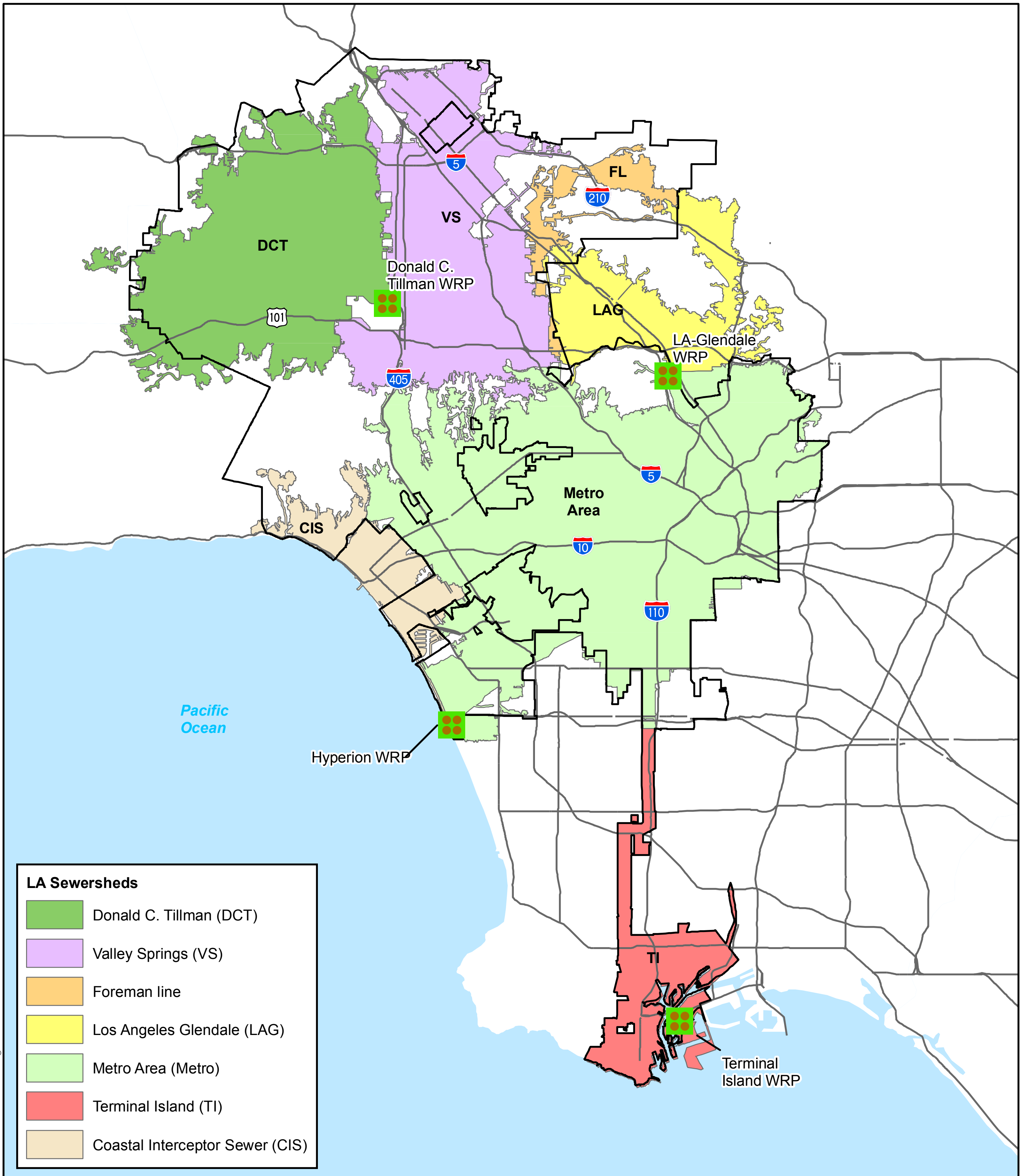


Legend

- Wastewater Reclamation Plant
- LA County Dams
- USACE Dams
- LA River
- Spreading Grounds
- LA City Boundary

0 2.5 5 10 Miles

Figure 4 - LA River and Major Creeks
One Water LA 2040 Plan
TM 2.1 - Future Flow Conditions



Legend

Water Reclamation Plant

Major Highways

City of LA

N

Miles
0 2.5 5 10

Figure 5 - Sewer Service Area and Sewersheds
One Water LA 2040 Plan
TM 2.1 - Future Flow Conditions

carollo

One Water LA

Document Path: E:\KRC D DRIVE\LA ONE WATER\MXDs\Figure 5 - Sewer Service Area.mxd

2.3 Mass Water Flow Balance

This section describes the mass balance flow model, its flow components, and the model development process.

2.3.1 Mass Balance Flow Model

The purpose of the water mass balance model is to quantify all major water flows throughout the City. This tool will be used to access flow data for both existing and future conditions in 1-year increments for any period between 2015 and 2040. Due to the large impact of annual rainfall on the overall water balance, the model is designed to calculate the flow balance for three typical hydrologic conditions, corresponding to normal, wet, and dry years. The development of this City-wide mass balance model involved the following four major steps:

- Preparation of Water Flow Chart
- Data Gathering
- Model Design and Development
- Data Input & Validation

2.3.2 City-Wide Water Flow Chart

Although individual City Departments collect and maintain data for individual water flows, this data was never combined into a single model until the preparation of the Initial Water Balance TM, which was prepared as part of One Water LA Phase 1 (CDM:CH2M, 2015). The first step of the model development involved the preparation of a comprehensive flow schematic that tracks how water moves around the City based on the flow schematic developed for the Initial Balance Flow Report. The water balance flow chart from the Phase 1 study is shown on Figure 6. This flowchart was used to identify which flows would be included in the mass balance model, which resulted in the simplified water flow chart as shown on Figure 7. Subsequently, this flow chart was used to develop the comprehensive mass balance model flow diagram by sewershed and treatment plant. This comprehensive flow diagram is shown on Figure 8 and depicts the framework or architecture of the Blue Plan-it™ Model.

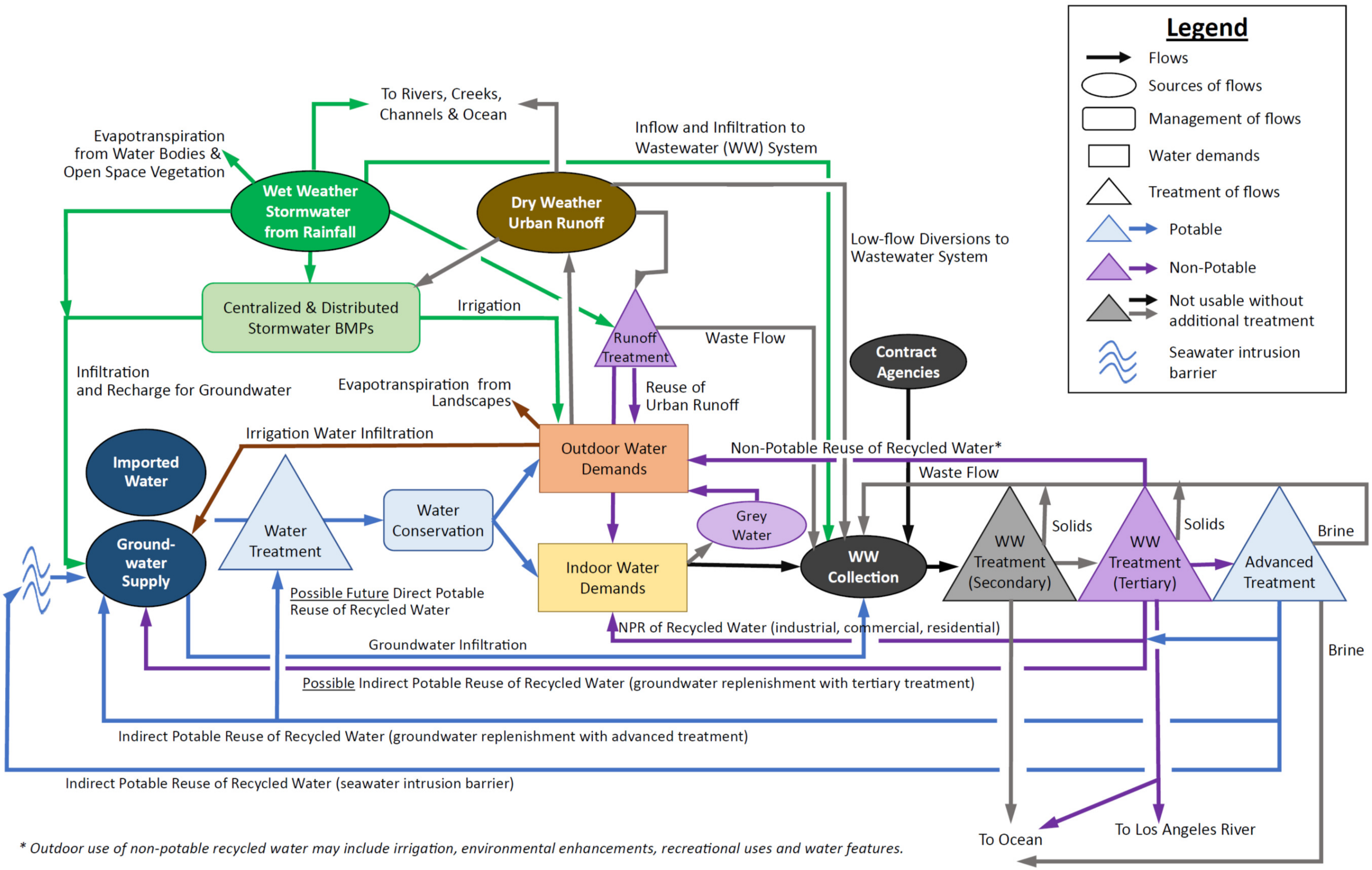
2.3.3 Flow Components

All the major types of flow components shown on Figure 7 are included in the mass balance model. These flow components are:

- Two major imported water supply sources (MWDSC and LA Aqueduct).
- Three major groundwater basins (San Fernando, West Coast, and Central Basin).

- Potable water demands by sewer service areas (both indoor and outdoor use).
- Citywide water conservation.
- Wastewater flows by sewershed area (for both residential and industrial users, as well as contract agencies).
- Wastewater flows from 29 outside-agencies that discharge into the City's sewer system.
- Groundwater infiltration into the sewer system (for normal, dry, and wet year conditions)
- Low-flow stormwater diversions into the sewer system
- Wastewater discharges into the LA River and Pacific Ocean
- Three wastewater reclamation facilities (DCTWRP, LAGWRP, and TIWRP) and one wastewater treatment plant (HWRP)
- Six major reaches of the LA River
- Stormwater generation (rainfall) by groundwater basin (for normal, dry, and wet year conditions)
- Stormwater infiltration through Best Management Practices (BMPs) by groundwater basin
- Evapotranspiration by groundwater basin from stormwater runoff and outdoor use
- Stormwater discharges into the LA River reaches and Pacific Ocean
- Future treatment facilities, such as water reclamation plants and desalination plants
- Future recycling projects, such as indirect potable reuse (IPR) through groundwater recharge and direct potable reuse (DPR) projects.

The flow components that were not considered in the mass balance model include groundwater cleanup projects, shallow groundwater pumping and disposal, and other direct uses of groundwater by private parties. These flow components were excluded from the mass balance model since they were not considered as major flow sources.



** Outdoor use of non-potable recycled water may include irrigation, environmental enhancements, recreational uses and water features.*

Figure 6 - Initial Mass Balance Model Flow Chart
One Water LA 2040 Plan
TM 2.1 - Future Flow Conditions

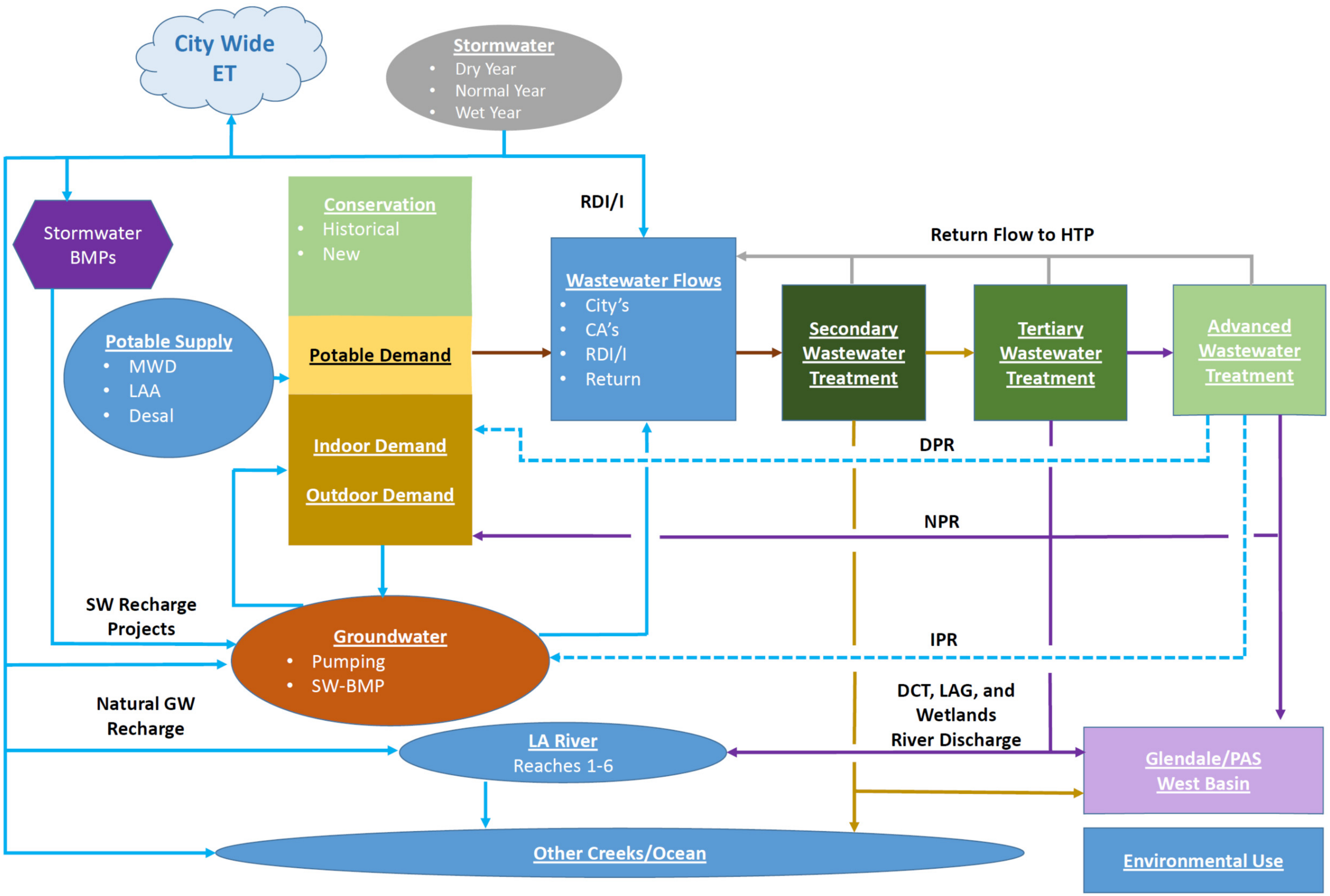


Figure 7 - Simplified Mass Balance Model Flow Chart (for Blue Plan-It Model)
One Water LA 2040 Plan
TM 2.1 - Future Flow Conditions

One Water LA

carollo

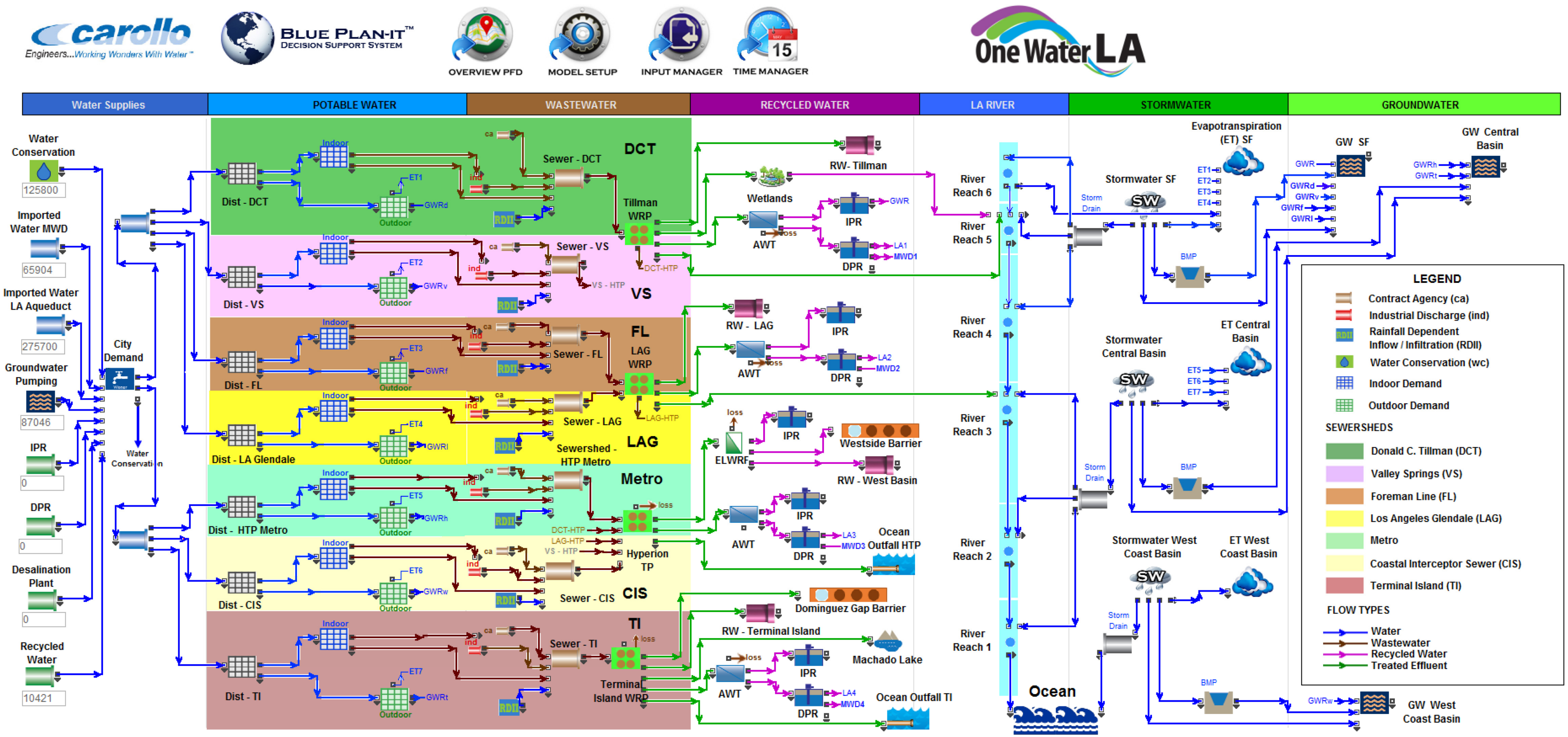


Figure 8 - Comprehensive Mass Balance Flow Diagram (from Blue Plan-it Model)
One Water LA 2040 Plan
TM 2.1 - Future Flow Conditions

2.3.4 Mass Balance Model Development

Data Gathering

Once the flowchart was completed and validated with City staff, the model data needs were defined. This involved the identification of raw model input data, development of key assumptions and parameters, and methodologies to perform calculation of the flow estimates.

An extensive data gathering effort was completed with collaboration from multiple City departments. Many different data sources and other models were used to develop the model data inputs and calculation factors. This included wastewater flows from all four treatment plants, potable water demands, water conservation estimates, stormwater modeling, and utilization of the City's potable water distribution model and wastewater collection system models to obtain spatial allocations of demands and flows.

For each of the flow components described above, three different data sets were developed. These data sets are based on either the normal wet or dry year hydrologic condition. These hydrologic conditions are described in Sections 3.0 to 6.0 of this TM.

Model Design and Development

Each dataset that was gathered contained data for the major planning years 2015, 2020, 2025, 2030, 2035, and 2040. In order to perform a year by year analysis on the water balance throughout the City, the data was broken into 1 year increments using linear interpolation between the major planning years using Microsoft Excel. The input data tables in MS Excel are shown in Appendix B. By maintaining all critical input data and assumptions in MS Excel, the user of the model can update any of the data as new information becomes available. In addition, this workbook provides a way to transfer the data into the Blue Plan-it™ model.

The Blue Plan-it model was developed to input data from Excel, perform calculations on the input data, adhere to major assumptions, meet user inputted demands, and export results to Excel. This model was developed using a programing software called Extend Sim. As part of the model development all the major flow components described on Figure 7 were added to the model. In the model each of these flow components are referred to as "blocks." Each flow component or block was broken down into one of four model function categories which carry out specific functions in the Blue Plan-it model. The four model function categories are described below:

- Assumptions
- Calculated Values
- Demand Inputs
- Supply Inputs

The Blue Plan-it™ Input Sheet (see Appendix B) is color coded based on the above mentioned model function categories. Once a model function was assigned to the blocks, connections were made between them, which were based on their flow routing relationships.

Running the Model and Viewing Results

Every time the model is run, the user will first manually select the planning year and hydrologic condition. The import/export function will transfer the proper data from the Blue Plan-it™ Input Sheet into the corresponding blocks based on the planning year and hydrologic condition selected. The model then runs a mass balance, based on the input supply, input demand, assumptions, and flow logic programmed into the model. Once the model calculations are completed, the results are automatically exported to MS Excel.

2.3.5 Model Validation

In order for the Blue Plan-it™ model to produce accurate results, the model was calibrated utilizing existing data from the year 2015, which is discussed in TM 1.2. Upon completion of the Blue Plan-it™ model calibration, a validation of the model was performed for three different years: 2001, 2005, and 2007. These three years represent a typical normal (2001), wet (2005), and dry year (2007). Utilizing the historical data for each of these years, two data sets were compared to determine the validity of the modeling results. The first data set compared the indoor and outdoor demand percentage split, which was calculated to be 60 percent and 40 percent for the calibration year of 2015. The results from the indoor and outdoor demand splits for the years 2001, 2005, and 2007 are listed in Table 1 and presented on Figure 9. The second data set compared the recorded influent flows at each of the four wastewater treatment plants with the modeled influent flows, which are presented on Figure 10 through Figure 15 and discussed below.

Indoor and Outdoor Demand Split Comparison

The actual indoor and outdoor demand split for the years 2001, 2005, and 2007 were calculated using the methodology developed as part of the calibration effort discussed in TM 1.2. The results of the indoor and outdoor demand percentage splits are listed in Table 1 and presented on Figure 9.

As shown on Figure 9, the indoor and outdoor demand split varies based on the hydrologic condition. The highest indoor demand percentage occurred during the normal year (2001) and the wet year (2005) while the dry year (2007) had the highest outdoor water usage.

Table 1 Indoor and Outdoor Demand Split Calculation One Water LA 2040 Plan – TM 2.1

Flow Parameter	Normal Year 2001 (AFY)	Wet Year 2005 (AFY)	Dry Year 2007 (AFY)	Calibration Year 2015 (AFY)
Total Wastewater Flows	**504,784**	**497,056**	**403,872**	**378,145**
Contract Agency	64,608	67,112	64,679	55,371
Return Flow DCTWRP	22,265	18,488	16,865	15,228
Return flow LAGWRP	2,862	2,333	2,796	2,846
RDI/I (estimated)(1)	9,267	9,213	7,403	6,922
Net City WW Flows (Indoor Demand)	**405,781**	**399,910**	**312,129**	**297,778**
City Water Demands	651,908	616,106	658,438	496,297
Indoor Demand Percent	**62%**	**65%**	**47%**	**60%**
Outdoor Demand Percent	**38%**	**35%**	**53%**	**40%**

Note:
(1) RDI/I values for the years 2001, 2005, and 2007 were calculated based on the RDI/I percentage for 2015. The RDI/I percentage for 2015 was calculated to be 1.92% of the total wastewater flows.

Abbreviations:
AFY = acre-feet per year; RDI/I = rainfall dependent inflow and infiltration

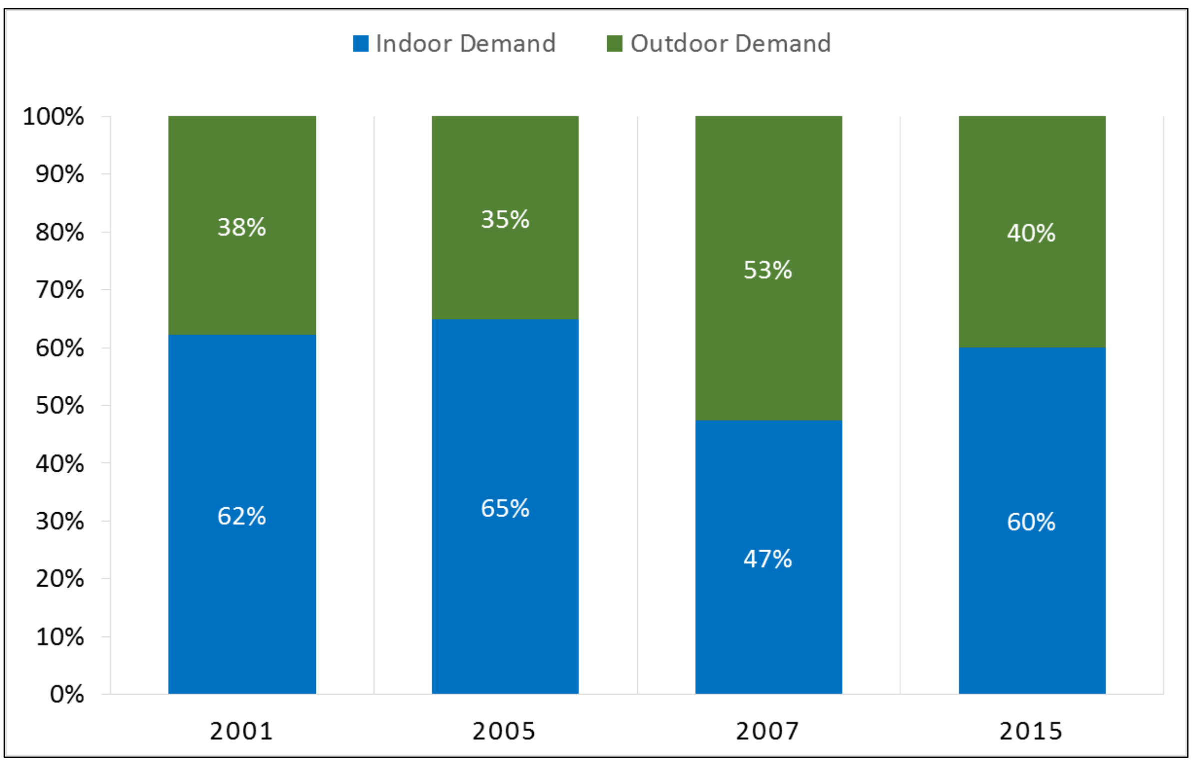


Figure 9 Indoor and Outdoor Demand Split Percentage

Influent Flow Comparisons

The actual recorded influent flows are compared with the calibrated indoor and outdoor demand split (60 Percent Indoor to 40 Percent Outdoor) as well as the calculated hydrologic condition indoor and outdoor demand split for the years 2001, 2005, and 2007. The results are presented on Figure 10 through Figure 15.

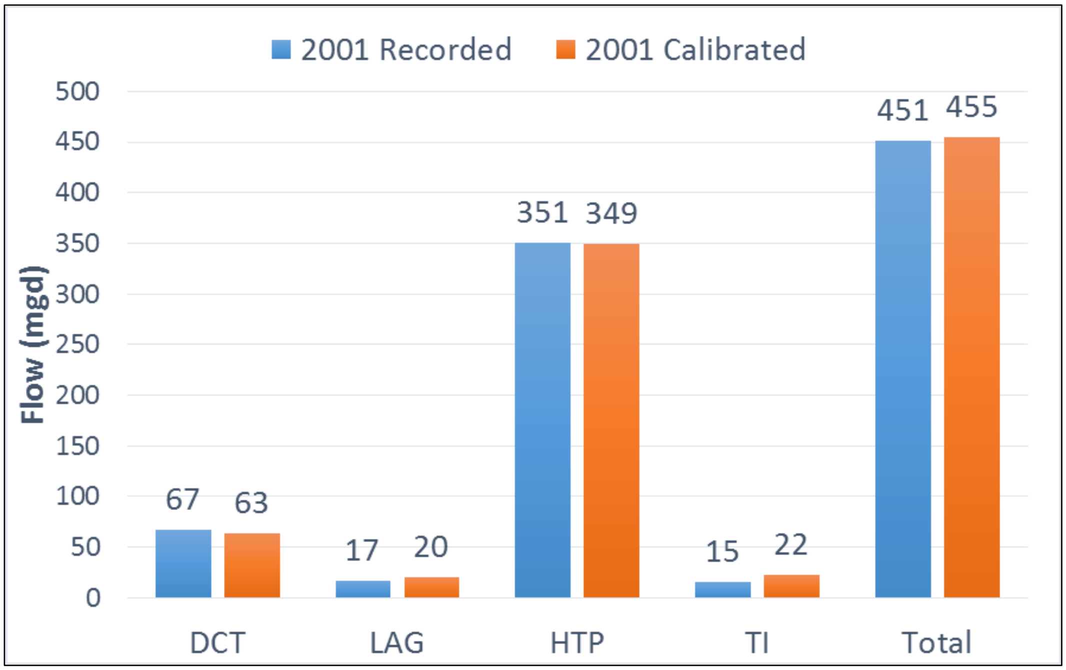


Figure 10 **Normal Year 2001 - Calibrated Demand Split (60% Indoor to 40% Outdoor)**

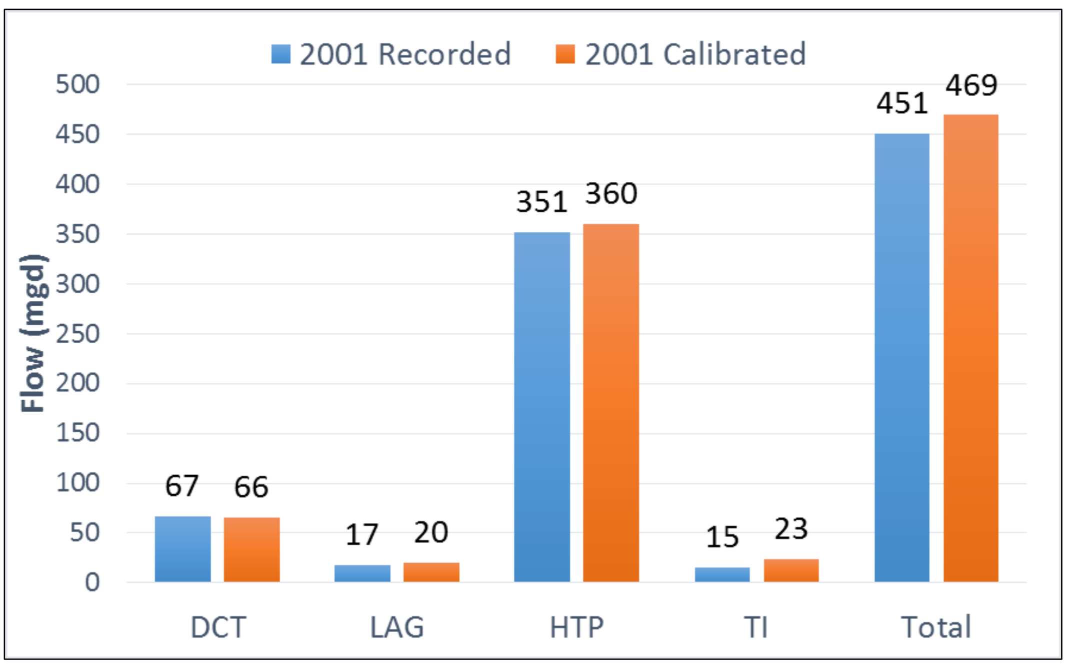


Figure 11 **Normal Year 2001 Demand Split (62% Indoor to 38% Outdoor)**

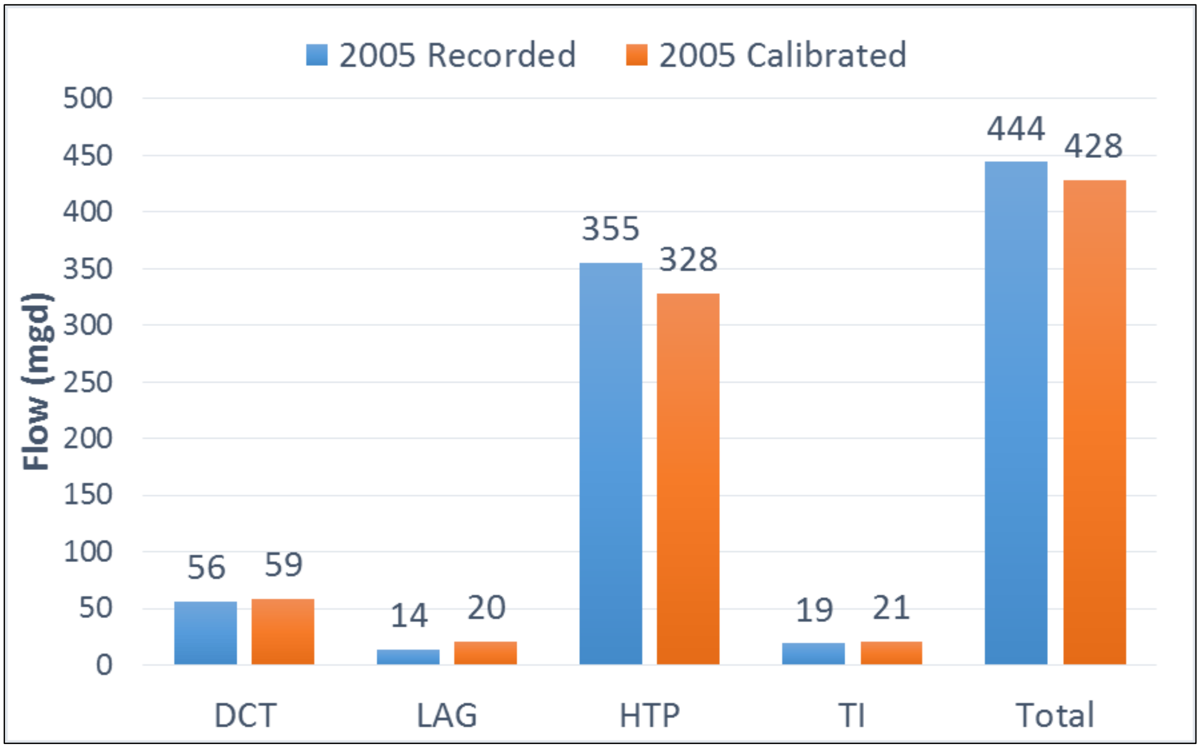


Figure 12 **Wet Year 2005 - Calibrated Demand Split (60% Indoor to 40% Outdoor)**

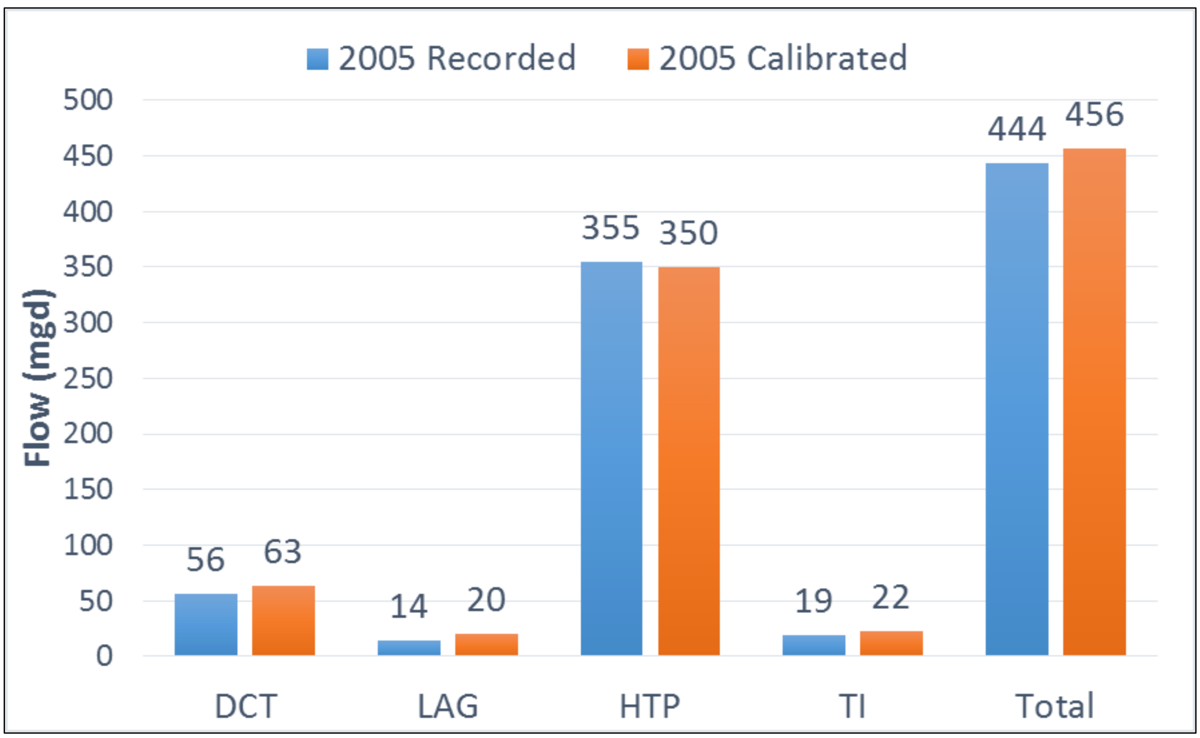


Figure 13 **Wet Year 2005 Demand Split (65% Indoor to 35% Outdoor)**

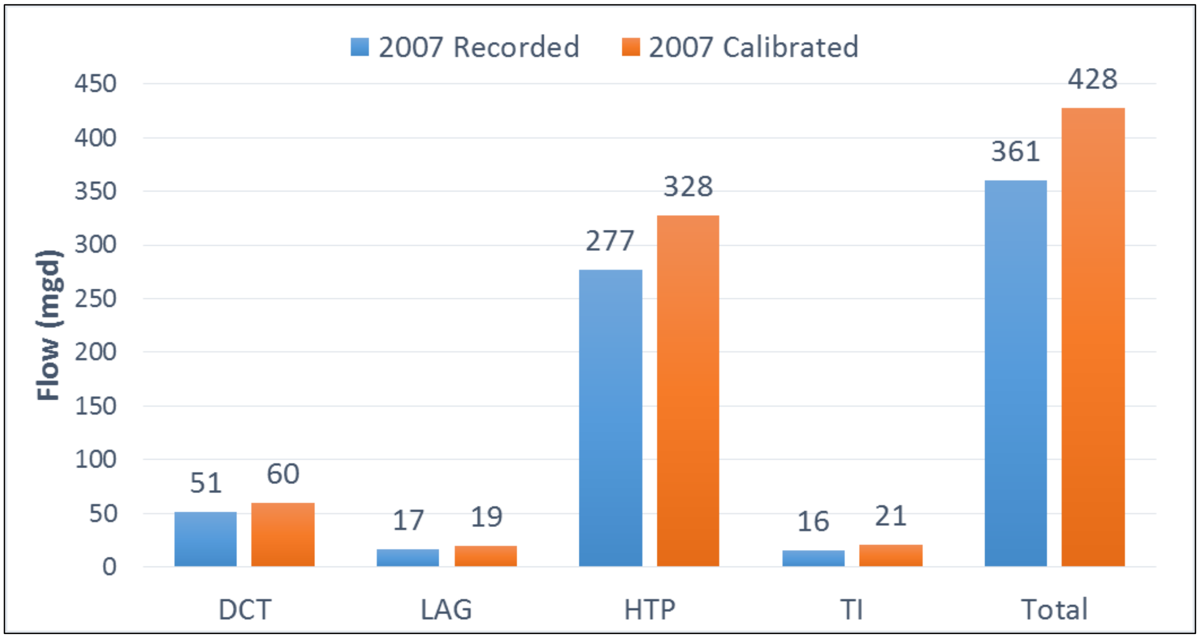


Figure 14 Dry Year 2007 - Calibrated Demand Split (60% Indoor to 40% Outdoor)

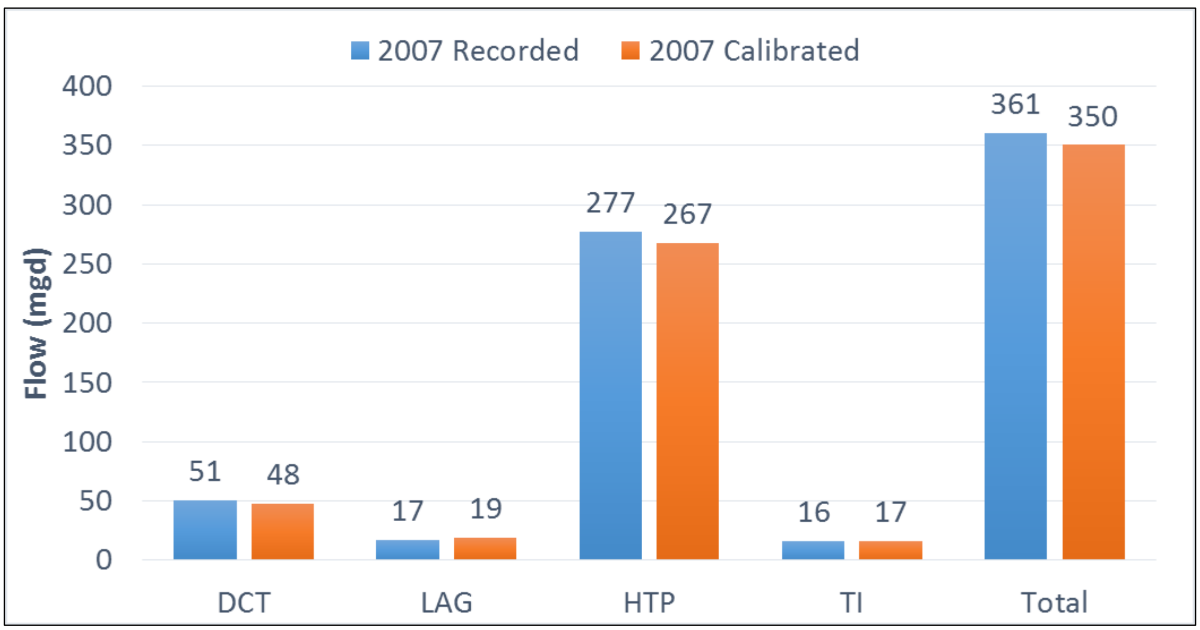


Figure 15 Dry Year 2007 Demand Split (47% Indoor to 53% Outdoor)

As shown, the normal, wet, and dry year condition demand splits have demonstrated to have an impact on the predicted influent flows at each of the wastewater treatment plants. When utilizing the calibrated indoor and outdoor demand flow split, the predicted values were within 6 percent of recorded influent flows under the normal and wet year scenarios. However, the calibrated indoor and outdoor demand flow split varied by approximately 18 percent when compared to the recorded influent flows in the dry year scenario. The predicted influent flows were closer when utilizing the calculated (47 percent indoor to 53 percent outdoor) flow split for a dry year scenario.

In order to reduce the number variables when projecting the future demands, a 60 percent indoor to 40 percent outdoor demand was used. However, since hydrological conditions have a significant impact on the indoor and outdoor demand split, the Blue Plan-it™ model was modified to allow the user to modify the indoor and outdoor demand split for each of the three hydrologic conditions.

2.4 Hydrologic Conditions

The City of Los Angeles is divided among the LA River, Ballona Creek, Dominguez Channel, and Malibu Creek watersheds along with coastal areas that drain directly to the ocean. Most of the City drains to the LA River and Ballona Creek. Precipitation typically occurs between October and April, with rainfall rarely occurring during the summer, which is quantified as a water year. Therefore, the precipitation totals for water year 2015 occurred from October 1, 2014 through September 30, 2015. The amount of precipitation varies across the City and areas draining to the City. Higher precipitation volumes occur in higher elevation or inland areas and less precipitation occurs in lower elevation or coastal areas. The rainfall is either evapotranspired, infiltrated into the ground, or becomes runoff. Three hydrologic conditions were selected for the future planning projections, which included a normal, wet, and dry year. Utilizing historical data, the year 2001 was selected as the representative normal year, the year 2005 was selected as the representative wet year, and the year 2007 was selected as the representative dry year, which is discussed in further detail below.

2.4.1 Normal Year

Based on the historical data collected between the years 1989 through 2012 from the 71 rain gauges distributed throughout the City and areas that drain to the City, an average of approximately 18.3 inches of rainfall occurred. Utilizing this average annual precipitation amount, water year 2001 was selected as the normal year since 18.7 inches of rainfall occurred, which corresponds to the closest normal year conditions over the 30-year hydrologic data set analyzed. It should be noted that although water year 2001 (October 2000 through September 2001) may be a good representation of the total average year rainfall amount, it may have a different storm distribution. For the purpose of this TM and the mass balance model, historical rainfall data for water year 2001 was used to model and estimate the amount of stormwater by basin and river reach to represent flows under typical normal year conditions.

2.4.2 Wet Year

The wettest water year that occurred between 1989 and 2012 was water year 2005, which received an average of only 44.6 inches of rainfall across the City and areas upstream of the City. For the purpose of this TM and the mass balance model, historical rainfall data for water year 2005 was used to model and estimate the amount of stormwater by basin and river reach to represent flows under typical wet year conditions.

2.4.3 Dry Year

The driest water year that occurred between 1989 and 2012 was water year 2007, which received an average of only 5.3 inches of rainfall across the City and areas upstream of the City. For the purpose of this TM and the mass balance model, historical rainfall data for water year 2007 was used to model and estimate the amount of stormwater by basin and river reach to represent flows under typical dry year conditions.

3.0 POTABLE WATER

This section describes the methodology and data sources used to calculate the future potable water supplies and demands presented in this TM. Subsequently, the water supplies and demands are presented, while a comparison is presented at the end of this section.

3.1 Methodology

Potable water flows and conservation from Los Angeles Department of Water and Power's (LADWP) service area were divided into the four wastewater treatment plant service areas and the seven sewersheds shown on Figure 5. The key source documents utilized for the water demands and supplies presented in this TM are the 2015 UWMP along with production and billing data provided by the City. The 2015 UWMP provides supply data for LADWP's entire water service area. Initially, to estimate the distribution of water demands by major sewershed, the total 2010 UWMP demands were prorated based on the water demand area distribution of the seven major sewersheds. Subsequently, this distribution was adjusted during the model calibration process to match the sewer influent flows at the wastewater treatment and reclamation plants. The water demands and wastewater flows from the model calibration are presented in TM 1.2.

The calibrated flow percentages listed in Table 2 were used to distribute the total indoor and outdoor water demands by sewershed in the mass balance model.

Table 2 Water Demand Distribution by Sewershed
One Water LA 2040 Plan – TM 2.1

Sewershed/Wastewater Treatment Plant Area	Basin Area (Acres)	Actual Percent of Total (%)	Calibrated Flow Split (%)
LA-Glendale (LAGWRP)	19,625	7.2%	0.1%
Foreman Line (FL)	5,949	2.1%	0.8%
Valley Spring Lane (VSL)	42,769	15.7%	22.0%
Donald C Tillman (DCTWRP)	53,686	19.7%	16.7%
Coastal Interceptor Sewer (CIS)	12,721	4.7%	4.3%
Metro (HWRP)	98,728	36.2%	50.2%
Terminal Island (TI)	39,145	14.4%	5.9%
Total	**272,623**	**100.0%**	**100.0%**

Note:
(1) Based on the updated calibration of wastewater flows in mass balance model.

To determine the amount of treatment plant influent, flow splits per sewershed to each of the four treatment plants were used, as well as the estimated return flows from DCTWRP and LAGWRP to HWRP. These flow split assumptions are listed in Table 3.

Table 3 Wastewater Flow Split by Sewershed
One Water LA 2040 Plan – TM 2.1

Sewershed	DCTWRP	LAGWRP	HWRP	TI
LA-Glendale (LAGWRP)	0%	100%	0%	0%
Foreman Line (FL)	0%	100%	0%	0%
Valley Spring Lane (VSL)	0%	0%	100%	0%
Donald C Tillman (DCTWRP)	100%	0%	0%	0%
Coastal Interceptor Sewer (CIS)	0%	0%	100%	0%
Metro (HWRP)	0%	0%	100%	0%
Terminal Island (TI)	0%	0%	0%	100%
Weighted Flow (%)	**17%**	**1%**	**76%**	**6%**

Note:
(1) Based on updated calibration of wastewater flows in mass balance model.

3.1.1 Potable Water Flow Components

Potable water flow components consist of potable water demands and potable water supplies. The City's existing supply sources are:

- Imported water from Metropolitan Water District (MWD);
- Imported water via the Los Angeles Aqueducts from the Owens Valley in the Eastern Sierras; and
- Groundwater from the San Fernando Basin, Sylmar Basin, and Central Basin.

Potable water demands are separated into the following three categories:

- Indoor water demands
- Outdoor water demands
- Water conservation

Water conservation reduces overall demands on LADWP's water supply portfolio. Water conservation can be divided into active conservation and passive conservation. Passive conservation is conservation related to plumbing code changes and/or ordinances and is included within overall demands. Active conservation is conservation by water users or utilities that must be initiated by the water user or utility, such as installation of low flow toilets and drought resistant landscaping.

3.1.2 Data Sources

The main source of information used for the potable water supplies and demands presented in this TM are obtained from 2015 UWMP from LADWP along with production and billing data provided by the City. Future water demands with passive conservation and combined passive and active conservation are provided in in the *One Water LA Phase 1 Initial Water Balance Technical Memorandum.* It should be noted that demands in the UWMP do not take into account active conservation, as active conservation is considered a supply.

3.1.3 Key Assumptions

The following key assumptions were used for the water demands presented in this section:

- Future planning projections through the year 2040 is based on data listed in LADWP's 2015 UWMP.
- Projected data for 2020 to 2040 is provided under three weather scenarios: normal, wet, and dry years. The UWMP does not provide wet-year projections. For the purposes of this analysis, wet year projections are assumed to be equivalent to

normal year projections, with the exception of the projected supply from the LA Aqueduct.

- The dry-year projection is based on a single-dry year, which is a report of the fiscal year (FY) 2014/15 hydrology.
- The indoor water use was determined to be 60 percent for the year 2015, which was based on the calibration of the Blue Plan-it™ model. This percentage was utilized when projecting the future flows through the year 2040, which was decided at a meeting with LADWP on May 4, 2016.
- The outdoor water use was determined to be 40 percent for the year 2015, which was based on the calibration of the Blue Plan-it™ model. This percentage was utilized when projecting the future flows through the year 2040, which was decided at a meeting with LADWP on May 4, 2016.
- The indoor and outdoor water demand percent splits are subject to change in the future since the indoor water demand will become saturated, which would only leave variability with outdoor water demand. For that reason, the indoor and outdoor demand percent splits may be adjusted in the Blue Plan-it™ model as discussed in Section 2.3.5.

The following key assumptions were used for the water supplies presented in this section:

- Imported water is inclusive of water purchases.
- Imported water from Los Angeles Aqueduct includes the Owens Valley in the mass balance model and raw transfers from MWD.
- Conservation is included on the demand side in the mass balance model. However, it is considered a supply in the UWMP.
- Active conservation includes conservation from the following sectors: single-family, multifamily, commercial/government, industrial and non-revenue water. This volume is included in the conservation total.
- The estimated water conservation totals are from the 2015 UWMP, which were based on the Sustainability pLAn. The total pLAn demand targets are assumed to be the same for all hydrologic conditions, but do vary by planning year.

3.2 Future Water Supplies

Future water supplies are based on the 2015 Draft UWMP projections for 2020 through 2040, which include conservation as a supply source. Water supply projections are provided under three weather scenarios: normal, wet, and dry.

3.2.1 Water Conservation

Water conservation is divided into active conservation and passive conservation. Passive conservation is conservation related to plumbing code changes and/or ordinances and is included within overall demands. Active conservation is conservation by water users or utilities that must be initiated by the water user or utility, such as installation of low flow toilets and drought resistant landscaping. Table 4 summarizes the projected conservation for normal, wet, and dry year scenarios, respectively. The proposed conservation objectives align with the Sustainable City pLAn, which includes aggressive conservation and local management goals for Los Angeles.

Table 4 Water Conservation One Water LA 2040 Plan – TM 2.1

Year	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
2020	125,800	125,800	156,700
2025	110,900	110,900	143,700
2030	111,600	111,600	145,100
2035	109,100	109,100	143,500
2040	108,100	108,100	143,500

3.2.2 Imported Water from Metropolitan

Imported water from MWD of Southern California was used in the future planning years for the normal, wet, and dry year scenarios. Table 5 summarizes imported water supplies from MWD under these scenarios.

Table 5 Future Imported Water from MWD One Water LA 2040 Plan – TM 2.1

Year	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
2020	75,430	44,840	318,930
2025	65,930	33,695	307,430
2030	65,430	32,785	305,030
2035	60,630	27,540	298,230
2040	74,930	41,145	310,530

As shown in Table 5, the amount of imported water from MWD is assumed to increase under the dry year conditions to make-up for reduced supply production and is assumed to decrease under the wet year conditions due to a reduction in demand. Although imported water from MWD is reduced in a wet year scenario, it is assumed that the conservation in a wet year is the same as a normal year. Overall, water supplies from MWD are projected to decrease in the future as LADWP seeks to reduce reliance on imported water, which is also consistent with the Mayor's water sustainability objectives.

3.2.3 Imported Water from LA Aqueduct

Imported water supplies from the LA Aqueduct under the normal, wet, and dry scenarios are summarized in Table 6.

Table 6 Future Imported Water Supplies from LA Aqueduct
One Water LA 2040 Plan – TM 2.1

Year	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
2020	275,700	275,700	32,200
2025	293,400	293,400	51,900
2030	291,000	291,000	51,400
2035	288,600	288,600	51,000
2040	286,200	286,200	50,600

Under the dry year scenario, imported water from the LA Aqueduct is projected to be substantially lower since LADWP has a greater reliance on MWD to compensate for the reduced flows from the Owens Valley. Although demands are anticipated to decrease under a wet year scenario, supply from the LA Aqueduct is projected to remain consistent with a normal year scenario since imported water from MWD would be reduced.

3.2.4 Groundwater

Groundwater projections under the normal/wet scenario and dry scenarios are summarized in Table 7. The values present the total anticipated groundwater pumping from the San Fernando, West Coast, Central, Hollywood, and Santa Monica Basins. The total groundwater pumping includes the sum of groundwater (net), stormwater reuse, and stormwater recharge listed in the 2015 UWMP.

Table 7 Future Ground Water Pumping
One Water LA 2040 Plan – TM 2.1

Year	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
2020	115,070	115,070	114,770
2025	115,470	115,470	114,870
2030	115,870	115,870	114,970
2035	131,270	131,270	129,970
2040	131,070	131,070	129,470

Note:
(1) Yearly pumping breakdown by basin is presented in Appendix B. The groundwater pumping includes groundwater (net), stormwater reuse, and stormwater recharge as listed in the 2015 UWMP.

As shown in Table 7, the amount of groundwater pumping is assumed to remain constant under normal/wet year conditions. Additionally, the amount of groundwater pumping is expected to increase due to the ongoing water remediation projects in the San Fernando Basin combined with the proposed IPR project described in the next section.

3.2.5 Recycled Water (NPR and IPR/DPR)

Currently, the City does not have any IPR or DPR projects in place. However, plans for the City's first IPR project in the San Fernando Basin are ongoing and consist of up to 30,000 AFY of recycled water utilizing flows from the DCTWRP. This project is anticipated to be completed by the year 2023.

As shown in Table 8, recycled water use is expected to increase from 19,800 AFY in year 2020, to 59,000 AFY in 2025, and then steadily increases through the year 2040. The total recycled water use is discussed in further detail in Section 5.0. Table 8 summarizes the projected recycled water use throughout the planning period.

Table 8 Future Recycled Water Projections
One Water LA 2040 Plan – TM 2.1

Year	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
2020	19,800	19,800	19,800
2025	59,000	59,000	59,000
2030	69,000	69,000	69,000
2035	72,200	72,200	72,200
2040	75,400	75,400	75,400

Note:
(1) Projections include 30,000 AFY of IPR from 2025 and beyond.

3.2.6 Total Water Supply Mix

The total water supply mix projections for 2020 through 2040 for the normal, wet, and dry scenarios are provided in Table 9, Table 10, and Table 11, respectively. As shown, the 2015 UWMP does not include any water supplies from desalination. However, this potential future water supply source is included in the water supply planning analysis for the One Water LA 2040 Plan.

As shown, the 2015 UWMP assumes that the total supplies increase steadily from 2020 to 2040. Supplies for the normal and wet hydrological conditions are lower than a dry year condition. During dry years, increased demands are met by an increase in MWD supply. However, during a normal or wet year, imported water from the LA Aqueduct is used to reduce the reliance on purchased water from Metropolitan.

Table 9 Projected Water Supply Mix - Normal Year Conditions
One Water LA 2040 Plan – TM 2.1

Year	Imported MWD (AFY)	LA Aqueduct (AFY)	Groundwater (AFY)(1)	Recycled Water (AFY)(2)	pLAn Target Demand Total (AFY)(3)
2020	75,430	275,700	114,670	19,800	485,600
2025	65,930	293,400	114,670	59,000	533,000
2030	65,430	291,000	114,670	69,000	540,100
2035	60,630	288,600	129,670	72,200	551,100
2040	74,930	286,200	129,070	75,400	565,600
	Table 5	Table 6	Table 7	Table 8	N/A

Notes:
(1) The annual groundwater total includes groundwater (net) and stormwater recharge. Stormwater reuse is not included.
(2) The annual recycled water includes 30,000 AFY of IPR from 2025 and beyond.
(3) The target demand was obtained from the 2015 UWMP Table ES-S.

Table 10 Projected Water Supply Mix - Wet Year Conditions
One Water LA 2040 Plan – TM 2.1

Year	Imported MWD (AFY)	LA Aqueduct (AFY)	Groundwater (AFY)(1)	Recycled Water (AFY)(2)	pLAn Target Demand Total (AFY)(3)
2020	75,430	245,100	114,670	19,800	455,000
2025	65,930	261,200	114,670	59,000	500,800
2030	65,430	258,400	114,670	69,000	507,500
2035	60,630	255,500	129,670	72,200	518,000
2040	74,930	252,400	129,070	75,400	531,800
	Table 5	Table 6	Table 7	Table 8	N/A

Notes:
(1) The annual groundwater total includes groundwater (net) and stormwater recharge. Stormwater reuse is not included.
(2) The annual recycled water includes 30,000 AFY of IPR from 2025 and beyond.
(3) The target demand was based on a total demand reduction of 5%, which was deducted from the imported MWD. The total demands were based on the values listed in the 2015 UWMP Table ES-S.

Table 11 Projected Water Supply Mix - Dry Year Conditions
One Water LA 2040 Plan – TM 2.1

Year	Imported MWD (AFY)	LA Aqueduct (AFY)	Groundwater (AFY)(1)	Recycled Water (AFY)(2)	pLAn Target Demand Total (AFY)(3)
2020	318,930	32,200	114,670	19,800	485,600
2025	307,430	51,900	114,670	59,000	533,000
2030	305,030	51,400	114,670	69,000	540,100
2035	298,230	51,000	129,670	72,200	551,100
2040	310,530	50,600	129,070	75,400	565,600
	Table 5	Table 6	Table 7	Table 8	N/A

Notes:
(1) The annual groundwater total includes groundwater (net) and stormwater recharge. Stormwater reuse is not included.
(2) The annual recycled water includes 30,000 AFY of IPR from 2025 and beyond.
(3) The target demand was obtained from the 2015 UWMP Table ES-R.

3.3 Future Water Demands

Future water projections are based on the 2015 UWMP. Demands are segregated into the following categories: indoor and outdoor usage. Based on the calibration effort conducted in TM 1.2, the indoor water use was approximately 60 percent and the outdoor water use was approximately 40 percent, which was applied to the future planning year projections. The estimated water demands for graywater systems were not included.

However in order to quantify the amount of water flowing to each treatment facility via the sewersheds, the water demand must be broken into a demand by sewershed. The model calibrated percent of total flows listed in Table 3 was used to distribute the City wide indoor, outdoor and conservation demands by sewershed.

3.3.1 Indoor Water Use

In the model calibration year of 2015, indoor water use was approximately 60 percent of the total demand. This percent split was applied to the future planning years. The indoor water use is assumed to be the same regardless of the hydrologic conditions, with the variation occurring in outdoor demands as well as the three hydrologic conditions to minimize variables in the analysis. As described in Section 2.3.5, the percent split can be adjusted in the Blue Plan-it™ model when running future scenarios. The future indoor water use by sewersheds for all three hydrologic conditions is summarized in Table 12.

Table 12 Indoor Water Use by Sewershed
One Water LA 2040 Plan – TM 2.1

Year	DCTWRP (AFY)	FL (AFY)	VSL (AFY)	LAGWRP (AFY)	HWRP (AFY)	CIS (AFY)	TI (AFY)	Total (AFY)
2020	46,668	2,287	61,486	279	140,431	11,878	16,452	**279,480**
2025	50,495	2,474	66,528	302	151,948	12,852	17,801	**302,400**
2030	50,204	2,460	66,145	301	151,073	12,778	17,698	**300,660**
2035	50,986	2,498	67,175	305	153,425	12,977	17,974	**305,340**
2040	52,118	2,554	68,666	312	156,832	13,265	18,373	**312,120**

3.3.2 Outdoor Water Use

In the model calibration year of 2015, outdoor water use was approximately 40 percent of the total demand. This percent split was applied to the future planning years as well as the three hydrologic conditions to minimize variables in the analysis. As described in Section 2.3.5, the percent split can be adjusted in the Blue Plan-it™ model when running future scenarios. The future outdoor water use by sewersheds for all three hydrologic conditions is summarized in Table 13.

Table 13 Outdoor Water Use by Sewershed - Normal Year Conditions
One Water LA 2040 Plan – TM 2.1

Year	DCTWRP (AFY)	FL (AFY)	VSL (AFY)	LAGWRP (AFY)	HWRP (AFY)	CIS (AFY)	TI (AFY)	Total (AFY)
2020	31,112	1,524	40,990	186	93,621	7,919	10,968	**186,320**
2025	33,663	1,649	44,352	202	101,298	8,568	11,867	**201,600**
2030	33,470	1,640	44,097	200	100,716	8,519	11,799	**200,440**
2035	33,991	1,666	44,783	204	102,283	8,651	11,983	**203,560**
2040	34,745	1,702	45,778	208	104,554	8,843	12,249	**208,080**

Table 14 Outdoor Water Use by Sewershed - Wet Year Conditions
One Water LA 2040 Plan – TM 2.1

Year	DCTWRP (AFY)	FL (AFY)	VSL (AFY)	LAGWRP (AFY)	HWRP (AFY)	CIS (AFY)	TI (AFY)	Total (AFY)
2020	26,038	1,276	34,305	156	78,352	6,627	9,179	**155,932**
2025	28,227	1,383	37,190	169	84,941	7,184	9,951	**169,046**
2030	28,030	1,373	36,930	168	84,347	7,134	9,881	**167,864**
2035	28,467	1,395	37,505	170	85,661	7,245	10,035	**170,479**
2040	29,101	1,426	38,341	174	87,569	7,407	10,259	**174,277**

Table 15 Outdoor Water Use by Sewershed - Dry Year Conditions
One Water LA 2040 Plan – TM 2.1

Year	DCTWRP (AFY)	FL (AFY)	VSL (AFY)	LAGWRP (AFY)	HWRP (AFY)	CIS (AFY)	TI (AFY)	Total (AFY)
2020	31,112	1,524	40,990	186	93,621	7,919	10,968	**186,320**
2025	33,663	1,649	44,352	202	101,298	8,568	11,867	**201,600**
2030	33,470	1,640	44,097	200	100,716	8,519	11,799	**200,440**
2035	33,991	1,666	44,783	204	102,283	8,651	11,983	**203,560**
2040	34,745	1,702	45,778	208	104,554	8,843	12,249	**208,080**

As shown in Table 13, Table 14, and Table 15, the outdoor water use varies due hydrologic conditions. However, since the outdoor water demand under dry year conditions is anticipated to be lower than the indoor water demand, this factor may be adjusted when conducting model runs.

The total difference between the normal/dry year conditions and the wet year conditions is estimated to be approximately 33,800 AFY by year 2040 for both indoor and outdoor demand.

3.3.3 Graywater Systems

Graywater is gently used water from bathroom sinks, showers, tubs, and washing machines. Graywater may contain traces of dirt, food, grease, hair, and certain household cleaning products, but is not water that has come into contact with feces, such as water from toilet flushing. While graywater may look "dirty," it is a safe and even beneficial source of irrigation water in a yard.

Although graywater use is not estimated in LADWP's UWMP, it is important to note its use with respect to its water use efficiency potential. Between 2010 and 2015, the City of LA has issued 45 graywater system permits. This includes graywater piping systems for commercial sites, apartment complexes, and single family dwellings. It should be noted that only commercial sites require a permit from the City of Los Angeles' Department of Building and Safety, and therefore the total number of graywater systems is likely much higher.

The use of graywater for non-potable purposes such as outdoor irrigation could directly offset potable water demands. However, graywater use also reduces wastewater flows received by the City's four wastewater treatment plants, which have the ability to treat this water to much higher water quality standards. As wastewater flows in the City have been declining, central wastewater treatment that allows high-end wastewater recycling opportunities, such as IPR, are typically preferred to maximize the use of existing wastewater collection and treatment infrastructure. However, graywater systems may provide important water use efficiency benefits in areas that are not connected to the City's sewer system. Additionally, graywater systems can promote public awareness of water scarcity and reduce outdoor water use.

The total amount of potable water offset by the City's existing graywater systems is not measured and very difficult to estimate. Of the 680,000 water accounts within the City, 45 sites are recorded as having a graywater system. Given that graywater use could only offset a small portion of the total water consumption of each account, it can be concluded that graywater systems currently have an insignificant impact on the City-wide water demands.

3.3.4 Total Water Demand

Total water demand as defined for this purpose includes the sum of the projected indoor use and outdoor use for the projection period 2020 through 2040. Total water demands for normal, wet, and dry-year conditions are presented in Table 16, Table 17, and Table 18.

As listed in Table 16, Table 17, and Table 18 the total water demands under the normal/dry year conditions are projected to increase from 465,800 AFY in 2020 to nearly 520,200 AFY in 2040. Similarly, as listed in Table 17, the total water demands under the wet year conditions are projected to increase from 435,200 AFY in 2020 to nearly 486,400 AFY in 2040. This is consistent with the demands listed in the 2015 UWMP.

Table 16 Water Demand - Normal Year Conditions One Water LA 2040 Plan – TM 2.1

Year	Indoor (AFY)	Outdoor (AFY)	Potable Water Demand (AFY)(1)
2020	279,480	186,320	**465,800**
2025	302,400	201,600	**504,000**
2030	300,660	200,440	**501,100**
2035	305,340	203,560	**508,900**
2040	312,120	208,080	**520,200**

Note:

(1) The total demand accounts for conservation and excludes recycled water usage (irrigation/industrial use) and stormwater harvesting. See Appendix B for a detailed breakdown.

Table 17 Water Demand - Wet Year Conditions
One Water LA 2040 Plan – TM 2.1

Year	Indoor (AFY)	Outdoor (AFY)	Potable Water Demand (AFY)(1)
2020	279,480	155,730	**435,210**
2025	302,400	169,365	**471,765**
2030	300,660	167,795	**468,455**
2035	305,340	170,470	**475,810**
2040	312,120	174,295	**486,415**

Note:
(1) The total demand accounts for conservation and excludes recycled water usage (irrigation/industrial use) and stormwater harvesting. See Appendix B for a detailed breakdown.

Table 18 Water Demand - Dry Year Conditions
One Water LA 2040 Plan – TM 2.1

Year	Indoor (AFY)	Outdoor(1) (AFY)	Potable Water Demand (AFY)(1)
2020	279,480	186,320	**465,800**
2025	302,400	201,600	**504,000**
2030	300,660	200,440	**501,100**
2035	305,340	203,560	**508,900**
2040	312,120	208,080	**520,200**

Note:
(1) The total demand accounts for conservation and excludes recycled water usage (irrigation/industrial use) and stormwater harvesting. See Appendix B for a detailed breakdown.

3.3.5 Summary

A summary of the total projected 2040 demands for normal, wet, and dry year hydrologic conditions are compared in Table 19.

The pLAn demand targets are based on the Sustainable City pLAn. As listed in Table 19, the 2040 demand targets vary based on the hydrologic condition, which range from 565,600 AFY under a normal year and dry year condition to 531,815 AFY under a wet year condition. The pLAn demand targets demonstrate approximately 16 percent, 17 percent, and 20 percent of water savings when compared to the total water demand.

Table 19 Projected Water Supply and Demand Comparison One Water LA 2040 Plan – TM 2.1

Demand and Supply Projections	2040 Normal Year (AFY)	2040 Wet Year (AFY)	2040 Dry Year (AFY)
Potable Water(1)	520,200	486,415	520,200
Recycled Water(2)	45,400	45,400	45,400
pLAn Water Demand Target	**565,600**	**531,815**	**565,600**
Conservation	108,100	108,100	143,500
Stormwater Reuse	2,000	2,000	400
Total Water Demand(3)	**675,700**	**641,915**	**709,500**

Notes:
(1) The total potable water demand includes 30,000 AFY of IPR. Reference: Table 16, Table 17, and Table 18.
(2) The total recycled water demand includes irrigation and industrial use. The balance between potable water and recycled water may change due to implementation of additional projects and concepts.
(3) The total water demand includes existing passive conservation. Reference: 2015 UWMP Table ES-R and ES-S.

4.0 WASTEWATER

This section describes the methodology and data sources used to estimate the existing wastewater flows presented in this TM. Subsequently, the wastewater flows by sewershed and treatment plant tributary area are presented.

4.1 Methodology

Wastewater flows have been estimated for the City under typical normal, wet, and dry year conditions, and include estimates for contract agency contributions. The generated flows are estimated for each of the major sewersheds depicted on Figure 5 utilizing the water demand distribution percentages by sewershed as listed in Table 2.

It was assumed that the wastewater flows generated within the City service area are equal to the indoor water demands listed in Table 12. Additional other wastewater flow components as described in Section 4.1.1 were added.

Wet weather flows were derived from a modeled tributary area calculation that roughly estimates rainfall infiltration into the wastewater collection system based on infiltration factors for each basin. The distribution of the total rainfall infiltration by sewershed is listed in Table 20.

Table 20 RDI/I Distribution by Major Sewershed
One Water LA 2040 Plan – TM 2.1

Sewershed	RDI/I(1) Percentage
LA-Glendale (LAGWRP)	2%
Foreman Line (FL)	1%
Valley Spring Lane (VSL)	24%
Donald C Tillman (DCTWRP)	17%
Coastal Interceptor Sewer (CIS)	9%
Metro (HWRP)	39%
Terminal Island (TI)	8%
Total(1)	**100%**

Note:
(1) Based on the average Normal (2001), Wet (2005), Dry (2007), and year 2014 model runs.

4.1.1 Wastewater Flow Components

The total wastewater flow is a combination of the following components:

- **Wastewater** produced by individuals, businesses, and institutions within the City of Los Angeles. Sources include toilets, showers, sinks, dishwashers, clothes washers, floor drains, and industrial equipment and processes. The City's wastewater flow is assumed to be equal to the indoor potable water demand as outdoor water demand does not contribute to the wastewater collection system.

- **Groundwater Infiltration** (GWI) results when a groundwater table that is above a sewer pipe causes the groundwater to leak into the sewer pipe through joints or cracks/breaks. Groundwater tables typically fluctuate seasonally, so the GWI will also often fluctuate seasonally. GWI is not affected directly by storm events. While GWI has been historically included in the City's wastewater estimation methodology, the basis for this value is being reconsidered and, as such, GWI has not been calculated separately and is included as part of the other flow components in this study.

- **Contract Agency Wastewater Flows** are generated by cities, unincorporated county, federal, and other jurisdictions outside the boundaries of the City of Los Angeles. The City receives wastewater from 29 contract agencies that is conveyed and treated by the City's collection and treatment systems. The contract agencies' flow estimates are based on actual gauged flow into the City's collection system.

- **Industrial Discharge Flows** can be divided into the following two categories:
  - Local industrial user (LIU) are customers that discharge less than an average of 25,000 gallons per day of process wastewater, are only subject to the City's local limits, and do not adversely affect the City's wastewater treatment operations.
  - Significant industrial user (SIU) are industrial customers that conduct processes subject to Environmental Protection Agency (EPA) Federal Categorical Pretreatment regulation, or that discharge an average of 25,000 gallons per day (gpd) or more, or are designated by the City as an SIU because of potential adverse impact to the sewer system.

- **Stormwater Infiltration** is the results of RDI/I, which is rainfall runoff that then penetrates the sewers directly (inflow) via maintenance hole cover leaks or holes, cross-connected storm drains, or other direct means, and indirectly (infiltration) through soil saturation and migration of water through pipe cracks, joints, etc.

All of these components have been summed by area to produce total wastewater flows by sewershed.

4.1.2 Data Sources

The following data sources were used to estimate the wastewater flows presented herein:

- Potable water demand data for the City of Los Angeles were obtained from LADWP's 2015 UWMP and billing data provided by the City.

- Industrial wastewater flows were provided by the Industrial Waste Management Division (IWMD) via the Wastewater Engineering Services Division (WESD).

- Contract agency dry weather wastewater flows were provided by WESD.

- Rainfall data used to calculate the stormwater RDI/I were downloaded from the website of the Western Regional Climate Center: http://www.wrcc.dri.edu. The specific gauge used was "LOS ANGELES DWTN USC CAMPUS, CALIFORNIA (045115)"; the period of record for this gauge is 07/01/1877 to 01/20/2015.

- Low flow diversion data were received from the Watershed Protection Division (WPD) via WESD as Geographic Information System (GIS) data, and with relevant attributes that were imported into a Microsoft Excel spreadsheet and summarized.

- GIS files of watershed tributary areas and primary planning basins were provided by WESD.

4.1.3 Flow Estimating Methodology

The wastewater flow estimation methodology for each of the component flows is described below.

- **Base Wastewater Flows:** Base wastewater within the City (excluding contract agencies) was derived through analysis of potable water demand based on records provided by LADWP. The indoor water use was estimated as 60 percent of the total water demand under existing and future conditions. The base wastewater flow was calculated by deducting the industrial wastewater flow discharges from the total indoor water demands.
- **Industrial Flow Discharges**: Industrial discharge data was provided by City staff and contain permitted flows (in the case of LIUs) and gauged or recorded flows (in the case of SIUs). There are 200 SIUs, and 15,410 LIUs in the City's database. The SIU table contained the destination treatment facility for each industrial user (IU), so flows were grouped by sewershed. The LIU table had numerous gaps in the destination treatment facility entries. Many (467) IUs discharge outside the City (to Los Angeles County Sanitation Districts' sewers), and were removed from flow accumulation. An additional 165 LIUs did not have a destination treatment plant listed, so flows from these were tallied separately, and evenly distributed between all treatment plants (these IUs totaled only 0.3 percent of the total LIU flows, so they are relatively insignificant). LIU flows were grouped by sewershed, and added to the SIU flows. The industrial wastewater discharges were assumed to remain constant in future planning years.
- **Contract Agency Flows**: Gauged contract agency flows were received from WESD, and used directly. The sewershed of each contract agency was determined through GIS analysis, and the agency flows were then grouped by sewershed. Wastewater flows from the existing 29 contract agencies were assumed to remain constant in future planning years.
- **Stormwater Infiltration**: The total RDI/I amount for the entire City, including contract agencies, was initially estimated by applying a rainfall depth over the sewered areas of the City (and contract agencies), and then applying a percentage to the volume that represents the portion of the rainfall volume that enters the collection system. A relatively dry year (2007) and a relatively wet (2005) year were identified and used. The rainfall depth reported by a single rain gauge for the entire year was assumed to apply to the entire City. The stormwater infiltration flows were assumed to remain constant in future planning years. The total estimated amount of stormwater infiltration was separated as follows:
  - ***RDI/I from Contract Agencies***: The contract agency flows were estimated by developing a ratio of each contract agency sewered area and the total wet weather tributary area, and applying that ratio to the total rainfall volume estimated to enter the collection system. The RDI/I volumes were calculated by running the rainfall data from each entire year through the DHI Hydrology

Engine, which has been calibrated for the City's Mike Urban hydrodynamic model. The RDI/I volumes were produced for the Mike Urban model nodes, and were grouped and accumulated by sewershed. This approach provides a more accurate estimation of RDI/I flow volumes and will be used for normal (2001), wet (2005), dry (2007), and existing (2015) conditions.

  – ***RDI/I within the City***: The areas of the City that contributed to RDI/I were represented in a GIS file that was generated by the City's Sewer Flow Estimating Model (SFEM). These areas were created by tracing all primary and secondary sewer pipes, and buffering the pipes to generate an area. Areas that do not have sewer connections do not contribute to RDI/I.

- **Wastewater Losses**: Wastewater losses are influent flows that are removed during the treatment process and do not contribute to the final effluent flows. For DCTWRP and LAGWRP, these include flows with high solids concentrations (primary sludge, scum, waste-activated sludge, and filter backwash water) that are returned to downstream sewers for treatment at HWRP. Currently for DCTWRP, this also includes some primary effluent. Some flows from DCTWRP and LAGWRP are bypassed to HWRP. For HWRP and TIWRP, some influent water is tied up in the biosolids that are processed at these plants, estimated at 1 percent and 6 percent, respectively. The percentages of wastewater losses from the projected influent flows were assumed to remain constant in future planning years.

4.1.4 Septic Systems

Septic systems (onsite wastewater treatment systems - OWTS), do not contribute the wastewater flows other than through influences on GWI. However, as OWTS are eliminated, the sewage from households and others facilities will be introduced into the City's collection system. The 2015 OWTS Annual Report[1] identifies 12,659 OWTS, including 2,271 residential systems and 130 commercial systems that were identified as high risk (based on various criteria described in the report). A proposal[2] to connect 1,255 of the high-risk homes that currently have OWTS has identified an additional 0.3 million gallons per day (mgd) (or 336 AFY) of wastewater to be added to the collection system. Septic system flows have not been included in the One Water wastewater flow projections as the magnitude of these flows is relatively insignificant and due to the uncertainty of the conversions implementation.

Although flows discharged into OWTS's are not included in the mass balance model, the cost of future OWTS conversions and connections to the City's sewer system do need to be accounted for future Capital Improvement Plan (CIP) planning purposes that will be described in TM 7.5.

[1] Annual Progress and Implementation Report – Annual Report No. 10, April 1, 2014 – March 31, 2015, City of Los Angeles

[2] Proposition 1 Grant Application, Septic-to-sewer conversions in disadvantaged and highly-disadvantaged communities, City of Los Angeles

4.1.5 Key Assumptions

The following wastewater flow components were assumed to remain relatively constant compared to existing flow conditions:

- Indoor and outdoor water use demand splits
- Contract agency wastewater flows
- Industrial discharges
- Stormwater infiltration
- Treatment losses as percentage of influent plant flows

4.2 Future Treatment Plant Flows

The estimated future wastewater flows by treatment plant are described in the following subsections.

4.2.1 Donald C. Tillman WRP

Future wastewater influent flows to DCTWRP from the existing tributary area are projected to slightly increase to 56,648 AFY by year 2040 under normal hydrologic conditions as shown in Table 21, Table 22, and Table 23. The 2040 influent flows are projected to be 53,904 AFY and 58,396 AFY under dry and wet year conditions, respectively. Flow projections for DCTWRP by year and hydrologic condition are provided in Appendix B.

It should be noted that these numbers are greatly influenced by the water demand projections shown in the 2015 UWMP.

Table 21 DCTWRP Influent Flows - Normal Year Conditions One Water LA 2040 Plan – TM 2.1

Year	Indoor Water Use (AFY)	Contract Agency (AFY)	Stormwater Infiltration (AFY)	Total[1] Influent (AFY)
2020	46,668	1,158	3,373	**51,198**
2025	50,495	1,158	3,373	**55,025**
2030	50,204	1,158	3,373	**54,735**
2035	50,986	1,158	3,373	**55,516**
2040	52,118	1,158	3,373	**56,648**

Note:
(1) Total includes solids, which are conveyed to Hyperion Treatment Plant as "Return Flows"

Table 22 DCTWRP Influent Flows - Wet Year Conditions One Water LA 2040 Plan – TM 2.1

Year	Indoor Water Use (AFY)	Contract Agency (AFY)	Stormwater Infiltration (AFY)	Total[1] Influent (AFY)
2020	46,668	1,158	5,120	**52,946**
2025	50,495	1,158	5,120	**56,773**
2030	50,204	1,158	5,120	**56,482**
2035	50,986	1,158	5,120	**57,264**
2040	52,118	1,158	5,120	**58,396**

Note:
(1) Total influent flows include solids, which are conveyed to Hyperion Treatment Plant as "Return Flows"

Table 23 DCTWRP Influent Flows - Dry Year Conditions One Water LA 2040 Plan – TM 2.1

Year	Indoor Water Use (AFY)	Contract Agency (AFY)	Stormwater Infiltration (AFY)	Total[1] Influent (AFY)
2020	46,668	1,158	628	**48,454**
2025	50,495	1,158	628	**52,281**
2030	50,204	1,158	628	**51,991**
2035	50,986	1,158	628	**52,772**
2040	52,118	1,158	628	**53,904**

Note:
(1) Total influent flows include solids, which are conveyed to Hyperion Treatment Plant as "Return Flows"

4.2.2 LA-Glendale WRP

Future wastewater influent flows to LAGWRP from the existing tributary area are projected to slightly increase to 24,292 AFY by year 2040 under normal hydrologic conditions as shown in Table 24, Table 25, and Table 26. The 2040 influent flows are projected to be 23,848 AFY and 24,576 AFY under dry and wet year conditions, respectively. Flow projections for DCTWRP by year and hydrologic condition are provided in Appendix B.

Table 24 LAGWRP Influent Flows - Normal Year Conditions One Water LA 2040 Plan – TM 2.1

Year	Indoor Water Use (AFY)	Contract Agency (AFY)	Stormwater Infiltration (AFY)	Total[(1)] Influent (AFY)
2020	2,566	20,881	546	**23,992**
2025	2,777	20,881	546	**24,203**
2030	2,761	20,881	546	**24,187**
2035	2,804	20,881	546	**24,230**
2040	2,866	20,881	546	**24,292**

Note:
(1) Total influent flows include solids, which are conveyed to Hyperion Treatment Plant as "Return Flows"

Table 25 LAGWRP Influent Flows - Wet Year Conditions One Water LA 2040 Plan – TM 2.1

Year	Indoor Water Use (AFY)	Contract Agency (AFY)	Stormwater Infiltration (AFY)	Total[(1)] Influent (AFY)
2020	2,566	20,881	829	**24,276**
2025	2,777	20,881	829	**24,487**
2030	2,761	20,881	829	**24,471**
2035	2,804	20,881	829	**24,514**
2040	2,866	20,881	829	**24,576**

Note:
(1) Total influent flows include solids, which are conveyed to Hyperion Treatment Plant as "Return Flows"

Table 26 LAGWRP Influent Flows - Dry Year Conditions One Water LA 2040 Plan – TM 2.1

Year	Indoor Water Use (AFY)	Contract Agency (AFY)	Stormwater Infiltration (AFY)	Total[(1)] Influent (AFY)
2020	2,566	20,881	102	**23,548**
2025	2,777	20,881	102	**23,759**
2030	2,761	20,881	102	**23,743**
2035	2,804	20,881	102	**23,786**
2040	2,866	20,881	102	**23,848**

Note:
(1) Total influent flows include solids, which are conveyed to Hyperion Treatment Plant as "Return Flows"

4.2.3 Hyperion Treatment Plant

Future wastewater influent flows to HWRP from the existing tributary area are projected to increase to 313,582 AFY by year 2040 under normal hydrologic conditions as shown in Table 27, Table 28, and Table 29. The 2040 influent flows are projected to 301,424 AFY and 320,298 AFY under dry and wet year conditions, respectively. Flow projections for DCTWRP by year and hydrologic condition are provided in Appendix B.

Table 27 HWRP Influent Flows - Normal Year Conditions
One Water LA 2040 Plan – TM 2.1

Year	Indoor Water Use (AFY)	Contract Agency (AFY)	Stormwater Infiltration (AFY)	Return Flows from LAGWRP and DCTWRP (AFY)	Total (AFY)
2020	213,795	40,608	13,864	18,690	**286,956**
2025	231,328	40,608	13,864	19,853	**305,653**
2030	229,997	40,608	13,864	19,765	**304,234**
2035	233,577	40,608	13,864	20,003	**308,051**
2040	238,763	40,608	13,864	20,347	**313,582**

Table 28 HWRP Influent Flows - Wet Year Conditions
One Water LA 2040 Plan – TM 2.1

Year	Indoor Water Use (AFY)	Contract Agency (AFY)	Stormwater Infiltration (AFY)	Return Flows from LAGWRP and DCTWRP (AFY)	Total (AFY)
2020	213,795	40,608	21,050	18,318	**293,771**
2025	231,328	40,608	21,050	19,431	**312,417**
2030	229,997	40,608	21,050	19,330	**310,985**
2035	233,577	40,608	21,050	19,554	**314,789**
2040	238,763	40,608	21,050	19,877	**320,298**

Table 29 HWRP Influent Flows - Dry Year Conditions
One Water LA 2040 Plan – TM 2.1

Year	Indoor Water Use (AFY)	Contract Agency (AFY)	Stormwater Infiltration (AFY)	Return Flows from LAGWRP and DCTWRP (AFY)	Total (AFY)
2020	213,795	40,608	2,584	17,813	**274,798**
2025	231,328	40,608	2,584	18,976	**293,495**
2030	229,997	40,608	2,584	18,888	**292,076**
2035	233,577	40,608	2,584	19,125	**295,893**
2040	238,763	40,608	2,584	19,469	**301,424**

4.2.4 Terminal Island WRP

Future wastewater influent flows to TIWRP from the existing tributary area are projected to increase to 20,306 AFY by year 2040 under normal hydrologic conditions as shown in Table 30, Table 31, and Table 32. The 2040 influent flows are projected to be 19,201 AFY and 20,306 AFY under dry and wet year conditions, respectively. Flow projections for DCTWRP by year and hydrologic condition are provided in Appendix B.

Table 30 TIWRP Influent Flows - Normal Year Conditions
One Water LA 2040 Plan – TM 2.1

Year	Indoor Water Use (AFY)	Contract Agency (AFY)	Stormwater Infiltration (AFY)	Total (AFY)
2020	16,452	354	1,580	**18,385**
2025	17,801	354	1,580	**19,734**
2030	17,698	354	1,580	**19,632**
2035	17,974	354	1,580	**19,907**
2040	18,373	354	1,580	**20,306**

Table 31 TIWRP Influent Flows - Wet Year Conditions
One Water LA 2040 Plan – TM 2.1

Year	Indoor Water Use (AFY)	Contract Agency (AFY)	Stormwater Infiltration (AFY)	Total (AFY)
2020	16,452	354	2,398	**19,204**
2025	17,801	354	2,398	**20,553**
2030	17,698	354	2,398	**20,450**
2035	17,974	354	2,398	**20,726**
2040	18,373	354	2,398	**21,125**

Table 32 TIWRP Influent Flows - Dry Year Conditions
One Water LA 2040 Plan – TM 2.1

Year	Indoor Water Use (AFY)	Contract Agency (AFY)	Stormwater Infiltration (AFY)	Total (AFY)
2020	16,452	354	294	**17,100**
2025	17,801	354	294	**18,449**
2030	17,698	354	294	**18,347**
2035	17,974	354	294	**18,622**
2040	18,373	354	294	**19,021**

4.3 Future Wastewater Flows by Sewershed

The future wastewater flows are estimated by calculating the total of the following flow components that are each described in more detail below:

- **City Sewer Flows –** These flows include flows from residential, commercial, industrial users within the City water service area boundary.
- **Contract Agency Flows –** These wastewater flows are generated within the service areas of the City's 29 contracting agencies that discharge flows into the City's sewer collection system at various locations.
- **Stormwater Infiltration –** These are the estimated annualized flows that enter the sewer collection system during and following wet weather events.

4.3.1 City Base Sewer Flows

The total base sewer flows generated within the City boundary are based on the indoor water demand, which is based on the 2015 billing data from the City as well as the 2015 UWMP. As part of the data gathering effort for this TM, the flows of the major industrial wastewater dischargers were provided by City staff. It should be noted that the industrial wastewater flow discharges are included in the City base sewer flows presented in Table 33.

Table 33 Future City Base Sewer Flows
One Water LA 2040 Plan – TM 2.1

Year	(AFY)
2020	279,480
2025	302,400
2030	300,660
2035	305,340
2040	312,120

Note:
(1) Table is broken down by Sewershed and by Treatment Plant in Appendix B.

As shown in Table 33, it is projected that the total City base sewer flows are constant for all hydrologic conditions. The industrial wastewater flows (51,157 AFY) are assumed to be constant for all planning years as well as the flow from the contract agencies (63,000 AFY).

4.3.2 Contract Agency Flows

The list of the contract agencies, as well as a summary of the contract agency flows by sewershed, is included in Appendix B. The total contract agency flows for the normal, wet, and dry hydrological conditions utilized for the future planning projections were 63,000 AFY. However, a study to further evaluate the future contract agency flows is recommended for all or at least the top five contract agencies. A summary of the contract agency flows is listed in Appendix C.

4.3.3 Stormwater Infiltration

The total amount of stormwater infiltration on the normal, wet, and dry hydrologic conditions is summarized in Table 34. As shown, the amount of stormwater that infiltrates into the sewers varies with the amount of rainfall that occurs, which is included in the RDI/I total. Appendix B contains information on how the infiltration varies between a normal, wet, and dry year. Additionally this appendix contains the amount of stormwater infiltration that contributes to each sewershed.

Table 34 Stormwater Infiltration
One Water LA 2040 Plan – TM 2.1

Year	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
2020	19,362	29,397	3,608
2025	19,362	29,397	3,608
2030	19,362	29,397	3,608
2035	19,362	29,397	3,608
2040	19,362	29,397	3,608

Note:
(1) Table is broken down by Sewershed and by Treatment Plant in Appendix B.

As shown in Table 34, it is anticipated the amount of stormwater infiltration during a wet year is nearly 50 percent greater (29,397 AFY) than a normal year (19,362 AFY). However, the amount of stormwater infiltration during a normal year is assumed to be almost five times the amount of stormwater infiltration during a dry year (3,608 AFY).

4.3.4 Total Wastewater Flows

The total wastewater flows for normal, wet, and dry years are shown in Table 35, Table 36, and Table 37, respectively. As shown, the contract agency flows and the indoor water usage of 60 percent remain constant between all three hydrologic conditions. However, the stormwater infiltration varies by hydrologic condition.

Table 35 Future Wastewater Flows - Normal Year Conditions One Water LA 2040 Plan – TM 2.1

Year	City Base Sewer Flows (AFY)	Contract Agency (AFY)	Stormwater Infiltration (AFY)	Total (AFY)
2020	279,480	63,000	19,362	**361,842**
2025	302,400	63,000	19,362	**384,762**
2030	300,660	63,000	19,362	**383,022**
2035	305,340	63,000	19,362	**387,702**
2040	312,120	63,000	19,362	**394,482**

Table 36 Future Wastewater Flows - Wet Year Conditions One Water LA 2040 Plan – TM 2.1

Year	City Base Sewer Flows (AFY)	Contract Agency (AFY)	Stormwater Infiltration (AFY)	Total (AFY)
2020	279,480	63,000	29,397	**371,877**
2025	302,400	63,000	29,397	**394,797**
2030	300,660	63,000	29,397	**393,057**
2035	305,340	63,000	29,397	**397,737**
2040	312,120	63,000	29,397	**404,517**

Table 37 Future Wastewater Flows - Dry Year Conditions One Water LA 2040 Plan – TM 2.1

Year	City Base Sewer Flows (AFY)	Contract Agency (AFY)	Stormwater Infiltration (AFY)	Total (AFY)
2020	279,480	63,000	3,608	**346,088**
2025	302,400	63,000	3,608	**369,008**
2030	300,660	63,000	3,608	**367,268**
2035	305,340	63,000	3,608	**371,948**
2040	312,120	63,000	3,608	**378,728**

As shown in Table 35, Table 36, and Table 37, the future wastewater flows are projected to slightly increase between year 2020 and year 2040 under all hydrologic conditions.

5.0 RECYCLED WATER

This section describes the data sources used to estimate the future recycled water supplies and demands presented in this TM. Subsequently, the recycled water supplies and recycled water demands are presented.

5.1 Methodology

The recycled water flows discussed in this section refer to the effluent from each of the City's four wastewater treatment plants. This section presents the recycled water data sources and flow components used to project future recycled water supplies and demands.

5.1.1 Data Sources

The future recycled water flows are based on data provided by LADWP's 2015 UWMP, the Recycled Water Annual Report - Fiscal Year 2014-15 (LADWP, 2015a), as well as conversations with LADWP's water recycling group staff.

5.1.2 Recycled Water Uses

Recycled water use currently includes the following:

- Environmental uses,
- Non-potable reuse such as irrigation and industrial use,
- Seawater intrusion barrier injection,
- Secondary effluent that is sold for further treatment and reuse.

5.1.3 Key Assumptions

To project the future recycled water supplies and demands, the following methodology was used:

- Future recycled water supplies were calculated using the projected wastewater flows from a combination of the City customer's indoor water demands, contract agency flows, and stormwater infiltration.
- The total plant influent flows were distributed based on the percentages shown in Table 2.
- Treatment plant losses and return flows to HWRP (from DCTWRP and LAGWRP only) were deducted from the calculated influent flows to derive the treatment plant effluent flows (This is the City's recycled water supplies).

- The recycled water demands were calculated by combining the following flow components:
  - The projected Title 22 customers for year 2040 were obtained from LADWP's 2015 UWMP as well as the Annual Recycled Water Report for FY 2014/15. Phasing of demands was assumed to be implemented based on the 2015 UWMP.
  - The environmental uses supplied from DCTWRP were assumed to remain constant from existing conditions (26,600 AFY), while deliveries to Machado Lake (140 AFY) were assumed to start in 2017 (before planning year 2020).
  - The groundwater replenishment project in San Fernando Basin (up to 30,000 AFY) supplied from DCTWRP was assumed to be realized in 2023 (before planning year 2025).
  - Based on ongoing/recent negotiations, deliveries to West Basin Municipal Water District (WBMWD) for further treatment was increased from 45 mgd (year 2015) to 70 mgd as of year 2020, and kept constant through year 2040.

5.2 Future Recycled Water Supplies

The projected recycled supplies from each of the City's four wastewater treatment plants are discussed below and summarized in Table 38 for normal year conditions.

Table 38 Projected Effluent Flows - Normal Year Conditions One Water LA 2040 Plan – TM 2.1

Recycled Water Supply Source	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)	2040 (AFY)
DCTWRP	38,911	41,819	41,598	42,192	43,053
LAGWRP	20,448	20,627	20,614	20,650	20,704
HWRP	283,732	302,188	300,787	304,555	310,015
TIWRP	17,351	18,624	18,528	18,788	19,164
Totals	**360,441**	**383,259**	**381,526**	**386,186**	**392,935**

As shown in Table 38, the total available recycled water supply is projected to increase from 360,441 AFY in year 2020 to 392,935 AFY by 2040. This supply reflects the estimated treatment plant effluent after treatment losses and return flows from DCTWRP and LAGWRP to HWRP.

The projected recycled supplies from each of the City's four wastewater treatment plants are discussed below and summarized in Table 39 for wet year conditions.

Table 39 Projected Effluent Flows - Wet Year Conditions
One Water LA 2040 Plan – TM 2.1

Recycled Water Supply Source	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)	2040 (AFY)
DCTWRP	40,239	43,148	42,927	43,521	44,381
LAGWRP	20,689	20,869	20,855	20,892	20,945
HWRP	291,523	309,992	308,590	312,361	317,824
TIWRP	18,124	19,397	19,300	19,560	19,937
Totals	**370,575**	**393,405**	**391,672**	**396,333**	**403,087**

As shown in Table 39, the total available recycled water supply is projected to increase from 370,575 AFY in year 2020 to 403,087 AFY by 2040. This supply reflects the estimated treatment plant effluent after treatment losses and return flows from DCTWRP and LAGWRP to HWRP.

The projected recycled supplies from each of the City's four wastewater treatment plants are discussed below and summarized in Table 40 for dry year conditions.

Table 40 Projected Effluent Flows - Dry Year Conditions
One Water LA 2040 Plan – TM 2.1

Recycled Water Supply Source	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)	2040 (AFY)
DCTWRP	36,825	39,734	39,513	40,107	40,967
LAGWRP	20,070	20,249	20,235	20,272	20,325
HWRP	271,886	290,355	288,953	292,724	298,187
TIWRP	16,138	17,411	17,315	17,575	17,951
Totals	**344,919**	**367,749**	**366,016**	**370,678**	**377,431**

Note:
(1) A recycled water customer list for each treatment plant is included in Appendix B

As shown in Table 40, the total available recycled water supply is projected to increase from 344,919 AFY in year 2020 to 377,431 AFY by 2040. This supply reflects the estimated treatment plant effluent after treatment losses and return flows from DCTWRP and LAGWRP to HWRP.

In addition to these existing recycled water supply sources, LADWP identified potential new recycled supplies. These include:

- Purchasing recycled water from nearby agencies, such as Las Virgenes Municipal Water District (LVMWD), Burbank Water and Power (BWP), WBMWD, and Central Basin Municipal Water District (CBMWD); and
- New satellite treatment facilities. Although new satellite facilities would reduce the recycled water supply at HWRP, opportunities to reach potential customers that are far from the existing recycled water system would become possible.

5.2.1 Donald C. Tillman WRP

DCTWRP produces disinfected tertiary recycled water and has a treatment capacity of 80 mgd. In FY 2014-2015, DCTWRP treated a total of 38,080 AFY (34 mgd) of influent sewage, of which nearly 28,000 AFY (25 mgd) of recycled water was produced. As listed in Table 38 and Table 40, the future effluent flows are projected to range from 40,967 AFY (dry year) to 44,381 AFY (normal year) by the year 2040, respectively. Hence, the existing WRP facility has sufficient capacity to treat these flows.

Currently, most the recycled water is put to beneficial use as environmental uses via the flow-through lakes at DCTWRP (Lake Balboa, the Japanese Garden and the Wildlife Lake), prior to discharge to the LA River. Expansion of the purple pipe network is expected to increase recycled to approximately 3,400 AFY, while the planned San Fernando Basin groundwater replenishment project is expected to provide up to 30,000 AFY of recycled water.

5.2.2 LA-Glendale WRP

LAGWRP also produces disinfected tertiary recycled water and has a treatment capacity of 20 mgd. In FY 2014-2015, DCTWRP treated a total of 15,450 AFY (14 mgd) of influent sewage, of which nearly 4,700 AFY (4.2 mgd) of recycled water was produced. Of this total, 50 percent is allocated to the City of Los Angeles and 50 percent is allocated to the City of Glendale. As listed in Table 38 and Table 39, the future effluent flows are projected to range from 17,951 AFY (dry year) to 20,945 AFY (wet year) by the year 2040, respectively. Hence, the existing LAGWRP facility has sufficient capacity to treat these flows.

Currently, most of the recycled water is put to beneficial use for irrigation. Expansion of the purple pipeline network in the cities of LA, Glendale, Burbank, and Pasadena are projected to increase recycled water demands that would be supplied from the LAGWRP.

5.2.3 Hyperion Treatment Plant

HWRP produces secondary effluent and has a treatment capacity of 450 mgd. In FY 2014-2015, HWRP treated a total of 294,560 AFY (263 mgd) of influent sewage, of which 39,200 AFY (35 mgd) was purchased by WBMWD for reuse. Currently, most of the plant effluent is discharged to the ocean. As listed in Table 38 and Table 40, the future effluent flows are projected to range from 298,187 AFY (dry year) to 317,824 AFY (wet year) conditions by the year 2040, respectively. Hence, the existing HWRP facility has sufficient capacity to treat these flows.

Currently, most of the recycled water is used by WBMWD, while about 900 AFY is utilized by the City's Title 22 customers. Both WBMWD and the City are projected to increase its recycled water demand.

5.2.4 Terminal Island WRP

TIWRP produces disinfected tertiary recycled water as well as advanced treated recycled water. The plant has a treatment capacity of 33,600 AFY (30 mgd), and an advanced treatment capacity of 5,040 AFY (4.5 mgd). In FY 2014-2015, TIWRP treated a total of 17,920 AFY (16 mgd) of influent sewage, of which 4,433 AFY (4.0 mgd) was reused, primarily at the Dominguez Gap Seawater Intrusion Barrier wells.

As listed in Table 38 and Table 39, future effluent flows in year 2040 are projected to range from 17,951 AFY (dry year) to 19,937 AFY (wet year) conditions. Hence, the existing TIWRP facility does have sufficient capacity to treat these flows.

5.3 Future Recycled Water Demands

Through the development of LADWP's 2012 Recycled Water Master Plan (RWMP), the 2015 UWMP, and the FY 2014-15 Recycled Water Annual Report, the City has outlined an approach to expanding the recycled program.

Recycled water demands can be separated into four categories, Title 22 Customers, Environmental Uses, WBMWD, and barrier demands. The projected future use of recycled water for each category is discussed below.

5.3.1 City of LA's Recycled Water Demand (NPR)

As shown in Table 41, the City's non-potable reuse (NPR) demand is projected to increase from approximately 10,400 AFY to 45,400 AFY. This includes purchasing recycled water from nearby agencies as well as expanding or building new treatment facilities that would increase recycled water opportunities.

Table 41 Projected Recycled Water Customer Demand
One Water LA 2040 Plan – TM 2.1

Recycled Water Supply Source	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)	2040 (AFY)
DCTWRP(1)	3,400	3,400	3,400	3,400	3,400
LAGWRP	3,600	6,200	6,200	6,200	6,200
HWRP	1,100	1,300	3,400	4,000	5,000
TIWRP	11,300	11,500	11,500	11,500	11,500
Non-LASAN Source(2)	400	600	3,500	6,100	8,300
HWRP or Joint Harbor Exp.(3)	0	6,000	11,000	11,000	11,000
Totals	**19,800**	**29,000**	**39,000**	**42,200**	**45,400**

Notes:
(1) The demands served from DCTWRP do not include 30,000 AFY for GWR.
(2) Non-LASAN sources include potential supply from agencies outside of the City (i.e. Burbank Water and Power and Las Virgenes Municipal Water District).
(3) Flows from either HWRP, County Joint Plant, or Carson Plant that will be treated and used.

5.3.2 Environmental Uses

As shown in Table 42, the City's recycled water demand for environmental uses is projected to increase to 26,740 AFY by the year 2020 and remain constant through the year 2040. The only planned increase at this time is 140 AFY recycled water supply to Machado Lake from TIWRP by year 2017. HWRP and LAGWRP are not projected to have environmental uses.

Table 42 Projected Recycled Water - Environmental Uses One Water LA 2040 Plan – TM 2.1

Recycled Water Supply Source	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)	2040 (AFY)
DCTWRP	26,600	26,600	26,600	26,600	26,600
TIWRP	140	140	140	140	140
Totals	**26,740**	**26,740**	**26,740**	**26,740**	**26,740**

5.3.3 West Basin MWD Recycled Water Demand

WBMWD currently purchases 35 mgd (or 39,200 AFY) of secondary effluent from HWRP and treats to various levels based on customer water quality needs. WBMWD recycled water customers include the West Coast Basin Seawater Intrusion Barrier, irrigation customers and industrial customers.

The City and WBMWD are currently renegotiating a new Memorandum of Understanding (MOU). It is expected that the deliveries to WBMWD will increase in the future. The maximum delivery amount is currently constrained to 70 mgd, which is the discharge capacity of the pump station at Hyperion. For purposes of this TM, deliveries to West Basin are presented to calculate the balance that is discharged to the Ocean.

As listed in Table 43, the WBMWD's Title 22 customer usage is estimated to range from 23,800 AFY in the year 2020 to 19,900 AFY by the year 2040. The total excludes effluent from HWRP that is treated and sent back to the City as well as barrier demands.

Table 43 West Basin Customer Demand One Water LA 2040 Plan – TM 2.1

Recycled Water Supply Source	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)	2040 (AFY)
WBMWD	23,800	23,600	21,500	20,900	19,900

5.3.1 City of Glendale's Recycled Water Demand

The City of Los Angeles and the City of Glendale are each allocated 50 percent of the recycled water produced from LAGWRP. By the year 2040, the City of LA is anticipated to utilize approximately 6,200 AFY and the City of Glendale is anticipated to utilize approximately 4,887 AFY of recycled water for irrigation and dust control.

5.3.2 Seawater Intrusion Barriers

HWRP via WBWMD, and TIWRP discharge recycled water into the groundwater in locations where the ocean water meets the groundwater basins. This prevents ocean water from intruding into the groundwater basins.

The Westside Barrier utilized approximately 14,300 AFY of recycled water from HWRP via the Edward C. Little Water Reclamation Facility (ECLWRF), while the Dominguez Gap Barrier (DGB) utilized about 4,432 AFY of recycled water from TIWRP in FY 2014-2015. Hence, a total of 18,732 AFY of recycled water is discharged through groundwater barriers.

As listed in Table 44, it is expected that the barrier demands remain constant in the future. The Westside Barrier's recycled water source comes from HWRP and the DGB comes from TIWRP.

Table 44 Seawater Intrusion Barrier Demands One Water LA 2040 Plan – TM 2.1

Intrusion Barrier Name	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)	2040 (AFY)
Westside Barrier	14,300	14,300	14,300	14,300	14,300
Dominguez Gap Barrier	6,932	6,932	6,932	6,932	6,932
Total	**21,232**	**21,232**	**21,232**	**21,232**	**21,232**

5.3.3 Total Recycled Water Demand

The total projected use of recycled water from the City's four treatment plants are summarized in Table 45. As shown, the combined recycled water demand is currently estimated to increase from 19,800 AFY in 2020 to 75,400 AFY by year 2040. The total recycled water demand excludes WBMWD (Westside Barrier and customer demands) and environmental uses.

Table 45 Total Recycled Water Demands by Source
One Water LA 2040 Plan – TM 2.1

Year	2020	2025	2030	2035	2040
DCTWRP(1)	3,400	33,400	33,400	33,400	33,400
LAGWRP	3,600	6,200	6,200	6,200	6,200
HWRP(2)	1,100	1,300	3,400	4,000	5,000
TIWRP(3)	11,300	11,500	11,500	11,500	11,500
Non-LASAN(4)	400	600	3,500	6,100	8,300
HWRP or Joint Harbor Exp(5)	0	6,000	11,000	11,000	11,000
Total	**19,800**	**59,000**	**69,000**	**72,200**	**75,400**

Notes:
(1) Includes NPR demands and 30,000 AFY of IPR starting in 2025.
(2) Flows do not include deliveries to West Basin, which are expected to increase in the future with the new MOU. Includes the City's Title-22 Customers
(3) Includes NPR Customer Demands and Barrier Demands.
(4) Non-LASAN sources include potential supply from agencies outside of the City (i.e. Burbank Water and Power and Las Virgenes Municipal Water District).
(5) Flows from either HWRP, County Joint Plant, or Carson Plant that will be treated and used.

Some of the key changes in recycled water use necessary to achieve more than 75,400 AFY by year 2040 are as follows:

- DCTWRP: Up to 30,000 AFY of groundwater recharge in the San Fernando Basin
- LAGWRP: Expansion of the purple pipe network with large customers such as, Roosevelt Golf Course, Elysian Park, and Downtown LA.
- TIWRP: Expansion of the purple pipe network with large customers such as Harbor Park Golf Course, Dominguez Gap Barrier Expansion, and environmental flows to Machado Lake.
- HWRP: Expansion of the purple pipe network with large customers such as Scattergood Generation Station, LAX, and Playa Vista Development and 11,000 AFY expansion of recycled water for the Harbor Area
- Non-LASAN: 8,300 AFY includes the City of Burbank and Las Virgenes Municipal Water District (via the Tapia Water Reclamation Plant).

6.0 STORMWATER RUNOFF

This chapter presents results of modeling conducted to estimate the distribution of the average annual incoming flows to the City between infiltration, evapotranspiration (ET), and runoff for 15 subwatersheds within the City under future conditions in 2020, 2025, 2030, 2035, and 2040. These results distinguish between stormwater that is managed (for water quality compliance or other reasons) versus stormwater that infiltrates into usable aquifers, producing a water supply benefit. A similar distribution for a wet year and a dry year is also included along with the flow volume for each reach in the LA River under future conditions for the average annual, wet year, and dry year.

The City and its partners have planned significant investments in stormwater capture programs, policies, and projects over the next 25 years. These investments are geared towards meeting permitting requirements for water quality, flood control, and hydromodification as well as meeting water supply needs. Many projects have multiple benefits. For example, a stormwater infiltration basin built to decrease pollutant loading to receiving waters can also provide water to groundwater aquifers if it is located over aquifers and provides adequate treatment of the runoff. Each of these projects could affect the distribution of stormwater flows in the City by decreasing the amount of runoff to rivers and streams, increasing the infiltration to usable aquifers, or increasing the volume of water that is evapotranspired.

6.1 Methodology

6.1.1 Stormwater Flow Components

There are three main sources of water that can contribute to stormwater flows in the City:

- **Precipitation:** Defined as precipitation which falls over the City;
- **Run-on:** Runoff from portions of the watersheds upstream of the City;
- **Irrigation:** Defined as water utilized for irrigation applied within the City.

These sources of stormwater inflows ultimately contribute to the following categories:

- **Natural Groundwater Recharge:** Stormwater that passively infiltrates into the ground through permeable surfaces. Some of the water that is infiltrated through permeable surfaces is infiltrated to usable aquifers (i.e. aquifers which can be pumped to serve as a source of potable water);
- **Evapotranspiration and Other Losses:** Stormwater that is used by plants or evaporated directly or infiltrated into perched aquifers or aquifers not usable by the City;
- **Stormwater Infiltration BMPs:** Stormwater that is infiltrated into groundwater basins via stormwater capture facilities;
- **Low Flow Diversions:** Stormwater that diverted from the storm drain system to the wastewater treatment plants;

- **Capture and Direct Use:** Stormwater that is collected by customers and is directly used for their irrigation needs (Example: rain barrels); and
- **Stormdrain Discharges:** Stormwater that runs off into rivers and the ocean.

6.1.2 Data Sources

Several planning studies have been conducted in the past two years to develop implementation plans for stormwater capture project and estimate their expected impact. The following data sources were reviewed as part of this TM:

- The Los Angeles Stormwater Capture Master Plan (SCMP) (LADWP, 2015)
- The Enhanced Watershed Management Program (EWMP) for the Upper LA River EWMP Group (Upper Los Angeles River EWMP Group, 2015)
- The EWMP for the Ballona Creek Watershed (Ballona Creek Watershed Management Group, 2015)
- The EWMP for the Dominguez Channel Watershed Management Area Group (Dominguez Channel Watershed Management Area Group, 2015)
- The Santa Monica Bay Jurisdictional Group 2 and 3 EWMP (City of Los Angeles, et al., 2015)
- The Marina del Rey EWMP Plan (Marina del Rey Enhanced Watershed Management Program Agencies, 2015)

Five EWMP reports were reviewed for information that would be relevant for quantification of the future flows. The EWMPs present suites of stormwater capture projects and programs designed to meet water quality requirements in the 2015 MS4 permit. They typically involve several different cities, and are based on a critical condition, often the 90th percentile year or day. The EWMP reports define the amount of stormwater managed to meet water quality compliance in the urban environment.

The SCMP presents estimates for stormwater capture based on projects and programs expected to be implemented throughout the City over the next 20 years, including as a result of partial EWMP implementation. SCMP projects focus on stormwater capture, where the stormwater can be recharged into groundwater aquifers usable to the City as water supply. Stormwater capture estimates in the SCMP are broken down by centralized and distributed type projects, subwatersheds, aquifer class, and infiltration and direct use projects. The SCMP reports average annual estimates for 5, 10, 15, and 20 years in the future. The SCMP also presents two future scenarios (conservative and aggressive). For the purposes of this tasks, only stormwater capture estimates from the aggressive scenario was used.

6.1.3 Flow Estimating Methodology

This stormwater flow estimates presented in this TM are based on the same subwatersheds and aquifer classes created in the SCMP. The existing conditions flows were taken from TM 1.2, which were obtained from adaptation of the SCMP methods. The inflow and outflow types, as well as the reaches in the LA River are the same as those used in TM 1.2.

The average capture volumes from the conservative scenario presented in the SCMP for centralized and distributed capture were used to adjust the existing runoff, evapotranspiration, and aquifer recharge volumes to reflect 5, 10, 15, 20, and 25 years of stormwater infrastructure investment. The capture volumes for the 5-, 10-, 15-, and 20-year periods were taken from the SCMP results, and the 25-year capture volumes were set equal to the 20-year volumes since all SCMP and EWMP BMPs are expected to be implemented by then.

For each subwatershed, the existing aquifer recharge from TM 1.2 was analyzed, and the dominant groundwater basin being recharged was determined. Most of the subwatersheds were dominated by a single aquifer class as presented in Table 46. The Narrows Arroyo Seco subwatershed and the Other LAR subwatershed were divided between aquifer classes. Additionally, the subwatersheds were distributed between multiple basins as presented in Table 46.

Table 46 Groundwater Basin Allocations for Stormwater Subwatershed One Water LA 2040 Plan – TM 2.1

Subwatershed	Aquifer Class	Dominant Groundwater Basin
Dominguez Channel	3	88% West Coast, 12% Central
Hansen-Tujunga SG	1	San Fernando
Lower LAR	2	Central
Narrows and Arroyo Seco	70% 1, 30% 2	San Fernando; Central
North SM Bay	3	West Coast
South SM Bay/Pen	3	West Coast
Verdugo Wash	3	San Fernando
Northeast San Fernando Valley	1	San Fernando
East San Fernando Valley	1	San Fernando
Branford SB	1	San Fernando
West San Fernando Valley	1	San Fernando
Lower Ballona Creek	3	40% West Coast, 60% Central
Upper Ballona Creek	2	Central
Other LA River	50% 2, 50% 3	Central
Lopez-Pacoima SG	1	San Fernando

The capture from each subwatershed was used to adjust the existing flow distribution as follows:

- Total average annual capture volume for all of the centralized and distributed facilities in each subwatershed was subtracted from the runoff volume from that subwatershed;
- The subtracted runoff volume from the centralized facilities was added to the aquifer recharge for the dominant aquifer class for that subwatershed if the subwatershed was dominated by aquifer class 1 or 2. If the subwatershed was dominated by aquifer class 3, then the capture in the centralized facilities was added to the "evapotranspiration (ET) and other losses". For those subwatersheds that were split between aquifer classes, the volume was proportionally split;
- The subtracted runoff from the distributed facilities in geophysical categories A and B (most conducive to infiltration) were added to the recharge of the dominant aquifer class for that subwatershed. If the dominant aquifer class was 3, then the volume was added to "ET and other losses";
- The subtracted runoff from the distributed facilities in geophysical category C (not conducive to infiltration) was added the "ET and other losses";
- The subtracted runoff from each subwatershed was also subtracted from the LA River flow volumes for each reach that is downstream of that subwatershed;

The estimates obtained using the SCMP data were all for the average year. In order to estimate the changes for the wet year and dry year, the percent change for each parameter during the average year for each subwatershed (as a percentage of the baseline runoff) was calculated and applied to the dry year and wet year baseline results (See Section 6 of TM 1.2).

Inflows to the City (precipitation, irrigation, and run-on from upstream areas) were not adjusted from the existing condition. While precipitation and runoff from upstream will likely be affected by climate change and development, these were not included in this task, but can be incorporated into later tasks. Also, runoff volumes entering the City from outside City boundaries were unchanged. This does not account for any additional capture over the next 25 years in areas outside of the City. This could affect the capture volume in some of the centralized facilities and the runoff volumes in the LA River.

In order to tailor the results to the Blue Plan-it model, the results for each subwatershed were aggregated into the San Fernando, Central, and West Coast groundwater basins based on which of these three basins the portion of each subwatershed within the City overlies. The subwatersheds were distributed between those three basins, where necessary, though most were dominated by a single subwatershed as listed in Table 46.

6.1.4 Key Assumptions

Key assumptions used in the determination of stormwater flows presented herein include:

- The capture volumes in the stormwater capture master plan are representative of all stormwater infrastructure that affects flow volumes over the next 20 years. It was assumed that all stormwater infrastructure in the SCMP and the EWMPs will be implemented within 20 years, so the 25-year scenario is the same as the 20-year scenario.
- Additional capture of stormwater in areas outside the City was not taken into account for determining flows in the rivers
- The percent change in the water balance in wet and dry years will be approximately the same as the average annual year
- Average annual stormwater inflows (precipitation, irrigation, and run-on from upstream) do not change over the next 25 years, and the wettest year (WY 2005) and driest year (WY 2007) from 1989 to 2011 are representative of a typical wet year and a typical dry year for the next 25 years. No adjustment was made for the effects of potential climate change.
- All water infiltrated by stormwater BMPs in areas conducive to groundwater recharge contributes to groundwater recharge
- The land use in the City remains approximately the same as the existing condition over the next 25 years, and the fraction of impervious areas remains approximately the same except for stormwater infiltration BMPs.

6.2 Future Stormwater Inflows

The inflows summarized by planning year for use in the Blue Plan-it model are summarized in Table 47, while the inflows (precipitation, irrigation, and run-on from upstream of City) are summarized by subwatershed, and groundwater basins in Appendix B.

Table 47 Future Stormwater Inflows (Rainfall, Irrigation, and Run-On)
One Water LA 2040 Plan – TM 2.1

Year	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
2020	831,399	1,840,372	360,344
2025	831,399	1,840,372	360,344
2030	831,399	1,840,372	360,344
2035	831,399	1,840,372	360,344
2040	831,399	1,840,372	360,344

Note:
(1) Breakdown by Basin is in Appendix B

As expected and as shown in Table 47, the total inflow is much higher on the wet years and lower on the dry years. The total wet year stormwater inflows are about double the normal years' stormwater inflows and more than five times higher than the stormwater inflows generated during dry years.

The inflows (precipitation, irrigation, and run-on from outside the City) are summarized by subwatershed and groundwater basins in Appendix B. Since it was assumed that inflows would remain approximately the same over the next 25 years, the inflows in Table 47 are all the same as the baseline condition (2015).

Note that the values listed in Table 47 only reflect precipitation and irrigation over the City and run-on from portions of the watersheds upstream of the City. Precipitation that occurs on the portion of the watersheds upstream that contribute runoff to the City, as reported with the Load Simulation Program C++ (LSPC) stormwater mode, contributes to run-on, but a significant fraction of the precipitation is infiltrated or evapotranspired and does not run-on to the City. Hence the total stormwater flows listed in Table 47 are therefore lower than the precipitation reported under Section 6.1.3.

6.3 Stormwater Outflows

Stormwater outflows are summarized in the following sections. Outflows from each subwatershed and groundwater basin are summarized in Appendix B.

6.3.1 Natural Groundwater Recharge

Groundwater recharge occurs where rainfall infiltrates into the soil. Since runoff is only captured in stormwater infiltration BMPs, natural groundwater recharge is not affected by the additional stormwater infrastructure expected over the next 25 years. This assumes that the amount of impervious area remains approximately the same for the next 25 years, and additional infiltration as a result of LID falls under the recharge from stormwater infiltration BMPs. As a result, natural groundwater recharge remains the same as baseline for all future conditions (see Table 48).

Table 48 Future Natural Groundwater Recharge
One Water LA 2040 Plan – TM 2.1

Year	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
2020	34,991	58,012	9,893
2025	34,991	58,012	9,893
2030	34,991	58,012	9,893
2035	34,991	58,012	9,893
2040	34,991	58,012	9,893

Note:
(1) Breakdown by Basin is in Appendix B

6.3.2 Stormwater Management BMPs

A number of additional stormwater management BMPs will be built in the next 25 years, which will increase the volume captured and infiltrated and decrease the runoff. Table 49 shows an estimate of stormwater captured and recharged into groundwater basins or used directly (SCMP, 2015). Table 50 shows an estimate of stormwater captured for water quality benefits, in order to meet water quality compliance goals (EWMPs, 2015). Calculations that show the amount of stormwater managed due to water quality compliance is described in Appendix D. Since these two methods of calculating stormwater volume are not the same and partially count the same projects, the higher of the two values in each watershed is used to calculate stormwater management BMPs. The summarized total volumes of stormwater management BMPs are shown in Table 51.

Table 49 Future Stormwater Managed through BMPs for Groundwater Recharge Normal Year
One Water LA 2040 Plan – TM 2.1

Year	Ballona Creek (AFY)	Santa Monica Bay/ Marina del Rey (AFY)	Upper LA River (AFY)	Dominguez Channel (AFY)	Total (AFY)
2020	2,923	0	45,035	0	**45,035**
2025	3,654	0	59,644	0	**63,298**
2030	3,654	0	66,670	0	**70,324**
2035	3,654	0	82,584	0	**86,238**
2040	3,654	0	82,584	0	**86,238**

Table 50 Future Stormwater Managed through BMPs for Water Quality Compliance Normal Year
One Water LA 2040 Plan – TM 2.1

Year	Ballona Creek (AFY)	Santa Monica Bay/ Marina del Rey (AFY)	Upper LA River (AFY)	Dominguez Channel (AFY)	Total (AFY)
2020	10,694	1,907	1,489	14	**14,104**
2025	14,258	2,543	12,925	1,034	**30,760**
2030	14,258	2,543	39,859	3,709	**60,369**
2035	14,258	2,543	52,644	6,583	**76,028**
2040	14,258	2,543	52,644	7,817	**77,262**

Table 51 Future Stormwater Managed through BMPs
One Water LA 2040 Plan – TM 2.1

Year	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
2020	61,096	196,217	8,945
2025	80,289	270,544	11,897
2030	89,604	300,634	13,632
2035	108,531	379,729	16,375
2040	110,458	386,165	16,664

Note:
(1) Breakdown by Basin is in Appendix B

As shown in Table 51, the amount of stormwater managed through BMPs is projected to increase by approximately 50 percent in normal and dry hydrologic scenarios, and more than double in wet scenarios over the next five years. This is due to the planned increase in overall BMPs throughout the City. Furthermore, by the year 2040 the amount of stormwater managed through BMPs is planned to grow by 200 percent for normal and dry scenarios, and grow by approximately 350 percent in wet scenarios.

6.3.3 Stormdrain Discharges to Creeks, Rivers, and Ocean

The total annual runoff from the City and areas upstream of the City that is discharged to the ocean via creeks and the LA River is shown in Table 52. This represents all of the runoff from the City and areas upstream of the City that reaches the rivers, creeks, and ocean that is not captured in stormwater capture BMPs.

Table 52 Future Stormwater Discharge to Creeks, LAR, and Ocean
One Water LA 2040 Plan – TM 2.1

Year	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
2020	347,785	932,352	64,414
2025	327,312	854,040	61,107
2030	313,523	817,795	58,952
2035	291,410	735,530	55,895
2040	289,383	728,894	55,531

Note:
(1) Breakdown by Basin is in Appendix B

The breakdown of this stormwater runoff from the City and areas upstream of the City that reaches the ocean flows is summarized in Table 53. The runoff from the City and areas upstream of the City that does not flow to the LA River flows to one of the other rivers or directly to the ocean from coastal areas.

As shown in Table 53, stormwater runoff to the LA River is much greater than (roughly double) the portion of stormwater flows to the Ballona Creek, Dominguez Channel, or other small coastal tributaries under all three hydrologic conditions. Table 53 also shows that the total amount of water discharged (lost) to the LA River and other water bodies, that ultimately all discharges into the Pacific Ocean, is projected to decrease substantially for all hydrologic conditions due the implementation of stormwater infiltration BMPs. Based on the estimated presented in TM 1.2 and Table 53, stormwater losses are projected to decrease between 2015 and 2040 by approximately 68,000 AFY, 268,000 AFY, and 11,000 AFY under normal, wet, and dry year conditions, respectively. A larger fraction of the decrease in runoff is projected to occur for the LA River than other creeks due to the larger opportunity areas for infiltration in places such as the San Fernando Valley.

Table 53 Future Stormwater Discharge to Creeks and Rivers
One Water LA 2040 Plan – TM 2.1

Year	Stormwater Discharge Body	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
2020	LA River	215,400	708,100	39,509
	Other Creeks and Ocean	132,385	224,252	24,904
	Total	**347,785**	**932,352**	**64,414**
2025	LA River	198,700	643,600	36,966
	Other Creeks and Ocean	128,612	210,440	24,142
	Total	**327,312**	**854,040**	**61,107**
2030	LA River	189,900	615,200	35,229
	Other Creeks and Ocean	123,623	202,595	23,723
	Total	**313,523**	**817,795**	**58,952**
2035	LA River	172,800	543,200	32,624
	Other Creeks and Ocean	118,610	192,330	23,271
	Total	**291,410**	**735,530**	**55,895**
2040	LA River	172,800	543,200	32,624
	Other Creeks and Ocean	116,583	185,694	22,907
	Total	**289,383**	**728,894**	**55,531**

Note:
(1) Breakdown by Basin is in Appendix B

6.3.4 Low Flow Diversions

The total annual stormwater that is diverted from the storm drains and routed to the wastewater treatment plants is listed in Table 54.

Table 54	Low Flow Diversions One Water LA 2040 Plan – TM 2.1		
Year	**Normal Year (AFY)**	**Wet Year (AFY)**	**Dry Year (AFY)**
2020	1,553	2,266	621
2025	1,553	2,266	621
2030	1,553	2,266	621
2035	1,553	2,266	621
2040	1,553	2,266	621

As shown in Table 54 the amount of water diverted in a dry year is 621 AFY. This diversion is more than doubled to 1,553 AFY in a normal year and is almost increased fourfold in a wet year.

6.3.5 Capture and Direct Use

The total annual of water that is capture and directly used is presented in Table 55.

Table 55	Capture and Direct Use One Water LA 2040 Plan – TM 2.1		
Year	**Normal Year (AFY)**	**Wet Year (AFY)**	**Dry Year (AFY)**
2020	400	400	100
2025	800	800	200
2030	1,200	1,200	300
2035	1,600	1,600	400
2040	2,000	2,000	500

As shown in Table 55, the dry year capture and direct use amounts are assumed to be 100 AFY in 2020 and increase by 100 AFY every five years. Normal and wet year capture and use is four times dry year use.

6.3.6 Evapotranspiration

The estimated amount of stormwater evapotranspiration by major groundwater basin area is listed in Table 56. When comparing these values with the total stormwater inflow listed in Table 47, it can be concluded that a significant amount of stormwater is lost annually to evapotranspiration, ranging from 30 percent under wet year conditions to 50 percent and 76 percent under normal and dry year conditions, respectively. The large fraction contributing to ET is partially a function of the irrigation which, ideally, would have no runoff and would be completely taken up by plants and evapotranspired.

Table 56	Future Stormwater Evapotranspiration One Water LA 2040 Plan – TM 2.1		
Year	**Normal Year (AFY)**	**Wet Year (AFY)**	**Dry Year (AFY)**
2020	385,535	548,160	276,740
2025	386,415	553,544	276,995
2030	390,489	559,398	277,315
2035	393,275	562,268	277,528
2040	392,975	562,168	277,503

Note:
(1) Breakdown by Basin is in Appendix B

6.3.7 Summary

A summary of inflows and outflows of stormwater from the stormwater model are presented in Table 57. The values in this table are taken from other tables throughout the chapter and are noted in the last column of Table 57.

Table 57	Stormwater Summary One Water LA 2040 Plan – TM 2.1			
Flow Category	**Normal Year (AFY)**	**Wet Year (AFY)**	**Dry Year (AFY)**	**Source Table**
Inflows(1)				
Rainfall, Irrigation, Run-On	831,399	1,840,372	360,344	Table 47
Outflows(1)				
2020				
Natural Groundwater Recharge	34,991	58,100	9,852	Table 48
Infiltration in BMPs (Centralized and Distributed)	61,096	196,217	8,945	Table 51
LA River	215,400	708,100	39,509	Table 53
Other Creeks and Ocean	132,385	327,257	24,904	Table 53
Low Flow Diversions	1,553	2,266	621	Table 54
Capture and Direct Use	400	400	100	Table 55
Evapotranspiration	385,535	548,160	276,740	Table 56
Total	**831,360**	**1,840,500**	**360,672**	

Table 57 Stormwater Summary
One Water LA 2040 Plan – TM 2.1

Flow Category	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)	Source Table
2025				
Natural Groundwater Recharge	34,991	58,100	9,852	Table 48
Infiltration in BMPs (Centralized and Distributed)	80,289	270,544	11,897	Table 51
LA River	198,700	643,600	36,966	Table 53
Other Creeks and Ocean	128,612	311,646	24,142	Table 53
Low Flow Diversions	1,553	2,266	621	Table 54
Capture and Direct Use	800	800	200	Table 55
Evapotranspiration	386,415	553,544	276,995	Table 56
Total	**831,360**	**1,840,500**	**360,672**	
2030				
Natural Groundwater Recharge	34,991	58,100	9,852	Table 48
Infiltration in BMPs (Centralized and Distributed)	89,604	300,634	13,632	Table 51
LA River	189,900	615,200	35,229	Table 53
Other Creeks and Ocean	123,623	303,702	23,723	Table 53
Low Flow Diversions	1553	2266	621	Table 54
Capture and Direct Use	1200	1200	300	Table 55
Evapotranspiration	390,489	559,398	277,315	Table 56
Total	**831,360**	**1,840,500**	**360,672**	
2035				
Natural Groundwater Recharge	34,991	58,100	9,852	Table 48
Infiltration in BMPs (Centralized and Distributed)	108,531	379,729	16,375	Table 51
LA River	172,800	543,200	32,624	Table 53
Other Creeks and Ocean	118,610	293,337	23,271	Table 53
Low Flow Diversions	1,553	2,266	621	Table 54
Capture and Direct Use	1,600	1,600	400	Table 55
Evapotranspiration	393,275	562,268	277,528	Table 56
Total	**831,360**	**1,840,500**	**360,672**	

Table 57 Stormwater Summary
One Water LA 2040 Plan – TM 2.1

Flow Category	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)	Source Table
2040				
Natural Groundwater Recharge	34,991	58,100	9,852	Table 48
Infiltration in BMPs (Centralized and Distributed)	110,458	386,165	16,664	Table 51
LA River	172,800	543,200	32,624	Table 53
Other Creeks and Ocean	116,583	286,601	22,907	Table 53
Low Flow Diversions	1,553	2,266	621	Table 54
Capture and Direct Use	2,000	2,000	500	Table 55
Evapotranspiration	392,975	562,168	277,503	Table 56
Total	**831,360**	**1,840,500**	**360,672**	

Note:
(1) The difference between the inflows and outflows are a result of continuity variances in the model, which is typical in watershed models.

As shown in Table 57 all outflows for normal, wet, and dry hydrologic conditions match the inflows within the City.

6.4 LA River

Stormwater flows to the LA Rivers are summarized by river reach in the following sections.

6.4.1 Stormwater Inflows by Reach

The future annual flows in each reach of the LA River are listed in Table 58, Table 59, and Table 60 for normal, wet, and dry year hydrologic conditions, respectively.

The tables below show the future annual flow in each reach of the LA River. The values are the volumes of flow added just within that reach, and do not include flow from upstream reaches. For example, Reach 1 is at the mouth of the LA River, so the total flow of 265,514 acre-feet (AF) is the flow volume at this location, however, the difference between the total flow at Reach 2 and the total flow at Reach 1 is 4,598 AF, therefore that is the flow added to the River in Reach 1. These flows include the entire LA River watershed, and therefore include flow from areas that are not within or upstream of the City in Reaches 1 and 2. They are therefore higher than the runoff to the LA River shown in Table 53 which includes flow only from the City and areas upstream of the City. The decrease in runoff every 5 years is based on the capture only within the City, and does not account for any additional capture in areas outside the City. Stormwater inflow for Reach 1 remains the same because there is no part of the area in Reach 1 that is within the City. The other reaches have some contributing area within the City, so the stormwater infiltration BMPs capture more of their runoff, reducing flows to the LA River.

Table 58 Normal Year Stormwater Inflow by LA River Reach
One Water LA 2040 Plan – TM 2.1

Year	Reach 1 (AFY)	Reach 2 (AFY)	Reach 3 (AFY)	Reach 4 (AFY)	Reach 5 (AFY)	Reach 6 (AFY)	Total (AFY)
2020	4,598	70,744	55,241	70,090	21,923	39,919	**262,514**
2025	4,598	69,086	55,103	59,651	21,498	36,100	**246,036**
2030	4,598	67,232	54,972	55,394	21,214	33,538	**236,948**
2035	4,598	66,378	54,842	44,949	20,659	28,546	**219,972**
2040	4,598	66,378	54,842	44,949	20,659	28,546	**219,972**

Table 59 Wet Year Stormwater Inflow by LA River Reach
One Water LA 2040 Plan – TM 2.1

Year	Reach 1 (AFY)	Reach 2 (AFY)	Reach 3 (AFY)	Reach 4 (AFY)	Reach 5 (AFY)	Reach 6 (AFY)	Total (AFY)
2020	12,181	228,038	192,079	278,445	59,868	106,080	**876,692**
2025	12,181	223,245	191,611	230,537	58,737	95,906	**812,218**
2030	12,181	217,869	191,167	215,466	57,979	89,083	**783,745**
2035	12,181	215,428	190,723	161,003	56,502	75,786	**711,623**
2040	12,181	215,428	190,723	161,003	56,502	75,786	**711,623**

Table 60 Dry Year Stormwater Inflow by LA River Reach
One Water LA 2040 Plan – TM 2.1

Year	Reach 1 (AFY)	Reach 2 (AFY)	Reach 3 (AFY)	Reach 4 (AFY)	Reach 5 (AFY)	Reach 6 (AFY)	Total (AFY)
2020	793	13,245	8,565	10,390	5,634	8,247	46,874
2025	793	12,952	8,543	9,086	5,536	7,367	44,277
2030	793	12,624	8,522	8,331	5,471	6,777	42,517
2035	793	12,472	8,501	7,298	5,343	5,627	40,034
2040	793	12,472	8,501	7,298	5,343	5,627	40,034

As shown in Table 58, the total stormwater inflow that reaches the LA River in year 2040 is projected to decrease by 42,542 AFY as a result of BMP implementation, which is 16 percent less than flow rate estimated for existing (year 2015) conditions. Similarly, flows are projected to decline in the same period by 165,069 AFY (19 percent) and 6,840 AFY (15 percent) under wet and dry year conditions, respectively.

6.4.2 Water Reclamation Plant Discharges

The flows described in Section 6.4.1 only include only inflows from stormwater (precipitation, irrigation, and run-on from upstream of the City). They do not include discharges from the City's WRPs. For the baseline condition (year 2015), DCTWRP discharged 33,601 AFY of effluent to Reach 5, while the LAGWRP discharged 12,473 AFY of effluent to Reach 3. The combined future flows vary for all hydrologic conditions and are excluded from the summary tables for future flows in the LA River.

6.4.3 Total Flows by Hydrologic Condition

The estimated total stormwater flows to the LA River under the average annual year, a wet year, and a dry year are shown in Table 61. Table 62 includes the total stormwater inflow as well as the WRP discharges from DCTWRP and LAGWRP, but does not include evaporation or infiltration. Appendix B contains a breakdown of the total flow and cumulative flow for each separate river reach. As explained in Section 6.4.2, these numbers do not include San Fernando Basin GWR nor the EWVIS projects, which would both reduce flows to the LA River substantially. The potential project impacts and minimum flow discharge requirements are subject of a separate special study that is being conducted as part of the One Water LA 2040 Plan.

Table 61 Future Stormwater Inflow to LA River
One Water LA 2040 Plan – TM 2.1

Year	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
2020	262,514	876,692	46,874
2025	246,036	812,218	44,277
2030	236,948	783,745	42,517
2035	219,972	711,623	40,034
2040	219,972	711,623	40,034

Note:
(1) Values do not include the San Fernando Basin GWR and the EWVIS projects, which would both reduce flows to the LA River substantially.

Table 62 Total Stormwater Inflow to LA River
One Water LA 2040 Plan – TM 2.1

River Inflow Type	Normal Year (AFY)	Wet Year (AFY)	Dry Year (AFY)
2020			
Stormwater Inflow	347,785	1,035,357	64,414
WRP Discharges	52,359	53,928	49,895
Total	**400,143**	**1,089,285**	**114,308**
2025			
Stormwater Inflow	327,312	955,246	41,286
WRP Discharges(1)	22,847	24,416	16,844
Total	**350,159**	**979,663**	**58,130**
2030			
Stormwater Inflow	313,523	918,902	58,952
WRP Discharges	22,612	24,182	20,148
Total	**336,136**	**943,083**	**79,100**
2035			
Stormwater Inflow	291,410	836,537	55,895
WRP Discharges	23,243	24,812	20,779
Total	**314,653**	**861,349**	**76,674**
2040			
Stormwater Inflow	289,383	829,801	55,531
WRP Discharges	24,156	25,726	21,692
Total	**313,539**	**855,527**	**77,224**

Note:WRP discharges account for the reduction in future flows due to the proposed IPR project starting in 2025. Stormwater values do not include the San Fernando Basin GWR and the EWVIS projects, which would both reduce flows to the LA River substantially.

7.0 FUTURE FLOW BALANCE SUMMARY

The most important flows presented in this TM are summarized in Table 63.

Table 63 Flow Summary for Year 2040
One Water LA 2040 Plan – TM 2.1

Year and Hydrologic Condition	Potable Water Demands (AFY)	Wastewater Flows (AFY)	Recycled Water Demand (AFY)	Stormwater Flows (AFY)
2020				
Normal Year	465,800	361,842	19,800	831,360
Wet Year	435,200	371,877	19,800	1,840,500
Dry Year	465,800	346,088	19,800	360,672
2025				
Normal Year	504,000	384,762	59,000	831,360
Wet Year	471,800	394,797	59,000	1,840,500
Dry Year	504,000	369,008	59,000	360,672
2030				
Normal Year	501,100	383,022	69,000	831,360
Wet Year	468,500	393,057	69,000	1,840,500
Dry Year	501,100	367,268	69,000	360,672
2035				
Normal Year	508,900	387,702	72,200	831,360
Wet Year	475,800	397,737	72,200	1,840,500
Dry Year	508,900	371,948	72,200	360,672
2040				
Normal Year	520,200	394,482	75,400	831,360
Wet Year	486,400	404,517	75,400	1,840,500
Dry Year	520,200	378,728	75,400	360,672
Source Tables	Table 16 Table 17 Table 18	Table 35 Table 36 Table 37	Table 45	Table 57

The purpose of this table is to provide an order-of-magnitude summary of all major water flows in the City. The flows in this table are not intended to be added due to the different nature of these flows. The table also provides a quick reference to the associated source data tables that are located throughout this TM.

As shown in Table 63, the City's total potable water supply is projected to increase from nearly 465,800 AFY (2020) to about 520,200 AFY in 2040 under normal hydrologic conditions. The total potable water demands account for conservation based on the goals in the City's Sustainable pLAn.

The estimated amount of wastewater under normal year conditions is estimated to slightly increase from nearly 361,842 AFY in 2020 to nearly 394,482 AFY in 2040 under normal hydrologic conditions. This equates to an increase of flows of approximately 32,640 AFY or 9 percent of the wastewater flows. A similar magnitude in the increase of flows is projected for the other hydrologic conditions.

The estimated amount of wastewater recycling is projected to increase from nearly 19,800 AFY in 2020 to about 75,400 AFY in 2040 under all hydrologic conditions. This amount excludes environmental uses as well as the secondary effluent that is delivered to WBMWD. A new contract between the City and WBMWD is being negotiated at this time, which could change future deliveries.

The estimated amount of stormwater flow (rainfall, irrigation, and run-on) that reaches the City varies greatly depending on hydrology and is estimated to range from 360,672 under dry year conditions to nearly 1,8340,500 AFY under wet year conditions for all planning years. With the implementation of the planned BMPs that capture and infiltrate stormwater, the amount of stormwater losses to the Pacific Ocean is projected to decrease between 2015 and 2040 by approximately 61,000 AFY, 248,000 AFY, and 10,000 AFY under normal, wet, and dry year conditions, respectively.

The amount of wastewater flows that reaches the ocean through plant discharges at HWRP and TIWRP, as well as via the LA River and other creeks is summarized in Table 64.

As shown in Table 64, the total amount of wastewater that is estimated to reach the ocean is projected to range from 297,914 AFY in 2020 to 297,608 AFY in 2040 under normal hydrologic conditions. These discharges can be divided into the flows that reach the ocean via the LA River and wastewater effluent flows that are directly discharges into the ocean at HWRP and TIWRP. Hence, it is estimated that roughly 5 percent to 15 percent of the City's wastewater flows reach the ocean via the LA River, while the remaining 85 percent to 95 percent gets directly discharged. The impact of the planned GWR project in San Fernando Basin and potential other IPR and DPR projects are included herein. These projects will have a significant impact on increasing the City's local water supplies. The purpose of this table is to quantify the flow that presents a substantial reuse and local water supply opportunity, which will be evaluated in subsequent tasks of the One Water LA 2040 Plan.

Table 64 Wastewater Flows to the Ocean
One Water LA 2040 Plan – TM 2.1

Year and Hydrologic Condition	Total Wastewater Flows (AFY)	Recycled Water Demand (AFY)	Wastewater Flows to Ocean(1) (AFY)	WRP Discharges to LA River (AFY)	Total Discharges to the Ocean(2) (AFY)
2020					
Normal Year	361,842	19,800	259,646	52,359	312,005
Wet Year	371,877	19,800	259,147	53,928	313,075
Dry Year	346,088	19,800	237,525	49,895	287,419
2025					
Normal Year	384,762	59,000	250,583	22,847	273,429
Wet Year	394,797	59,000	278,689	24,416	303,105
Dry Year	369,008	59,000	257,067	20,383	277,449
2030					
Normal Year	383,022	69,000	270,112	22,612	292,724
Wet Year	393,057	69,000	277,190	24,182	301,372
Dry Year	367,268	69,000	255,568	20,148	275,716
2035					
Normal Year	387,702	72,200	268,614	23,243	291,857
Wet Year	397,737	72,200	281,221	24,812	306,033
Dry Year	371,948	72,200	259,599	20,779	280,378
2040					
Normal Year	394,482	75,400	272,643	24,156	296,799
Wet Year	404,517	75,400	287,061	25,726	312,787
Dry Year	378,728	75,400	265,439	21,692	287,131
Source Tables	Table 35 Table 36 Table 37	Table 45	Appendix B	Table 62	Column 4 + Column 5

Notes:
(1) See Appendix B for a detailed breakdown.
(2) The difference between the Total Wastewater Flows and the sum of the other columns are flows to WBMWD's ECLWRF.

APPENDIX A – REFERENCES

BCWMG, 2015. Ballona Creek Watershed Management Group, 2015, *Enhanced Watershed Management Program for the Ballona Creek Watershed*, June 2015.

CDM:CH2M, 2015. CDM Smith and CH2M, *One Water LA Phase 1 - Initial Water Balance*, Draft Technical Memorandum, July 2015.

DCWMAG, 2015. Dominguez Channel Watershed Management Area Group, 2015, *Enhanced Watershed Management Plant for the Dominguez Channel Watershed Management Area Group*, June 2015.

LA, 2015. City of Los Angeles, Los Angeles County Flood Control District, County of Los Angeles, City of Santa Monica, City of El Segundo, 2015, Santa Monica Bay Jurisdictional Group 2 and 3 *Enhanced Watershed Management Program*, June 2015.

LADWP, 2011. LADWP, 2010 *Urban Water Management Plan, 2011.*

LADWP, 2015a. LADWP, *Recycled Water Annual Report - Fiscal Year 2014-15,* August *2015.*

LADWP, 2015b. LADWP, L*.A.'s Drinking Water Quality Report* - for the period of January 1 through December 31, 2014. 2015.

LADWP, 2015c.LADWP, *Stormwater Capture Master Plan*, August 2015.

LADWP, 2016. LADWP, 2015 *Urban Water Management Plan,* 2016*.*

MWMPA, 2015. Marina Del Rey Enhanced Watershed Management Program Agencies, 2015, Marina del Rey *Enhanced Watershed Management Program Plan*, June, 2015.

ULARG, 2015. Upper Los Angeles River EWMP Group, 2015, *Enhanced Watershed Management Program (EWMP) for the Upper Los Angeles River EWMP Group*, June, 2015.

WESD, 2015. Wastewater Engineering Services Division, Bureau of Sanitation, City of Los Angeles*, Fiscal year 2014/15 Contract Agencies Flows*. 2015.

WESD, 2015. Wastewater Engineering Services Division, Bureau of Sanitation, City of Los Angeles, *Fiscal year 2014/15 Industrial Wastewater Flows*. 2015.

WESD, 2015. Wastewater Engineering Services Division, Bureau of Sanitation, City of Los Angeles*, Fiscal year 2014/15 recycled water flows*. 2015.

WESD, 2015. Wastewater Engineering Services Division, Bureau of Sanitation, City of Los Angeles*, Watershed tributary areas GIS Data*. 2015.

WPD, 2015. Watershed Protection Division, City of Los Angeles, *Low flow Diversion GIS Data*. 2015.

WRCCC, 2015. Western Regional Climate Control Center, Reno Nevada, *Los Angeles DWTN USC Campus, California (045115).* 2015.

APPENDIX B – MASS BALANCE INPUT DATA DETAILS

Inputs

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)
Supply Sources	Required Demands			

Wastewater Flows

By Treatment Plant - Normal Year

Inflow (afy)

Hyperion Treatment Plant (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies (Normal)	Stormwater Infiltration (Normal)	Return Flow from DCT and LAG	Total Influent (Normal)	Losses	Total Effluent (Normal)
2015	227,792	37,673	190,120	38,189	4,956	15200	286,137	218	285,920
2020	213,795	37,673	176,122	40,608	13,864	15832	284,098	367	283,732
2025	231,328	37,673	193,655	40,608	13,864	16782	302,581	393	302,188
2030	229,997	37,673	192,324	40,608	13,864	16709	301,178	391	300,787
2035	233,577	37,673	195,904	40,608	13,864	16903	304,952	397	304,555
2040	238,763	37,673	201,091	40,608	13,864	17184	310,419	405	310,015

Tillman WRP (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies (Normal)	Stormwater Infiltration (Normal)	Total Influent (Normal)	Losses (Return to HTP)	Total Effluent (Normal)
2015	49,723	7,621	42,102	547	1,206	51,475	12,354	39,121
2020	46,668	7,621	39,046	1,158	3,373	51,198	12,288	38,911
2025	50,495	7,621	42,873	1,158	3,373	55,025	13,206	41,819
2030	50,204	7,621	42,583	1,158	3,373	54,735	13,136	41,598
2035	50,986	7,621	43,364	1,158	3,373	55,516	13,324	42,192
2040	52,118	7,621	44,496	1,158	3,373	56,648	13,596	43,053

Terminal Island WRP (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies (Normal)	Stormwater Infiltration (Normal)	Total Influent (Normal)	Losses	Total Effluent (Normal)
2015	17,529	1,802	15,726	300	565	18,394	1,035	17,359
2020	16,452	1,802	14,649	354	1,580	18,385	1,034	17,351
2025	17,801	1,802	15,998	354	1,580	19,734	1,110	18,624
2030	17,698	1,802	15,896	354	1,580	19,632	1,104	18,528
2035	17,974	1,802	16,171	354	1,580	19,907	1,120	18,788
2040	18,373	1,802	16,571	354	1,580	20,306	1,142	19,164

LA - Glendale WRP (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies (Normal)	Stormwater Infiltration (Normal)	Total Influent (Normal)	Losses (Return To HTP)	Total Effluent (Normal)
2015	2,734	4,060	-1,326	16,336	195	19,265	2,846	16,419
2020	2,566	4,060	-1,494	20,881	546	23,992	3,544	20,448
2025	2,777	4,060	-1,284	20,881	546	24,203	3,575	20,627
2030	2,761	4,060	-1,299	20,881	546	24,187	3,573	20,614
2035	2,804	4,060	-1,257	20,881	546	24,230	3,579	20,650
2040	2,866	4,060	-1,194	20,881	546	24,292	3,589	20,704

Outflow (afy)

Hyperion Treatment Plant (afy)

Year	RW Use	West Basin Customers and Barrier	Tertiary Influent (future)	Ocean Discharge	Total
2015	895	38,305	0	246,720	285,920
2020	1,100	38,100	0	244,532	283,732
2025	1,300	37,900	0	262,988	302,188
2030	1,300	37,900	0	261,587	300,787
2035	1,300	37,900	0	265,355	304,555
2040	1,300	37,900	0	270,815	310,015

Tillman WRP (afy)

Year	RW Use (less Env)	Environmental Uses	AWT Influent (future)	LA River Discharge (w/ Env Uses.)	Total
2015	2,647		0	36,474	39,121
2020	3,400		0	35,511	38,911
2025	33,400		0	8,419	41,819
2030	33,400		0	8,198	41,598
2035	33,400		0	8,792	42,192
2040	33,400		0	9,653	43,053

Terminal Island WRP (afy)

Year	RW Use		AWT Influent	Ocean Discharge	Total
2015	4,433		0	12,926	17,359
2020	11,300		0	6,051	17,351
2025	11,500		0	7,124	18,624
2030	11,500		0	7,028	18,528
2035	11,500		0	7,288	18,788
2040	11,500		0	7,664	19,164

LA - Glendale WRP (afy)

Year	RW Use	Glendale RW	AWT Influent (future)	LA River Discharge	Total
2015	2,446	0	0	13,973	16,419
2020	3,600	0	0	16,848	20,448
2025	6,200	0	0	14,427	20,627
2030	6,200	0	0	14,414	20,614
2035	6,200	0	0	14,450	20,650
2040	6,200	0	0	14,504	20,704

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs

Wastewater Flows

By Treatment Plant - Wet Year

Inflow (afy)

Hyperion Treatment Plant (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies (Wet)	Stormwater Infiltration (Wet)	Return Flow from DCT and LAG	Total Influent (Wet)	Losses	Total Effluent (Wet Years)
2015	227,792	37673	190,120	38,189	4,956	15200	286,137	218	285,920
2020	213,795	37673	176,122	40,608	21,050	16293	291,745	222	291,523
2025	231,328	37673	193,655	40,608	21,050	17243	310,228	236	309,992
2030	229,997	37673	192,324	40,608	21,050	17171	308,825	235	308,590
2035	233,577	37673	195,904	40,608	21,050	17365	312,599	238	312,361
2040	238,763	37673	201,091	40,608	21,050	17646	318,066	242	317,824

Tillman WRP (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies (Wet)	Stormwater Infiltration (Wet)		Total Influent (Wet)	Losses (Return to HTP)	Total Effluent (Wet Years)
2015	49,723	7621	42,102	547	1,206		51,475	12,354	39,121
2020	46,668	7621	39,046	1,158	5,120		52,946	12,707	40,239
2025	50,495	7621	42,873	1,158	5,120		56,773	13,626	43,148
2030	50,204	7621	42,583	1,158	5,120		56,483	13,556	42,927
2035	50,986	7621	43,364	1,158	5,120		57,264	13,743	43,521
2040	52,118	7621	44,496	1,158	5,120		58,396	14,015	44,381

Terminal Island WRP (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies (Wet)	Stormwater Infiltration (Wet)		Total Influent (Wet)	Losses	Total Effluent (Wet Years)
2015	17,529	1802	15,726	300	565		18,394	1,035	17,359
2020	16,452	1802	14,649	354	2,398		19,204	1,080	18,124
2025	17,801	1802	15,998	354	2,398		20,553	1,156	19,397
2030	17,698	1802	15,896	354	2,398		20,451	1,150	19,300
2035	17,974	1802	16,171	354	2,398		20,726	1,166	19,560
2040	18,373	1802	16,571	354	2,398		21,125	1,188	19,937

LA - Glendale WRP (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies (Wet)	Stormwater Infiltration (Wet)		Total Influent (Wet)	Losses (Return To HTP)	Total Effluent (Wet Years)
2015	2,734	4060	-1,326	16,336	195		19,265	2,846	16,419
2020	2,566	4060	-1,494	20,881	829		24,275	3,586	20,689
2025	2,777	4060	-1,284	20,881	829		24,486	3,617	20,869
2030	2,761	4060	-1,299	20,881	829		24,470	3,615	20,855
2035	2,804	4060	-1,257	20,881	829		24,513	3,621	20,892
2040	2,866	4060	-1,194	20,881	829		24,575	3,630	20,945

Outflow (afy)

Hyperion Treatment Plant (afy)

Year	RW System Demand (West Basin MWD)		Tertiary Influent (future)	Ocean Discharge	Total
2015	895	38,305	0	246,720	285,920
2020	1,100	38,100	0	252,323	291,523
2025	1,300	37,900	0	270,792	309,992
2030	1,300	37,900	0	269,390	308,590
2035	1,300	37,900	0	273,161	312,361
2040	1,300	37,900	0	278,624	317,824

Tillman WRP (afy)

Year	RW Use (less Env)	Environmental Uses	AWT Influent (future)	LA River Discharge (w/ Env Uses.)	Total
2015	2,647	0	0	36,474	39,121
2020	3,400	0	0	36,839	40,239
2025	33,400	0	0	9,748	43,148
2030	33,400	0	0	9,527	42,927
2035	33,400	0	0	10,121	43,521
2040	33,400	0	0	10,981	44,381

Terminal Island WRP (afy)

Year	RW System Demand		AWT Influent	Ocean Discharge	Total
2015	4,433	0	0	12,926	17,359
2020	11,300	0	0	6,824	18,124
2025	11,500	0	0	7,897	19,397
2030	11,500	0	0	7,800	19,300
2035	11,500	0	0	8,060	19,560
2040	11,500	0	0	8,437	19,937

LA - Glendale WRP (afy)

Year	RW System Demand		AWT Influent (future)	LA River Discharge	Total
2015	2,446	0	0	13,973	16,419
2020	3,600	0	0	17,089	20,689
2025	6,200	0	0	14,669	20,869
2030	6,200	0	0	14,655	20,855
2035	6,200	0	0	14,692	20,892
2040	6,200	0	0	14,745	20,945

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs

Wastewater Flows

By Treatment Plant - Dry Year

Inflow (afy)

Hyperion Treatment Plant (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies (Dry)	Stormwater Infiltration (Dry)	Return Flow from DCT and LAG	Total Influent (Dryl)	Losses	Total Effluent (Dry Years)
2015	227,792	37673	190,120	38,189	4,956	15200	286,137	218	285,920
2020	213,795	37673	176,122	40,608	2,584	15108	272,093	207	271,886
2025	231,328	37673	193,655	40,608	2,584	16057	290,576	221	290,355
2030	229,997	37673	192,324	40,608	2,584	15985	289,173	220	288,953
2035	233,577	37673	195,904	40,608	2,584	16179	292,947	223	292,724
2040	238,763	37673	201,091	40,608	2,584	16460	298,414	227	298,187

Tillman WRP (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies (Dry)	Stormwater Infiltration (Dry)	Total Influent (Dryl)	Losses (Return to HTP)	Total Effluent (Dry Years)
2015	49,723	7621	42,102	547	1,206	51,475	12,354	39,121
2020	46,668	7621	39,046	1,158	628	48,454	11,629	36,825
2025	50,495	7621	42,873	1,158	628	52,281	12,547	39,734
2030	50,204	7621	42,583	1,158	628	51,991	12,478	39,513
2035	50,986	7621	43,364	1,158	628	52,772	12,665	40,107
2040	52,118	7621	44,496	1,158	628	53,904	12,937	40,967

Terminal Island WRP (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies (Dry)	Stormwater Infiltration (Dry)	Total Influent (Dryl)	Losses	Total Effluent (Dry Years)
2015	17,529	1802	15,726	300	565	18,394	1,035	17,359
2020	16,452	1802	14,649	354	294	17,100	962	16,138
2025	17,801	1802	15,998	354	294	18,449	1,038	17,411
2030	17,698	1802	15,896	354	294	18,347	1,032	17,315
2035	17,974	1802	16,171	354	294	18,622	1,047	17,575
2040	18,373	1802	16,571	354	294	19,021	1,070	17,951

LA - Glendale WRP (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies (Dry)	Stormwater Infiltration (Dry)	Total Influent (Dryl)	Losses (Return To HTP)	Total Effluent (Dry Years)
2015	2,734	4060	-1,326	16,336	195	19,265	2,846	16,419
2020	2,566	4060	-1,494	20,881	102	23,548	3,479	20,070
2025	2,777	4060	-1,284	20,881	102	23,759	3,510	20,249
2030	2,761	4060	-1,299	20,881	102	23,743	3,508	20,235
2035	2,804	4060	-1,257	20,881	102	23,786	3,514	20,272
2040	2,866	4060	-1,194	20,881	102	23,848	3,523	20,325

Outflow (afy)

Hyperion Treatment Plant (afy)

Year	RW System Demand (West Basin MWD)		Tertiary Influent (future)	Ocean Discharge	Total
2015	895	38,305	0	246,720	285,920
2020	1,100	38,100	0	232,686	271,886
2025	1,300	37,900	0	251,155	290,355
2030	1,300	37,900	0	249,753	288,953
2035	1,300	37,900	0	253,524	292,724
2040	1,300	37,900	0	258,987	298,187

Tillman WRP (afy)

Year	RW Use (less Env)	Environmental Uses	AWT Influent (future)	LA River Discharge (w/ Env Uses.)	Total
2015	2,647	0	0	36,474	39,121
2020	3,400	0	0	33,425	36,825
2025	33,400	0	0	6,334	39,734
2030	33,400	0	0	6,113	39,513
2035	33,400	0	0	6,707	40,107
2040	33,400	0	0	7,567	40,967

Terminal Island WRP (afy)

Year	RW System Demand		AWT Influent	Ocean Discharge	Total
2015	4,433	0	0	12,926	17,359
2020	11,300	0	0	4,838	16,138
2025	11,500	0	0	5,911	17,411
2030	11,500	0	0	5,815	17,315
2035	11,500	0	0	6,075	17,575
2040	11,500	0	0	6,451	17,951

LA - Glendale WRP (afy)

Year	RW System Demand		AWT Influent (future)	LA River Discharge	Total
2015	2,446	0	0	13,973	16,419
2020	3,600	0	0	16,470	20,070
2025	6,200	0	0	14,049	20,249
2030	6,200	0	0	14,035	20,235
2035	6,200	0	0	14,072	20,272
2040	6,200	0	0	14,125	20,325

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs

Wastewater Flows

By Sewershed Normal Year

Inflow (afy)

CIS - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Normal)	Total (Normal)
2015	12,656	0	12,656	15,095	608	28,358
2020	11,878	0	11,878	14,692	1,700	28,270
2025	12,852	0	12,852	14,692	1,700	29,244
2030	12,778	0	12,778	14,692	1,700	29,170
2035	12,977	0	12,977	14,692	1,700	29,369
2040	13,265	0	13,265	14,692	1,700	29,657

DCT - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Normal)	Total (Normal)
2015	49,723	7621	42,102	547	1,206	51,475
2020	46,668	7,621	39,046	1,158	3,373	51,198
2025	50,495	7,621	42,873	1,158	3,373	55,025
2030	50,204	7,621	42,583	1,158	3,373	54,735
2035	50,986	7,621	43,364	1,158	3,373	55,516
2040	52,118	7,621	44,496	1,158	3,373	56,648

Foreman Line - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Normal)	Total (Normal)
2015	2,436	0	2,436	0	66	2,503
2020	2,287	0	2,287	0	185	2,472
2025	2,474	0	2,474	0	185	2,659
2030	2,460	0	2,460	0	185	2,645
2035	2,498	0	2,498	0	185	2,683
2040	2,554	0	2,554	0	185	2,739

HTP Metro Area - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Normal)	Total (Normal)
2015	149,625	37673	111,953	19,547	2,689	171,861
2020	140,431	37,673	102,758	22,241	7,522	170,194
2025	151,948	37,673	114,275	22,241	7,522	181,710
2030	151,073	37,673	113,401	22,241	7,522	180,836
2035	153,425	37,673	115,752	22,241	7,522	183,187
2040	156,832	37,673	119,159	22,241	7,522	186,594

LAG - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Normal)	Total (Normal)
2015	298	4060	-3,762	16,336	129	16,762
2020	279	4,060	-3,781	20,881	361	21,521
2025	302	4,060	-3,758	20,881	361	21,544
2030	301	4,060	-3,759	20,881	361	21,542
2035	305	4,060	-3,755	20,881	361	21,547
2040	312	4,060	-3,748	20,881	361	21,553

Outflow (afy)

CIS - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015	28358				28,358
2020	28270				28,270
2025	29244				29,244
2030	29170				29,170
2035	29369				29,369
2040	29657				29,657

DCT - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015			51475		51,475
2020			51198		51,198
2025			55025		55,025
2030			54735		54,735
2035			55516		55,516
2040			56648		56,648

Foreman Line - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015		2,503			2,503
2020		2,472			2,472
2025		2,659			2,659
2030		2,645			2,645
2035		2,683			2,683
2040		2,739			2,739

HTP Metro Area - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015	171861				171,861
2020	170194				170,194
2025	181710				181,710
2030	180836				180,836
2035	183187				183,187
2040	186594				186,594

LAG - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015		16762			16,762
2020		21521			21,521
2025		21544			21,544
2030		21542			21,542
2035		21547			21,547
2040		21553			21,553

Inputs

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Terminal Island - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Normal)	Total (Normal)
2015	17,529	1802	15,726	300	565	18,394
2020	16,452	1,802	14,649	354	1,580	18,385
2025	17,801	1,802	15,998	354	1,580	19,734
2030	17,698	1,802	15,896	354	1,580	19,632
2035	17,974	1,802	16,171	354	1,580	19,907
2040	18,373	1,802	16,571	354	1,580	20,306

Terminal Island - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015				18394	18,394
2020				18385	18,385
2025				19734	19,734
2030				19632	19,632
2035				19907	19,907
2040				20306	20,306

Valley Spring Lane - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Normal)	Total (Normal)
2015	65,511	0	65,511	3,547	1,660	70,718
2020	61,486	0	61,486	3,675	4,643	69,803
2025	66,528	0	66,528	3,675	4,643	74,846
2030	66,145	0	66,145	3,675	4,643	74,463
2035	67,175	0	67,175	3,675	4,643	75,492
2040	68,666	0	68,666	3,675	4,643	76,984

Valley Spring Lane - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015	70718		0		70,718
2020	69803		0		69,803
2025	74846		0		74,846
2030	74463		0		74,463
2035	75492		0		75,492
2040	76984		0		76,984

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs

Wastewater Flows

By Sewershed Wet Year

Inflow (afy)

CIS - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Wet)	Total (Wet)
2015	12,656	0	12,656	15,095	608	28,358
2020	11,878	0	11,878	14,692	2,581	29,151
2025	12,852	0	12,852	14,692	2,581	30,125
2030	12,778	0	12,778	14,692	2,581	30,051
2035	12,977	0	12,977	14,692	2,581	30,250
2040	13,265	0	13,265	14,692	2,581	30,538

DCT - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Wet)	Total (Wet)
2015	49,723	7621	42,102	547	1,206	51,475
2020	46,668	7,621	39,046	1,158	5,120	52,946
2025	50,495	7,621	42,873	1,158	5,120	56,773
2030	50,204	7,621	42,583	1,158	5,120	56,483
2035	50,986	7,621	43,364	1,158	5,120	57,264
2040	52,118	7,621	44,496	1,158	5,120	58,396

Foreman Line - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Wet)	Total (Wet)
2015	2,436	0	2,436	0	66	2,503
2020	2,287	0	2,287	0	281	2,568
2025	2,474	0	2,474	0	281	2,755
2030	2,460	0	2,460	0	281	2,741
2035	2,498	0	2,498	0	281	2,779
2040	2,554	0	2,554	0	281	2,835

HTP Metro Area - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Wet)	Total (Wet)
2015	149,625	37673	111,953	19,547	2,689	171,861
2020	140,431	37,673	102,758	22,241	11,420	174,092
2025	151,948	37,673	114,275	22,241	11,420	185,608
2030	151,073	37,673	113,401	22,241	11,420	184,734
2035	153,425	37,673	115,752	22,241	11,420	187,086
2040	156,832	37,673	119,159	22,241	11,420	190,493

LAG - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Wet)	Total (Wet)
2015	298	4060	-3,762	16,336	129	16,762
2020	279	4,060	-3,781	20,881	547	21,708
2025	302	4,060	-3,758	20,881	547	21,730
2030	301	4,060	-3,759	20,881	547	21,729
2035	305	4,060	-3,755	20,881	547	21,733
2040	312	4,060	-3,748	20,881	547	21,740

Outflow (afy)

CIS - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015	28358				28,358
2020	29151				29,151
2025	30125				30,125
2030	30051				30,051
2035	30250				30,250
2040	30538				30,538

DCT - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015			51475		51,475
2020			52946		52,946
2025			56773		56,773
2030			56483		56,483
2035			57264		57,264
2040			58396		58,396

Foreman Line - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015		2,503			2,503
2020		2,568			2,568
2025		2,755			2,755
2030		2,741			2,741
2035		2,779			2,779
2040		2,835			2,835

HTP Metro Area - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015	171861				171,861
2020	174092				174,092
2025	185608				185,608
2030	184734				184,734
2035	187086				187,086
2040	190493				190,493

LAG - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015		16762			16,762
2020		21708			21,708
2025		21730			21,730
2030		21729			21,729
2035		21733			21,733
2040		21740			21,740

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs

Terminal Island - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Wet)	Total (Wet)
2015	17,529	1802	15,726	300	565	18,394
2020	16,452	1,802	14,649	354	2,398	19,204
2025	17,801	1,802	15,998	354	2,398	20,553
2030	17,698	1,802	15,896	354	2,398	20,451
2035	17,974	1,802	16,171	354	2,398	20,726
2040	18,373	1,802	16,571	354	2,398	21,125

Terminal Island - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015				18394	18,394
2020				19204	19,204
2025				20553	20,553
2030				20451	20,451
2035				20726	20,726
2040				21125	21,125

Valley Spring Lane - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Wet)	Total (Wet)
2015	65,511	0	65,511	3,547	1,660	70,718
2020	61,486	0	61,486	3,675	7,049	72,209
2025	66,528	0	66,528	3,675	7,049	77,252
2030	66,145	0	66,145	3,675	7,049	76,869
2035	67,175	0	67,175	3,675	7,049	77,899
2040	68,666	0	68,666	3,675	7,049	79,390

Valley Spring Lane - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015	70718		0		70,718
2020	72209		0		72,209
2025	77252		0		77,252
2030	76869		0		76,869
2035	77899		0		77,899
2040	79390		0		79,390

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs

Wastewater Flows

By Sewershed Dry Year

Inflow (afy)

CIS - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Dry)	Total (Dry)
2015	12,656	0	12,656	15,095	608	28,358
2020	11,878	0	11,878	14,692	317	26,886
2025	12,852	0	12,852	14,692	317	27,860
2030	12,778	0	12,778	14,692	317	27,786
2035	12,977	0	12,977	14,692	317	27,985
2040	13,265	0	13,265	14,692	317	28,273

DCT - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Dry)	Total (Dry)
2015	49,723	7621	42,102	547	1,206	51,475
2020	46,668	7,621	39,046	1,158	628	48,454
2025	50,495	7,621	42,873	1,158	628	52,281
2030	50,204	7,621	42,583	1,158	628	51,991
2035	50,986	7,621	43,364	1,158	628	52,772
2040	52,118	7,621	44,496	1,158	628	53,904

Foreman Line - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Dry)	Total (Dry)
2015	2,436	0	2,436	0	66	2,503
2020	2,287	0	2,287	0	35	2,321
2025	2,474	0	2,474	0	35	2,509
2030	2,460	0	2,460	0	35	2,494
2035	2,498	0	2,498	0	35	2,533
2040	2,554	0	2,554	0	35	2,588

HTP Metro Area - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Dry)	Total (Dry)
2015	149,625	37673	111,953	19,547	2,689	171,861
2020	140,431	37,673	102,758	22,241	1,402	164,074
2025	151,948	37,673	114,275	22,241	1,402	175,590
2030	151,073	37,673	113,401	22,241	1,402	174,716
2035	153,425	37,673	115,752	22,241	1,402	177,068
2040	156,832	37,673	119,159	22,241	1,402	180,474

LAG - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Dry)	Total (Dry)
2015	298	4060	-3,762	16,336	129	16,762
2020	279	4,060	-3,781	20,881	67	21,227
2025	302	4,060	-3,758	20,881	67	21,250
2030	301	4,060	-3,759	20,881	67	21,248
2035	305	4,060	-3,755	20,881	67	21,253
2040	312	4,060	-3,748	20,881	67	21,260

Outflow (afy)

CIS - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015	28358				28,358
2020	26886				26,886
2025	27860				27,860
2030	27786				27,786
2035	27985				27,985
2040	28273				28,273

DCT - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015			51475		51,475
2020			48454		48,454
2025			52281		52,281
2030			51991		51,991
2035			52772		52,772
2040			53904		53,904

Foreman Line - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015		2,503			2,503
2020		2,321			2,321
2025		2,509			2,509
2030		2,494			2,494
2035		2,533			2,533
2040		2,588			2,588

HTP Metro Area - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015	171861				171,861
2020	164074				164,074
2025	175590				175,590
2030	174716				174,716
2035	177068				177,068
2040	180474				180,474

LAG - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015		16762			16,762
2020		21227			21,227
2025		21250			21,250
2030		21248			21,248
2035		21253			21,253
2040		21260			21,260

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs

Terminal Island - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Dry)	Total (Dry)
2015	17,529	1802	15,726	300	565	18,394
2020	16,452	1,802	14,649	354	294	17,100
2025	17,801	1,802	15,998	354	294	18,449
2030	17,698	1,802	15,896	354	294	18,347
2035	17,974	1,802	16,171	354	294	18,622
2040	18,373	1,802	16,571	354	294	19,021

Terminal Island - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015				18394	18,394
2020				17100	17,100
2025				18449	18,449
2030				18347	18,347
2035				18622	18,622
2040				19021	19,021

Valley Spring Lane - Sewershed (afy)

Year	Indoor Water Use City (Including Industrial Discharge Excludes Return Sewer Flow)	Industrial Discharge	Non Industrial Flows (Indoor - Industral Flows)	Contract Agencies	Stormwater Infiltration (Dry)	Total (Dry)
2015	65,511	0	65,511	3,547	1,660	70,718
2020	61,486	0	61,486	3,675	865	66,026
2025	66,528	0	66,528	3,675	865	71,068
2030	66,145	0	66,145	3,675	865	70,685
2035	67,175	0	67,175	3,675	865	71,715
2040	68,666	0	68,666	3,675	865	73,207

Valley Spring Lane - Sewershed (afy)

Year	Hyperion	LA - Glendale	Tillman	Terminal Island	Total
2015	70718		0		70,718
2020	66026		0		66,026
2025	71068		0		71,068
2030	70685		0		70,685
2035	71715		0		71,715
2040	73207		0		73,207

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs

Potable Water - Input Tables

Normal Year

Water Supplies - Normal Year (afy)

Year	Imported MWD	Imported LAA	Groundwater	Recycled Groundwater Replinishment	NPR (Irrigation and Industrial)	Desalination	Available Recycled Water transfers	Conservation	Total
2015	362,607	53,546	87,046	0	10,421	0	0	272,721	786,341
2020	75,430	275,700	114,670	0	19,800	0	0	126,200	611,800
2025	65,930	293,400	114,670	30,000	29,000	0	0	111,700	644,700
2030	65,430	291,000	114,670	30,000	39,000	0	0	112,800	652,900
2035	60,630	288,600	129,670	30,000	42,200	0	0	110,700	661,800
2040	74,930	286,200	129,070	30,000	45,400	0	0	110,100	675,700

Source: From 2015 UWMP *Groundwater includes (Net, Stormwater, Reuse, Stormwater Recharge)

Total Water Demand - Normal Year (afy)

Year	Demand	Indoor Demand	Outdoor Demand	Total
2015	496,297	297,778	198,519	496,297
2020	465,800	279,480	186,320	465,800
2025	504,000	302,400	201,600	504,000
2030	501,100	300,660	200,440	501,100
2035	508,900	305,340	203,560	508,900
2040	520,200	312,120	208,080	520,200

pLAn Water Demand Target

Year	
2015	
2020	485,600
2025	533,000
2030	540,100
2035	551,100
2040	565,600

Indirect Potable Reuse - Normal Year (afy)

Year	DCT	LAG	HTP	TI	Total
2015	0	0	0	0	0
2020	0	0	0	0	0
2025	30,000	0	0	0	30,000
2030	30,000	0	0	0	30,000
2035	30,000	0	0	0	30,000
2040	30,000	0	0	0	30,000

Groundwater (Net)

Year	
2015	87,046
2020	112,670
2025	110,670
2030	106,670
2035	114,670
2040	114,070

Recycled Water Transfers - Normal Year (afy)

Year	Las Virgenes	Burbank	Harbor Expansion	Total
2015	0	0	0	0
2020	200	200	0	400
2025	300	300	6,000	6,600
2030	2,800	2,800	11,000	16,600
2035	4,400	4,400	11,000	19,800
2040	6,000	6,000	11,000	23,000

Stormwater Reuse (Harvesting)

Year	
2015	0
2020	400
2025	800
2030	1,200
2035	1,600
2040	2,000

T-22 Usage (Irrigation & Industrial) - Normal Year (afy)

Year	DCT	LAG	HTP	TI	Total
2015	0	0	0	0	0
2020	19,800	0	0	0	19,800
2025	29,000	0	0	0	29,000
2030	39,000	0	0	0	39,000
2035	42,200	0	0	0	42,200
2040	45,400	0	0	0	45,400

Stormwater Recharge (Increased Pumping)

Year	
2015	0
2020	2,000
2025	4,000
2030	8,000
2035	15,000
2040	15,000

Desalination - Normal Year (afy)

Year	DCT	LAG	HTP	TI	Total
2015	0	0	0	0	0
2020	0	0	0	0	0
2025	0	0	0	0	0
2030	0	0	0	0	0
2035	0	0	0	0	0
2040	0	0	0	0	0

Water Demands - Normal Year - DCT (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	49,723	33,149	82,872
2020	46,668	31,112	77,779
2025	50,495	33,663	84,158
2030	50,204	33,470	83,674
2035	50,986	33,991	84,976
2040	52,118	34,745	86,863

Water Demands - Normal Year - Valley Spring Lane (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	65,511	43,674	109,185
2020	61,486	40,990	102,476
2025	66,528	44,352	110,880
2030	66,145	44,097	110,242
2035	67,175	44,783	111,958
2040	68,666	45,778	114,444

Water Demands - Normal Year - Foreman Line (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	2,436	1,624	4,061
2020	2,287	1,524	3,811
2025	2,474	1,649	4,124
2030	2,460	1,640	4,100
2035	2,498	1,666	4,164
2040	2,554	1,702	4,256

Water Demands - Normal Year - LAG (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	298	199	496
2020	279	186	466
2025	302	202	504
2030	301	200	501
2035	305	204	509
2040	312	208	520

Water Demands - Normal Year - Metro (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	149,625	99,750	249,376
2020	140,431	93,621	234,052
2025	151,948	101,298	253,246
2030	151,073	100,716	251,789
2035	153,425	102,283	255,708
2040	156,832	104,554	261,386

Water Demands - Normal Year - CIS (mgd)

Year	Indoor Demand	Outdoor Demand	Total
2015	12,656	8,437	21,093
2020	11,878	7,919	19,797
2025	12,852	8,568	21,420
2030	12,778	8,519	21,297
2035	12,977	8,651	21,628
2040	13,265	8,843	22,109

Water Demands - Normal Year - Terminal Island (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	17,529	11,686	29,215
2020	16,452	10,968	27,419
2025	17,801	11,867	29,668
2030	17,698	11,799	29,497
2035	17,974	11,983	29,957
2040	18,373	12,249	30,622

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs

Potable Water - Input Tables

Wet Year 5% decrease in demand from Average Year (Imported LAA supply reduced as a result)

Water Supplies - Wet Year (afy)

Year	Imported MWD	Imported LAA	Groundwater	Recycled Groundwater Replinishment	NPR (Irrigation and Industrial)	Desalination	Available Recycled Water transfers	Conservation	Total
2015	362,607	53,546	87,046	0	10,421	0	0	272,721	786,341
2020	75,430	245,100	114,670	0	19,800	0	0	95,600	550,600
2025	65,930	261,200	114,670	30,000	29,000	0	0	79,500	580,300
2030	65,430	258,400	114,670	30,000	39,000	0	0	80,200	587,700
2035	60,630	255,500	129,670	30,000	42,200	0	0	77,600	595,600
2040	74,930	252,400	129,070	30,000	45,400	0	0	76,300	608,100

Source: From 2015 UWMP *Groundwater includes (Net, Stormwater, Reuse, Stormwater Recharge)

Water Demands - Wet Year - DCT (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	49,723	33,149	82,872
2020	46,668	26,002	72,670
2025	50,495	28,286	78,781
2030	50,204	28,026	78,230
2035	50,986	28,463	79,449
2040	52,118	29,101	81,219

Total Water Demand - Wet Year (afy)

Year	Demand	Indoor Demand	Outdoor Demand	Total
2015	496,297	297,778	198,519	496,297
2020	435,200	279,480	155,720	435,200
2025	471,800	302,400	169,400	471,800
2030	468,500	300,660	167,840	468,500
2035	475,800	305,340	170,460	475,800
2040	486,400	312,120	174,280	486,400

pLAn Water Demand Target

Year	
2015	
2020	455,000
2025	500,800
2030	507,500
2035	518,000
2040	531,800

Water Demands - Wet Year - Valley Spring Lane (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	65,511	43,674	109,185
2020	61,486	34,258	95,744
2025	66,528	37,268	103,796
2030	66,145	36,925	103,070
2035	67,175	37,501	104,676
2040	68,666	38,342	107,008

Water Demands - Wet Year - Foreman Line (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	2,436	1,624	4,061
2020	2,287	1,274	3,561
2025	2,474	1,386	3,860
2030	2,460	1,373	3,833
2035	2,498	1,395	3,893
2040	2,554	1,426	3,980

Indirect Potable Reuse - Wet Year (afy)

Year	DCT	LAG	HTP	TI	Total
2015	0	0	0	0	0
2020	0	0	0	0	0
2025	30,000	0	0	0	30,000
2030	30,000	0	0	0	30,000
2035	30,000	0	0	0	30,000
2040	30,000	0	0	0	30,000

Groundwater (Net)

Year	
2015	87,046
2020	112,670
2025	110,670
2030	106,670
2035	114,670
2040	114,070

Water Demands - Wet Year - LAG (mgd)

Year	Indoor Demand	Outdoor Demand	Total
2015	298	199	496
2020	279	156	435
2025	302	169	472
2030	301	168	469
2035	305	170	476
2040	312	174	486

Recycled Water Transfers - Wet Year (afy)

Year	Las Virgenes	Burbank	Harbor Expansion	Total
2015	0	0	0	0
2020	200	200	0	400
2025	300	300	6,000	6,600
2030	2,800	2,800	11,000	16,600
2035	4,400	4,400	11,000	19,800
2040	6,000	6,000	11,000	23,000

Stormwater Reuse (Harvesting)

Year	
2015	0
2020	400
2025	800
2030	1,200
2035	1,600
2040	2,000

Water Demands - Wet Year - Metro (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	149,625	99,750	249,376
2020	140,431	78,245	218,676
2025	151,948	85,119	237,067
2030	151,073	84,335	235,408
2035	153,425	85,651	239,076
2040	156,832	87,571	244,403

T-22 Usage (Irrigation & Industrial) - Wet Year (afy)

Year	DCT	LAG	HTP	TI	Total
2015	0	0	0	0	0
2020	19,800	0	0	0	19,800
2025	29,000	0	0	0	29,000
2030	39,000	0	0	0	39,000
2035	42,200	0	0	0	42,200
2040	45,400	0	0	0	45,400

Stormwater Recharge (Increased Pumping)

Year	
2015	0
2020	2,000
2025	4,000
2030	8,000
2035	15,000
2040	15,000

Water Demands - Wet Year - CIS (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	12,656	8,437	21,093
2020	11,878	6,618	18,496
2025	12,852	7,200	20,052
2030	12,778	7,133	19,911
2035	12,977	7,245	20,222
2040	13,265	7,407	20,672

Desalination - Wet Year (afy)

Year	DCT	LAG	HTP	TI	Total
2015	0	0	0	0	0
2020	0	0	0	0	0
2025	0	0	0	0	0
2030	0	0	0	0	0
2035	0	0	0	0	0
2040	0	0	0	0	0

Water Demands - Wet Year - Terminal Island (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	17,529	11,686	29,215
2020	16,452	9,167	25,618
2025	17,801	9,972	27,773
2030	17,698	9,880	27,578
2035	17,974	10,034	28,008
2040	18,373	10,259	28,632

390755
118034
272721

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs

Potable Water - Input Tables
Dry Year

Water Supplies - Dry Year (afy)

Year	Imported MWD	Imported LAA	Groundwater	Recycled Groundwater Replinishment	NPR (Irrigation and Industrial)	Desalination	Recycled Water transfers	Conservation	Total
2015	362,607	53,546	87,046	0	10,421	0	0	272,721	786,341
2020	318,930	32,200	114,670	0	19,800	0	0	156,800	642,400
2025	307,430	51,900	114,670	30,000	29,000	0	0	143,900	676,900
2030	305,030	51,400	114,670	30,000	39,000	0	0	145,400	685,500
2035	298,230	51,000	129,670	30,000	42,200	0	0	143,800	694,900
2040	310,530	50,600	129,070	30,000	45,400	0	0	143,900	709,500

Source: From 2015 UWMP *Groundwater includes (Net, Stormwater, Reuse, Stormwater Recharge)

Total Water Demand - Dry Year (afy)

Year	Demand	Indoor Demand	Outdoor Demand	Total
2015	496,297	297,778	198,519	496,297
2020	465,800	279,480	186,320	465,800
2025	504,000	302,400	201,600	504,000
2030	501,100	300,660	200,440	501,100
2035	508,900	305,340	203,560	508,900
2040	520,200	312,120	208,080	520,200

pLAn Water Demand Target

Year	
2015	
2020	485,600
2025	533,000
2030	540,100
2035	551,100
2040	565,600

Indirect Potable Reuse - Dry Year (afy)

Year	DCT	LAG	HTP	TI	Total
2015	0	0	0	0	0
2020	0	0	0	0	0
2025	30,000	0	0	0	30,000
2030	30,000	0	0	0	30,000
2035	30,000	0	0	0	30,000
2040	30,000	0	0	0	30,000

Groundwater (Net)

Year	
2015	87,046
2020	112,670
2025	110,670
2030	106,670
2035	114,670
2040	114,070

Recycled Water Transfers - Dry Year (afy)

Year	Las Virgenes	Burbank	Harbor Expansion	Total
2015	0	0	0	0
2020	200	200	0	400
2025	300	300	6,000	6,600
2030	2,800	2,800	11,000	16,600
2035	4,400	4,400	11,000	19,800
2040	6,000	6,000	11,000	23,000

Stormwater Reuse (Harvesting)

Year	
2015	0
2020	100
2025	200
2030	300
2035	300
2040	400

T-22 Usage (Irrigation & Industrial) - Dry Year (afy)

Year	DCT	LAG	HTP	TI	Total
2015	0	0	0	0	0
2020	19,800	0	0	0	19,800
2025	29,000	0	0	0	29,000
2030	39,000	0	0	0	39,000
2035	42,200	0	0	0	42,200
2040	45,400	0	0	0	45,400

Stormwater Recharge (Increased Pumping)

Year	
2015	0
2020	2,000
2025	4,000
2030	8,000
2035	15,000
2040	15,000

Desalination - Dry Year (afy)

Year	DCT	LAG	HTP	TI	Total
2015	0	0	0	0	0
2020	0	0	0	0	0
2025	0	0	0	0	0
2030	0	0	0	0	0
2035	0	0	0	0	0
2040	0	0	0	0	0

Water Demands - Dry Year - DCT (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	49,723	33,149	82,872
2020	46,668	31,112	77,779
2025	50,495	33,663	84,158
2030	50,204	33,470	83,674
2035	50,986	33,991	84,976
2040	52,118	34,745	86,863

Water Demands - Dry Year - Valley Spring Lane (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	65,511	43,674	109,185
2020	61,486	40,990	102,476
2025	66,528	44,352	110,880
2030	66,145	44,097	110,242
2035	67,175	44,783	111,958
2040	68,666	45,778	114,444

Water Demands - Dry Year - Foreman Line (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	2,436	1,624	4,061
2020	2,287	1,524	3,811
2025	2,474	1,649	4,124
2030	2,460	1,640	4,100
2035	2,498	1,666	4,164
2040	2,554	1,702	4,256

Water Demands - Dry Year - LAG (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	298	199	496
2020	279	186	466
2025	302	202	504
2030	301	200	501
2035	305	204	509
2040	312	208	520

Water Demands - Dry Year - Metro (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	149,625	99,750	249,376
2020	140,431	93,621	234,052
2025	151,948	101,298	253,246
2030	151,073	100,716	251,789
2035	153,425	102,283	255,708
2040	156,832	104,554	261,386

Water Demands - Dry Year - CIS (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	12,656	8,437	21,093
2020	11,878	7,919	19,797
2025	12,852	8,568	21,420
2030	12,778	8,519	21,297
2035	12,977	8,651	21,628
2040	13,265	8,843	22,109

Water Demands - Dry Year - Terminal Island (afy)

Year	Indoor Demand	Outdoor Demand	Total
2015	17,529	11,686	29,215
2020	16,452	10,968	27,419
2025	17,801	11,867	29,668
2030	17,698	11,799	29,497
2035	17,974	11,983	29,957
2040	18,373	12,249	30,622

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs

Stormwater (afy)

Normal Year

Los Angeles River Watershed Inflow (afy)

Year	Annual Inflow	Annual Precip	Annual Run-On	Annual Irrigation
2015	551,200	262,000	114,600	174,600
2020	551,160	262,000	114,550	174,610
2025	551,160	262,000	114,550	174,610
2030	551,160	262,000	114,550	174,610
2035	551,160	262,000	114,550	174,610
2040	551,160	262,000	114,550	174,610

Ballona Creek Watershed Inflow (afy)

Year	Annual Inflow	Annual Precip	Annual Run-On	Annual Irrigation
2015	151,200	92,500	11,400	47,300
2020	151,200	92,500	11,400	47,300
2025	151,200	92,500	11,400	47,300
2030	151,200	92,500	11,400	47,300
2035	151,200	92,500	11,400	47,300
2040	151,200	92,500	11,400	47,300

Santa Monica Watershed / Marina Del Rey Watershed Inflow (afy)

Year				
2015	92,500	55,400	15,600	21,500
2020	92,500	55,400	15,600	21,500
2025	92,500	55,400	15,600	21,500
2030	92,500	55,400	15,600	21,500
2035	92,500	55,400	15,600	21,500
2040	92,500	55,400	15,600	21,500

Dominguez Channel Watershed Inflow (afy)

Year	Annual Inflow	Annual Precip	Annual Run-On	Annual Irrigation
2015	36,500	6,100	26,600	3,800
2020	36,500	6,100	26,600	3,800
2025	36,500	6,100	26,600	3,800
2030	36,500	6,100	26,600	3,800
2035	36,500	6,100	26,600	3,800
2040	36,500	6,100	26,600	3,800

Wet Year

Los Angeles River Watershed Inflow (afy)

Year	Annual Inflow	Annual Precip	Annual Run-On	Annual Irrigation
2015	1,246,100	629,600	441,100	175,400
2020	1,246,100	629,600	441,060	175,440
2025	1,246,100	629,600	441,060	175,440
2030	1,246,100	629,600	441,060	175,440
2035	1,246,100	629,600	441,060	175,440
2040	1,246,100	629,600	441,060	175,440

Ballona Creek Watershed Inflow (afy)

Year	Annual Inflow	Annual Precip	Annual Run-On	Annual Irrigation
2015	317,800	240,400	30,200	47,200
2020	317,800	240,400	30,200	47,200
2025	317,800	240,400	30,200	47,200
2030	317,800	240,400	30,200	47,200
2035	317,800	240,400	30,200	47,200
2040	317,800	240,400	30,200	47,200

Stormwater (afy)

Normal Year

Los Angeles River Watershed Outflow (afy)

Year	To Los Angeles River	Low Flow Diversions	Capture & Direct Use	Environmental & Habitat	Infiltration BMPs	Natural GW Recharge	ET	Total
2015	231,700	0	0	0	29,365	31,736	258,399	551,200
2020	215,400	0	100	0	45,035	31,736	258,889	551,160
2025	198,700	0	200	0	59,644	31,736	260,880	551,160
2030	189,900	0	300	0	66,670	31,736	262,554	551,160
2035	172,800	0	400	0	82,584	31,736	263,640	551,160
2040	172,800	0	500	0	82,584	31,736	263,540	551,160

Ballona Creek Watershed Outflow (afy)

Year	To Ballona Creek	Low Flow Diversions	Capture & Direct Use	Environmental & Habitat	Infiltration BMPs	Natural GW Recharge	ET	Total
2015	65,600	74	0	0	0	3,255	82,271	151,200
2020	64,400	74	100	0	14,011	3,255	69,360	151,200
2025	61,500	74	200	0	17,514	3,255	68,657	151,200
2030	59,100	74	300	0	17,514	3,255	70,957	151,200
2035	57,200	74	400	0	17,514	3,255	72,757	151,200
2040	57,200	74	500	0	17,514	3,255	72,657	151,200

Santa Monica Watershed / Marina Del Rey Watershed Outflow (afy)

Year	To Ballona Creek	Low Flow Diversions	Capture & Direct Use	Environmental & Habitat	Infiltration BMPs	Natural GW Recharge	ET	Total
2015	37,200	1,479	0	0	0	0	53,821	92,500
2020	37,100	1,479	100	0	2,034	0	51,787	92,500
2025	36,900	1,479	200	0	2,543	0	51,378	92,500
2030	36,700	1,479	300	0	2,543	0	51,478	92,500
2035	36,700	1,479	400	0	2,543	0	51,378	92,500
2040	36,700	1,479	500	0	2,543	0	51,278	92,500

Dominguez Channel Watershed Outflow (afy)

Year	To Ocean	Low Flow Diversions	Capture & Direct Use	Environmental & Habitat	Infiltration BMPs	Natural GW Recharge	ET	Total
2015	31,000	0	0	0	0	0	5,500	36,500
2020	30,885	0	100	0	15	0	5,500	36,500
2025	30,212	0	200	0	588	0	5,500	36,500
2030	27,823	0	300	0	2,877	0	5,500	36,500
2035	24,710	0	400	0	5,890	0	5,500	36,500
2040	22,683	0	500	0	7,817	0	5,500	36,500

Wet Year

Los Angeles River Watershed Outflow (afy)

Year	To Los Angeles River	Low Flow Diversions	Capture & Direct Use	Environmental & Habitat	Infiltration BMPs	Natural GW Recharge	ET	Total
2015	783,100	0	0	0	69,400	52,400	341,200	1,246,100
2020	708,100	0	100	0	142,574	52,474	342,852	1,246,100
2025	643,600	0	200	0	201,590	52,474	348,236	1,246,100
2030	615,200	0	300	0	224,036	52,474	354,090	1,246,100
2035	543,200	0	400	0	293,066	52,474	356,960	1,246,100
2040	543,200	0	500	0	293,066	52,474	356,860	1,246,100

Ballona Creek Watershed Outflow (afy)

Year	To Ballona Creek	Low Flow Diversions	Capture & Direct Use	Environmental & Habitat	Infiltration BMPs	Natural GW Recharge	ET	Total
2015	196,400	91	0	0	0	5,600	115,709	317,800
2020	149,503	91	100	0	46,797	5,626	115,683	317,800
2025	137,703	91	200	0	58,497	5,626	115,683	317,800
2030	137,603	91	300	0	58,497	5,626	115,683	317,800
2035	137,503	91	400	0	58,497	5,626	115,683	317,800
2040	137,403	91	500	0	58,497	5,626	115,683	317,800

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs

Santa Monica Watershed / Marina Del Rey Watershed Inflow (afy)

Year				
2015	194,100	130,400	42,800	20,900
2020	194,100	130,400	42,800	20,900
2025	194,100	130,400	42,800	20,900
2030	194,100	130,400	42,800	20,900
2035	194,100	130,400	42,800	20,900
2040	194,100	130,400	42,800	20,900

Santa Monica Watershed / Marina Del Rey Watershed Outflow (afy)

Year	To Ballona Creek	Low Flow Diversions	Capture & Direct Use	Environmental & Habitat	Infiltration BMPs	Natural GW Recharge	ET	Total
2015	109,900	2,175	0	0	0	0	82,025	194,100
2020	103,005	2,175	100	0	6,795	0	82,025	194,100
2025	101,206	2,175	200	0	8,494	0	82,025	194,100
2030	101,106	2,175	300	0	8,494	0	82,025	194,100
2035	101,006	2,175	400	0	8,494	0	82,025	194,100
2040	100,906	2,175	500	0	8,494	0	82,025	194,100

Dominguez Channel Watershed Inflow (afy)

Year	Annual Inflow	Annual Precip	Annual Run-On	Annual Irrigation
2015	82,500	14,300	64,400	3,800
2020	82,500	14,300	64,400	3,800
2025	82,500	14,300	64,400	3,800
2030	82,500	14,300	64,400	3,800
2035	82,500	14,300	64,400	3,800
2040	82,500	14,300	64,400	3,800

Dominguez Channel Watershed Outflow (afy)

Year	To Ocean	Low Flow Diversions	Capture & Direct Use	Environmental & Habitat	Infiltration BMPs	Natural GW Recharge	ET	Total
2015	74,900	0	0	0	0	0	7,600	82,500
2020	74,749	0	100	0	51	0	7,600	82,500
2025	72,737	0	200	0	1,963	0	7,600	82,500
2030	64,992	0	300	0	9,608	0	7,600	82,500
2035	54,827	0	400	0	19,673	0	7,600	82,500
2040	48,291	0	500	0	26,109	0	7,600	82,500

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs

Dry Year

Los Angeles River Watershed Inflow (afy)

Year	Annual Inflow	Annual Precip	Annual Run-On	Annual Irrigation
2015	242,500	73,000	13,500	156,000
2020	242,382	72,960	13,452	155,970
2025	242,382	72,960	13,452	155,970
2030	242,382	72,960	13,452	155,970
2035	242,382	72,960	13,452	155,970
2040	242,382	72,960	13,452	155,970

Ballona Creek Watershed Inflow (afy)

Year	Annual Inflow	Annual Precip	Annual Run-On	Annual Irrigation
2015	69,900	25,000	2,500	42,400
2020	69,900	25,000	2,500	42,400
2025	69,900	25,000	2,500	42,400
2030	69,900	25,000	2,500	42,400
2035	69,900	25,000	2,500	42,400
2040	69,900	25,000	2,500	42,400

Santa Monica Watershed / Marina Del Rey Watershed Inflow (afy)

Year				
2015	38,300	15,400	3,100	19,800
2020	38,290	15,400	3,090	19,800
2025	38,290	15,400	3,090	19,800
2030	38,290	15,400	3,090	19,800
2035	38,290	15,400	3,090	19,800
2040	38,290	15,400	3,090	19,800

Dominguez Channel Watershed Inflow (afy)

Year	Annual Inflow	Annual Precip	Annual Run-On	Annual Irrigation
2015	10,100	1,500	5,300	3,300
2020	10,100	1,500	5,300	3,300
2025	10,100	1,500	5,300	3,300
2030	10,100	1,500	5,300	3,300
2035	10,100	1,500	5,300	3,300
2040	10,100	1,500	5,300	3,300

Dry Year

Los Angeles River Watershed Outflow (afy)

Year	To Los Angeles River	Low Flow Diversions	Capture & Direct Use	Environmental & Habitat	Infiltration BMPs	Natural GW Recharge	ET	Total
2015	41,500	0	0	0	4,700	9,200	187,100	242,500
2020	39,509	0	25	0	6,536	9,150	187,161	242,382
2025	36,966	0	50	0	8,800	9,150	187,416	242,382
2030	35,229	0	75	0	10,192	9,150	187,736	242,382
2035	32,624	0	75	0	12,483	9,150	188,049	242,382
2040	32,624	0	100	0	12,483	9,150	188,024	242,382

Ballona Creek Watershed Outflow (afy)

Year	To Ballona Creek	Low Flow Diversions	Capture & Direct Use	Environmental & Habitat	Infiltration BMPs	Natural GW Recharge	ET	Total
2015	14,000	48	0	0	0	700	55,152	69,900
2020	11,872	48	25	0	2,102	702	55,152	69,900
2025	11,321	48	50	0	2,627	702	55,152	69,900
2030	11,296	48	75	0	2,627	702	55,152	69,900
2035	11,296	48	75	0	2,627	702	55,152	69,900
2040	11,271	48	100	0	2,627	702	55,152	69,900

Santa Monica Watershed / Marina Del Rey Watershed Outflow (afy)

Year	To Ballona Creek	Low Flow Diversions	Capture & Direct Use	Environmental & Habitat	Infiltration BMPs	Natural GW Recharge	ET	Total
2015	7,300	573	0	0	0	0	30,427	38,300
2020	6,960	573	25	0	305	0	30,427	38,290
2025	6,859	573	50	0	381	0	30,427	38,290
2030	6,834	573	75	0	381	0	30,427	38,290
2035	6,834	573	75	0	381	0	30,427	38,290
2040	6,809	573	100	0	381	0	30,427	38,290

Dominguez Channel Watershed Outflow (afy)

Year	To Ocean	Low Flow Diversions	Capture & Direct Use	Environmental & Habitat	Infiltration BMPs	Natural GW Recharge	ET	Total
2015	6,100	0	0	0	0	0	4,000	10,100
2020	6,073	0	25	0	2	0	4,000	10,100
2025	5,962	0	50	0	88	0	4,000	10,100
2030	5,594	0	75	0	432	0	4,000	10,100
2035	5,141	0	75	0	884	0	4,000	10,100
2040	4,827	0	100	0	1,173	0	4,000	10,100

Groundwater (afy)

San Fernando

Year	GW Pumping
2015	25,500
2020	81,300
2025	96,500
2030	96,500
2035	95,405
2040	95,405

West Basin GW

Year	GW Pumping
2015	0
2020	0
2025	0
2030	0
2035	0
2040	0

Central Basin GW Outflow (afy)

Year	GW Pumping
2015	15,000
2020	15,000
2025	15,000
2030	15,000
2035	15,000
2040	15,000

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs
LA River

Stormwater Inflow by LA River Reach (afy)

Normal Year Conditions

Year	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Total
2015	4,598	71,262	55,319	81,192	22,383	44,061	278,815
2020	4,598	70,744	55,241	70,090	21,923	39,919	262,515
2025	4,598	69,086	55,103	59,651	21,498	36,100	246,036
2030	4,598	67,232	54,972	55,394	21,214	33,538	236,948
2035	4,598	66,378	54,842	44,949	20,659	28,546	219,972
2040	4,598	66,378	54,842	44,949	20,659	28,546	219,972

Dry Year Conditions

Year	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Total
2015	793	13,337	8,577	11,239	5,740	9,202	48,888
2020	793	13,245	8,565	10,390	5,634	8,247	46,874
2025	793	12,952	8,543	9,086	5,536	7,367	44,277
2030	793	12,624	8,522	8,331	5,471	6,777	42,518
2035	793	12,472	8,501	7,298	5,343	5,627	40,034
2040	793	12,472	8,501	7,298	5,343	5,627	40,034

Wet Year Conditions

Year	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Total
2015	12,181	229,518	192,343	339,422	61,094	117,115	951,673
2020	12,181	228,038	192,079	278,445	59,868	106,080	876,691
2025	12,181	223,245	191,611	230,537	58,737	95,906	812,217
2030	12,181	217,869	191,167	215,466	57,979	89,083	783,745
2035	12,181	215,428	190,723	161,003	56,502	75,786	711,623
2040	12,181	215,428	190,723	161,003	56,502	75,786	711,623

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs

Recycled Water Demands

Normal, Wet, and Dry Years

Hyperion TP Outflow (afy)

Year	Recycled Water LADWP	West Basin (Customers)	Environmental Users	West Basin (West Side Barrier)	Total	Ocean	Total
2015	895	24,005	0	14,300	39,200	246,720	325,120
2020	1,100	23,800	0	14,300	39,200	244,532	322,932
2025	1,300	23,600	0	14,300	39,200	262,988	341,388
2030	1,300	23,600	0	14,300	39,200	261,587	339,987
2035	1,300	23,600	0	14,300	39,200	265,355	343,755
2040	1,300	23,600	0	14,300	39,200	270,815	349,215

Hyperion AWT (future) Outflow (afy)

Year	Losses (AWT)	IPR (effluent)	DPR (effluent)	Total (influent)
2015	0	0	0	0
2020	0	0	0	0
2025	0	0	0	0
2030	0	0	0	0
2035	0	0	0	0
2040	0	0	0	0

Tillman Tertiary Outflow (afy)

Year	Recycled Water Customers	GW Recharge	Environmental Users	Barrier	Total	LA River	Total
2015	2,647	0	26,317	0	28,964	36,474	94,402
2020	3,400	0	26,600	0	30,000	35,511	95,511
2025	3,400	30,000	26,600	0	60,000	8,419	128,419
2030	3,400	30,000	26,600	0	60,000	8,198	128,198
2035	3,400	30,000	26,600	0	60,000	8,792	128,792
2040	3,400	30,000	26,600	0	60,000	9,653	129,653

Tillman AWT Outflow (afy)

Year	Losses (AWT)	IPR (effluent)	DPR (effluent)	Total (influent)
2015	0	0	0	0
2020	9856	39200	0	49,056
2025	9856	39200	0	49,056
2030	9856	39200	0	49,056
2035	9856	39200	0	49,056
2040	9856	39200	0	49,056

LA-Glendale Tertiary Outflow (afy)

Year	Recycled Water Customers	GW Recharge	Environmental Users	Barrier	Total	LA River	Total
2015	2,446	0	0	0	2,446	13,973	18,865
2020	3,600	0	0	0	3,600	16,848	24,048
2025	6,200	0	0	0	6,200	14,427	26,827
2030	6,200	0	0	0	6,200	14,414	26,814
2035	6,200	0	0	0	6,200	14,450	26,850
2040	6,200	0	0	0	6,200	14,504	26,904

LA-Glendale AWT Outflow (afy)

Year	Losses (AWT)	IPR (effluent)	DPR (effluent)	Total (influent)
2015	0	0	0	0
2020	0	0	0	0
2025	0	0	0	0
2030	0	0	0	0
2035	0	0	0	0
2040	0	0	0	0

Terminal Island Tertiary Outflow (afy)

Year	Recycled Water Customers	Harbor Expansion	Environmental Users	Barrier (Dominguez Gap)	Total	Ocean	Total
2015	1	0	0	4,432	4,433	12,926	21,792
2020	4,228	0	140	6,932	11,300	6,051	28,651
2025	4,428	0	140	6,932	11,500	7,124	30,124
2030	4,428	0	140	6,932	11,500	7,028	30,028
2035	4,428	0	140	6,932	11,500	7,288	30,288
2040	4,428	0	140	6,932	11,500	7,664	30,664

Terminal Island AWT Outflow (afy)

Year	Losses (AWT)	IPR (effluent)	DPR (effluent)	Total (influent)
2015	699	-699	0	0
2020	3360	-3220	0	140
2025	3360	-3220	0	140
2030	3360	-3220	0	140
2035	3360	-3220	0	140
2040	3360	-3220	0	140

Wastewater - Key Assumptions

Treatment Plant Losses

Treatment Plant Losses (%)

Treatment Plant	Secondary	Tertiary	Advanced
HTP	0.1%	5%	20%
DCT	0.00%	24%	20%
LAG	0.00%	15%	20%
TI	0.00%	6%	20%

Assumed to be constant for all planning years

Stormwater Infiltration (into Sewers)

By Sewershed (%)

Sewershed Area	RDII	old #s
CIS	9%	7%
DCT	17%	19%
Foreman	1%	3%
Metro	39%	52%
LAG	2%	2%
Terminal Island	8%	8%
Valley Spring Lane	24%	9%
Total	100%	

By Treatment Plant (%)

Treatment Plant	RDII
DCT	25%
LAG	15%
HTP	50%
TI	10%
Total	100%

RDII (afy)

Sewershed Area	Normal	Wet	Dry	2015
CIS	1,700	2,581	317	608
DCT	3,373	5,120	628	1,206
Foreman	185	281	35	66
Metro	7,522	11,420	1,402	2,689
LAG	361	547	67	129
Terminal Island	1,580	2,398	294	565
Valley Spring Lane	4,643	7,049	865	1,660
Total	19,362	29,397	3,608	6,922

Assumed to be constant for all planning years

Input - Supply Sources	Input - Required Demand	Assumptions - Calculated Using Assumptions	Calculated - Model Will Calculate Values	Calculated - In Excel (not linked to model)

Inputs

Sewershed Flow to Treatment Plant

Sewershed Flows to Treatment Plant (%)

Sewershed Flow	Tillman	LA-Glendale	Hyperion	Terminal Island	Total
Donald C Tillman	100%	0%	0%	0%	100%
Foreman Line	0%	100%	0%	0%	100%
Valley Spring Lane	0%	0%	100%	0%	100%
LA-Glendale	0%	100%	0%	0%	100%
Metro	0%	0%	100%	0%	100%
CIS	0%	0%	100%	0%	100%
Terminal Island	0%	0%	0%	100%	100%
Weighted Flow (%)	16.7%	0.9%	76.5%	5.9%	100.0%

Assumed to be constant for all planning years

Contract Agency Flows (afy)

Sewershed Area	Percent Split (%)	Normal	Wet	Dry
CIS	23.3%	14,692	14,692	14,692
DCT	1.8%	1,158	1,158	1,158
Foreman	0.0%	0	0	0
Metro	35.3%	22,241	22,241	22,241
LAG	33.1%	20,881	20,881	20,881
Terminal Island	0.6%	354	354	354
Valley Spring Lane	5.8%	3,675	3,675	3,675
Total	100.0%	63,000	63,000	63,000

Potable Water - Key Assumptions

Water Demand Distribution by Sewershed (%)

Demand Area	Total
DCT	16.7%
Foreman	0.8%
Valley Spring Lane	22.0%
LAG	0.1%
Metro	50.2%
CIS	4.3%
Terminal Island	5.9%
TOTAL	100%

Based on area sewershed calibration

Demand Distribution Factors (Normal Year)

Year	Indoor Demand	Outdoor Demand	Conservation	Total
2015	60.0%	40.0%	0.0%	100%
2020	60.0%	40.0%	0.0%	100%
2025	60.0%	40.0%	0.0%	100%
2030	60.0%	40.0%	0.0%	100%
2035	60.0%	40.0%	0.0%	100%
2040	60.0%	40.0%	0.0%	100%

Based on 2015 UWMP. Assumed to be constant for all water service areas

To Calculate SW BMP's Use: UWMP

UWMP

Groundwater Model

LA River

Evapotranspiration (ET)

Annual ET	7	afy/acre

Demand Distribution Factors (Wet Year)

Year	Indoor Demand	Outdoor	Conservation	Total
2015	60.0%	40.0%	0.0%	100%
2020	64.2%	35.8%	0.0%	100%
2025	64.1%	35.9%	0.0%	100%
2030	64.2%	35.8%	0.0%	100%
2035	64.2%	35.8%	0.0%	100%
2040	64.2%	35.8%	0.0%	100%

Based on 2015 UWMP. Assumed to be constant for all water service areas

Demand Distribution Factors (Dry Year)

Year	Indoor Demand	Outdoor	Conservation	Total
2015	60.0%	40.0%	0.0%	100%
2020	60.0%	40.0%	0.0%	100%
2025	60.0%	40.0%	0.0%	100%
2030	60.0%	40.0%	0.0%	100%
2035	60.0%	40.0%	0.0%	100%
2040	60.0%	40.0%	0.0%	100%

Based on 2015 UWMP. Assumed to be constant for all water service areas

APPENDIX C – CONTRACT AGENCY FLOW SUMMARY

Contract Agency Flows											
		Flow (MGD)				Flow (afy)				Average	
Contract Agency	Sewershed	FY 2001 - 2002	FY 2005 - 2006	FY 2007 - 2008	FY 2014 - 2015	FY 2001 - 2002	FY 2005 - 2006	FY 2007 - 2008	FY 2014 - 2015	(mgd)	(afy)
Aneta Street	HTP	0.028	0.028	0.028	0.054	31	31	31	60	0.035	39
Beverly Hills	HTP	5.657	6.146	6.413	5.176	6,336	6,884	7,183	5,797	5.848	6,550
Burbank	LAG	3.874	2.402	1.028	0.826	4,339	2,690	1,151	925	2.033	2,276
Crescenta Valley	VSLI	0.000	2.003	1.690	1.332	0	2,244	1,892	1,492	1.256	1,407
CSD 4	HTP	5.657	5.365	5.195	4.472	6,336	6,009	5,818	5,009	5.172	5,793
CSD 5	HTP	0.852	0.849	0.850	0.677	954	951	952	758	0.807	904
CSD 16	HTP	0.543	0.508	0.511	0.418	608	569	572	468	0.495	554
CSD 27	CIS	0.144	0.144	0.144	0.059	161	161	161	66	0.123	137
Culver City	HTP	4.897	4.908	3.986	4.166	5,485	5,497	4,464	4,666	4.489	5,028
El Segundo	HTP	2.417	1.999	1.642	1.310	2,707	2,239	1,839	1,467	1.842	2,063
Federal Office Building	HTP	0.019	0.013	0.014	0.014	22	15	16	16	0.015	17
Glendale	LAG	17.910	17.549	17.419	13.649	20,060	19,655	19,509	15,287	16.632	18,628
Karl Holton Camp	DCT	0.016	0.016	0.014	0.014	17	17	16	16	0.015	17
La Canada	LAG	0.000	0.000	0.027	0.110	0	0	30	124	0.034	38
Las Virgenes	DCT	0.378	0.942	0.336	0.338	423	1,055	376	379	0.499	558
Marina Del Rey	CIS	1.589	1.517	1.345	1.264	1,780	1,699	1,506	1,416	1.429	1,600
San Fernando	VSLI	2.005	2.140	2.086	1.835	2,246	2,397	2,336	2,055	2.017	2,258
Santa Monica	CIS	9.877	11.881	11.962	12.155	11,062	13,307	13,398	13,613	11.469	12,845
Triunfo	DCT	0.135	0.151	1.725	0.136	151	169	1,932	152	0.537	601
Universal City	HTP	0.688	0.676	0.656	0.794	771	757	734	889	0.703	788
Veterans Administration	HTP	0.655	0.291	0.289	0.335	734	326	323	375	0.392	439
WLA Community College	HTP	0.036	0.034	0.031	0.037	40	38	35	41	0.035	39
CSD 9	TISA	0.263	0.264	0.264	0.245	295	296	296	274	0.259	290
City of Long Beach	TISA	0.036	0.085	0.085	0.023	40	95	95	26	0.057	64
Army Reserve Center	LAG	0.002	0.002	0.002	0.000	2	2	2	0	0.001	1
Army Reserve Training	LAG	0.003	0.003	0.003	0.000	3	3	3	0	0.002	3
Barrington Post Office	HTP	0.002	0.002	0.002	0.000	2	2	2	0	0.001	1
California National Guard	HTP	0.003	0.003	0.003	0.000	3	3	3	0	0.002	3
Veterans Memorial Park	DCT	0.001	0.001	0.001	0.000	1	1	1	0	0.001	1
Total		**57.686**	**59.92102**	**57.74944**	**49.43864**	**64,608**	**67,112**	**64,679**	**55,371**	**56.199**	**62,943**

Contract Agencies Summarized by Sewersheds						
Sewershed	FY 2001 - 2002 (afy)	FY 2005 - 2006 (afy)	FY 2007 - 2008 (afy)	FY 2014 - 2015 (afy)	Average (afy)	Average (%)
CIS	13,003	15,167	15,065	15,095	14,583	**23%**
DCT	593	1,242	2,325	547	1,177	**2%**
HTP	24,028	23,320	21,973	19,547	22,217	**35%**
LAG	24,404	22,351	20,696	16,336	20,946	**33%**
TISA	335	391	391	300	354	**1%**
VSLI	2,246	4,641	4,229	3,547	3,665	**6%**
Total	**64,608**	**67,112**	**64,679**	**55,371**	**62,943**	**100%**
Total Round	**65,000**	**67,000**	**65,000**	**55,000**	**63,000**	

APPENDIX D – UPDATED WATER BALANCE AND PROJECTIONS OF STORMWATER CAPTURE

CITY OF LOS ANGELES

First Draft: 1/27/2017

Final: 9/20/2017

Lead Author: Dustin Bambic, PH

UPDATED WATER BALANCE AND PROJECTIONS OF STORMWATER CAPTURE

FINAL

September 2017

707 WILSHIRE BOULEVARD, SUITE 3920 • LOS ANGELES, CALIFORNIA 90017 • P. 213.489.1587 • F. 213.489.1500

CITY OF LOS ANGELES

TECHNICAL MEMORANDUM
UPDATED WATER BALANCE AND PROJECTIONS
OF STORMWATER CAPTURE

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LIST OF ABBREVIATIONS

Abbreviation	Description
ac-ft	acre-feet
AGWO	active groundwater outflow
BMPs	Best Management Practices
CIP	Capital Improvement Plan
EWMP	Enhanced Watershed Management Program
FY	fiscal year
gpcd	gallons per capita per day
IFWO	interflow volume
LACDPW	Los Angeles County Department of Public Works
LADWP	Los Angeles Department of Water and Power
LID	low impact development
LSPC	Load Simulation Program in C+
MS4	Municipal Separate Storm Sewer System
RAA	Reasonable Assurance Analysis
RO	reach outflow
SURO	sum of surface outflow
SUSTAIN	System for Urban Stormwater Treatment and Analysis Integration
ULAR	Upper Los Angeles River
WMMS	Watershed Management Modeling System
WPD	Watershed Protection Division
WRAMPS	Watershed Reporting Adaptive Management and Planning System
WRP	water reclamation plant
WY	water year

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UPDATED WATER BALANCE AND PROJECTIONS OF STORMWATER CAPTURE

D.1 INTRODUCTION

This technical memorandum presents the results of an analysis to provide an updated baseline water budget and projections of stormwater capture for City of Los Angeles. The updated water balance, presented in Section D.2, represents the baseline for the City's existing conditions (Task 1). The stormwater capture projections, presented in Section D.3 below, will support development of the Stormwater and Urban Runoff Facilities Plan through 2040 (Task 8).

D.2 UPDATED WATER BALANCE

D.2.1 Overview of Models Used

To support One Water LA planning, an updated water balance was generated to represent the baseline water resources condition for the City. The updated water balance was generated using a public domain hydrology model called Loading Simulation Program – C++ (LSPC; USEPA link for more information). Each major watershed in the City, as outlined by the Enhanced Watershed Management Programs (EWMP), was simulated with an LSPC model. The LSPC models used for the updated water balance were existing and leveraged from previous efforts. The original LSPC model development effort was led by the Los Angeles County Department of Public Works, through creation of the Watershed Management Modeling System (WMMS; County link for more information). The WMMS is a comprehensive watershed model of the Los Angeles County region that includes the unique hydrology and hydraulics features of the region's watersheds. The WMMS domain encompasses all of Los Angeles County's coastal watersheds for a total of 3,100 square miles (Los Angeles County Department of Public Works [LACDPW] 2010). In 2015, for a subset of watersheds, the LSPC models within WMMS were updated and refined for a component of the City's EWMPs known as Reasonable Assurance Analyses (RAA). The RAAs included numerous LSPC refinements such as improved calibration of hydrology processes, representation of dry-weather runoff from urban water use, refinement of weather data, and representation of additional structures (i.e. spreading grounds) that affect the transport of water through the routing network (Upper Los Angeles River [ULAR] WMG 2016).

For this water balance, the refined LSPC models used for RAAs were applied for ULAR, Ballona Creek, and Dominguez Channel. The LSPC models from the original WMMS model configuration (available for download at dpw.lacounty.gov/ wmd/wmms) were used for Santa Monica Bay and Marina del Rey. The water balance was conducted for each year between 2001 and 2011, as those were the years available from previous models.

D.2.2 Assessment Locations

The water balance was created by analyzing the inputs and losses to watershed "assessment locations", as shown on Figure D.1. The assessment locations were instream points at the downstream boundary of City jurisdiction in the EWMP areas (shown as stars on Figure D.1). For Santa Monica Bay locations and the Port of LA area within Dominguez Channel EWMP area, the Pacific Ocean served as the assessment location (the numerous coastal outlets were aggregated). Upstream of the assessment locations, the inputs from areas outside of the City were separated into non-City bins within the LSPC model and tracked separately.

D.2.3 Water Balance Components

Development of the water balance using the LSPC model required defining several major components of model inputs and losses, as shown in Table D.1. These components were derived from the direct model inputs and outputs or, in some cases, by post-processing the model outputs. The water balance components were categorized as "land processes" which occur prior to discharge to stream or ocean and "instream processes" which occur during downstream transport.

Using the components described in Table D.1, the final water balance from the land is calculated as follow:

Precipitation + Outdoor Water Use

- Evapotranspiration - Infiltration - Recharge

= Runoff + Baseflow

Using the land flow into reaches calculated above and the remaining components described in Table D.1, the final instream water budget is calculated as follows:

Runoff + Baseflow + Point Source Flows

- Spreading Grounds - Instream Losses

= Stream Discharge

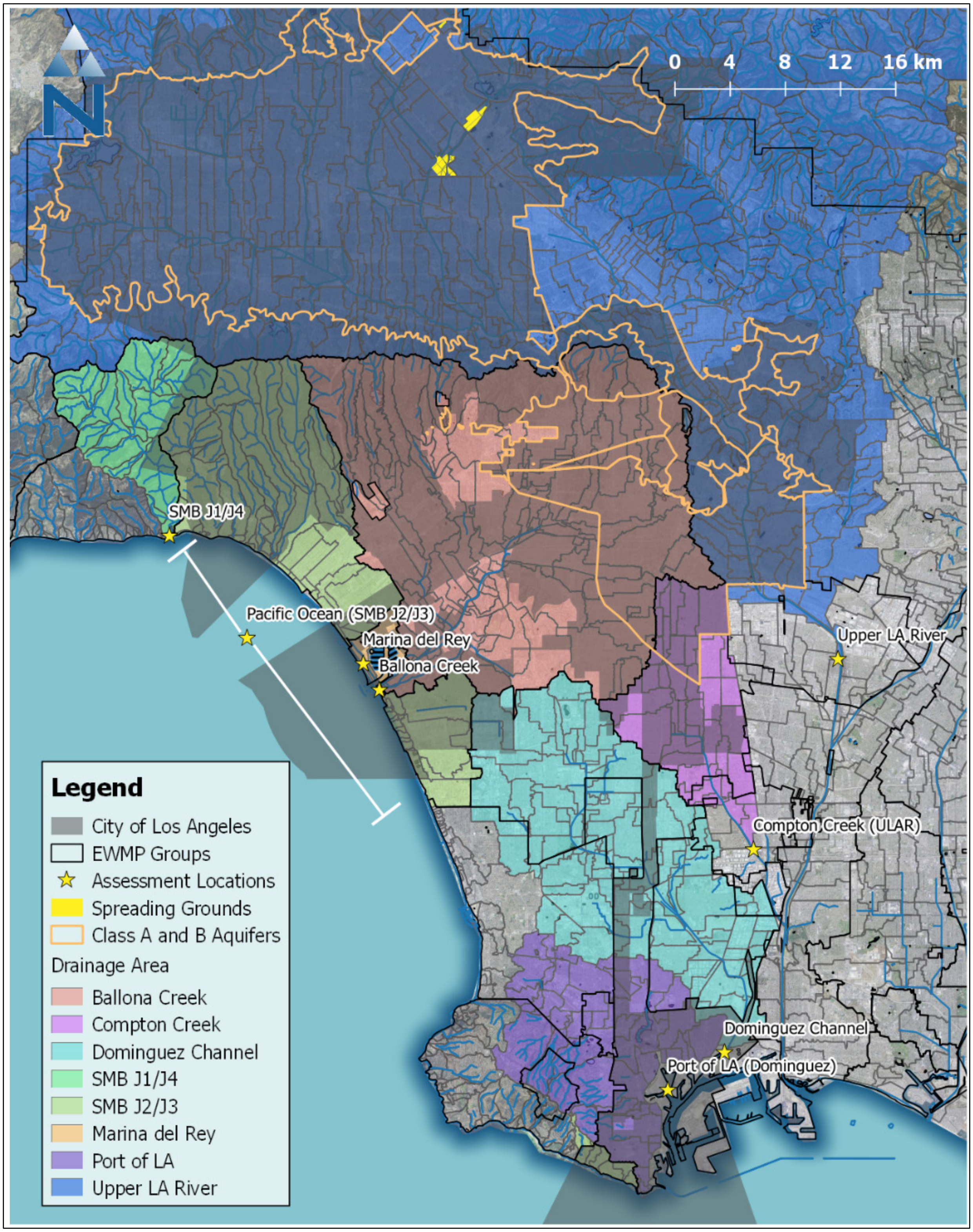

Figure D.1 Major Watersheds in City of Los Angeles Jurisdiction and Assessment Locations used in Developing the Water Balance

Table D.1 Summary of major water balance components

Type of Process	Process	Type	Description
Land	Precipitation	Input	Observed rainfall timeseries used as a direct LSPC input
	Irrigation	Input	Simulated directly in LSPC and summed as irrigated pervious urban areas + dry-weather urban water use
	Evapotranspiration	Loss	Derived as a percentage of total inputs, [Precipitation] + [Irrigation], by land use from long-term daily LSPC timeseries
	Infiltration	Loss	Derived as a percentage of total inputs, [Precipitation] + [Irrigation], by land use from long-term daily LSPC timeseries
	Recharge	Loss	Infiltration that occurs over a Class A or Class B aquifer in the City (see Figure D.1)
	Runoff	Loss	Simulated directly in LSPC as sum of surface outflow (SURO) volume and interflow volume (IFWO)
	Baseflow	Loss	Simulated directly in LSPC as active groundwater outflow (AGWO) volume with reduction applied for concrete lined channels consistent with EWMPs
Instream	Land Inflow	Input	Calculated as the sum of [Runoff] + [Baseflow]
	Point Source Flows	Input	Interpolated discharge timeseries for Donald C. Tillman, Burbank, and Glendale water reclamation plants
	Spreading Grounds	Loss	Calculated using LSPC output as inflow minus outflow for the unique spreading ground structure, where explicitly represented in the model (see Figure D.1)
	Instream Loss	Loss	Calculated using LSPC output as instream inflow minus outflow, representing a net loss from the stream (includes evapotranspiration, seepage and direct precipitation)
	Stream Discharge	Loss	Simulated directly in LSPC as reach outflow (RO)

The Donald C. Tillman, Burbank and Glendale water reclamation plants (WRPs) are important points sources within the Upper LA River EWMP area. Figure D.2 presents a comparison of the three discharges included in the water balance by summarizing a daily average flow by water year.

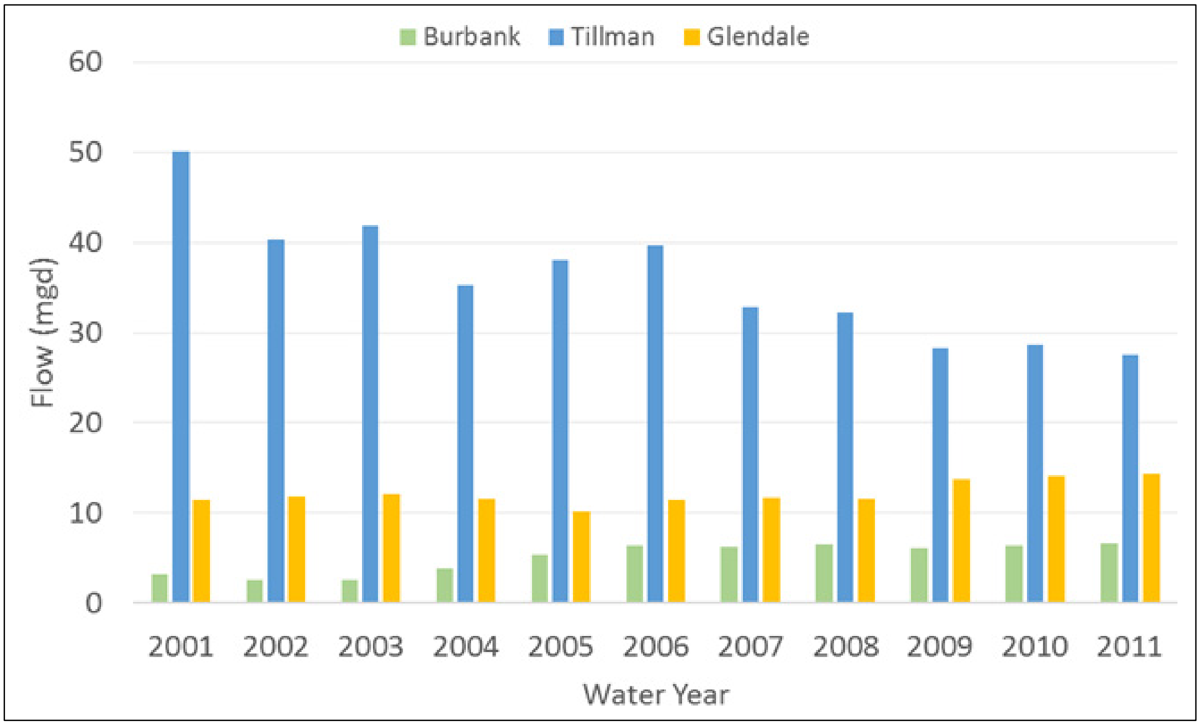

Figure D.2 Summary of Modeled Point Source Inputs from WRP Facilities by Water Year

D.2.4 Results

The primary outcome of the updated water balance is a detailed spreadsheet for each component, organized by EWMP area. See Attachment A for the detailed water balance spreadsheet. A City-wide summary of the water balance for water year 2008 is provided in Table D.2. A summary of inputs and outputs is provided on Figure D.3, with a breakdown for City versus non-City (note: some losses are not broken down into a City of LA-only component because the City and non-City water is comingled downstream). Additional detail on City-only inputs is provided on Figure D.4. Note the summary is based on water year 2008 (water year [WY] 2008; Oct 1 2007 to Sept 30 2007), which has been identified as an average year in the EWMPs (ULAR WMG 2016). Every year between 2001 and 2011 is presented in Attachment A; note that individual years could be selected as most representative of dry and wet years to represent a range of conditions.

Table D.2 Summary of Water Balance Components for all Assessment Locations for an Average Year (WY 2008)

		Volume (ac-ft)		Percent Contribution (%)	
		In City	Outside City	In City	Outside City
Type	**Inputs**				
Land	Precipitation	349,426	466,115	22.9%	30.6%
Land	Outdoor water use	437,853	213,429	28.7%	14.0%
Instream	Point Sources	48,950	7,314	3.2%	0.5%
All	**Total Inputs**	**1,523,087**		**100.0%**	
Type	**Outputs**				
Land	Evapotranspiration	322,943	337,702	21.2%	22.2%
Land	Infiltration	73,361	178,482	4.8%	11.7%
Land	Recharge	214,595		14.1%	0.0%
Instream	Spreading Grounds	21,297		1.4%	
Instream	Instream loss	9,041		0.6%	
Instream	Stream Discharge	365,666		24.0%	
All	**Total Outputs**	**1,523,087**		**100.0%**	

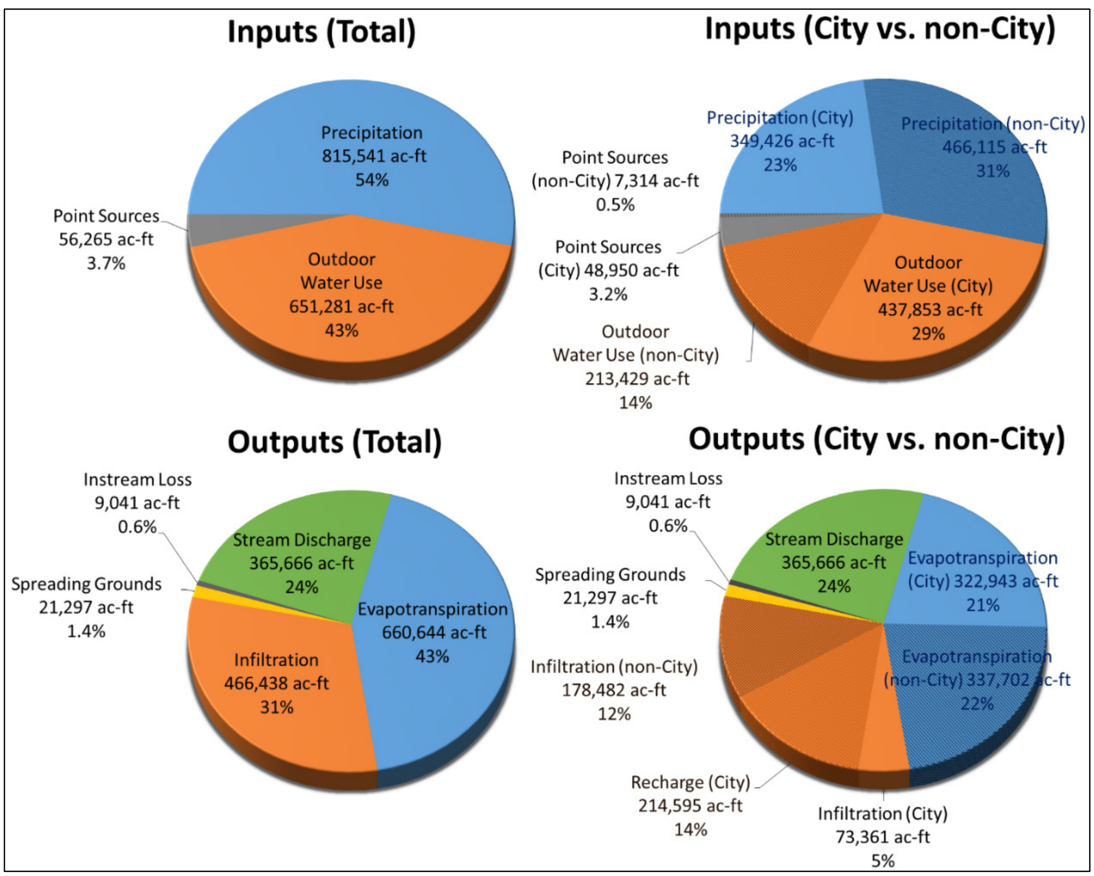

Figure D.3 Summary of Water Balance Inputs and Outputs at Assessment Locations for an Average Year (WY 2008)

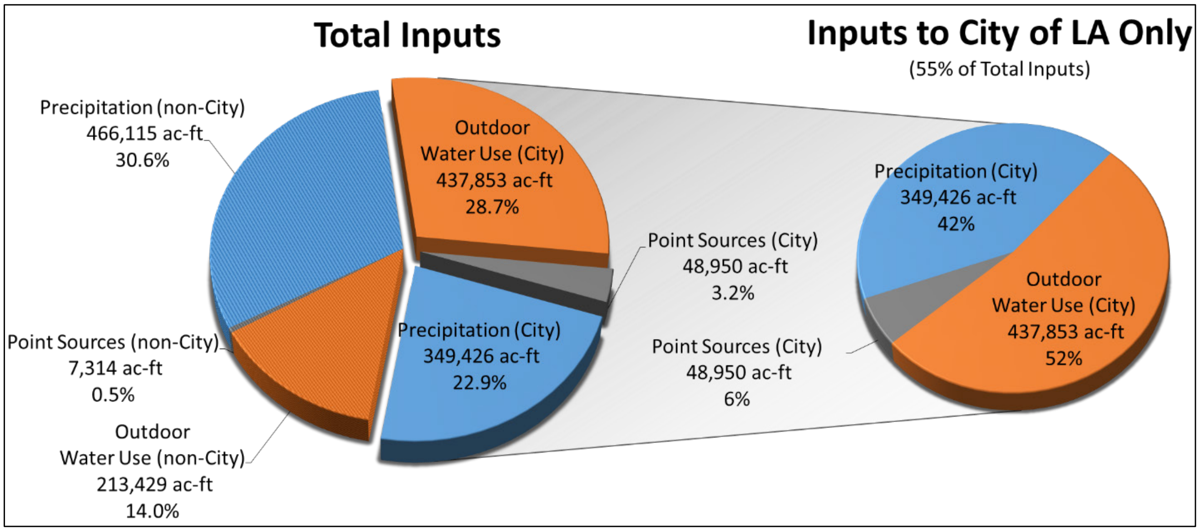

Figure D.4 Detail of Inputs for Water Balance for City of LA Areas Only for an Average Year (WY 2008)

Outdoor water use is a major input to the water balance and deserves discussion – the LSPC output estimates the City's watersheds receive more water annually from outdoor water use than precipitation. It should be noted, however, that LSPC represents outdoor water use within an irrigation module (model subroutine) that irrigates "urban grass" areas at a rate that mimics demand based on the daily evapotranspiration rate. In other words, actual water use rates – for example based on water meter readings – are not explicitly represented in the LSPC models of the City's watersheds. For comparison, the LSPC-simulated outdoor water use for the average year was 437,853 acre-feet (ac-ft), which roughly translates to a daily per capita outdoor water use of approximately 100 gallons assuming a population of 3.88 million people. The outdoor water use value of 100 gallons per capita per day (gpcd) derived from the LSPC output is likely higher than actual usage in the City. According to the 2010 Urban Water Management Plan (Los Angeles Department of Water and Power [LADWP], 2010), LADWP's baseline per capita water use was 152 gpcd using a ten-year average ending between December 31, 2004 and December 31, 2009. Outdoor water use was estimated to be 52 percent of the total water use for single family residential (79 gpcd), 32 percent for multi-family residential (48 gpcd) and 39 percent across the service area (59 gpcd). Water use, both indoor and outdoor, has decreased even further in recent years due to the City's nationally-recognized water conservation efforts. The rates of outdoor water use could be adjusted in the LSPC models to match actual usage estimates by LADWP, but that was outside of the scope of this memo.

The evaluation of outdoor water use, as discussed above, is an illustration of how the LSPC model outputs can be compared to other data sources and estimates. As the water balance results are carried forward for the OneWater LA planning effort, additional components such as recharge should be evaluated by comparing other data sources to the water balance results presented in Table D.2, Figure D.3, Figure D.4 and Attachment A.

D.3 STORMWATER CAPTURE PROJECTIONS

D.3.1 Overview

To support development of a Stormwater and Urban Runoff Facilities Plan, a projection of stormwater project capacity and water capture was generated. The projection was based on the capacities of Best Management Practices (BMPs) in the City of Los Angeles 5-year Capital Improvement Plan (CIP) and EWMPs. These projects are subcategorized as low impact development (LID), green streets or regional projects by the EWMPs and CIP. To support planning across the City which requires aggregating multiple EWMPs that have varying schedules and milestones, the schedule through 2037 was separated into four "Schedule Blocks", as follows:

- Schedule Block A: now thru 2021
- Schedule Block B: 2022 through 2024
- Schedule Block C: 2025 thru 2028
- Schedule Block D: 2029 through 2040

The stormwater capture projections do not include LADWP projects – capture by spreading grounds and other facilities would be in addition to the estimates reported in this section.

D.3.2 Methodology for Stormwater Capture Estimates

To estimate annual stormwater capture volume, a relationship was developed between BMP capacity and annual stormwater runoff retained. The relationship, shown on Figure D.5, was represented using a set of 1,920 unique projects from the City that was provided for the fiscal year (FY) 15-16 stormwater annual reporting effort. These projects, which were used represent the City's "existing BMPs", were implemented between 2012 and 2016 and include all of the LID projects implemented by land developers over that period along with green streets and regional projects. The City's EWMPs used 2011 as the baseline year, and thus projects built before 2011 were implicitly included, whereas projects built after 2011 explicitly contribute to EWMP progress. Note that many Prop O projects were built before 2011 and are not explicitly included in the existing BMP category (instead they were implicitly included in the EWMP baseline). To generate stormwater capture estimates, the set of existing BMPs was modeled to estimate the annual stormwater capture per unit BMP capacity/storage. Modeling relied on the process-based BMP model System for Urban Stormwater Treatment and Analysis Integration (SUSTAIN), which is a component of the WMMS System. For the simulation, existing BMPs were modeled consistent with design information provided by the City for annual reporting (dimensions and drainage area) or, in some cases where design geometry was not defined, consistent with EWMP modeling assumptions.

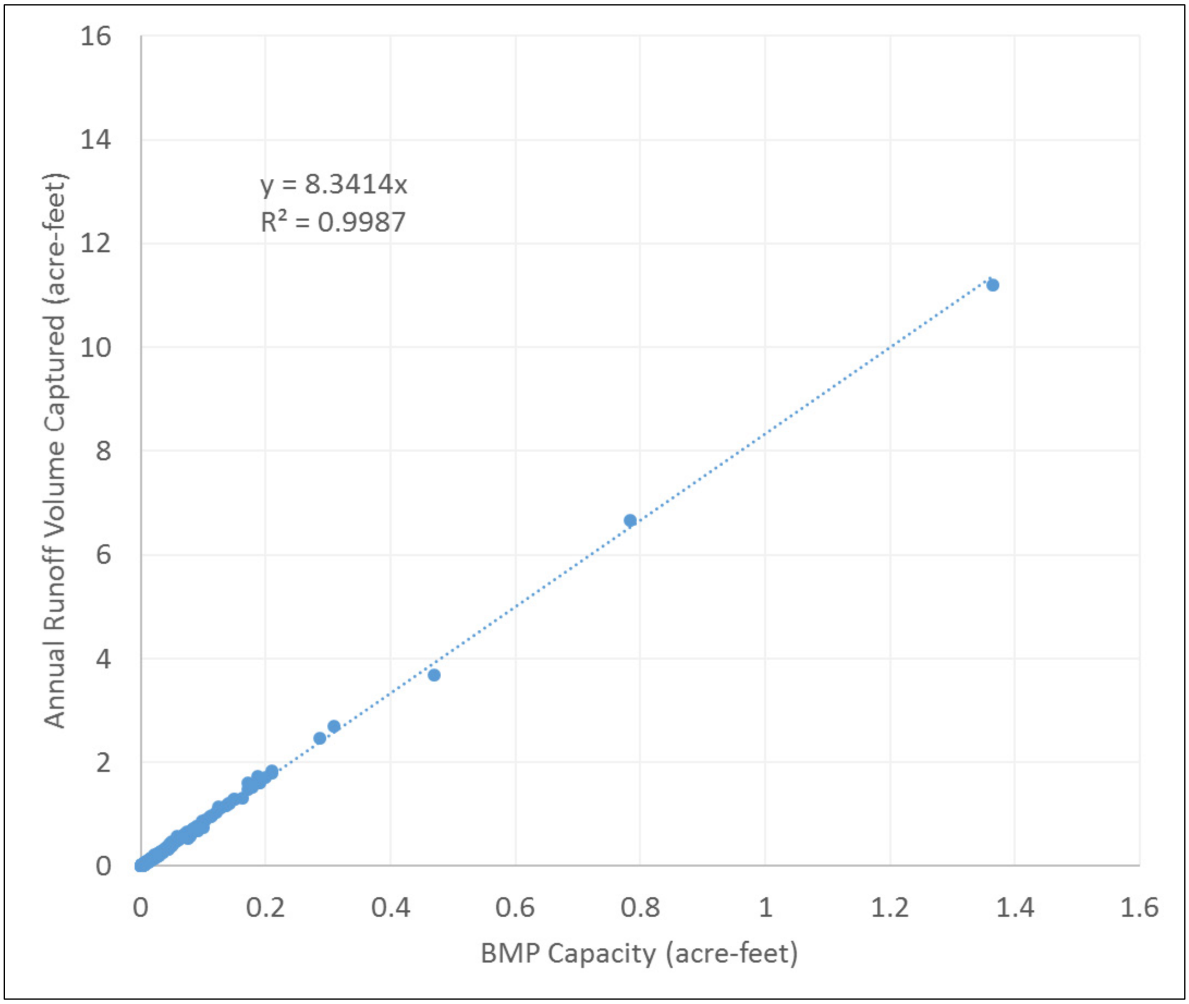

Figure D.5 Regression Relationship between BMP Capacity (acre-feet) and Annual Runoff Capture Volume (acre-feet) for LID, Green Streets and Regional EWMP Projects an Average Year (WY 2008).

Simulations in SUSTAIN were conducted for WY 2008, which has been identified as an average rainfall year using the precipitation gage at Downtown Los Angeles Downtown (gage D482). The runoff volume captured, calculated as the baseline runoff minus the BMP bypass, was plotted against BMP capacity to develop a relationship between BMP size and annual runoff captured for the City's existing projects, as shown on Figure D.5. The regression on Figure D.5 was applied to the BMP capacity targets across time as specified by the schedules in both the 5-year CIP and EWMPs to estimate the stormwater volume that will be captured. For green streets, it was assumed that 1 mile of green street is 0.913 ac-ft of capacity, based on assumptions used in the 5-year CIP.

The regression approach based on Figure D.5 is a simplified methodology – first, note that it is based on a single rain gage and thus does not capture the orographic rainfall effects across the City (i.e., more rainfall in the hills than the coastal areas). Second, LID projects and regional projects likely have varying capture per unit BMP capacity but the regression is dominated by LID BMPs. Finally, the regression is for a single year and would vary across years (e.g., more water would be captured in wet years [slope of the line would be higher] and less in dry years [lower slope]). While simplified, however, the regression approach is consistent with recent annual reports submitted for the Municipal Separate Storm Sewer System (MS4) Permit. The Watershed Protection Division (WPD) is collaborating with the Los Angeles County Flood Control District on a web-based system called the Watershed Reporting Adaptive Management and Planning System (WRAMPS) that will estimate stormwater capture for all areas of the City, for account orographic effects, include an array of BMP types, and handle multiple storm types (average year, wet year, 85th percentile storm, etc.). WRAMPS will be launched in late summer 2017 and will include a dynamic "dashboard" to visualize the stormwater capture benefits of the City's stormwater projects.

D.3.3 Results

The primary outcome of stormwater capture projection is a timeline of BMP capacity and stormwater capture through 2040. The timeline is consistent with the EWMP implementation schedules and incorporates both the 5-year CIP and EWMP implementation progress as documented by the City's FY 15-16 annual reporting. The detailed spreadsheet, provided in Attachment B, separates capacity identified in the EWMP and CIP and also includes placeholders for LADWP projects (to be filled in separately). The spreadsheet also breaks down BMP capacity and capture by stormwater BMP type – low impact development, green streets and regional BMPs. A summary of the stormwater capture projections in provided in Table D.3 (BMP capacity) and Table D.4 (captured stormwater volume during an average year). The same data are presented graphically in bar charts on Figure D.6 (BMP capacity) and Figure D.7 (captured stormwater volume during an average year). Note that capacities and capture volumes are cumulative over time. Some values for Dominguez Channel were derived by interpolating between EWMP milestones to align with scheduling block dates for presentation purposes.

Table D.3 Cumulative BMP Capacity (ac-ft) by Watershed at Schedule Blocks Ends

Watershed	Existing BMPs (2011- 2016)	Block A (2017-2021)	Block B (2022-2024)	Block C (2025-2028)	Block D (2029-2040)
ULAR	9	238	746	2,261	3,065
Ballona Creek	4.5	2,075	2,075	2,075	2,075
Santa Monica Bay	5.1	261	261	261	261
Dominguez Channel	2.0	2.3	2.3	126	370
Marina del Rey	0.04	53	53	53	53
City Total	**20.6**	**2,629**	**3,137**	**4,776**	**5,824**

Table D.4 Cumulative Average Annual Stormwater Volume Captured (ac-ft) at Schedule Blocks Ends

Watershed	Existing BMPs (2011- 2016)	Block A (2017-2021)	Block B (2022-2024)	Block C (2025-2028)	Block D (2029-2040)
ULAR	75	1,985	6,225	18,864	25,570
Ballona Creek	38	17,310	17,310	17,310	17,310
Santa Monica Bay	42	2,176	2,176	2,176	2,176
Dominguez Channel	17	19	19	1,048	3,088
Marina del Rey	0.3	441	441	441	441
City Total	**172**	**21,931**	**26,171**	**39,839**	**48,585**

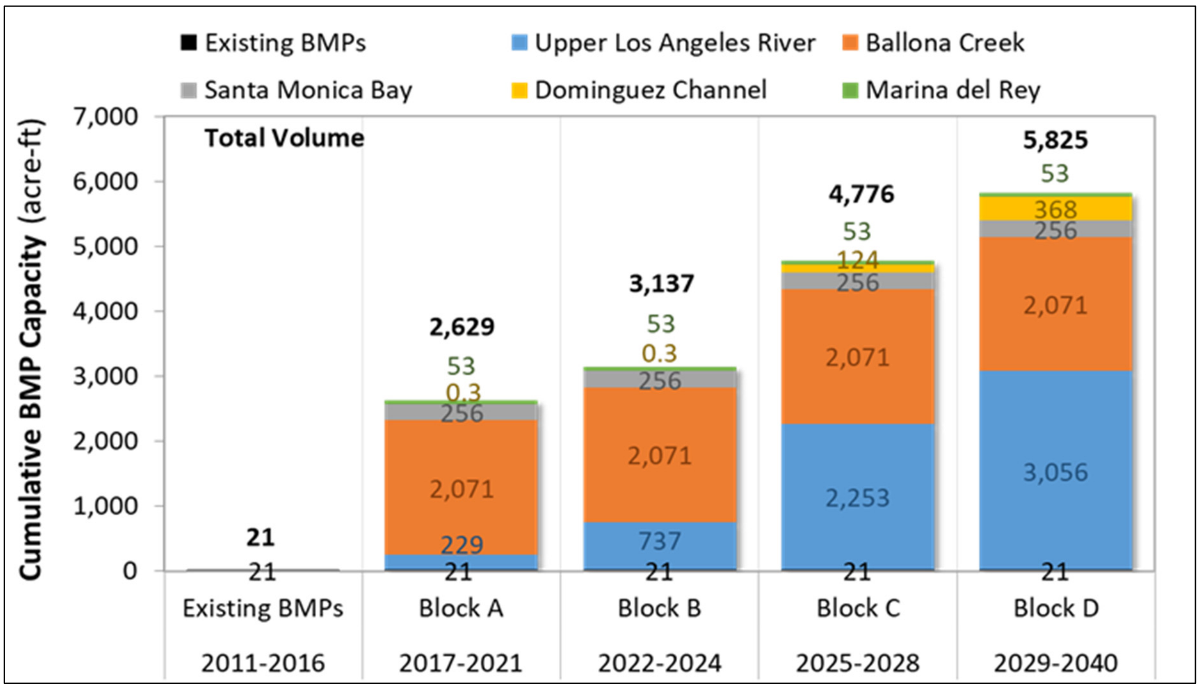

Figure D.6 Projection of Cumulative Stormwater BMP Capacity to be Implemented under EWMPs and 5-year CIP through 2040

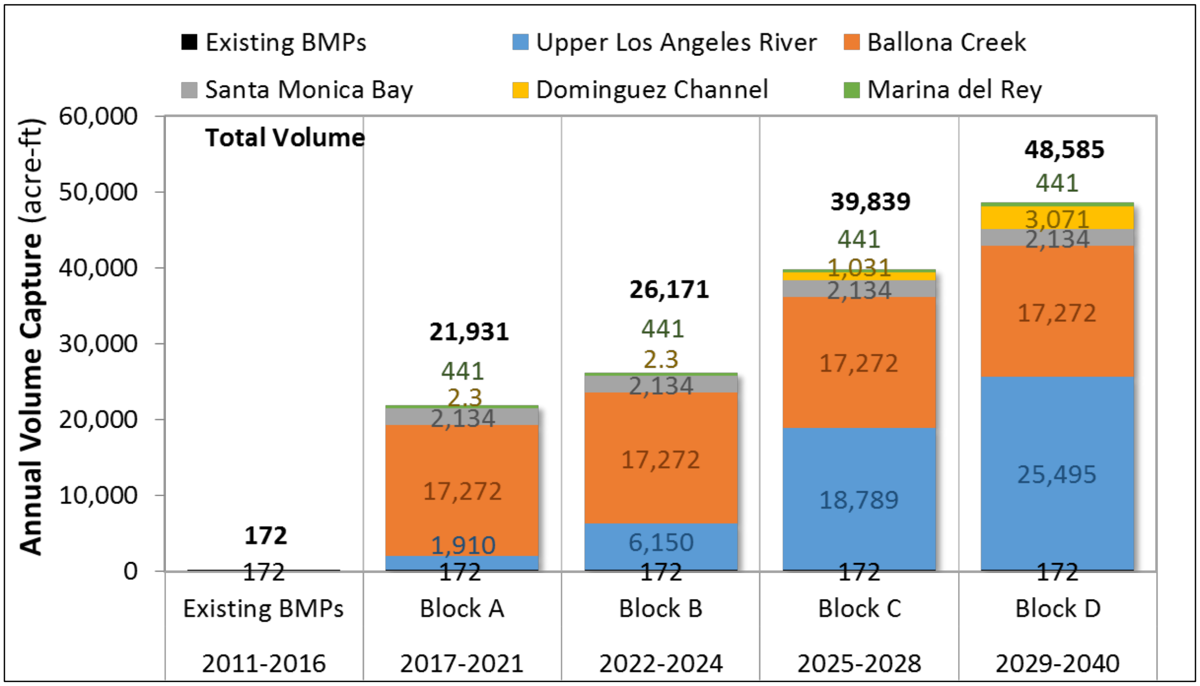

Figure D.7 Projection of Cumulative Stormwater Capture during an Average Year to be Achieved by EWMPs and 5-year CIP through 2040

D.4 CONCLUSIONS

The updated baseline water balance and stormwater capture projections will serve as important building blocks for the integrated water planning effort under One Water LA. The water balance and stormwater projections leveraged the City's previous stormwater planning and reporting efforts, which represented years of effort and engagement of an array of stakeholders. The water balance and stormwater projections are based on continuous simulation models, regarded as the best-available tool for watershed and stormwater modeling. These models could potentially support other components of One Water LA, as additional information requests and scenarios are developed. The following considerations are highlighted as the planning effort moves forward:

- The LSPC models used for the water balance were developed for stormwater quality planning and were not customized for the One Water LA effort which places more emphasis on potable water supply and discharges from the City's water reclamation plants. It is recommended that as the results presented in this memo are carried forward they should be compared / cross-checked to other data sources, such as other estimates of groundwater recharge by the City's spreading grounds. An example of a simple cross-check is illustrated in Section D.2.4 using outdoor water use.

- The stormwater capture projections were developed in a manner consistent with the City's EWMPs, 5-year Stormwater CIP and stormwater annual reports submitted in December 2016. Attachment B includes placeholders for LADWP projects which should be filled-in to support development of the Stormwater and Urban Runoff Facilities Plan. The regression approach used to estimate stormwater volume captured is simplified, based on a single rain gage, but leverages continuous simulation with SUSTAIN and is consistent with submitted annual reports. The web-based WRAMPS being developed by WPD in coordination with Los Angeles County Flood Control District (to be released late summer 2017) will provide more robust estimates of stormwater capture for a variety of locations, storm types and BMP types.

D.5 REFERENCES

LACDPW (Los Angeles County Department of Public Works). 2010. Los Angeles County Watershed Model Configuration and Calibration—Part I: Hydrology. Prepared for County of Los Angeles Department of Public Works, Watershed Management Division, Los Angeles County, CA

LADPW (Los Angeles Department of Water and Power). 2010. Urban Water Management Plan. Accessed through the following LINK.

ULAR WMG (Upper Los Angeles River Watershed Management Group). 2016. Enhanced Watershed Management Program (EWMP) for the Upper Los Angeles River. Prepared for the ULAR WMG, Los Angeles, CA.

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ATTACHMENT A – WATER BALANCE

The detailed spreadsheet that servers as the output for the updated water balance can be downloaded from this link:

https://paradigmh2o.box.com/s/1oqi3hv7k4co6pdxc2t5myjoo90vd7nb

Table 1. Yearly water balance by assessment location (acre-ft)

Water Year	EWMP	Assessment Area	City	Area (ac)	LAND PROCESSES: Precipitation + Irrigation - Evapotranspiration - Infiltration = Runoff + Baseflow = Land Flow into Reaches							IN-STREAM PROCESSES: Land Flow into Reaches + Point Source Flow into Reaches - Spreading Grounds - InStream Loss = Outflow				
					Precipitation	Irrigation	Evapo-transpiration	Infiltration	Infiltration (Recharge)	Runoff	Baseflow	Land Flow into Reaches	Point Sources Flow into Reaches	Spreading Grounds	In-Stream Loss	Outflow
2001	Upper LA River	Upper LA River	COLA	174,600	278,762	238,791	205,739	12,488	171,985	120,148	7,193	209,805	72,589	18,181	6,460	257,753
			Other	209,880	342,165	75,064	238,519	96,246	0	48,076	34,388					
		Compton Creek	COLA	10,602	11,313	11,918	9,422	4,951	4,324	4,521	13	7,951	0	0	33	7,918
			Other	6,527	6,368	8,503	5,677	5,776	0	3,399	19					
	Ballona Creek	Ballona Creek	COLA	67,470	103,175	85,055	71,879	24,531	31,927	58,106	1,786	72,063	0	0	475	71,588
			Other	14,222	19,992	22,106	15,834	14,094	0	12,105	66					
	Dominguez Channel	Dominguez Channel	COLA	6,117	6,659	5,331	3,845	3,505	0	4,612	28	32,273	0	0	217	32,056
			Other	39,889	43,662	41,284	29,398	27,915	0	27,411	222					
		Port of LA	COLA	8,891	13,547	9,917	7,305	6,706	0	8,241	1,212	25,115	0	0	75	25,040
			Other	15,371	24,834	21,472	15,748	14,895	0	12,475	3,188					
	J1J4	J1J4	COLA	1,951	4,434	91	2,190	386	0	732	1,216	17,525	0	0	92	17,433
			Other	10,633	26,299	4,044	11,047	3,720	0	5,358	10,219					
	J2J3	J2J3	COLA	27,152	48,931	20,967	31,951	17,671	0	14,428	5,848	27,726	0	0	82	27,644
			Other	7,711	11,228	9,747	7,352	6,172	0	7,054	396					
	Marina del Rey	Marina del Rey	COLA	998	1,229	1,318	925	794	0	827	1	1,285	0	0	3	1,282
			Other	855	974	350	610	258	0	424	31					
	TOTAL		**COLA**	**297,782**	**468,050**	**373,388**	**333,257**	**71,032**	**208,236**	**211,614**	**17,298**	**393,743**	**72,589**	**18,181**	**7,439**	**440,713**
			Other	**305,089**	**475,522**	**182,570**	**324,184**	**169,077**	**0**	**116,302**	**48,529**					
2002	Upper LA River	Upper LA River	COLA	174,600	80,138	250,263	144,502	10,192	140,357	31,413	3,938	55,732	61,470	2,256	4,022	110,924
			Other	209,880	133,605	77,487	122,577	68,134	0	10,398	9,984					
		Compton Creek	COLA	10,602	3,428	12,213	7,109	4,086	3,569	867	10	1,821	0	0	32	1,789
			Other	6,527	1,930	8,685	4,622	5,048	0	930	14					
	Ballona Creek	Ballona Creek	COLA	67,470	32,404	87,520	53,048	20,416	26,571	19,201	688	24,166	0	0	443	23,724
			Other	14,222	6,643	22,671	12,875	12,161	0	4,255	22					
	Dominguez Channel	Dominguez Channel	COLA	6,117	1,745	5,390	2,956	3,065	0	1,096	18	8,188	0	0	204	7,984
			Other	39,889	11,605	41,886	22,555	23,862	0	6,924	150					
		Port of LA	COLA	8,891	2,703	9,962	4,968	5,330	0	1,557	811	7,097	0	0	71	7,026
			Other	15,371	5,553	21,766	10,886	11,704	0	2,645	2,084					
	J1J4	J1J4	COLA	1,951	1,138	96	910	204	0	6	114	3,488	0	0	88	3,400
			Other	10,633	6,473	4,287	4,718	2,675	0	328	3,040					
	J2J3	J2J3	COLA	27,152	15,595	21,643	18,214	13,273	0	3,426	2,325	7,729	0	0	71	7,658
			Other	7,711	2,544	9,987	5,492	5,061	0	1,772	207					
	Marina del Rey	Marina del Rey	COLA	998	334	1,350	738	667	0	279	0	411	0	0	3	409
			Other	855	311	358	340	198	0	123	9					
	TOTAL		**COLA**	**297,782**	**137,486**	**388,437**	**232,444**	**57,233**	**170,497**	**57,845**	**7,903**	**108,632**	**61,470**	**2,256**	**4,933**	**162,914**
			Other	**305,089**	**168,664**	**187,128**	**184,065**	**128,842**	**0**	**27,375**	**15,509**					
2003	Upper LA River	Upper LA River	COLA	174,600	274,047	247,618	207,783	12,683	174,671	120,328	6,200	216,600	63,203	25,523	6,836	247,444
			Other	209,880	395,302	75,491	276,072	104,648	0	53,468	36,604					
		Compton Creek	COLA	10,602	13,025	12,216	10,107	5,254	4,589	5,276	14	9,526	0	0	34	9,492
			Other	6,527	7,796	8,681	6,115	6,127	0	4,215	21					
	Ballona Creek	Ballona Creek	COLA	67,470	101,019	87,356	72,094	24,919	32,433	57,599	1,329	70,278	0	0	476	69,802
			Other	14,222	19,187	22,903	16,229	14,510	0	11,302	48					
	Dominguez Channel	Dominguez Channel	COLA	6,117	6,291	5,399	3,861	3,573	0	4,229	27	31,061	0	0	215	30,847
			Other	39,889	42,911	42,263	29,886	28,482	0	26,583	223					
		Port of LA	COLA	8,891	11,292	9,923	7,091	6,669	0	6,433	1,022	19,974	0	0	75	19,900
			Other	15,371	20,823	21,993	15,405	14,890	0	9,840	2,680					
	J1J4	J1J4	COLA	1,951	4,188	95	2,551	454	0	483	795	12,156	0	0	97	12,059
			Other	10,633	23,629	4,218	12,544	4,426	0	3,266	7,611					
	J2J3	J2J3	COLA	27,152	44,020	21,700	32,023	18,031	0	11,032	4,634	21,510	0	0	87	21,423
			Other	7,711	8,790	10,224	7,085	6,084	0	5,508	336					
	Marina del Rey	Marina del Rey	COLA	998	1,143	1,386	920	794	0	813	1	1,284	0	0	3	1,282
			Other	855	995	368	627	266	0	448	23					
	TOTAL		**COLA**	**297,782**	**455,025**	**385,692**	**336,430**	**72,379**	**211,693**	**206,194**	**14,021**	**382,390**	**63,203**	**25,523**	**7,822**	**412,248**
			Other	**305,089**	**519,433**	**186,140**	**363,963**	**179,434**	**0**	**114,630**	**47,546**					

Table 1. Yearly water balance by assessment location (acre-ft)

Water Year	EWMP	Assessment Area	City	Area (ac)	LAND PROCESSES: Precipitation + Irrigation - Evapotranspiration - Infiltration = Runoff + Baseflow = Land Flow into Reaches							IN-STREAM PROCESSES: Land Flow into Reaches + Point Source Flow into Reaches - Spreading Grounds - InStream Loss = Outflow				
					Precipitation	Irrigation	Evapo-transpiration	Infiltration	Infiltration (Recharge)	Runoff	Baseflow	Land Flow into Reaches	Point Sources Flow into Reaches	Spreading Grounds	In-Stream Loss	Outflow
2004	Upper LA River	Upper LA River	COLA	174,600	136,585	262,659	168,414	11,331	156,051	58,540	4,907	112,690	56,751	9,189	4,881	155,371
			Other	209,880	224,518	81,294	174,244	82,325	0	28,325	20,917					
		Compton Creek	COLA	10,602	8,593	12,524	8,800	4,772	4,168	3,366	12	6,329	0	0	37	6,292
			Other	6,527	5,244	9,047	5,566	5,774	0	2,934	18					
	Ballona Creek	Ballona Creek	COLA	67,470	61,630	90,488	61,855	22,629	29,452	37,152	1,029	45,973	0	0	514	45,459
			Other	14,222	11,991	23,702	14,521	13,380	0	7,756	36					
	Dominguez Channel	Dominguez Channel	COLA	6,117	4,249	5,924	3,630	3,541	0	2,979	24	20,368	0	0	252	20,116
			Other	39,889	26,718	45,652	27,417	27,588	0	17,162	203					
		Port of LA	COLA	8,891	6,211	11,216	6,384	6,496	0	3,524	1,022	11,916	0	0	84	11,832
			Other	15,371	10,020	23,866	12,976	13,541	0	4,838	2,532					
	J1J4	J1J4	COLA	1,951	2,180	100	1,489	292	0	168	332	6,404	0	0	98	6,305
			Other	10,633	12,063	4,469	7,308	3,320	0	1,262	4,642					
	J2J3	J2J3	COLA	27,152	25,894	22,958	22,793	15,206	0	7,430	3,422	14,741	0	0	84	14,657
			Other	7,711	5,289	10,638	6,352	5,685	0	3,620	269					
	Marina del Rey	Marina del Rey	COLA	998	672	1,436	842	746	0	519	0	796	0	0	3	793
			Other	855	590	381	463	231	0	263	13					
	TOTAL		**COLA**	**297,782**	**246,014**	**407,305**	**274,208**	**65,013**	**189,671**	**113,678**	**10,748**	**219,216**	**56,751**	**9,189**	**5,953**	**260,825**
			Other	**305,089**	**296,433**	**199,047**	**248,847**	**151,844**	**0**	**66,159**	**28,630**					
2005	Upper LA River	Upper LA River	COLA	174,600	602,721	243,297	295,127	15,727	216,590	305,565	13,010	673,453	59,962	45,719	17,110	670,586
			Other	209,880	963,056	72,398	521,510	159,066	0	244,045	110,833					
		Compton Creek	COLA	10,602	28,982	12,245	14,836	7,038	6,147	13,185	21	22,745	0	0	40	22,705
			Other	6,527	16,789	8,852	8,334	7,768	0	9,504	34					
	Ballona Creek	Ballona Creek	COLA	67,470	245,181	86,865	100,090	30,986	40,329	157,072	3,568	188,872	0	0	537	188,336
			Other	14,222	42,603	22,599	20,071	16,898	0	28,100	132					
	Dominguez Channel	Dominguez Channel	COLA	6,117	14,322	5,771	5,501	4,586	0	9,958	48	70,244	0	0	271	69,973
			Other	39,889	92,528	43,979	40,739	35,529	0	59,824	414					
		Port of LA	COLA	8,891	21,106	11,009	9,655	8,466	0	12,433	1,561	38,516	0	0	87	38,429
			Other	15,371	38,325	22,941	19,236	17,508	0	20,821	3,700					
	J1J4	J1J4	COLA	1,951	9,552	92	2,981	499	0	3,499	2,664	43,946	0	0	100	43,846
			Other	10,633	52,857	4,102	14,881	4,295	0	18,822	18,960					
	J2J3	J2J3	COLA	27,152	93,963	21,282	46,063	22,363	0	37,696	9,122	61,277	0	0	99	61,178
			Other	7,711	20,247	9,978	8,761	7,006	0	13,930	529					
	Marina del Rey	Marina del Rey	COLA	998	2,370	1,346	1,094	903	0	1,716	2	2,731	0	0	3	2,728
			Other	855	1,913	357	929	328	0	964	49					
	TOTAL		**COLA**	**297,782**	**1,018,198**	**381,906**	**475,348**	**90,569**	**263,066**	**541,126**	**29,996**	**1,101,785**	**59,962**	**45,719**	**18,248**	**1,097,781**
			Other	**305,089**	**1,228,316**	**185,205**	**634,459**	**248,398**	**0**	**396,011**	**134,652**					
2006	Upper LA River	Upper LA River	COLA	174,600	228,400	256,865	202,315	12,711	175,050	88,961	6,229	180,506	64,403	14,332	7,971	222,606
			Other	209,880	357,856	75,058	249,910	97,688	0	44,449	40,866					
		Compton Creek	COLA	10,602	10,423	12,722	9,720	5,184	4,528	3,700	13	6,664	0	0	39	6,625
			Other	6,527	5,967	9,188	6,016	6,188	0	2,931	20					
	Ballona Creek	Ballona Creek	COLA	67,470	85,381	91,138	71,137	25,213	32,815	46,081	1,273	56,397	0	0	506	55,891
			Other	14,222	15,861	24,139	16,227	14,728	0	8,999	45					
	Dominguez Channel	Dominguez Channel	COLA	6,117	5,081	6,028	4,009	3,844	0	3,230	27	22,086	0	0	259	21,827
			Other	39,889	31,920	46,618	29,977	29,731	0	18,605	225					
		Port of LA	COLA	8,891	7,189	11,383	6,800	6,827	0	3,877	1,069	13,382	0	0	84	13,298
			Other	15,371	13,109	24,390	14,357	14,706	0	5,794	2,642					
	J1J4	J1J4	COLA	1,951	3,594	97	2,167	393	0	282	849	10,818	0	0	100	10,718
			Other	10,633	19,892	4,343	10,566	3,982	0	2,008	7,679					
	J2J3	J2J3	COLA	27,152	34,797	22,995	28,201	17,537	0	8,182	3,873	16,959	0	0	91	16,869
			Other	7,711	7,446	10,930	7,174	6,297	0	4,631	275					
	Marina del Rey	Marina del Rey	COLA	998	898	1,480	934	819	0	624	1	954	0	0	3	951
			Other	855	735	392	542	257	0	310	20					
	TOTAL		**COLA**	**297,782**	**375,763**	**402,708**	**325,281**	**72,528**	**212,393**	**154,936**	**13,333**	**307,766**	**64,403**	**14,332**	**9,053**	**348,785**
			Other	**305,089**	**452,786**	**195,059**	**334,769**	**173,578**	**0**	**87,726**	**51,771**					

Table 1. Yearly water balance by assessment location (acre-ft)

Water Year	EWMP	Assessment Area	City	Area (ac)	LAND PROCESSES: Precipitation + Irrigation - Evapotranspiration - Infiltration = Runoff + Baseflow = Land Flow into Reaches							IN-STREAM PROCESSES: Land Flow into Reaches + Point Source Flow into Reaches - Spreading Grounds - InStream Loss = Outflow				
					Precipitation	Irrigation	Evapo-transpiration	Infiltration	Infiltration (Recharge)	Runoff	Baseflow	Land Flow into Reaches	Point Sources Flow into Reaches	Spreading Grounds	In-Stream Loss	Outflow
2007	Upper LA River	Upper LA River	COLA	174,600	70,618	279,220	152,753	10,961	150,945	30,855	4,325	52,583	56,930	6,555	4,233	98,725
			Other	209,880	123,136	81,959	118,819	68,873	0	8,994	8,409					
		Compton Creek	COLA	10,602	2,498	13,330	7,210	4,214	3,680	714	11	1,671	0	0	40	1,631
			Other	6,527	1,437	9,715	4,846	5,359	0	931	15					
	Ballona Creek	Ballona Creek	COLA	67,470	25,489	96,503	54,092	21,337	27,770	18,052	741	22,808	0	0	541	22,267
			Other	14,222	4,913	25,525	13,504	12,918	0	3,991	24					
	Dominguez Channel	Dominguez Channel	COLA	6,117	1,461	6,556	3,363	3,558	0	1,075	22	8,084	0	0	290	7,795
			Other	39,889	9,321	50,385	25,388	27,330	0	6,794	193					
		Port of LA	COLA	8,891	2,911	12,548	6,032	6,529	0	1,857	1,041	8,256	0	0	94	8,162
			Other	15,371	4,489	26,435	12,182	13,384	0	2,766	2,592					
	J1J4	J1J4	COLA	1,951	478	108	387	123	0	6	70	3,447	0	0	101	3,347
			Other	10,633	3,649	4,806	2,947	2,136	0	304	3,068					
	J2J3	J2J3	COLA	27,152	11,319	24,858	16,701	13,625	0	3,562	2,289	7,956	0	0	88	7,868
			Other	7,711	2,121	11,643	6,022	5,638	0	1,897	208					
	Marina del Rey	Marina del Rey	COLA	998	276	1,572	823	750	0	274	0	391	0	0	3	388
			Other	855	241	417	330	212	0	109	7					
	TOTAL		**COLA**	**297,782**	**115,051**	**434,693**	**241,361**	**61,096**	**182,395**	**56,395**	**8,498**	**105,196**	**56,930**	**6,555**	**5,389**	**150,182**
			Other	**305,089**	**149,306**	**210,885**	**184,038**	**135,850**	**0**	**25,786**	**14,517**					
2008	Upper LA River	Upper LA River	COLA	174,600	210,361	282,734	202,226	12,912	177,821	93,013	7,124	196,856	56,265	21,297	7,812	224,011
			Other	209,880	361,951	82,439	249,148	98,524	0	57,600	39,119					
		Compton Creek	COLA	10,602	8,639	13,090	9,084	4,941	4,315	3,376	13	6,439	0	0	40	6,399
			Other	6,527	5,388	9,559	5,833	6,063	0	3,031	19					
	Ballona Creek	Ballona Creek	COLA	67,470	78,358	95,769	69,985	24,940	32,459	45,161	1,582	56,351	0	0	565	55,786
			Other	14,222	15,467	25,882	16,600	15,141	0	9,554	54					
	Dominguez Channel	Dominguez Channel	COLA	6,117	5,459	6,559	4,174	4,010	0	3,805	29	29,290	0	0	305	28,986
			Other	39,889	38,669	51,119	32,456	31,876	0	25,196	260					
		Port of LA	COLA	8,891	9,872	12,472	7,728	7,589	0	5,756	1,271	17,976	0	0	99	17,878
			Other	15,371	15,999	26,928	15,875	16,103	0	7,784	3,165					
	J1J4	J1J4	COLA	1,951	4,518	110	2,118	379	0	1,229	902	14,363	0	0	113	14,251
			Other	10,633	20,860	4,894	9,721	3,800	0	4,483	7,750					
	J2J3	J2J3	COLA	27,152	31,352	25,471	26,634	17,714	0	8,770	3,705	17,482	0	0	104	17,378
			Other	7,711	7,016	12,170	7,486	6,694	0	4,739	267					
	Marina del Rey	Marina del Rey	COLA	998	867	1,648	994	877	0	643	1	982	0	0	4	979
			Other	855	765	437	583	281	0	314	24					
	TOTAL		**COLA**	**297,782**	**349,426**	**437,853**	**322,943**	**73,361**	**214,595**	**161,753**	**14,626**	**339,740**	**56,265**	**21,297**	**9,041**	**365,666**
			Other	**305,089**	**466,115**	**213,429**	**337,702**	**178,482**	**0**	**112,702**	**50,658**					
2009	Upper LA River	Upper LA River	COLA	174,600	166,173	276,576	187,783	12,386	170,580	66,180	5,820	121,679	53,921	14,931	5,529	155,140
			Other	209,880	251,971	77,868	194,521	85,640	0	25,070	24,609					
		Compton Creek	COLA	10,602	6,742	13,547	8,763	4,872	4,255	2,387	12	4,804	0	0	41	4,762
			Other	6,527	4,334	9,814	5,711	6,032	0	2,386	18					
	Ballona Creek	Ballona Creek	COLA	67,470	56,320	98,381	65,652	24,344	31,685	31,903	1,117	39,872	0	0	587	39,285
			Other	14,222	11,085	26,456	15,904	14,785	0	6,814	38					
	Dominguez Channel	Dominguez Channel	COLA	6,117	4,384	6,560	3,992	3,919	0	3,007	26	21,318	0	0	309	21,008
			Other	39,889	28,447	51,281	30,577	30,866	0	18,053	232					
		Port of LA	COLA	8,891	5,782	12,349	6,754	6,966	0	3,275	1,136	12,903	0	0	98	12,805
			Other	15,371	11,277	26,936	14,537	15,184	0	5,659	2,834					
	J1J4	J1J4	COLA	1,951	2,823	107	1,739	330	0	328	533	7,869	0	0	109	7,759
			Other	10,633	13,734	4,792	7,957	3,562	0	1,553	5,455					
	J2J3	J2J3	COLA	27,152	24,333	25,810	24,066	16,774	0	6,236	3,066	12,884	0	0	103	12,781
			Other	7,711	4,822	12,294	7,084	6,450	0	3,344	238					
	Marina del Rey	Marina del Rey	COLA	998	627	1,668	960	858	0	476	1	714	0	0	4	710
			Other	855	560	442	501	265	0	220	17					
	TOTAL		**COLA**	**297,782**	**267,184**	**434,998**	**299,709**	**70,450**	**206,520**	**113,791**	**11,711**	**222,041**	**53,921**	**14,931**	**6,780**	**254,252**
			Other	**305,089**	**326,230**	**209,884**	**276,791**	**162,784**	**0**	**63,099**	**33,441**					

Table 1. Yearly water balance by assessment location (acre-ft)

Water Year	EWMP	Assessment Area	City	Area (ac)	LAND PROCESSES: Precipitation + Irrigation - Evapotranspiration - Infiltration = Runoff + Baseflow = Land Flow into Reaches							IN-STREAM PROCESSES: Land Flow into Reaches + Point Source Flow into Reaches - Spreading Grounds - InStream Loss = Outflow				
					Precipitation	Irrigation	Evapo-transpiration	Infiltration	Infiltration (Recharge)	Runoff	Baseflow	Land Flow into Reaches	Point Sources Flow into Reaches	Spreading Grounds	In-Stream Loss	Outflow
2010	Upper LA River	Upper LA River	COLA	174,600	261,683	260,533	216,203	13,244	182,386	103,011	7,372	207,751	55,008	9,745	8,232	244,782
			Other	209,880	413,643	75,278	284,982	106,570	0	54,436	42,933					
		Compton Creek	COLA	10,602	10,807	12,798	9,838	5,233	4,570	3,950	13	7,417	0	0	40	7,377
			Other	6,527	6,583	9,292	6,143	6,277	0	3,434	20					
	Ballona Creek	Ballona Creek	COLA	67,470	101,034	92,986	77,140	26,724	34,782	53,606	1,769	66,378	0	0	589	65,789
			Other	14,222	20,105	25,434	18,205	16,332	0	10,939	65					
	Dominguez Channel	Dominguez Channel	COLA	6,117	6,902	6,293	4,425	4,116	0	4,624	30	32,645	0	0	307	32,338
			Other	39,889	44,880	49,551	33,833	32,606	0	27,734	257					
		Port of LA	COLA	8,891	13,257	11,819	8,135	7,661	0	7,950	1,331	24,192	0	0	99	24,093
			Other	15,371	22,493	26,096	17,039	16,640	0	11,629	3,283					
	J1J4	J1J4	COLA	1,951	4,448	100	2,453	436	0	626	1,032	12,852	0	0	105	12,747
			Other	10,633	22,331	4,473	11,399	4,211	0	2,923	8,270					
	J2J3	J2J3	COLA	27,152	39,744	24,711	30,524	18,761	0	10,750	4,420	20,261	0	0	106	20,155
			Other	7,711	7,801	12,041	7,849	6,901	0	4,790	302					
	Marina del Rey	Marina del Rey	COLA	998	1,092	1,638	1,062	927	0	740	1	1,165	0	0	4	1,161
			Other	855	1,025	434	719	317	0	393	31					
	TOTAL		**COLA**	**297,782**	**438,967**	**410,878**	**349,781**	**77,102**	**221,738**	**185,257**	**15,967**	**372,662**	**55,008**	**9,745**	**9,481**	**408,444**
			Other	**305,089**	**538,861**	**202,600**	**380,169**	**189,854**	**0**	**116,277**	**55,161**					
2011	Upper LA River	Upper LA River	COLA	174,600	343,646	256,037	238,317	14,039	193,335	145,312	8,680	293,120	54,530	0	9,708	337,942
			Other	209,880	505,434	67,424	321,715	112,014	0	84,115	55,014					
		Compton Creek	COLA	10,602	15,103	12,211	10,988	5,625	4,913	5,773	15	10,956	0	0	39	10,917
			Other	6,527	9,509	8,948	6,689	6,601	0	5,145	23					
	Ballona Creek	Ballona Creek	COLA	67,470	125,679	89,557	81,832	27,608	35,933	67,609	2,254	84,468	0	0	551	83,917
			Other	14,222	25,690	24,979	19,166	16,897	0	14,517	88					
	Dominguez Channel	Dominguez Channel	COLA	6,117	9,236	6,281	4,873	4,358	0	6,251	35	43,775	0	0	306	43,469
			Other	39,889	60,331	49,689	37,524	35,008	0	37,180	309					
		Port of LA	COLA	8,891	14,579	11,873	8,730	8,122	0	8,161	1,438	24,254	0	0	97	24,157
			Other	15,371	24,342	26,300	18,284	17,703	0	11,019	3,636					
	J1J4	J1J4	COLA	1,951	5,631	100	2,561	446	0	1,386	1,339	18,465	0	0	105	18,360
			Other	10,633	27,919	4,472	12,373	4,279	0	5,662	10,077					
	J2J3	J2J3	COLA	27,152	50,358	24,550	35,033	20,512	0	13,826	5,537	26,800	0	0	108	26,692
			Other	7,711	11,562	12,169	8,766	7,528	0	7,078	359					
	Marina del Rey	Marina del Rey	COLA	998	1,495	1,656	1,159	996	0	996	1	1,573	0	0	4	1,569
			Other	855	1,313	439	833	343	0	534	41					
	TOTAL		**COLA**	**297,782**	**565,728**	**402,265**	**383,494**	**81,706**	**234,181**	**249,313**	**19,300**	**503,411**	**54,530**	**0**	**10,917**	**547,024**
			Other	**305,089**	**666,101**	**194,421**	**425,351**	**200,372**	**0**	**165,250**	**69,548**					

Table 2. Yearly water balance by assessment location (inches)

Water Year	EWMP	Assessment Area	City	Area (ac)	LAND PROCESSES: Precipitation + Irrigation - Evapotranspiration - Infiltration = Runoff + Baseflow = Land Flow into Reaches							IN-STREAM PROCESSES: Land Flow into Reaches + Point Source Flow into Reaches - Spreading Grounds - InStream Loss = Outflow				
					Precipitation	Irrigation	Evapo-transpiration	Infiltration (Not Recharge)	Infiltration (Recharge)	Runoff	Baseflow	Land Flow into Reaches	Point Sources Flow into Reaches	Spreading Grounds	In-Stream Loss	Outflow
2001	Upper LA River	Upper LA River	COLA	174,600	19.16	16.41	14.14	0.86	11.82	8.26	0.49	6.55	2.27	0.57	0.20	8.04
			Other	209,880	19.56	4.29	13.64	5.50	0.00	2.75	1.97					
		Compton Creek	COLA	10,602	12.81	13.49	10.66	5.60	4.89	5.12	0.01	5.57	0.00	0.00	0.02	5.55
			Other	6,527	11.71	15.63	10.44	10.62	0.00	6.25	0.03					
	Ballona Creek	Ballona Creek	COLA	67,470	18.35	15.13	12.78	4.36	5.68	10.33	0.32	10.59	0.00	0.00	0.07	10.52
			Other	14,222	16.87	18.65	13.36	11.89	0.00	10.21	0.06					
	Dominguez Channel	Dominguez Channel	COLA	6,117	13.06	10.46	7.54	6.88	0.00	9.05	0.06	8.42	0.00	0.00	0.06	8.36
			Other	39,889	13.14	12.42	8.84	8.40	0.00	8.25	0.07					
		Port of LA	COLA	8,891	18.28	13.38	9.86	9.05	0.00	11.12	1.64	12.42	0.00	0.00	0.04	12.38
			Other	15,371	19.39	16.76	12.29	11.63	0.00	9.74	2.49					
	J1J4	J1J4	COLA	1,951	27.27	0.56	13.47	2.37	0.00	4.50	7.48	16.71	0.00	0.00	0.09	16.62
			Other	10,633	29.68	4.56	12.47	4.20	0.00	6.05	11.53					
	J2J3	J2J3	COLA	27,152	21.63	9.27	14.12	7.81	0.00	6.38	2.58	9.54	0.00	0.00	0.03	9.52
			Other	7,711	17.47	15.17	11.44	9.61	0.00	10.98	0.62					
	Marina del Rey	Marina del Rey	COLA	998	14.78	15.85	11.12	9.54	0.00	9.95	0.02	8.32	0.00	0.00	0.02	8.30
			Other	855	13.68	4.91	8.57	3.62	0.00	5.96	0.44					
	TOTAL		**COLA**	**297,782**	**18.86**	**15.05**	**13.43**	**2.86**	**8.39**	**8.53**	**0.70**	**7.84**	**1.44**	**0.36**	**0.15**	**8.77**
			Other	**305,089**	**18.70**	**7.18**	**12.75**	**6.65**	**0.00**	**4.57**	**1.91**					
2002	Upper LA River	Upper LA River	COLA	174,600	5.51	17.20	9.93	0.70	9.65	2.16	0.27	1.74	1.92	0.07	0.13	3.46
			Other	209,880	7.64	4.43	7.01	3.90	0.00	0.59	0.57					
		Compton Creek	COLA	10,602	3.88	13.82	8.05	4.63	4.04	0.98	0.01	1.28	0.00	0.00	0.02	1.25
			Other	6,527	3.55	15.97	8.50	9.28	0.00	1.71	0.03					
	Ballona Creek	Ballona Creek	COLA	67,470	5.76	15.57	9.43	3.63	4.73	3.42	0.12	3.55	0.00	0.00	0.07	3.48
			Other	14,222	5.60	19.13	10.86	10.26	0.00	3.59	0.02					
	Dominguez Channel	Dominguez Channel	COLA	6,117	3.42	10.57	5.80	6.01	0.00	2.15	0.03	2.14	0.00	0.00	0.05	2.08
			Other	39,889	3.49	12.60	6.79	7.18	0.00	2.08	0.05					
		Port of LA	COLA	8,891	3.65	13.44	6.70	7.19	0.00	2.10	1.09	3.51	0.00	0.00	0.03	3.48
			Other	15,371	4.34	16.99	8.50	9.14	0.00	2.07	1.63					
	J1J4	J1J4	COLA	1,951	7.00	0.59	5.59	1.26	0.00	0.04	0.70	3.33	0.00	0.00	0.08	3.24
			Other	10,633	7.30	4.84	5.32	3.02	0.00	0.37	3.43					
	J2J3	J2J3	COLA	27,152	6.89	9.57	8.05	5.87	0.00	1.51	1.03	2.66	0.00	0.00	0.02	2.64
			Other	7,711	3.96	15.54	8.55	7.88	0.00	2.76	0.32					
	Marina del Rey	Marina del Rey	COLA	998	4.02	16.23	8.87	8.02	0.00	3.35	0.00	2.66	0.00	0.00	0.02	2.65
			Other	855	4.37	5.03	4.77	2.78	0.00	1.73	0.12					
	TOTAL		**COLA**	**297,782**	**5.54**	**15.65**	**9.37**	**2.31**	**6.87**	**2.33**	**0.32**	**2.16**	**1.22**	**0.04**	**0.10**	**3.24**
			Other	**305,089**	**6.63**	**7.36**	**7.24**	**5.07**	**0.00**	**1.08**	**0.61**					
2003	Upper LA River	Upper LA River	COLA	174,600	18.83	17.02	14.28	0.87	12.00	8.27	0.43	6.76	1.97	0.80	0.21	7.72
			Other	209,880	22.60	4.32	15.78	5.98	0.00	3.06	2.09					
		Compton Creek	COLA	10,602	14.74	13.83	11.44	5.95	5.19	5.97	0.02	6.67	0.00	0.00	0.02	6.65
			Other	6,527	14.33	15.96	11.24	11.26	0.00	7.75	0.04					
	Ballona Creek	Ballona Creek	COLA	67,470	17.97	15.54	12.82	4.43	5.77	10.24	0.24	10.32	0.00	0.00	0.07	10.25
			Other	14,222	16.19	19.32	13.69	12.24	0.00	9.54	0.04					
	Dominguez Channel	Dominguez Channel	COLA	6,117	12.34	10.59	7.57	7.01	0.00	8.30	0.05	8.10	0.00	0.00	0.06	8.05
			Other	39,889	12.91	12.71	8.99	8.57	0.00	8.00	0.07					
		Port of LA	COLA	8,891	15.24	13.39	9.57	9.00	0.00	8.68	1.38	9.88	0.00	0.00	0.04	9.84
			Other	15,371	16.26	17.17	12.03	11.63	0.00	7.68	2.09					
	J1J4	J1J4	COLA	1,951	25.76	0.58	15.69	2.79	0.00	2.97	4.89	11.59	0.00	0.00	0.09	11.50
			Other	10,633	26.67	4.76	14.16	4.99	0.00	3.69	8.59					
	J2J3	J2J3	COLA	27,152	19.46	9.59	14.15	7.97	0.00	4.88	2.05	7.40	0.00	0.00	0.03	7.37
			Other	7,711	13.68	15.91	11.03	9.47	0.00	8.57	0.52					
	Marina del Rey	Marina del Rey	COLA	998	13.74	16.66	11.06	9.55	0.00	9.78	0.01	8.32	0.00	0.00	0.02	8.30
			Other	855	13.98	5.16	8.80	3.73	0.00	6.29	0.32					
	TOTAL		**COLA**	**297,782**	**18.34**	**15.54**	**13.56**	**2.92**	**8.53**	**8.31**	**0.57**	**7.61**	**1.26**	**0.51**	**0.16**	**8.21**
			Other	**305,089**	**20.43**	**7.32**	**14.32**	**7.06**	**0.00**	**4.51**	**1.87**					

Table 2. Yearly water balance by assessment location (inches)

Water Year	EWMP	Assessment Area	City	Area (ac)	LAND PROCESSES: Precipitation + Irrigation - Evapotranspiration - Infiltration = Runoff + Baseflow = Land Flow into Reaches							IN-STREAM PROCESSES: Land Flow into Reaches + Point Source Flow into Reaches - Spreading Grounds - InStream Loss = Outflow				
					Precipitation	Irrigation	Evapo-transpiration	Infiltration (Not Recharge)	Infiltration (Recharge)	Runoff	Baseflow	Land Flow into Reaches	Point Sources Flow into Reaches	Spreading Grounds	In-Stream Loss	Outflow
2004	Upper LA River	Upper LA River	COLA	174,600	9.39	18.05	11.57	0.78	10.73	4.02	0.34	3.52	1.77	0.29	0.15	4.85
			Other	209,880	12.84	4.65	9.96	4.71	0.00	1.62	1.20					
		Compton Creek	COLA	10,602	9.73	14.18	9.96	5.40	4.72	3.81	0.01	4.43	0.00	0.00	0.03	4.41
			Other	6,527	9.64	16.63	10.23	10.61	0.00	5.39	0.03					
	Ballona Creek	Ballona Creek	COLA	67,470	10.96	16.09	11.00	4.02	5.24	6.61	0.18	6.75	0.00	0.00	0.08	6.68
			Other	14,222	10.12	20.00	12.25	11.29	0.00	6.54	0.03					
	Dominguez Channel	Dominguez Channel	COLA	6,117	8.34	11.62	7.12	6.95	0.00	5.84	0.05	5.31	0.00	0.00	0.07	5.25
			Other	39,889	8.04	13.73	8.25	8.30	0.00	5.16	0.06					
		Port of LA	COLA	8,891	8.38	15.14	8.62	8.77	0.00	4.76	1.38	5.89	0.00	0.00	0.04	5.85
			Other	15,371	7.82	18.63	10.13	10.57	0.00	3.78	1.98					
	J1J4	J1J4	COLA	1,951	13.41	0.62	9.15	1.80	0.00	1.03	2.04	6.11	0.00	0.00	0.09	6.01
			Other	10,633	13.61	5.04	8.25	3.75	0.00	1.42	5.24					
	J2J3	J2J3	COLA	27,152	11.44	10.15	10.07	6.72	0.00	3.28	1.51	5.07	0.00	0.00	0.03	5.04
			Other	7,711	8.23	16.55	9.89	8.85	0.00	5.63	0.42					
	Marina del Rey	Marina del Rey	COLA	998	8.07	17.26	10.12	8.97	0.00	6.23	0.01	5.15	0.00	0.00	0.02	5.14
			Other	855	8.28	5.35	6.50	3.25	0.00	3.70	0.19					
	TOTAL		**COLA**	**297,782**	**9.91**	**16.41**	**11.05**	**2.62**	**7.64**	**4.58**	**0.43**	**4.36**	**1.13**	**0.18**	**0.12**	**5.19**
			Other	**305,089**	**11.66**	**7.83**	**9.79**	**5.97**	**0.00**	**2.60**	**1.13**					
2005	Upper LA River	Upper LA River	COLA	174,600	41.42	16.72	20.28	1.08	14.89	21.00	0.89	21.02	1.87	1.43	0.53	20.93
			Other	209,880	55.06	4.14	29.82	9.09	0.00	13.95	6.34					
		Compton Creek	COLA	10,602	32.80	13.86	16.79	7.97	6.96	14.92	0.02	15.93	0.00	0.00	0.03	15.91
			Other	6,527	30.86	16.27	15.32	14.28	0.00	17.47	0.06					
	Ballona Creek	Ballona Creek	COLA	67,470	43.61	15.45	17.80	5.51	7.17	27.94	0.63	27.74	0.00	0.00	0.08	27.67
			Other	14,222	35.95	19.07	16.93	14.26	0.00	23.71	0.11					
	Dominguez Channel	Dominguez Channel	COLA	6,117	28.09	11.32	10.79	9.00	0.00	19.53	0.09	18.32	0.00	0.00	0.07	18.25
			Other	39,889	27.84	13.23	12.26	10.69	0.00	18.00	0.12					
		Port of LA	COLA	8,891	28.49	14.86	13.03	11.43	0.00	16.78	2.11	19.05	0.00	0.00	0.04	19.01
			Other	15,371	29.92	17.91	15.02	13.67	0.00	16.26	2.89					
	J1J4	J1J4	COLA	1,951	58.74	0.57	18.33	3.07	0.00	21.52	16.38	41.90	0.00	0.00	0.09	41.81
			Other	10,633	59.65	4.63	16.79	4.85	0.00	21.24	21.40					
	J2J3	J2J3	COLA	27,152	41.53	9.41	20.36	9.88	0.00	16.66	4.03	21.09	0.00	0.00	0.03	21.06
			Other	7,711	31.51	15.53	13.63	10.90	0.00	21.68	0.82					
	Marina del Rey	Marina del Rey	COLA	998	28.49	16.18	13.16	10.86	0.00	20.63	0.02	17.69	0.00	0.00	0.02	17.67
			Other	855	26.86	5.01	13.04	4.61	0.00	13.54	0.69					
	TOTAL		**COLA**	**297,782**	**41.03**	**15.39**	**19.16**	**3.65**	**10.60**	**21.81**	**1.21**	**21.93**	**1.19**	**0.91**	**0.36**	**21.85**
			Other	**305,089**	**48.31**	**7.28**	**24.96**	**9.77**	**0.00**	**15.58**	**5.30**					
2006	Upper LA River	Upper LA River	COLA	174,600	15.70	17.65	13.90	0.87	12.03	6.11	0.43	5.63	2.01	0.45	0.25	6.95
			Other	209,880	20.46	4.29	14.29	5.59	0.00	2.54	2.34					
		Compton Creek	COLA	10,602	11.80	14.40	11.00	5.87	5.12	4.19	0.02	4.67	0.00	0.00	0.03	4.64
			Other	6,527	10.97	16.89	11.06	11.38	0.00	5.39	0.04					
	Ballona Creek	Ballona Creek	COLA	67,470	15.19	16.21	12.65	4.48	5.84	8.20	0.23	8.28	0.00	0.00	0.07	8.21
			Other	14,222	13.38	20.37	13.69	12.43	0.00	7.59	0.04					
	Dominguez Channel	Dominguez Channel	COLA	6,117	9.97	11.82	7.86	7.54	0.00	6.34	0.05	5.76	0.00	0.00	0.07	5.69
			Other	39,889	9.60	14.02	9.02	8.94	0.00	5.60	0.07					
		Port of LA	COLA	8,891	9.70	15.36	9.18	9.21	0.00	5.23	1.44	6.62	0.00	0.00	0.04	6.58
			Other	15,371	10.23	19.04	11.21	11.48	0.00	4.52	2.06					
	J1J4	J1J4	COLA	1,951	22.10	0.60	13.33	2.42	0.00	1.74	5.22	10.32	0.00	0.00	0.10	10.22
			Other	10,633	22.45	4.90	11.92	4.49	0.00	2.27	8.67					
	J2J3	J2J3	COLA	27,152	15.38	10.16	12.46	7.75	0.00	3.62	1.71	5.84	0.00	0.00	0.03	5.81
			Other	7,711	11.59	17.01	11.16	9.80	0.00	7.21	0.43					
	Marina del Rey	Marina del Rey	COLA	998	10.80	17.79	11.23	9.84	0.00	7.50	0.01	6.18	0.00	0.00	0.02	6.16
			Other	855	10.33	5.51	7.61	3.61	0.00	4.35	0.27					
	TOTAL		**COLA**	**297,782**	**15.14**	**16.23**	**13.11**	**2.92**	**8.56**	**6.24**	**0.54**	**6.13**	**1.28**	**0.29**	**0.18**	**6.94**
			Other	**305,089**	**17.81**	**7.67**	**13.17**	**6.83**	**0.00**	**3.45**	**2.04**					

Table 2. Yearly water balance by assessment location (inches)

Water Year	EWMP	Assessment Area	City	Area (ac)	LAND PROCESSES: Precipitation + Irrigation - Evapotranspiration - Infiltration = Runoff + Baseflow = Land Flow into Reaches							IN-STREAM PROCESSES: Land Flow into Reaches + Point Source Flow into Reaches - Spreading Grounds - InStream Loss = Outflow				
					Precipitation	Irrigation	Evapo-transpiration	Infiltration (Not Recharge)	Infiltration (Recharge)	Runoff	Baseflow	Land Flow into Reaches	Point Sources Flow into Reaches	Spreading Grounds	In-Stream Loss	Outflow
2007	Upper LA River	Upper LA River	COLA	174,600	4.85	19.19	10.50	0.75	10.37	2.12	0.30	1.64	1.78	0.20	0.13	3.08
			Other	209,880	7.04	4.69	6.79	3.94	0.00	0.51	0.48					
		Compton Creek	COLA	10,602	2.83	15.09	8.16	4.77	4.17	0.81	0.01	1.17	0.00	0.00	0.03	1.14
			Other	6,527	2.64	17.86	8.91	9.85	0.00	1.71	0.03					
	Ballona Creek	Ballona Creek	COLA	67,470	4.53	17.16	9.62	3.79	4.94	3.21	0.13	3.35	0.00	0.00	0.08	3.27
			Other	14,222	4.14	21.54	11.39	10.90	0.00	3.37	0.02					
	Dominguez Channel	Dominguez Channel	COLA	6,117	2.87	12.86	6.60	6.98	0.00	2.11	0.04	2.11	0.00	0.00	0.08	2.03
			Other	39,889	2.80	15.16	7.64	8.22	0.00	2.04	0.06					
		Port of LA	COLA	8,891	3.93	16.93	8.14	8.81	0.00	2.51	1.40	4.08	0.00	0.00	0.05	4.04
			Other	15,371	3.50	20.64	9.51	10.45	0.00	2.16	2.02					
	J1J4	J1J4	COLA	1,951	2.94	0.66	2.38	0.76	0.00	0.04	0.43	3.29	0.00	0.00	0.10	3.19
			Other	10,633	4.12	5.42	3.33	2.41	0.00	0.34	3.46					
	J2J3	J2J3	COLA	27,152	5.00	10.99	7.38	6.02	0.00	1.57	1.01	2.74	0.00	0.00	0.03	2.71
			Other	7,711	3.30	18.12	9.37	8.77	0.00	2.95	0.32					
	Marina del Rey	Marina del Rey	COLA	998	3.32	18.89	9.89	9.02	0.00	3.30	0.00	2.53	0.00	0.00	0.02	2.51
			Other	855	3.38	5.85	4.63	2.97	0.00	1.53	0.10					
	TOTAL		**COLA**	**297,782**	**4.64**	**17.52**	**9.73**	**2.46**	**7.35**	**2.27**	**0.34**	**2.09**	**1.13**	**0.13**	**0.11**	**2.99**
			Other	**305,089**	**5.87**	**8.29**	**7.24**	**5.34**	**0.00**	**1.01**	**0.57**					
2008	Upper LA River	Upper LA River	COLA	174,600	14.46	19.43	13.90	0.89	12.22	6.39	0.49	6.14	1.76	0.66	0.24	6.99
			Other	209,880	20.69	4.71	14.25	5.63	0.00	3.29	2.24					
		Compton Creek	COLA	10,602	9.78	14.82	10.28	5.59	4.88	3.82	0.01	4.51	0.00	0.00	0.03	4.48
			Other	6,527	9.91	17.57	10.72	11.15	0.00	5.57	0.04					
	Ballona Creek	Ballona Creek	COLA	67,470	13.94	17.03	12.45	4.44	5.77	8.03	0.28	8.28	0.00	0.00	0.08	8.19
			Other	14,222	13.05	21.84	14.01	12.77	0.00	8.06	0.05					
	Dominguez Channel	Dominguez Channel	COLA	6,117	10.71	12.87	8.19	7.87	0.00	7.46	0.06	7.64	0.00	0.00	0.08	7.56
			Other	39,889	11.63	15.38	9.76	9.59	0.00	7.58	0.08					
		Port of LA	COLA	8,891	13.32	16.83	10.43	10.24	0.00	7.77	1.72	8.89	0.00	0.00	0.05	8.84
			Other	15,371	12.49	21.02	12.39	12.57	0.00	6.08	2.47					
	J1J4	J1J4	COLA	1,951	27.78	0.67	13.03	2.33	0.00	7.56	5.55	13.70	0.00	0.00	0.11	13.59
			Other	10,633	23.54	5.52	10.97	4.29	0.00	5.06	8.75					
	J2J3	J2J3	COLA	27,152	13.86	11.26	11.77	7.83	0.00	3.88	1.64	6.02	0.00	0.00	0.04	5.98
			Other	7,711	10.92	18.94	11.65	10.42	0.00	7.37	0.42					
	Marina del Rey	Marina del Rey	COLA	998	10.42	19.81	11.95	10.54	0.00	7.74	0.01	6.36	0.00	0.00	0.02	6.34
			Other	855	10.74	6.14	8.18	3.95	0.00	4.41	0.34					
	TOTAL		**COLA**	**297,782**	**14.08**	**17.64**	**13.01**	**2.96**	**8.65**	**6.52**	**0.59**	**6.76**	**1.12**	**0.42**	**0.18**	**7.28**
			Other	**305,089**	**18.33**	**8.39**	**13.28**	**7.02**	**0.00**	**4.43**	**1.99**					
2009	Upper LA River	Upper LA River	COLA	174,600	11.42	19.01	12.91	0.85	11.72	4.55	0.40	3.80	1.68	0.47	0.17	4.84
			Other	209,880	14.41	4.45	11.12	4.90	0.00	1.43	1.41					
		Compton Creek	COLA	10,602	7.63	15.33	9.92	5.51	4.82	2.70	0.01	3.37	0.00	0.00	0.03	3.34
			Other	6,527	7.97	18.04	10.50	11.09	0.00	4.39	0.03					
	Ballona Creek	Ballona Creek	COLA	67,470	10.02	17.50	11.68	4.33	5.64	5.67	0.20	5.86	0.00	0.00	0.09	5.77
			Other	14,222	9.35	22.32	13.42	12.47	0.00	5.75	0.03					
	Dominguez Channel	Dominguez Channel	COLA	6,117	8.60	12.87	7.83	7.69	0.00	5.90	0.05	5.56	0.00	0.00	0.08	5.48
			Other	39,889	8.56	15.43	9.20	9.29	0.00	5.43	0.07					
		Port of LA	COLA	8,891	7.80	16.67	9.12	9.40	0.00	4.42	1.53	6.38	0.00	0.00	0.05	6.33
			Other	15,371	8.80	21.03	11.35	11.85	0.00	4.42	2.21					
	J1J4	J1J4	COLA	1,951	17.36	0.66	10.70	2.03	0.00	2.01	3.28	7.50	0.00	0.00	0.10	7.40
			Other	10,633	15.50	5.41	8.98	4.02	0.00	1.75	6.16					
	J2J3	J2J3	COLA	27,152	10.75	11.41	10.64	7.41	0.00	2.76	1.36	4.43	0.00	0.00	0.04	4.40
			Other	7,711	7.50	19.13	11.02	10.04	0.00	5.20	0.37					
	Marina del Rey	Marina del Rey	COLA	998	7.54	20.05	11.54	10.31	0.00	5.72	0.01	4.62	0.00	0.00	0.02	4.60
			Other	855	7.87	6.21	7.03	3.72	0.00	3.09	0.24					
	TOTAL		**COLA**	**297,782**	**10.77**	**17.53**	**12.08**	**2.84**	**8.32**	**4.59**	**0.47**	**4.42**	**1.07**	**0.30**	**0.13**	**5.06**
			Other	**305,089**	**12.83**	**8.26**	**10.89**	**6.40**	**0.00**	**2.48**	**1.32**					

Table 2. Yearly water balance by assessment location (inches)

Water Year	EWMP	Assessment Area	City	Area (ac)	LAND PROCESSES: Precipitation + Irrigation - Evapotranspiration - Infiltration = Runoff + Baseflow = Land Flow into Reaches							IN-STREAM PROCESSES: Land Flow into Reaches + Point Source Flow into Reaches - Spreading Grounds - InStream Loss = Outflow				
					Precipitation	Irrigation	Evapo-transpiration	Infiltration (Not Recharge)	Infiltration (Recharge)	Runoff	Baseflow	Land Flow into Reaches	Point Sources Flow into Reaches	Spreading Grounds	In-Stream Loss	Outflow
2010	Upper LA River	Upper LA River	COLA	174,600	17.99	17.91	14.86	0.91	12.54	7.08	0.51	6.48	1.72	0.30	0.26	7.64
			Other	209,880	23.65	4.30	16.29	6.09	0.00	3.11	2.45					
		Compton Creek	COLA	10,602	12.23	14.49	11.14	5.92	5.17	4.47	0.01	5.20	0.00	0.00	0.03	5.17
			Other	6,527	12.10	17.08	11.29	11.54	0.00	6.31	0.04					
	Ballona Creek	Ballona Creek	COLA	67,470	17.97	16.54	13.72	4.75	6.19	9.53	0.31	9.75	0.00	0.00	0.09	9.66
			Other	14,222	16.96	21.46	15.36	13.78	0.00	9.23	0.05					
	Dominguez Channel	Dominguez Channel	COLA	6,117	13.54	12.34	8.68	8.08	0.00	9.07	0.06	8.51	0.00	0.00	0.08	8.43
			Other	39,889	13.50	14.91	10.18	9.81	0.00	8.34	0.08					
		Port of LA	COLA	8,891	17.89	15.95	10.98	10.34	0.00	10.73	1.80	11.97	0.00	0.00	0.05	11.92
			Other	15,371	17.56	20.37	13.30	12.99	0.00	9.08	2.56					
	J1J4	J1J4	COLA	1,951	27.35	0.62	15.09	2.68	0.00	3.85	6.35	12.25	0.00	0.00	0.10	12.16
			Other	10,633	25.20	5.05	12.86	4.75	0.00	3.30	9.33					
	J2J3	J2J3	COLA	27,152	17.57	10.92	13.49	8.29	0.00	4.75	1.95	6.97	0.00	0.00	0.04	6.94
			Other	7,711	12.14	18.74	12.21	10.74	0.00	7.45	0.47					
	Marina del Rey	Marina del Rey	COLA	998	13.13	19.69	12.77	11.14	0.00	8.90	0.01	7.55	0.00	0.00	0.03	7.52
			Other	855	14.39	6.10	10.09	4.45	0.00	5.52	0.43					
	TOTAL		**COLA**	**297,782**	**17.69**	**16.56**	**14.10**	**3.11**	**8.94**	**7.47**	**0.64**	**7.42**	**1.09**	**0.19**	**0.19**	**8.13**
			Other	**305,089**	**21.19**	**7.97**	**14.95**	**7.47**	**0.00**	**4.57**	**2.17**					
2011	Upper LA River	Upper LA River	COLA	174,600	23.62	17.60	16.38	0.96	13.29	9.99	0.60	9.15	1.70	0.00	0.30	10.55
			Other	209,880	28.90	3.86	18.39	6.40	0.00	4.81	3.15					
		Compton Creek	COLA	10,602	17.10	13.82	12.44	6.37	5.56	6.53	0.02	7.68	0.00	0.00	0.03	7.65
			Other	6,527	17.48	16.45	12.30	12.13	0.00	9.46	0.04					
	Ballona Creek	Ballona Creek	COLA	67,470	22.35	15.93	14.55	4.91	6.39	12.02	0.40	12.41	0.00	0.00	0.08	12.33
			Other	14,222	21.68	21.08	16.17	14.26	0.00	12.25	0.07					
	Dominguez Channel	Dominguez Channel	COLA	6,117	18.12	12.32	9.56	8.55	0.00	12.26	0.07	11.42	0.00	0.00	0.08	11.34
			Other	39,889	18.15	14.95	11.29	10.53	0.00	11.18	0.09					
		Port of LA	COLA	8,891	19.68	16.02	11.78	10.96	0.00	11.01	1.94	12.00	0.00	0.00	0.05	11.95
			Other	15,371	19.00	20.53	14.27	13.82	0.00	8.60	2.84					
	J1J4	J1J4	COLA	1,951	34.63	0.62	15.75	2.74	0.00	8.52	8.23	17.61	0.00	0.00	0.10	17.51
			Other	10,633	31.51	5.05	13.96	4.83	0.00	6.39	11.37					
	J2J3	J2J3	COLA	27,152	22.26	10.85	15.48	9.07	0.00	6.11	2.45	9.22	0.00	0.00	0.04	9.19
			Other	7,711	17.99	18.94	13.64	11.71	0.00	11.01	0.56					
	Marina del Rey	Marina del Rey	COLA	998	17.97	19.91	13.93	11.97	0.00	11.97	0.02	10.19	0.00	0.00	0.02	10.16
			Other	855	18.44	6.17	11.70	4.82	0.00	7.50	0.58					
	TOTAL		**COLA**	**297,782**	**22.80**	**16.21**	**15.45**	**3.29**	**9.44**	**10.05**	**0.78**	**10.02**	**1.09**	**0.00**	**0.22**	**10.89**
			Other	**305,089**	**26.20**	**7.65**	**16.73**	**7.88**	**0.00**	**6.50**	**2.74**					

ATTACHMENT B – STORMWATER CAPTURE PROJECTIONS

The detailed spreadsheet that serves as the output for stormwater capture projections can be downloaded from this link:

https://paradigmh2o.box.com/s/kt9apm83ocdqdk6iqdj1bzl5lt17hvhz

			STORMWATER PROJECTS TO BE IMPLEMENTED			
Assessment Area	Implementation Date	BMP Type	Total Number of Projects	Linear Ft of Green Streets [1]	Total Capacity of Projects (ac-ft)	Estimated Volume of Stormwater Managed during Average Year (ac-ft) [7]
Ballona Creek	Thru 2021 (Block A)	Existing Projects	302	0	5	38
		Low Impact Development	302	--	5	38
		Green Streets	0	0	0	0
		Regional Projects	0	--	0	0
		In Process - LASAN 5-yr CIP [2]	69	642,966	396	3,306
		Low Impact Development	0	0	0	0
		Green Streets	5	642,966	111	927
		Regional Projects	64	--	285	2,379
		In Process - DWP SCMP CIP	TBD	TBD	TBD	TBD
		In Process - LASAN DWP Funded Projects	TBD	TBD	TBD	TBD
		EWMP Projects (beyond Existing & 5-yr CIP)	n/a	n/a	1,309	10,915
		Low Impact Development	n/a	--	210	1,749
		Green Streets	n/a	963,425	167	1,390
		Regional Projects	n/a	--	932	7,776
		TOTAL	**371**	**642,966**	**1,709**	**14,258**
Santa Monica Bay [3]	Thru 2021 (Block A)	Existing Projects	266	867	17	138
		Low Impact Development	264	--	1	9
		Green Streets	1	867	0.2	1
		Regional Projects	1	--	15	128
		In Process - LASAN 5-yr CIP [2]	23	67,787	138	1,151
		Low Impact Development	0	--	0	0
		Green Streets	7	67,787	11.7	98
		Regional Projects	16	--	126.2	1,053
		In Process - DWP SCMP CIP	TBD	TBD	TBD	TBD
		In Process - LASAN DWP Funded Projects	TBD	TBD	TBD	TBD
		EWMP Projects (beyond Existing & 5-yr CIP)	n/a	n/a	106	888
		TOTAL	**289**	**67,787**	**261**	**2,177**
MdR [4,5]	Thru 2021 (Block A)	Existing Projects	29	0	0.04	0.3
		Low Impact Development	29	--	0.04	0.3
		Green Streets	0	0	0	0
		Regional Projects	0	--	0	0
		In Process - LASAN 5-yr CIP [2]	12	253,301	44	365
		Low Impact Development	0	--	0	0
		Green Streets	12	253,301	44	365
		Regional Projects	0	--	0	0
		In Process - DWP SCMP CIP	TBD	TBD	TBD	TBD
		In Process - LASAN DWP Funded Projects	TBD	TBD	TBD	TBD
		EWMP Projects (beyond Existing & 5-yr CIP)	0	0	0	0
		TOTAL	**41**	**253,301**	**44**	**366**

BLOCKS FOR SCHEDULING:

BLOCK A = 2017 to 2021
BLOCK B = 2022 to 2024
BLOCK C = 2025 to 2028
BLOCK D = 2029 to 2037

NOTES:

1	Green Street length was calculated based on capacity using a conversion of 0.913 acre-feet per mile, consistent with developmetn of the LASAN 5-yr CIP.
2	LASAN 5-yr CIP values reflect projects with construction scheduled for completion through FY 20/21.
3	BMP capacities for LID were not readily available from the Santa Monica Bay J2/J3 EWMP; Therefore, EWMP projects beyond existing and CIP are presented only as a total capacity.
4	Marina del Rey portion of the LASAN 5-yr CIP assumed completion of all EWMP projects.
5	BMP Capacity for City of Los Angeles poriton of Marina del Rey EWMP was not explicitly available. BMP capacity was approximated using the annual volume milestones derived from the EWMP and the WY2008 BMP capacity to volume regression presented in the acccompanying memo.
6	EWMP Projects (beyond Existing & 5-yr CIP) presented only as total capacity because the regional project capacity in the 5-yr CIP exceeds the regional capacity specified for the Block A EWMP milestone.
7	Annual average stormwwater capture is based on a regression of SUSTAIN simulations as presented in the memo.
n/a	Information not available. For EWMPs, the number of projects is not separately reported - instead the plan specifies BMP capacities.
--	Not applicable for this BMP type or plan.

	block	
2020	A	2,254
2025	B	831
2030	C	2,407
2035	D	3,769
	Total	**9,262**

Upper LA River [6]	Thru 2021 (Block A)	Existing Projects	834	44,414	31	260
		Low Impact Development	820	--	9	75
		Green Streets	11	44,414	8	64
		Regional Projects	3	--	15	121
		In Process - LASAN 5-yr CIP [2]	36	8,201	170	1,421
		Low Impact Development	--	--	--	--
		Green Streets	27	8,201	1	12
		Regional Projects	9	--	169	1,410
		In Process - DWP SCMP CIP	TBD	TBD	TBD	TBD
		In Process - LASAN DWP Funded Projects	TBD	TBD	TBD	TBD
		EWMP Projects (beyond Existing & 5-yr CIP)	n/a	n/a	36	303
		TOTAL	**870**	**52,616**	**238**	**1,985**
	2021-2024 (Block B)	EWMP Projects	n/a	1,179,846	746	6,225
		Low Impact Development	n/a	--	117	976
		Green Streets	n/a	1,179,846	204	1,702
		Regional Projects	n/a	--	425	3,547
		Other Projects	0	0	0	0
		TOTAL	**0**	**1,179,846**	**746**	**6,225**
	2025-2028 (Block C)	EWMP Projects	n/a	3,510,041	2,261	18,864
		Low Impact Development	n/a	--	344	2,867
		Green Streets	n/a	3,510,041	607	5,063
		Regional Projects	n/a	--	1,311	10,934
		Other Projects	0	0	0	0
		TOTAL	**0**	**3,510,041**	**2,261**	**18,864**
	2028-2037 (Block D)	EWMP Projects	n/a	3,510,041	3,065	25,570
		Low Impact Development	n/a	--	344	2,867
		Green Streets	n/a	3,510,041	607	5,063
		Regional Projects	n/a	--	2,115	17,640
		Other Projects	0	0	0	0
		TOTAL	**0**	**3,510,041**	**3,065**	**25,570**

Dominguez Channel	Thru 2021 (Block A)	Existing Projects	49	--	2	17
		Low Impact Development	49	--	2	17
		Green Streets	0	0	0	0
		Regional Projects	0	--	0	0
		In Process - LASAN 5-yr CIP [2]	9	1,600	0.3	2
		Low Impact Development	--	--	--	--
		Green Streets	9	1,600	0.3	2
		Regional Projects	--	--	--	--
		In Process - DWP SCMP CIP	TBD	TBD	TBD	TBD
		In Process - LASAN DWP Funded Projects	TBD	TBD	TBD	TBD
		TOTAL	**58**	**1,600**	**2**	**19**
	2021-2026	EWMP Projects	n/a	183,904	85	711
		Low Impact Development	n/a	--	18	148
		Green Streets	n/a	183,904	32	265
		Regional Projects	n/a	--	36	297
		Other Projects	0	0	0	0
		TOTAL	**0**	**183,904**	**85**	**711**
	2026-2029	EWMP Projects	n/a	497,349	146	1,218
		Low Impact Development	n/a	--	25	209
		Green Streets	n/a	497,349	86	717
		Regional Projects	n/a	--	35	292
		Other Projects	0	0	0	0
		TOTAL	**0**	**497,349**	**146**	**1,218**
	2029-2032	EWMP Projects	n/a	555,181	334	2,786
		Low Impact Development	n/a	--	47	392
		Green Streets	n/a	555,181	96	801
		Regional Projects	n/a	--	191	1,593
		Other Projects	0	0	0	0
		TOTAL	**0**	**555,181**	**334**	**2,786**
	2032-2040	EWMP Projects	n/a	555,181	370	3,083
		Low Impact Development	n/a	--	51	422
		Green Streets	n/a	555,181	96	801
		Regional Projects	n/a	--	223	1,860
		Other Projects	0	0	0	0
		TOTAL	**0**	**555,181**	**370**	**3,083**

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Lead Author:	Jennifer Thompson CDM Smith

CITY OF LOS ANGELES

TECHNICAL MEMORANDUM NO. 12.5.1 ONSITE TREATMENT FACILITY POLICY STUDY REVIEW OF EXISTING DOCUMENTATION AND DISCUSSIONS WITH OTHER PUBLIC AGENCIES

FINAL
December 2017

707 WILSHIRE BOULEVARD, SUITE 3920 • LOS ANGELES, CALIFORNIA 90017 • P. 213.489.1587 • F. 213.489.1500

CITY OF LOS ANGELES

TECHNICAL MEMORANDUM
NO. 12.5.1
ONSITE TREATMENT FACILITY POLICY STUDY – REVIEW OF EXISTING DOCUMENTATION AND DISCUSSIONS WITH OTHER PUBLIC AGENCIES

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LIST OF ABBREVIATIONS

Abbreviation	Description
BOD	biochemical oxygen demand
City	City of Los Angeles
gpd	gallons per day
GSA	General Services Administration
GWRS	Groundwater Replenishment System
IEBL	Inland Empire Brine Line
IRP	Integrated Resources Plan
LACDPH	Los Angeles County Department of Public Health
LACSD	Los Angeles County Sanitation District
LASAN	Los Angeles Sanitation
MBR	membrane bioreactor
mg/L	milligrams per liter
mg/yr	milligrams per year
mgd	million gallons per day
NACWA	National Association of Clean Water Agencies
OCSD	Orange County Sanitation District
RO	reverse osmosis
RWQCB	Regional Water Quality Control Board
SARI	Santa Ana River Interceptor
SAWPA	Santa Ana Watershed Protection Authority
SWRF	Southwest Water Reclamation Facility
TDS	total dissolved solids
TM	Technical Memorandum
TSS	total suspended solids
UV	ultraviolet

ONSITE TREATMENT FACILITY POLICY STUDY REVIEW OF EXISTING DOCUMENTATION AND DISCUSSIONS WITH OTHER PUBLIC AGENCIES

1.0 INTRODUCTION

The City of Los Angeles (City) recently embarked on the One Water LA 2040 Plan. This plan will provide a strategic vision and a collaborative approach for integrated water management. In 2006, the City completed and adopted its first Water Integrated Resources Plan (IRP). This plan was the start of a paradigm shift for the City and resulted in significant achievements. Since then, the water landscape in the City has changed with increased demands, new regulations, and threats of climate change.

In response to these changes and to help achieve water sustainability, the City initiated the One Water LA 2040 Plan. This plan builds upon the success of the Water IRP, which had a planning horizon to year 2020. The One Water LA 2040 Plan takes a holistic and collaborative approach, to consider all water resources from surface water, groundwater, potable water, wastewater, recycled water, dry-weather runoff, and stormwater as "One Water." The plan identifies multi-departmental and multi-agency integration opportunities to manage water in a more efficient, cost effective, and sustainable manner.

The One Water LA 2040 Plan represents the City's continued and improved commitment to proactively manage all its water resources and implement innovative solutions, driven by the Sustainable City pLAn. The Plan will help guide strategic decisions for integrated water projects, programs, and policies within the City.

1.1 Purpose of Technical Memorandum 12.5.1

This special study will:

1. Evaluate onsite treatment policies other public agencies may have in place Technical Memorandum (TM) 12.5.1
2. Evaluate impacts to the collection system, treatment plants, and financial impacts (TM 12.5.2), and
3. Develop policy, rate structure, and financial recommendations (TM 12.5.3).

This Technical Memorandum (TM 12.5.1) includes the results of research regarding onsite treatment policies that have been published that address feasibility in terms of financing and policy. The goal of TM 12.5.1 is to: document which agencies have experience relevant to what Los Angeles Sanitation (LASAN) is considering, and identify available information regarding onsite treatment policies. The information from TM 12.5.1 will be leveraged to support the evaluation of impacts to LASAN as well as helping to form a policy for onsite treatment that could be adopted at a local or regional level.

2.0 STATUS OF ONSITE TREATMENT PRACTICES AND POLICIES

This section presents a summary of the research related to onsite treatment practices and summarizes southern California and national agencies with experience with onsite treatment systems.

2.1 Research

The initial review of existing documentation led to a list of dozens of agencies, listed in Appendix A, that have had some experience with onsite treatment. Phone interviews were conducted to better understand each agency's approach and experience with the myriad concerns related to onsite treatment. Twenty-nine individuals were contacted, leading to interviews with over a dozen key managers at these agencies, including source control managers, public works directors, and executive managers of policy development. A detailed phone log is included in Appendix B.

As a follow-up, an on-line survey was developed to gather consistent and specific information regarding how onsite treatment is regulated and what the associated charges entail. The survey questions are presented in Appendix C. The survey was developed and distributed to the contacts listed in Appendix A as well as to the members of the National Association of Clean Water Agencies (NACWA). The list below is a sample of the specific contacts that were approached as part of this effort:

- Central Basin Municipal Water District
- City of Aurora, Colorado
- City of Escondido, California
- City of Henderson, Nevada
- City of San Diego, California
- City of Upland
- Coachella Valley Water District
- Eastern Municipal Water District
- East Valley Water District
- Encina Wastewater Authority

- Inland Empire Utilities Agency
- Irvine Ranch Water District
- LOTT County, Washington
- Los Angeles County Department of Public Health (LACDPH)
- Sanitation Districts of Los Angeles County (Sanitation Districts)
- Orange County Sanitation District (OCSD)
- San Diego Regional Water Quality Control Board (RWQCB)
- San Francisco Public Utilities Commission
- Santa Ana Watershed Protection Authority (SAWPA)
- Sydney Harbor Foreshore Authority
- Western Municipal Water District

As of February 16, 2016, nearly 30 agencies responded to the survey. The survey responses are located in Appendix D.

2.2 Southern California

Although this effort found that no local agencies have a specific policy for onsite treatment, there are several local agencies whose experience, size, service area, or upcoming developments may be most relevant to LASAN, including: the Sanitation Districts, OCSD, and the City of San Diego. A summary of the most relevant information gathered from the survey and telephone discussions with these agencies, as well as from SAWPA, are listed in Table 1. These agencies may be good references for onsite system policy development in terms of collaboration, as well having an understanding of how other agencies are handling onsite treatment.

Table 1 Summary of Survey Responses – Southern California
One Water LA 2040 Plan – TM 12.5.1

Agency	Survey or Phone Response	Relevance to LASAN
Sanitation Districts	The Sanitation Districts operate ten water reclamation plants that serves approximately 5.5 million people treat approximately 440 million gallon per day (mgd), of which 165 mgd are currently available for reuse. Plant capacities range from 0.2 to 400 mgd(1). The Sanitation Districts do not have an official policy but do have some principles they follow with respect to onsite treatment (see additional discussion in Section 2.2.1). The Sanitation Districts allows other entities to perform onsite treatment within their service area and do not impose fees on these facilities. Currently, several industrial onsite treatment facilities exist within their service area. The owners of these facilities operate and maintain the systems. They are also the entity and agency responsible for the product water and are required to have a permit for waste stream discharge. An example of one such facility is Miller Brewery. Los Angeles County Sanitation District (LACSD) will limit materials from these facilities that can be returned to the existing sewer. So far, discharges from these onsite facilities have not affected operation at LACSD. LACSD permits brine discharge.	Looking at potential privately run onsite treatment facilities. Do not have a specific policy in place, but do follow established principles.
OCSD	OCSD provides wastewater treatment for a population of 2.5 million people who reside in the OCSD service area in northern Orange County. The agency provides wastewater collection and treatment services with current average daily flows around 185 mgd. The agency allows other entities to perform onsite treatment within their service area and does not impose fees on the facilities. The City of Anaheim has a water recycling facility that treats 0.05 mgd of wastewater and provides the recycled water for toilet and urinal flushing, landscaping, and potential irrigation at nearby parks and schools. Currently, there are some industrial onsite treatment facilities that treat and reuse their own generated industrial wastewater. These facilities are responsible for the quality of water and are required to have a discharge permit. The owners of these facilities are responsible for the operation and maintenance of the system. OCSD permits brine discharges. Onsite treatment facilities could impact the amount of wastewater treated by OCSD and available for reclamation at the Groundwater Replenishment System (GWRS), which could become an issue in the future for the GWRS Final Expansion.	Responsible for collection and treatment of brine. Onsite treatment could become an issue in the future due to reduced flows available for reclamation.

Table 1 Summary of Survey Responses – Southern California
One Water LA 2040 Plan – TM 12.5.1

Agency	Survey or Phone Response	Relevance to LASAN
City of San Diego	The wastewater branch of the City of San Diego Public Utilities Department manages a regional wastewater system that handles 180 mgd from a population of over 2.2 million from the City and 15 other cities and districts. Currently, there are two onsite treatment facilities that mine sewage from the City of San Diego's sanitary sewer system to produce recycle water/treated wastewater for irrigation. The onsite treatment facilities are operated and maintained by the owners of the system and are required to have a discharge permit. Also, the City is in discussions with a residential developer wishing to construct and operate an onsite treatment facility for their 5,000 unit Civita development in Mission Valley; the plant would recycle water to irrigate parks, water features, and open space within the development.	Two existing onsite treatment systems and residential developer looking to implement onsite treatment within a new residential community.
SAWPA	SAWPA is a Joint Powers Authority comprised of five member agencies (Eastern Municipal Water District, Inland Empire Utilities Agency, Orange County Water District, San Bernardino Valley Municipal Water District, and Western Municipal Water District). SAWPA is responsible for the Inland Empire Brine Line (IEBL) that exports salts from the inland areas to the ocean. The brine line allows inland agencies to perform onsite treatment within the area and discharge the brines to the IEBL. There are currently industrial onsite treatment facilities within the service area that use reverse osmosis (RO) to treat wastewater for reuse. The onsite treatment facilities are subjected to fees, such as sewer service and connection fees, imposed by SAWPA. Flow rate affects sewer service fees, which are based upon owned pipeline, treatment, and disposal capacity. No standby charges are imposed for connection.	Joint Powers Authority managing discharges to a dedicated brine line.

Note:
(1) Source: Los Angeles County Sanitation Districts website: http://www.lacsd.org/wastewater/wwfacilities/default.asp

2.2.1 Sanitation Districts

Two developers in the Sanitation Districts' service area have shown interest in the possibility of implementing their own onsite treatment. These developers have set a goal of creating water-neutral communities. One of the developers, Newhall Land & Farming Company, seeks to develop a 59,000-person community west of the 5 freeway in the Santa Clarita Valley. The project had planned to use onsite treatment including biosolids treatment, so discharges to the Sanitation Districts sewer system would be avoided. The intent was that the treatment system would be owned and operated by the private party. During discussions with the Sanitation Districts in November 2015, the project's environmental impact report was rejected by the California Supreme Court, which will likely delay the project several years[1]. The other developer who has approached the Sanitation Districts intends to implement onsite treatment that would return the biosolids to the sewer. The Sanitation Districts elected to not disclose the name of this party due to the sensitive nature of ongoing negotiations. For this project, the treatment plant would be constructed, then handed over to the Sanitation Districts for operation by Sanitation District's staff.

Additionally, Miller Brewery has approached the Sanitations Districts about implementing onsite treatment. The Sanitation Districts are currently in the process of reviewing proposed flows and constituent loads from the proposed treatment system.

The Sanitation Districts currently have no official policy related to onsite treatment, but do have some general principles they use for evaluating onsite treatment plants. These principles include:

- Onsite plants are allowed under certain conditions.
- Existing users of the Sanitation Districts' system must not pay for new onsite treatment plants or subsidize their operation.
- Onsite treatment plants will not be allowed to take wastewater from existing sewers tributary to the Sanitation Districts' system if such removal impairs operation of the Sanitation Districts' system or it if impairs the Sanitation Districts' recycled water program.
- The Sanitation Districts will not operate or maintain onsite treatment plants.
- Owners/operators of onsite treatment plants must pay all appropriate Sanitation Districts' fees.
- Owners/operators of onsite treatment plants must indemnify the Sanitation Districts.
- Owners/operators of onsite treatment plants must get IW permit, or equivalent, from the Sanitation Districts.
- Owners/operators of onsite treatment plants must obtain all other required permits.
- The Sanitation Districts will specify requirements for connections to a Sanitation Districts' sewer used by an onsite treatment plant.
- The Sanitation Districts will limit materials that can be returned to the existing sewer (e.g., grit, chemicals, etc.).

[1] Source: Los Angeles Times article, *Plans for a new city in the Santa Clarita Valley hit another roadblock*, November, 30, 2015. http://www.latimes.com/local/lanow/la-me-ln-newhall-ranch-20151130-story.html

2.2.2 OCSD

All of OCSD's inflows are treated at either Plant No. 1 or Plant No. 2 with the secondary effluent from Plant No. 1 conveyed to the GWRS for purification for indirect potable reuse. Flows from the IEBL, which conveys brine flows from the inland empire to Orange County, discharges into OCSD's Santa Ana River Interceptor (SARI) and, while the flows are tributary to Plant No. 1, they are redirected to Plant No. 2 for treatment since they are not currently approved for reuse at GWRS.

Once discharged to OCSD's sewer system, all flows are owned by OCSD and treated at their own facilities. There are several industrial customers that are required to have discharge permits; OCSD restricts these discharges based on flow, biochemical oxygen demand (BOD), and total suspended solids (TSS). Total dissolved solids (TDS), however, are not monitored. The representatives have stated that Orange County does not have the types of industries that would typically produce high-strength brine discharges. They also note that the flows from each individual discharger typically comprise only a very small portion of the overall system flow, so operations would only be expected to impact the treatment and distribution system if a high-strength wastewater were to be introduced.

Fees for these industrial customers are based on: 1) service charges, 2) facility improvement capacity charges, and 3) violation charges. The service charges are proportional charges that are based on flow, BOD, and TSS. The facility improvement capacity charges are imposed based on the user's annual flow and are re-assessed each year. The funds received from these fees pay for expanding and improving OCSD's facilities and fees are imposed once a discharge exceeds 0.09 milligram per year (mg/yr). The last type of charge is a violation charge which users pay when they exceed the limits of their permit.

In 2013, the City of Anaheim started operating a small-scale water recycling plant as part of their Water Sustainability Campus. The plant treats 0.05 mgd of wastewater and is designed to be expanded to 0.1 mgd as recycled water demands increase. This plant produces recycled water that is used for irrigation and for toilet flushing, and will provide additional water for landscape irrigation when the plant is expanded.

The potential issue with development of additional onsite treatment plants in OCSD's service area is reduced wastewater flows to OCSD's treatment plants, which would result in lower flows available to recycle at GWRS. Flow impacts will need to be assessed for future onsite treatment facilities and how they might impact the implementation of the GWRS final expansion from 100 to 130 mgd.

2.2.3 San Diego

Currently, there are two onsite treatment facilities that mine sewage from the City of San Diego's sanitary sewer system to produce recycle water/treated wastewater for irrigation. The first is an onsite treatment facility/sewer mining plant at the United States Marine Corps Recruit Depot. This system, called the "Living Machine," has a design capacity of

10,000 gallons per day (gpd) and treats sewage extracted from an existing sewer line. The treatment system consists of a 7,500-gallon primary tank, a 10,000-gallon primary tank, a 2,500-gallon flow equalization tank, four tidal wetland cells (with soil media and vegetation), a dual stage filtration unit, an ultraviolet disinfection unit, a tablet chlorine contact unit, and a 5,000-gallon effluent tank. Treated effluent from the onsite water treatment system is used for subsurface irrigation of landscape.

The second is an onsite treatment plant/sewer mining facility at the border crossing station (San Ysidro Land Port of Entry), which is owned and operated by the U.S. General Services Administration (GSA). This is a membrane bioreactor (MBR) system with a treatment capacity of 50,000 gpd that is used to treat wastewater generated at the border port of entry. Treated effluent is blended with stormwater and air conditioner condensate. The blended water then undergoes ultraviolet light (UV) disinfection and is used for landscape irrigation, toilet flushing, and cooling tower make up. Both facilities are enrolled in Order WQ, 2014-0153-DWQ, State Water Board General Waste Discharge Requirements for Small Domestic Wastewater Treatment Systems[2]. The onsite treatment facilities are operated and maintained by the owners of the system and are required to have a discharge permit.

Additionally, the City of San Diego is in discussions with a developer to implement onsite treatment at a 5,000-person development in Mission Valley. The development, called Civita, would include its own treatment system to recycle water from homes and commercial buildings to be recycled for irrigation. During the planning phase, the developer has coordinated with the San Diego RWQCB to eliminate a requirement that a public entity be liable for the treatment system. In this case, the City of San Diego may permit the project without being liable for impacts of the treatment system or financial backing to maintain it.

2.3 National

Onsite treatment is utilized in a few locations throughout the country. Table 2 summarizes a few agencies throughout the nation whose experience may be helpful for LASAN.

[2] Source: State Regional Water Quality Control Board, Adopted Orders, http://www.swrcb.ca.gov/board decisions/adopted orders/water quality/2014/wqo2014 0153 dwq.pdf

Table 2 Summary of Survey Responses – National
One Water LA 2040 Plan – TM 12.5.1

Agency	Survey or Phone Response	Relevance to LASAN
City of Everett, Washington	The City of Everett Public Works provides wastewater collection and treatment services to 140,000 people with average daily flows at 18 mgd. The agency allows other entities to perform onsite treatment within their service area. Currently, several industrial onsite treatment facilities exist. The owners of these onsite treatment facilities operate and maintains the systems. The owner of the onsite treatment facility is the entity that is responsible for the quality and reliability of the water. The onsite treatment facilities are subjected to fees, such as sewer service and a standby charge for connection, imposed by the City of Everett Public Works. These facilities are also charged fees for connection that are intended to cover system buy-in.	Standby charge for connection to sewer and connection fees.
City of Henderson, Nevada	Currently 275,000 people reside within the service area of the City of Henderson. The agency provides wastewater collection and treatment services with average daily flows at 24 mgd. The City does not allow other entities to perform onsite treatment within their service area. However, if onsite facilities were to exist, the City is the entity and agency that is responsible for the quality and reliability of product water. It does not permit brine discharge. Located in Clark County, the City of Henderson, NV, has brought online an onsite treatment facility called the Southwest Water Reclamation Facility (SWRF). With a capacity of 8 mgd, it can serve approximately 30,000 homes and deliver recycled water to 9 local golf courses. The plant's effluent permit includes the goal of not more than a 400 milligrams per liter (mg/L) increase in TDS over the drinking water supply, a goal established by the Colorado River Salinity Forum(1)(2).	Does not allow onsite treatment facilities.

Table 2 Summary of Survey Responses – National
One Water LA 2040 Plan – TM 12.5.1

City of Foxborough, Massachusetts	The American Water's Applied Water Management Group operates an MBR wastewater treatment system with ozone treatment and UV light disinfection that has a treatment capacity of 1.3 mgd. The water reuse system provides wastewater treatment for the Gillette Stadium - home of the New England Patriots - and surrounding properties, including outlet stores, hotels, restaurants, etc. The system is required to conduct monthly monitoring and complete Discharge Monitoring Reports in accordance with the Massachusetts Department of Environmental Protection permits. It is becoming more and more common for sports stadiums to implement their own onsite treatment systems. The two newest California stadiums, the San Francisco 49ers' Levi's Stadium and the San Jose Earthquakes' Avaya Stadium, both have been outfitted with water reclamation systems[(3)]. Additionally, the New England Patriots' stadium has onsite treatment. Given the recent decision to construct a new stadium in Inglewood, California, the City should consider how this new development may affect their future policies and plans.	New stadium proposed in Inglewood may follow trend of other new stadiums to have onsite treatment.

Notes:
(1) Source: https://ndep.nv.gov/docs_11/henderson_fs2011.pdf
(2) Source: http://www.water-technology.net/projects/southwest-water-reclamation-facility/
(3) Source: SportsBusinessDaily, *Water conservation is nothing new for California stadiums*, April 27, 2015. http://www.sportsbusinessdaily.com/Journal/Issues/2015/04/27/Facilities/Breaking-Ground.aspx

3.0 CONCLUSION

LASAN currently treats wastewater and does not have a policy that regulates or prevents other entities from performing onsite treatment. The onsite treatment facilities are subject to fees imposed by the City. There are currently existing facilities within their service area that treat wastewater other than those owned and operated by the City. After conducting a thorough review of existing documentation, engaging local and national agencies in discussions, and distributing a survey regarding onsite treatment policies and practices, it is clear that many agencies are confronted with similar challenges regarding onsite treatment. However, very few have a definitive policy or plan that prepares for onsite treatment issues in the future. The few agencies whose experience with onsite is most applicable to LASAN are the Sanitation Districts, OCSD, and the City of San Diego. The next phase of this task will leverage the information gained from this initial research and discussions with other agencies to evaluate the impacts that onsite treatment may have on LASAN.

APPENDIX A – CONTACT LIST

Name	Agency	Position/ Role	Phone Number	Email
Leah O'Connor	Aurora, Colorado			loconnor@auroragov.org
Richard Leger	Aurora, Colorado			rleger@auroragov.org
Jacqueline Koontz	Central Basin	Interim Engineering & Operations Manager	323.201.5528	jacquelineb@centralbasin.org
Cynthia Sparza	City of Escondido		730.839.4257	
Paul Gielgens	City of Henderson		702.267.2700	paul.gielgens@cityofhenderson.com
Rosemary Hoerning	City of Upland	Public Works Director	909.291.2930	rhoerning@ci.upland.ca.us
Armando Rodriguez	Coachella Valley Water District	Senior Sanitation Engineer	760-398-2661 X2365	arcivil@yahoo.com
Mark Johnson	Coachella Valley Water District	Director of Engineering	760.398.2651	Mjohnson@cvwd.org
Gregg Murray	Eastern Municipal Water District	Source Control Manager	951.928.3777 X6216	murrayg@emwd.org
Paula Clowar	Encina Wastewater Authority	Administrative Assistant	760.438.3941	pclowar@encinajpa.com
Michael Setinlicht	Encina Wastewater Authority	Assistant General Manager	760.438.3941	msetinlicht@encinajpa.com
Dennis Sperino	Escondido	Deputy Director of Utilities	760.839.6290	dsperino@ci.escondido.ca.us
Ernest Yeboah	Inland Empire Utilies Agency	Executive Manager of Engineering	909.993.1600	eyeboah@ieua.org
Martha Davis	Inland Empire Utilies Agency	Executive Manager of Policy Development	909.993.1600	mdavis@ieua.org
Shaun Stone	Inland Empire Utilies Agency	Manager of Engineering	909.993.1695	sstone@ieua.org
Steve Malloy	Irvine Ranch Water District	Principal Engineer	949.453.5548	malloy@irwd.com
Brian Topoloski	Lacey, Olympia, and Tumwater and Thurston County (LOTT), Washington			briantopolski@lottonline.org
Michael D. Strub	Lacey, Olympia, and Tumwater and Thurston County (LOTT), Washington			mikestrub@lottonline.org
Carlos Borja	Los Angeles County Department of Public Health	Chief Environmental Health Specialist	626.430.5293	caborja@ph.lacounty.gov
Jodie Lanza	Los Angeles County Sanitation District	Senior Engineer	562.908.4288, X2707	jlanza@lacsd.org
Monica Gasca	Los Angeles County Sanitation District	Civil Engineer	562-908-4288, X2838	mgasca@lacsd.org
Roya Sohanaki	Orange County Sanitation District	Engineering Supervisor	714.593.7437	rsohanaki@ocsd.com
Jim Spears	Orange County Sanitation District	Operations Manager	714.593.7081	jspears@ocsd.com
Brandi Outwin-Biel	RWQCB San Diego	Unit/Program Supervisor for NPDES Permitting	619-521-5896	Boutwinbeals@waterboards.ca.gov
John Odermatt	RWQCB San Diego		619.521.5906	jodermatt@waterboards.ca.gov
Sisayo Osibodu	RWQCB San Diego		619.521.8036	sosibodu@waterboards.ca.gov
Roger Mitchell	RWQCB San Diego		619.521.5898	rmitchell@waterboards.ca.gov
Cheryl Lester	San Diego	Director of Public Utilities	858.292.6447	clester@sandiego.gov
Karen XXX	SAWPA	Brine Line Rate Specialist	951.354.4231	
Michael Plasencia	SAWPA	Senior Pretreatment Program Specialist	951.354.4232	mplasencia@sawpa.org
Richard Haller	SAWPA	Exec. Manager of Engineering & Operations	951.354.4240	rhaller@sawpa.org
John Scarpulla	SFPUC			jscarpulla@sfwater.org
Terry Leckie	Sydney Harbor Foreshore Authority/ Blue Sky Consulting			terry@blueskyconsult.com.au
Kurt Dahl	Sydney Water, North Sydney, Australia/ Permeate Partners			kurt@permeate.com.au
Tammy Martin	Western Municipal Water District	Engineering Tech. 2, Development Services Dept	951.571.7100	tmartin@wmwd.com
Ben Burgett	Western Municipal Water District	Source Control Manager	951.571.7228	bburgett@wmwd.com

APPENDIX B – PHONE LOG

Name	Agency	Location	Position/ Role	Summary of Coordination	Notes
Jacqueline Koontz	Central Basin	California	Interim Engineering &	Left voicemail on 11/23/15.	According to their website, they serve many industrial customers.
Rosemary Hoerning	City of Upland	California	Public Works Director	Left voicemail on 11/23/15.	
Armando Rodriguez	Coachella Valley Water District	California		Spoke with on 11/23/15.	There are no on-site treatment plants in the area; there is no policy. The closest such thing is mobile home parks that discharge to lagoons ("Down East Valley"?), or small communities with septic systems. There are very few industrial facilities in the service area; none are greater than 10,000 sq. ft and none are meat processing or similar. Armando suggested reaching out to Central Basin, because they industrial meat producers within their service area are large and do reuse and treat their own water.
Mark Johnson	Coachella Valley Water District	California	Director of Engineering	Levt voicemail on 11/23/15. Spoke with on 12/1/15.	As an all-inclusive agency that serves six functions, (domestic water, WW, RW, irrigation/ drainage, SW, and groundwater recharge), CVWD touches many aspects of water use within their service area. Over 100 golf courses. Of their 6 WW plants, 3 produce RW. Some golf courses receive a blend of imported water with RW. At times in the past, someone may mention they want to get into the wastewater business. However, realization of the regulatory obstacles and costs with operating a treament system have scared away potential candidates. Mark stressed that, in general, regulators do not want to see more utilities. CVWD is currently developing a recycled water master plan to get as many golf courses as possible off of groundwater (and imported water). They plan to extend RW to another 20-30 golf courses. However, this is not a feasible option for come golf courses or other customers that are not located near to an existing recycled water pipe or treatment system.
Gregg Murray	Eastern Municipal Water District	California	Source Control Manager	Called on 12/7/15; did not get through. Spoke with on 12/15/15.	Eastern has no policy for on-site treatment. There are several dischargers that recycle water on site. Gregg believes all of them discharge their waste to the SAWPA brine line. There is one industrial manufacturer within their service area (a microchip manufacturer in Temecula) that has several stages of recycling on site and discharges ~35,000 mg/L brine via truck to SAWPA's SARI line. The local limit to the collection system for all 4 of their treatment plants is 2,200 mg/L TDS for any user discharging 250 lbs/day or less, and for those over 250 lbs/day they are held to 250 mg/l TDS over the source water which is pretty restrictive. Being land locked, TDS is our biggest issue and we are constantly bumping up against our discharge limit. Most industry that generates a high TDS wastewater, we recommend they either connect directly or truck to our Brine Line trucked waste collection station.
Tammy Martin	Western Municipal Water District		Engineering Tech. 2, Development Services Dept	Called on 12/7/15; did not get through. Spoke with on 12/16/15.	Western does not have on-site treatment plants in their service area. There is 1 brewery in their Murriet service area that is requesting to perform on-site treatment; it is coming online now and is a restaurant/ brewery called the "Downtown Public House". The Source Control Department (Ben Burgett: 951.571.7228) can give nore information. They will send out an industrial waste survey, receive plans, request the TDS concnetration and standard operating procedures. Another brewery has inquired about expected fees, but has not pursued on-site treatment any further.
Ben Burgett	Western Municipal Water District		Source Control Manager	Left voicemail on 12/178/15.	
Paula Clowar	Encina Wastewater Authority	California	Administrative Assistant	Spoke with on 12/4/15.	May have municipal scalping plants in Carlsbad and/or Vista. Board, joint power authority. Do separate billings to the mmeber agencies. Vallecitos pays Encino for solids/ flow SS and BOD. Leucadia does the same. City of Carlsbad is an owner as well. Carlsbad recycling water authority...Encino. Assistant general manager would be a good person to speak with. She will Hollandia Dairy does some of their own treatment, as well as Stone Brewery....has to treat their waste.
Michael Setinlicht	Encina Wastewater Authority	California	Assistant General Manager	Left voicemail on 12/4/15.	

Name	Agency	Location	Position/ Role	Summary of Coordination	Notes
TBD	EVWD	California		Have not contacted.	
Ernest Yeboah	IEUA	California	Executive Manager of Engineering	Left voicemail on 11/20.	
Martha Davis	IEUA	California	Executive Manager of Policy Development	Left voicemail on 11/20.	
Shaun Stone	IEUA	California	Manager of Engineering	Left voicemail on 12/4/15.	
Steve Malloy	IRWD	California	Principal Engineer	Left voicemail on 11/23. Left voicemail on 12/4/15. Returned voicemail on 12/14/15.	IRWD does not have instances of satellite treatment within their service area; he does not expect he will be of any help with this effort.
Jodie Lanza	LACSD	California	Senior Engineer	Spoke with on 11/24/15.	Nobody who has been on recycled water, then create their own. But, in Foothill water district, there has been a couple putting scalping plants up there…4 or 5 of them. But, all except 1 had flows going to San Jose Creek (for which the contract is for), so did not pursue. Basically, that one was within foothill municipal service water district area. Some of the pumpers in that area, so management of water district. But ,did pursue the others. Pursued feasibility and cost...ran into political problems. A couple developments in Santa Clarita...new developments, water agencies...need to be water neutral communities. One of them will basically be having their own biosolids treatment/ everything treatment. Newhall Ranch? For the other case, they would only be sending down the solids. What they are proposing is so small, that they do not foresee any issues. Still negotiating. For one of the communities, the treatment plant would be handed over to one of the new sanitation districts...LACSD staff would be operating. For the other one, though, LACSD does not want to be involved because it will be constructed by a developer third party. Imposing fees? Still ongoing. Industrial group: Miller Brewery...different categorical limits, look at strengths and flows. Claremont colleges were looking for a scalping plant…Taking flow before it reaches pipelines and doing centralized treatment for their turf/ irrigation…had a grad student working on it.
Monica Gasca	LACSD	California	Civil Engineer	Spoke with on 11/24/15.	Was not aware of on-site treatment implications for LACSD; referred me to Jodie Lanza.
Carlos Borja	Los Angeles County Department of Public Health	California	Chief Environmental Health Specialist	Called on 12/4/15; could not reach voicemail.	

Name	Agency	Location	Position/ Role	Summary of Coordination	Notes
TBD	Monterey	California		Have not contacted.	
Cari Dale	Oceanside	California	Utilities Director	Have not contacted.	Per Tom Falk: Oceanside has pre-treatment ordinance for several pharmaceutical companies, but likely do not have any on-site treatment.
Roya Sohanaki	Orange County Sanitation District	California	Engineering Supervisor	Spoke with on 12/15/15.	OCSD does not have any entities in their service are that mine the sewers for their own recycled water; once flows enter the sewers they are owned by OCSD. Some agencies have their own on-site treatment, such as IRWD, which operates a sewer mining reuse plant. However, Roya is not aware of agencies that allow private users to do the same. Some dischargers are required to have permits; some are not. Some permits are from local agencies; others are national. OCSD restricts discharges based on flow, BOD, and TSS. TDS is not monitored, nor is it a regulated constituent for this. However, Roya is sure there are some dischargers with fairly high concentrations of TDS. However, she believes Orange County does not have the types of industries that would typically produce high-strength brines. Fees are based on service charges (BOD, TSS, and volume), excess capacity charges or "facility improvement capacity charges" (These pay for the cost of expanding and improving the facilities and are based on annual flow, adjusted each year. If a user's flow goes down, the fee also goes down. There is a floor of 0.09 mg/year for this fee.), and violation charges (Based on violation; this is an administrative fee.). Specific discharges have very little impact on operations, unless a slug of high-strength discharge is added to the system. Suggested I spedk with Jim Spears, Operations manager, regarding operations: 714.593.7081.
Jim Spears	Orange County Sanitation District		Operations Manager	Have not contacted.	All of OCSD's inflows come into one of two plants; the treated water is then sent to OCSD. OCSD does not have upstream industrial sites, nor do they have users who take from the sewer, treats, then discharge. OCSD does, however, have relationships with IRWD to take their solids following treatment, but this seems to be a different issue. Jim assumes that if an on-site treatment plant were to be brought online, the operator would pay the City a fee for using its sewer flows. The SARI line comes into Plant 1, and is then diverted to Plant No. 2 for treatment. Certain segments of the SARI line ("String fellow lines"?) have high mineral and salt content and have seen some particulation. SARI is not brought into plant 1 because of the high mineral/ TDS. The concern is that it impacts OCWD next door. So, it is not currently deemed fit for reuse by the regulators. They are testing the water now; are in the process of determining if they can reuse 100% of their wastewater. So, their challenge is to treat the SARI flows completely separately, or work with government agencies to validate the treatability/ usability of these flows. Upstream on the SARI line, there are treatment systems to remove some of the salinity through desalination. TDS from the SARI line is primarily from inorganics, but TDS from a on-site treatment could be primarily from organics, which could cause concern for treatability. Would be inclined to set up a conference call or face-to-face meeting with his team to discuss further.
Karen XXX	SAWPA	California	Brine Line Rate Specialist	Left voicemail on 12/4/15.	
Michael Plasencia	SAWPA	California	Senior Pretreatment Program Specialist	Left voicemail on 11/20/15. Spoke with on 11/23/15.	• SAWPA has WWTPs, but none owned by SAWPA. • No, there are not on-site treatment plants. • IE and Western have treatment, which ends up in Orange County. • SAWPA is only able to take brine waste within jurisdiction.

Name	Agency	Location	Position/ Role	Summary of Coordination	Notes
Richard Haller	SAWPA	California	Exec. Manager of Engineering & Operations	Left voicemail on 12/4/15. Spoke with on 12/7/15.	SAPWPA has approximately 100 industrial discharges to the Santa Ana Regional Interceptor (SARI) brine line, but no municipal dischargers. The quantity and quality of discharges to the brine line vary by discharger, by time of day/ month/year, and by location. Operational concerns include pipe corrosion, scale accumulation, emergence of hydrogen sulfide, and solids accumulation. As the value of water has increased over recent years, more and more dischargers are performing their own on-site treatment. As a result, the discharges to the SARI line have had more variable flow and increased constituent loading. There are several reverse osmosis desalting plants that discharge to the SARI line; these have a relatively high TDS concentration and in some cases have led to appreciable scale accumulation within the pipe. In one case, an antiscalant feed system was installed (Fall 2015) at the discharge point of a desalter to minimize scale formation downstream. In this instance, the discharger was the sole discharger for a segment of pipe 4 miles long and the discharge from their reverse osmosis (RO) brine was causing scaling along this reach. The majority of dischargers have direct connections to the SARI, but there are some that truck their wastewater to four collection points that feed into the brine line. Richard noted that it is not uncommon for one of their dischargers to have reliability issues. He stressed that for some of these industrial customer the costs of appropriately upkeeping their pretreatment system may not be their top priority. In some cases, this inattention to maintenance leads to additional fees that could negate the savings of the pretreatment system. SAWPA requires advanced notice in the event of a planned shut-down. Also, it requires immediate notice in the event of a unplanned or emergency shut-down. SAWPA had considered whether connections tot its SARI line would have an isolation valve or not; the addition of a valve would require physical action to discharge flows in the event of an unplanned shut-down, which can help to limit what is discharged to the SARI line. SAPWA allows overflows to happen. SAWPA noted that fees are based on four factors: 1) Fixed charge based on percent capacity ownership insystem 2) Flow (MG/month), 3) TSS load (lb/month), and 4) BOD load (lb/month). The fixed charge makes the group similar to a co-op; each connected discharger is a part-owner, proportional to how much capacity they own in the line. All capacity in the SARI line has been purchased. SAWPA has purchased 17 MGD of treatment capacity from OCSD and has an agreement in place to purchase an additional 13 mgd of treatment capacity if necessary (to match the pipe capacity of 30 mgd). For Los Angeles Sanitation, Richard stressed that ultimately the public agency is responsible for pre-treatment for the welfare of the environment. Dischargers who truck in their waste do not have ownership in the system; as a result they pay higher proportional fees. If new costs arise, such as the antiscalant system mentioned previously, SAPWA first attempts to identify if they are attributed to the activites of a specific discharger and allocate fees appropriately. If the costs are attributed to system-wide issues, then the costs are incurred by all users. As flows are conveyed toward OCSD, the water quality sometimes changes. In many cases, BOD concentrations decrease along the brine line (attributed to de facto "in-pipe treatment") and TSS concentrations increase . Also, infiltration and intrusion lead to conditions where discharges to the system sometimes do not equal flows delivered to OCSD. These changes create a disconnect between what OCSD charges SAWPA and what SAWPA charges its dischargers. Ultimately, SAWPA's intent it to develop fair pricing strategies such that they collect $1 for every $1 they are billed. In response to increase levels of hydrogen sulfide, SAWPA has required its operators be trained and have CWEA certification. Richard noted that it is unlikely that multiple dischargers will have emergency shut-downs at the same time (barring a region-wide catastrophe), so there may be potential to have a "reserve pool". It is important to have good procedures in place to notify the necessary people and entities in the event of an emergency or a shut-down. Richard noted that the increasing value of water has incentivized some customers to insstall treatment systems hoping they will receive some credit for increasing water reuse. He stressed that the recent popular solar power or turf removal incentives have popularized the idea that if a person or industry does something to improve the environment, they will receive something in return from the government. It will be important for LASAN to evaluate whether it is more to perform treatment at a regional scale or a local scale. SAWPA monitors hydrogen sulfide concentration along the SARI line. All pipe is T-lock lined RCP or HDPE or clay, which is non-corrosive. Richard said he will forward a sample copy of agreement (about 100 total between dischargers).

Name	Agency	Location	Position/ Role	Summary of Coordination	Notes
John Scarpulla	SFPUC	California		Spoke with on 11/16/15.	SFPUC has a new mandate regarding mandatory onsite water reclamation systems (primarily residential and commercial rainwater capture and grey water treatment/ storage). Back in 2010/2011, SFPUC provided allowance for users to perform rainwater harvesting in a voluntary basis. Until now, there has been no regulatory framework for rainwater harvesting. In total, 34 projects had gone through the voluntary rainwater harvesting program; 30 ofthem included rainwater capture). More recently, the board of supervisors were inspired by the success of the voluntary program and as of Nov. 1 2015 made it mandatory for certain users . The requirement is that rainwater and gray water must be used to meet toilet flushing and irrigation demands to the extent possible. This does not require treating toilet waste flows for re-use (i.e. "black water"). SFPUC's system is unique becuase they have a combined storm/ sewer system. The only site within SFPUC's system that currently performs reuse of "blackwater" is the SFPUC headquarters. However, a couple others, incluidng AnchorSteam brewery, may begin performing this form of treatment. Anchor Stream plans to open a new large brewery on Pier 48, which is on the San Francisco Bay directly across from AT&T Park. John indicated that the challenge for SFPUC will be to determine which standard indistrual classification (SIC) codes would be most appropriate for the new discharges and treatment systems. For example, are the flows most similar to a car wash, golf course, amusement park, etc? They will also be considering a new SIC code. He expects the rates to be set by the water meter size and SIC code, but not be constituent loads. John indicated that Lagunitas Brewery in Petaluma currently uses a reuse treatment process, which has allowed them to reduce discharge flows from a 7:1 water-to-brew ratio to 2.5:1. Representatives from Anheuser-Busch have been on previous conference calls with Lagunitas Brewery. The new SFPUC requirements are based from details in the new plumbing code, specifically Chapters 16 (Graywater) and 17 (Rainwater).
Leah O'Connor	Aurora, Colorado	Other		Have not contacted.	
Richard Leger	Aurora, Colorado	Other		Have not contacted.	
TBD	Cleanwater Service	Other		Have not contacted.	
TBD	Foxborough Board of Water and Sewer	Other		Have not contacted.	
Brian Topoloski	Lacey, Olympia, and Tumwater and Thurston County (LOTT), Washington	Other		Have not contacted.	
Michael D. Strub	Lacey, Olympia, and Tumwater and Thurston County (LOTT), Washington	Other		Have not contacted.	
TBD	MAWSS, Mobile, Alabama	Other		Have not contacted.	
TBD	Rwanda Utilities Regulatory Agency	Other		Have not contacted.	
Terry Leckie	Sydney Harbor Foreshore Authority/ Blue Sky Consulting	Other		Have not contacted.	http://www.werf.org/c/Decentralizedproject/Workplace6.aspx

Name	Agency	Location	Position/ Role	Summary of Coordination	Notes
Kurt Dahl	Sydney Harbor Foreshore Authority/ Permeate Partners	Other		Have not contacted.	http://www.werf.org/c/Decentralizedproject/Workplace6.aspx
Kurt Dahl	Sydney Water, North Sydney, Australia/ Permeate Partners	Other		Have not contacted.	
Dennis Sperino	Escondido		Deputy Director of Utilities	Left voicemail on 12/17/15.	Stone Brewery has pre-treatment system; discharges to brine line. Alternative contacts: Jim Larzelier or Christopher McKinney (Director of Utilities).
Cheryl Lester	San Diego		Director of Public Utilities	Left voicemail on 12/17/15. Left another voicemail on 1/11/16. Spoke with on 1/29.	The City of San Diego currently has onsite treatment plants that are owned and operated by public agencies. The treatment system consisting of the Point Loma, North City, and South Bay treatment facilities was reviewed by the State Water REsources Control Board, who assessed that all three facilities operate as a joint satellite system. As such, in March 2015 the SWRCB required that one head operator cover all three plants. It has been a challenge for San Diego to identify a capable and willing person to take on this complex role, especially considering the City's salary restrictions. There have been several homeowner's associations desiring to install their own packaged on-site treatment systems. The largest, a developer for a 5,000-unit development in Mission Valley called Civita, has already taken steps with the RWQCB to bring their plant online. In these instances, solids would be discharged to the City's system, which may lead to increased challenges in primary and secondary treatment as well as odor concerns. San Diego certainly plans to charge fees for the solids discharged from onsite treatment systems, but may also change for other items such as dissolved sulfides. These decisions are still to be determined; the City needs to closely review their municipal code to see what there options are. Cheryl mentioned that around 2012, the RWQCB held an esteemed panel to investigate the impact brine may have on water reclamation treatment sytsems. This study investigated issues including allowable levels of salinity in treated biosolids. San Diego has been working in the past few yeras to mitigate sulfides in their collection system and headworks. They have been working with a vendor, US Peroxide, using a patented process called PRISK, to apply ferrous sulfide with hydrogen peroxide at strategic points in the system. This technology attempts to scavenge sulfide molecules and bind them to minimize the formation of hydrogen sulfide gas, which can cause odor concerns and corrode equipment in the collection system. In instances where the existing sewer pipes may have excess capacity, the City is also considering a pipe-in-pipe configuration to remediation existing lines that may be failing or prone to failure. Cheryl would be glad to have her team meet with WEF, Orange County, or other agencies to discuss this issue on a regional level. Alternative contact: Craig Boyd 858.654.4433.
Brandi Outwin-Biel	RWQCB San Diego		Unit/Program Supervisor for NPDES Permitting	Left voicemail on 12/17/15. Left another voicemail on 1/11/16. Spoke with on 1/11/16.	May have input regarding the Civita project. She oversees the NPDES part; the person to talk to would be John Odermatt (619.521.5906). Don't know of an example where they have allowed it; don't know when anyone has asked for it. It may be a legal interpretation of the clean water act.

Name	Agency	Location	Position/ Role	Summary of Coordination	Notes
Cynthia Sparza	City of Escondido			Left voicemail on 1/11/16.	
John Odermatt	RWQCB San Diego			Called on 1/11/16; did not get through, but his voicemail gave three other contact numbers.	Amy Grove 619.521.3920. Septic/recyecled water/wastewater: Sisayo Osibodu 619.521.8036. Conditional waivers: Roger Mitchell 619.521.5898.
Sisayo Osibodu	RWQCB San Diego	Septic/recyecled water/wastewater		Spoke with on 1/11/16.	Has not yet received a permit yet from the developer. But, the old basin plan had language that alluded to the fact that community treatment plants had to be operated by a public entity. But, now they clarified that it does not need to. It's been approved by the board, but just needs to be adopted by OAL (office of administrative law). The concern in the past felt that public entities could ensure financial solvency, but they don't feel that way any more. More confidence now that private entity could demonstrate such financial backing. New permit may require financial backing info and/or. They can't legally require that a public entity operates a plant. Different attorneys have different views on this, but he has heard this opinion. This is not really a publicly-owned...they have a small recycling plant for a retirement community...it is in Valley Center...used to be run by the water district, but now lets a private entity.
Roger Mitchell	RWQCB San Diego	Conditional waivers		left voicemail on 1/11/16.	
Paul Gielgens	City of Henderson		Wastewater Manager	Left voicemail on 1/12/16. Spoke with on 1/15/16.	Located in Clark County, the City of Henderson, NV, has brought online a satellite wastewater treatment plant called the Southwest Water Reclamation Facility (SWRF). With a capacity of 8 mgd, it can serve approximately 30,000 homes and deliver recycled water to 9 local golf courses. The plant's effluent permit includes the goal of not more than a 400 mg/L increase in Total Dissolved Solids (TDS) over the drinking water supply, a goal established by the Colorado River Salinity Forum.

APPENDIX C – ONSITE TREATMENT SURVEY

Default Question Block

Name

Organization

Role/ Title

Email Address

Phone Number

Does your agency treat wastewater?

How many people live in your service area?

What is the average daily flow of wastewater in your service area (mgd)?

Does your agency allow other entities to perform on-site treatment within your service area? Examples of this can include industrial pre-treatment, or sewer "mining" to develop recycled water where a purple pipe is not available.

Are there any existing facilities within your service area that treat wastewater other than those owned and operated by your agency (i.e. on-site treatment facilities)?

Please indicate the type of on-site treatment facility and feel free to add a comment.

Please describe how the on-site treatment facility is owned and operated. Feel free to use the text boxes to give more details or clarify the details of the on-site treatment facility in your area.

Please describe which entity is responsible for the quality and reliability of the product water from the on-site treatment facility

Please describe which agency is responsible for the product water (quality, reliability, etc.).

Please describe the on-site treatment facilites within your service area (plant name, location, capacity, treatment systems used, etc)

Do you impose fees for the on-site treatment facilities within your service area?

Do you impose a sewer service fee?

Does your agency charge connection fees? If yes, what services are these fees intended to cover (e.g. incremental cost of providing new service, system buy-in, etc.)?

Do you impose a standby charge for connection?

Would the standby charge continue to be imposed if the treatment system were not in operation?

Does your agency permit brine discharges(i.e. >10,000 TDS)?

Please describe the factors that affect the sewer service fee, along with any maximum limits on concentration.

Are the on-site treatment facilities required to have a discharge permit?

Please describe some of the key constraints in the discharge permit and the typical water quality.

Have the discharges affected operations at your facilities? For instance: increased hydrogen sulfide concentration, odors, scale formation/ crystallization, or corrosion?

Have the discharges had any negative effects on your infrastructure? For instance: reduced lifetime of pipes or need to add new equipment?

Please provide any other information you have regarding land ownership, financing, treatment, permitting, or project drivers of on-site treatment within your service area.

APPENDIX D – SURVEY RESPONSES

Row No.	Start Date	End Date	Name	Organization	Role/Title	Email Address	Phone Number	Does your agency treat wastewater?
1	2/9/2016 14:22	2/9/2016 14:36	Lisa Reynolds	Alexandria Renew Enterprises	Regulatory Affairs Officer	lisa.reynolds@alexrenew.com	703-549-3381	Yes
2	2/7/2016 13:50	2/7/2016 13:55	andrew kricun	camden county mua	executive director	andy@ccmua.org	856-583-1223	Yes
3	1/19/2016 10:28	1/19/2016 10:30	Richard Leger	City of Aurorora	Treatment Plant vSupervisor	rleger@auroragov.org	303-326-8362	Yes
4	2/1/2016 7:23	2/1/2016 7:28	John McClellan	City of Everett Public Works	Operations Superintendent	jmcclellan@everettwa.gov	425-257-8800	Yes
5	1/20/2016 6:41	1/20/2016 6:44	Howard Analla	City of Henderson, Utility Services	Vastewater Operations Manag	ward.analla@cityofhenderson.c	702-267-2747	Yes
6	2/3/2016 10:03	2/3/2016 10:20	Marla Dalton	City of Raleigh	Environmental Coordinator	marla.dalton@raleighnc.gov	9199963672	Yes
7	2/3/2016 10:21	2/3/2016 10:37	Marla Dalton	City of Raleigh	Environmental Coordinator	marla.dalton@raleighnc.gov	9199963672	Yes
8	1/20/2016 10:42	1/20/2016 10:45	Rosemary Hoerning	City of Upland	Public Works Director	rhoerning@ci.upland.ca.us	9092912931	No
9	1/18/2016 9:03	1/18/2016 9:53	Armando Rodriguez	Coachella Valley Water District	Engineering Manager	arodriguez@cvwd.org	760-398-2661	Yes
10	2/1/2016 8:27	2/1/2016 8:28	Steve davis	Columbus Water Works	Pres			Yes
11	1/18/2016 6:54	1/20/2016 10:03	Gregg Murray	Eastern Municipal Water District	Source Control Manager	murrayg@emwd.org	951-928-3777 ext. 6216	Yes
12	1/15/2016 18:33	1/15/2016 18:37	Chris Berch	Inland empire utilities agency	AGM	Cberch@ieua.org	9099931762	Yes
13	2/2/2016 14:02	2/2/2016 14:18	Jeff Noelte	Inland Empire Utilities Agency	Mgr of Technical Services	jnoelte@ieua.org	909-993-1912	Yes
14	1/18/2016 8:52	1/20/2016 15:35	Steve Malloy	Irvine Ranch Water District	Principal Engineeer	malloy@irwd.com	949-453-5695	Yes

Row No.	How many people live in your service area?	What is the average daily flow of wastewater in your service area (mgd)?	Does your agency allow other entities to perform on-site treatment within your service area? Exam...	Are there any existing facilities within your service area that treat wastewater other than those...	Please indicate the type of on-site treatment facility and feel free to add a comment.	Please indicate the type of on-site treatment facility and feel free to add a comment.-TEXT
1	350,000	34 mgd	Yes	Yes	Industrial	settling tank
2	510	60	Yes	Yes		
3	350,000	35	No			
4	140,000	18 mgd	Yes	Yes	Industrial	
5	275,000	24	No			
6	530,000	50 mgd	Yes	Yes	Industrial	
7	530,000	50 mgd	Yes	Yes	Industrial	
8			Yes	No		
9	272,357	17.21				
10						
11	500,000+	46+ mgd	Yes	Yes		
12	830,000	50	Yes	No		
13	750,000	55	Yes	Yes	Industrial	Most industries in our services area discharge to a sewere dedicated to industrial discharges that we don't want at our municipal wastewater plants (usually due to high TDS). Many industries have on-site treatment to reduce loading and fees associated with their discharge requirements.
14	320,000	25	No			

Row No.	Please describe how the on-site treatment facility is owned and operated. Feel free to use the te...	Please describe how the on-site treatment facility is owned and operated. Feel free to use the te...-TEXT	Please describe which entity is responsible for the quality and reliability of the product water...	Please describe which agency is responsible for the product water (quality, reliability, etc.).
1	The owner operates and maintains the system.	Waste to energy plant uses water from settling tank as quench water as part of an industrial pre-treatment program	owner	owner
2				
3			City of Aurora	City of Aurora
4	The owner operates and maintains the system.		Owner	City of Everett
5			City of Henderson	City of Henderson
6	The owner operates and maintains the system.			
7	The owner operates and maintains the system.		Owner	Owner
8				I.E.U.A.
9			Colorado River Regional Water Quality Control Board	Colorado River Regional Water Quality Control Board
10				
11				
12			Ieua	Ieua
13	The owner operates and maintains the system.	The on-site treatment system may be needed to meet water quality requirements or to reduce loadings that determine discharge fees.	the owner is responsible for meeting the permit conditions	Our agency (IEUA) is the regulatory body that enforces permit compliance
14			IRWD Operations Dept.	RWQCB-Santa Ana & San Diego; DDW

Row No.	Please describe the on-site treatment facilites within your service area (plant name, location, c...	Do you impose fees for the on-site treatment facilities within your service area?	Do you impose a sewer service fee?
1	No on-site treatment specifically for production of recycled water	Yes	Yes
2			
3			
4		Yes	Yes
5			
6			
7	16 Significant Industrial Users located in Raleigh, NC service area, capacity = 4.125 mgd permitted flow, treatment = biological, physical/chemical metals removal, and pH neutralization	Yes	Yes
8			
9			
10			
11			
12			
13		Yes	Yes
14			

Row No.	Does your agency charge connection fees? If yes, what services are these fees intended to cover (...	Does your agency charge connection fees? If yes, what services are these fees intended to cover (...-TEXT	Do you impose a standby charge for connection?	Would the standby charge continue to be imposed if the treatment system were not in operation?	Would the standby charge continue to be imposed if the treatment system were not in operation?-TEXT
1	No		No		
2					
3					
4	Yes	system buy-in	Yes		
5					
6					
7	Yes	cost of new service determined by size	No		
8					
9					
10					
11					
12					
13	Yes	fees are intended to cover cost of service	Yes	Yes	Industrial dischargers have to pay for "capacity units"
14					

Row No.	Does your agency permit brine discharges(i.e. 10,000 TDS)?	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TSS (mg/L)	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TSS (mg/L)-TEXT	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-BOD (mg/L)	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-BOD (mg/L)-TEXT
1	No				
2					
3	No				
4					
5	No				
6					
7	No	TSS (mg/L)	250	BOD (mg/L)	300
8					
9	No				
10					
11					
12	No				
13	Yes				
14	No				

Row No.	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Flow Rate (mgd)	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Flow Rate (mgd)-TEXT	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TDS	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TDS-TEXT	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Other
1	Flow Rate (mgd)				
2					
3					
4					
5					
6					
7	Flow Rate (mgd)	0.025			Other
8					
9					
10					
11					
12					
13					
14					

Row No.	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Other-TEXT	Are the on-site treatment facilities required to have a discharge permit?	Please describe some of the key constraints in the discharge permit and the typical water quality.	Have the discharges affected operations at your facilities? For instance: increased hydrogen sulf...	Have the discharges affected operations at your facilities? For instance: increased hydrogen sulf...-TEXT	Have the discharges had any negative effects on your infrastructure? For instance: reduced lifeti...
1		Yes	significant industrial users are required to have an industrial pretreatment permit with limitations on flow, pH and pollutants of concern			
2						
3						
4						
5						
6						
7	TN = >30 mg/L, TP = >5 mg/L	Yes	BOD, TSS, TN, TP, pH, Daily Flow, Metals, Toxic Organics / Water quality varies by industry	No		
8						
9						
10						
11						
12						
13		Yes		No	Industrial discharges are to a dedicated sewer that takes the flow out of our service area.	
14						

Row No.	Have the discharges had any negative effects on your infrastructure? For instance: reduced lifeti...-TEXT	Please provide any other information you have regarding land ownership, financing, treatment, per...
1		
2		
3		
4		
5		
6		
7		We permit our industries but do not have industries that create their own reuse quality water. Industrial pretreatment is performed on various levels to protect the interests of the City of Raleigh Resource Recovery Program and its stakeholders.
8		Sewer Treatment and Recycled Water Reuse is performed in accordance with a regional sewerage service contract with I.E.U.A.
9		
10		
11		
12		Local agencies and industries have right and ability to treat and recycle water - several have evaluated opportunity, nothing significant is currently operated. The city of upland shut down a facility and recently, a private industry just transferred wastewater treatment to ieua.
13		
14		

Row No.	Start Date	End Date	Name	Organization	Role/Title	Email Address	Phone Number	Does your agency treat wastewater?
15	1/20/2016 10:01	1/20/2016 10:08	Carlos Borja	LA County Public Health	Regulator / Chief	caborja@ph.lacounty.gov	323 8429638	No
16	2/4/2016 11:05	2/4/2016 11:08	Martha Tremblay	LACSD	ASSISTANT DEPARTMENT HEAD	MTREMBLAY@LACSD.ORG	5626997411	Yes
17	12/16/2015 13:39	12/16/2015 13:40	Denise Chow	LASAN	ENV Ass	denise.chow@lacity.org	3233421564	Yes
18	2/4/2016 13:14	2/4/2016 13:31	Monica Gasca	Los Angeles County Sanitation Districts	Civil Engineer	mgasca@lacsd.org	562-908-4288 x2838	Yes
19	2/4/2016 13:33	2/4/2016 13:40	Monica Gasca	Los Angeles County Sanitation Districts	Civil Engineer	mgasca@lacsd.org	562-908-4288 x2838	Yes
20	2/4/2016 12:40	2/4/2016 13:08	Monica Gasca	Los Angeles County Sanitation Districts	Civil Engineer	mgasca@lacsd.org	562-908-4800 x2838	Yes
21	1/21/2016 14:27	1/21/2016 14:40	Roya Sohanaki	OCSD	Engineering Supervisor	rsohanaki@ocsd.com	(714)593-7437	Yes
22	1/19/2016 14:09	1/19/2016 14:12	Umesh Murthy	Orange County Sanitation District	Engineering Supervisor	umurthy@ocsd.com	7145937323	Yes

Row No.	How many people live in your service area?	What is the average daily flow of wastewater in your service area (mgd)?	Does your agency allow other entities to perform on-site treatment within your service area? Exam...	Are there any existing facilities within your service area that treat wastewater other than those...	Please indicate the type of on-site treatment facility and feel free to add a comment.	Please indicate the type of on-site treatment facility and feel free to add a comment.-TEXT
15			Yes	Yes		
16	5.5 million		No			
17			Yes	Yes		
18	5.5 million	441.20 mgd (2014)	Yes	Yes	Industrial	
19	5.5 million	441.20 mgd (2014)	Yes	Yes	Industrial	
20						
21	2.3 Million	200 mgd	Yes	Yes	Industrial	Some of the industrial facilities recyle and reuse process water
22	2.5 million	185	No			

Row No.	Please describe how the on-site treatment facility is owned and operated. Feel free to use the te...	Please describe how the on-site treatment facility is owned and operated. Feel free to use the te...-TEXT	Please describe which entity is responsible for the quality and reliability of the product water...	Please describe which agency is responsible for the product water (quality, reliability, etc.).
15				
16				
17				
18	The owner operates and maintains the system.			
19	The owner operates and maintains the system.		Owner	Owner
20				
21	The owner operates and maintains the system.		the industrial facility is responsible for the quality of the water	
22			Orange County Sanitation District along with the Regional Board and EPA	Same as above

Row No.	Please describe the on-site treatment facilites within your service area (plant name, location, c...	Do you impose fees for the on-site treatment facilities within your service area?	Do you impose a sewer service fee?
15			
16			
17		Yes	
18		No	
19	Miller Brewery	No	
20			
21	We have numerous industrial facilities that treat and reuse their own generated industrial wastewater.	No	
22			

Row No.	Does your agency charge connection fees? If yes, what services are these fees intended to cover (...	Does your agency charge connection fees? If yes, what services are these fees intended to cover (...-TEXT	Do you impose a standby charge for connection?	Would the standby charge continue to be imposed if the treatment system were not in operation?	Would the standby charge continue to be imposed if the treatment system were not in operation?-TEXT
15					
16					
17					
18					
19					
20					
21					
22					

Row No.	Does your agency permit brine discharges(i.e. 10,000 TDS)?	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TSS (mg/L)	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TSS (mg/L)-TEXT	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-BOD (mg/L)	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-BOD (mg/L)-TEXT
15					
16					
17					
18	Yes				
19	Yes				
20					
21	Yes				
22	Yes				

Row No.	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Flow Rate (mgd)	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Flow Rate (mgd)-TEXT	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TDS	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TDS-TEXT	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Other
15					
16					
17					
18					
19					
20					
21					
22					

Row No.	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Other-TEXT	Are the on-site treatment facilities required to have a discharge permit?	Please describe some of the key constraints in the discharge permit and the typical water quality.	Have the discharges affected operations at your facilities? For instance: increased hydrogen sulf...	Have the discharges affected operations at your facilities? For instance: increased hydrogen sulf...-TEXT	Have the discharges had any negative effects on your infrastructure? For instance: reduced lifeti...
15						
16						
17						
18		Yes				
19		Yes		No	Permit required for the waste stream.	
20						
21		Yes				
22						

Row No.	Have the discharges had any negative effects on your infrastructure? For instance: reduced lifeti...-TEXT	Please provide any other information you have regarding land ownership, financing, treatment, per...
15		
16		
17		
18		
19		The general principles for we use for evaluating scalping plants: / LACSD will allow scalping plants under certain conditions. / Existing users of LACSD's system must not pay for new scalping plants or subsidize their operation. / - Scalping plants will not be allowed to take wastewater from existing sewers tributary to LACSD's system if such removal impairs operation of LACSD's system or it if impairs LACSD's recycled water program. / LACSD will not operate or maintain scalping plants. / Owners/operators of scalping plants must pay all appropriate LACSD fees. / Owners/operators of scalping plants must indemnify LACSD. / Owners/operators of scalping plants must get IW permit, or equivalent, from LACSD. / Owners/operators of scalping plants must obtain all other required permits. / LACSD will specify requirements for connections to a LACSD sewer used by a scalping plant. / LACSD will limit materials that can be returned to the existing sewer (e.g. grit, chemicals, etc.)
20		
21		
22		

Row No.	Start Date	End Date	Name	Organization	Role/Title	Email Address	Phone Number	Does your agency treat wastewater?
23	2/4/2016 9:12	2/4/2016 9:39	Christopher Stacklin	Orange County Sanitation District	Engineer	cstacklin@ocsd.com	7145937403	Yes
24	2/1/2016 10:31	2/1/2016 10:40	Jorge Marrero-Narvaez, Esq.	Puerto rico Aquedut and Sewer Authority	Legal Counsel	rge.marrero@acueductospr.co	(787) 620-2277, ext. 2659	Yes
25	1/20/2016 16:20	1/20/2016 16:56	Fisayo Osibodu	San Diego Regional Water Quality Control Board	/ater Resources Control Engine	sayo.Osibodu@waterboards.ca	619-521-8036	No
26	1/20/2016 10:12	1/20/2016 11:06	Rich Haller	SAWPA	nager of Engineering & Operati	rhaller@sawpa.org	951 354-4240	No

Row No.	How many people live in your service area?	What is the average daily flow of wastewater in your service area (mgd)?	Does your agency allow other entities to perform on-site treatment within your service area? Exam...	Are there any existing facilities within your service area that treat wastewater other than those...	Please indicate the type of on-site treatment facility and feel free to add a comment.	Please indicate the type of on-site treatment facility and feel free to add a comment.-TEXT
23	2.5 million people	187 mgd	Yes	Yes	Municipal	Anaheim Water Recycling Demonstration Facility
24	1.25 million	228 mgd	Yes	Yes		
25			Yes	Yes	Other, please specity	There are two onsite wastewater treatment plants that serve federal facilities located within the City of San Diego's service area. Both onsite treatmnet systems mine sewage from the City of San Diego's sanitary sewer system to produce recycle water/treated wastewater for irrigation .
26			Yes	Yes	Industrial	variety - RO for cooling water treatment, creation of ultra pure water for manufacturing, package plant for BOD, solids removal - in some cases followed by RO for water reuse. Municipal also - RO, IX for TDS and nitrate removal. Effluent is potable water system source water

Row No.	Please describe how the on-site treatment facility is owned and operated. Feel free to use the te...	Please describe how the on-site treatment facility is owned and operated. Feel free to use the te...-TEXT	Please describe which entity is responsible for the quality and reliability of the product water...	Please describe which agency is responsible for the product water (quality, reliability, etc.).
23	The owner operates and maintains the system.	City of Anaheim, Anaheim Public Utilities	Anaheim Public Utilities	Department of Drinking Water, Regional Water Quality Control Board, EPA
24				
25	The owner operates and maintains the system.		The United States Marine Corps owns an onsite wastewater treatment plant/sewer mining plant at its Marine Corps Recruit Depot in San Diego. The US GSA also owns and operates an onsite treatment plant/sewer mining facility at its border crossing station in San Diego.	See response to preceeding question
26	The owner operates and maintains the system.	Yes. Plant O&M is by company staff and/or cosultant. Company staff are typcailly successsfuk under nromal operations but are challenged by abnormal operations or conditions.	owner which holds the permit to operate the plant	

Row No.	Please describe the on-site treatment facilites within your service area (plant name, location, c…	Do you impose fees for the on-site treatment facilities within your service area?	Do you impose a sewer service fee?
23	The Water Recycling Demonstration Facility (WRDF), which consists of a Membrane Bioreactor (MBR), ozonation and UV disinfection, illustrates how six separate water sustainable features are used to reuse water within a small footprint. The main feature of the demonstration facility is a 100,000 gallon-per-day recycle water treatment plant which diverts raw sewage from a nearby sewer pipeline and treats it to a high purity effluent. The treated water is used for toilet and urinal flushing in City Hall West, landscape irrigation around City Hall, as well as potential indoor and outdoor uses in nearby parks and future developments and potential irrigation in nearby parks and schools. / The treatment plant odor control system scrubs all the air and the facility has zero odors outside the building, a key design element given the facility is located 20-ft from Anaheim City Hall and near a major business district. The elimination of noise associated with the treatment process further required design elements to prove the facility can be situated in any urban development, with no noise and zero odor. Odor modeling and a comprehensive redundant odor system makes the wastewater treatment plant seem unnoticeable to nearby pedestrians. / As the facility was designed and constructed for demonstration purposes, over half the building is made out of glass to allow educational tours of the building from the outside. Informational signs and graphics are located around the facility to point out features of the treatment process, stormwater injection wells, landscape features and rain barrels. Visitors can witness the dark sewer influent coming into the plant through the window and a 30-ft recycle water fountain located outside the facility highlights the cleanliness of recycled water and how it can be utilized. / The WRDF was built with an ultimate treatment capacity of 100,000 gallons-per-day. Phase 1 of the project consisted of designing and building a 50,000 gallon-per-day facility, which includes an influent diversion pump station, fine screen, nitrification and denitrification tanks, membrane filtration system, ozonation system, UV disinfection system, clear well and supporting facilities such as odor control. These facilities are housed in a climate controlled, architecturally finished building. The design was completed within ten months and construction completed in 14 months. Phase 2 of the project will add another filter in the existing building to expand recycle water service to a nearby ice skating rink and park. / MWH utilized Building Information Modeling (BIM) software to help optimize the layout and improve access for operators and construction sequencing thus reducing logistical issues given the small footprint of the site. This model was pivotal in providing lean construction methods for the contractor and early collaboration between the design and construction teams. / The Anaheim Water Recycling Demonstration Facility is very unique, in that it is an example of how recycled water treatment plants can be constructed in similar downtown environments to meet water demands and provide sustainable developments. This is an innovative contribution to the community to improve sustainable development and educate the importance of water reuse.	No	
24			
25	Marine Corps Recruit Depot San Diego Onsite Treatment System: A Living Machine System with a design capacity of 10, 000 gallons per day is used . The treatment system extracts sewage from an existing sewer line. The treatment system consists of a 7,500-gallon primary tank, a 10,000-gallon primary tank, a 2,500-gallon flow equalization tank, four tidal wetland cells (with soil media and vegetation), a dual stage filtration unit, an ultraviolet disinfection unit, a tablet chlorine contact unit, and a 5,000-gallon effluent tank. Treated effluent from the OWTS will be used for subsurface irrigation of landscape. / / San Ysidro Land Port of Entry San Diego County: An MBR system with a treatment capacity of 50,000 gpd is used to treat wastewater generated at the border port of entry. Treated effluent is blended with stormwater and air conditioner condensate. The blended water then undergoes UV disinfection and is used for landscape irrigation, toilet flushing, and cooling tower make up.		
26	Can provide excel spreadsheet. There are 6 large RO plants producing potable water (50 mgd) and 2 large power plants (1000 MW each), an electronics manufacturer, food processors which discharge high TDS (brine) wastewater to the Inland Empire Brine Line	Yes	Yes

Row No.	Does your agency charge connection fees? If yes, what services are these fees intended to cover (...	Does your agency charge connection fees? If yes, what services are these fees intended to cover (...-TEXT	Do you impose a standby charge for connection?	Would the standby charge continue to be imposed if the treatment system were not in operation?	Would the standby charge continue to be imposed if the treatment system were not in operation?-TEXT
23					
24					
25					
26	Yes	Portion of Industrial Pretreatment Program costs	No		

Row No.	Does your agency permit brine discharges(i.e. 10,000 TDS)?	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TSS (mg/L)	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TSS (mg/L)-TEXT	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-BOD (mg/L)	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-BOD (mg/L)-TEXT
23	Yes				
24					
25					
26					

Row No.	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Flow Rate (mgd)	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Flow Rate (mgd)-TEXT	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TDS	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TDS-TEXT	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Other
23					
24					
25					
26	Flow Rate (mgd)	yes, based upon owned pipeline and treatment and disposal capacity			

Row No.	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Other-TEXT	Are the on-site treatment facilities required to have a discharge permit?	Please describe some of the key constraints in the discharge permit and the typical water quality.	Have the discharges affected operations at your facilities? For instance: increased hydrogen sulf...	Have the discharges affected operations at your facilities? For instance: increased hydrogen sulf...-TEXT	Have the discharges had any negative effects on your infrastructure? For instance: reduced lifeti...
23		Yes	Local Limits apply. Membrane filtration reject is discharged to the sewer. Product water is compliance with California Title 22 non potable reuse water.	No		
24						
25		Yes	Both facilities are enrolled in Order WQ, 2014-0153-DWQ, State Water Board General Waste Discharge Requirements for Small Domestic Wastewater Treatment Systems: / / http://www.swrcb.ca .gov/board decisions/adopted orders/water quality/2014/wqo2014 0153 / dwq.pdf			
26		Yes	local limits apply, monitor water quality, report, subject to periodic inspection, CWEA certified industrial operator required	Yes	scale in pipelines	Yes

Row No.	Have the discharges had any negative effects on your infrastructure? For instance: reduced lifeti...-TEXT	Please provide any other information you have regarding land ownership, financing, treatment, per...
23		http://www.anaheimconventioncenter.com/734/Water-Sustainability-Campus
24		
25		
26	pipe and manholes are now 100% corrosion protected	reliability of operations have been a concern at some sites

Row No.	Start Date	End Date	Name	Organization	Role/Title	Email Address	Phone Number	Does your agency treat wastewater?
27	1/16/2016 22:31	1/16/2016 22:38	Haller	SAWPA	Manager of Eng & Ops	rhaller@sawpa.org	(951) 354-4240	No
28	1/19/2016 8:46	1/19/2016 8:56	John Scarpulla	SFPUC	Program Manager	Jscarpulla@sfwater.org	415-934-5782	Yes
29	2/2/2016 5:41	2/2/2016 5:44	Brian Wheeler	Toho Water Authority	Executive Director	bwheeler@tohowater.com	407-944-5131	Yes
30	1/25/2016 14:50	1/25/2016 14:58	Brenda Meyer	Western Municipal Water District	Principal Engineer	bmeyer@wmwd.com	951-571-7277	Yes
31	1/25/2016 14:19	1/25/2016 14:20	Linda Garcia	WMWD	Engineer	lgarcia@wmwd.com	9515717100	Yes

Row No.	How many people live in your service area?	What is the average daily flow of wastewater in your service area (mgd)?	Does your agency allow other entities to perform on-site treatment within your service area? Exam...	Are there any existing facilities within your service area that treat wastewater other than those...	Please indicate the type of on-site treatment facility and feel free to add a comment.	Please indicate the type of on-site treatment facility and feel free to add a comment.-TEXT
27			Yes	Yes		
28	840,000	75 mgd	Yes	Yes	Other, please specity	30+ private large-scale buildings have applied to treat and reuse some sort of onsite alternate water source.
29	250,000	22 mgd	No			
30	75,000	0.8	Yes	Yes	Industrial	This is pretreatment which also then goes to POTW
31	>100,000	11	Yes	Yes		

Row No.	Please describe how the on-site treatment facility is owned and operated. Feel free to use the te...	Please describe how the on-site treatment facility is owned and operated. Feel free to use the te...-TEXT	Please describe which entity is responsible for the quality and reliability of the product water...	Please describe which agency is responsible for the product water (quality, reliability, etc.).
27				
28	The owner operates the system, but another entity maintains the system.	The owner of the building owns the system. The owner must employ someone who is trained and qualified to operate and maintain the system. This individual may work for the owner or the owner could contract out the work to a 3rd party	the owner	SF Department of Public Health is the regulating agency. The owner of the system sends reports to SFDPH detailing water quality results.
29			Toho Water Authority	N/A
30	The owner operates and maintains the system.	Owner operates and maintains (subcontracted)	Owner	Owner
31				

Row No.	Please describe the on-site treatment facilites within your service area (plant name, location, c...	Do you impose fees for the on-site treatment facilities within your service area?	Do you impose a sewer service fee?
27			
28	There are too many to name in our service area. San Francisco now requires all new buildings that are over 250,000 square feet to install onsite water treatment and reuse technology.	Yes	Yes
29			
30	The Pretreatment facilities are for a food - processing facility. Pretreated wastewater then discharged to sewer for treatment at POTW.	No	
31			

Row No.	Does your agency charge connection fees? If yes, what services are these fees intended to cover (...	Does your agency charge connection fees? If yes, what services are these fees intended to cover (...-TEXT	Do you impose a standby charge for connection?	Would the standby charge continue to be imposed if the treatment system were not in operation?	Would the standby charge continue to be imposed if the treatment system were not in operation?-TEXT
27					
28	Yes		No		
29					
30					
31					

Row No.	Does your agency permit brine discharges(i.e. 10,000 TDS)?	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TSS (mg/L)	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TSS (mg/L)-TEXT	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-BOD (mg/L)	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-BOD (mg/L)-TEXT
27					
28					
29	No				
30	No				
31					

Row No.	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Flow Rate (mgd)	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Flow Rate (mgd)-TEXT	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TDS	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-TDS-TEXT	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Other
27					
28					
29					
30					
31					

Row No.	Please describe the factors that affect the sewer service fee, along with any maximum limits on c...-Other-TEXT	Are the on-site treatment facilities required to have a discharge permit?	Please describe some of the key constraints in the discharge permit and the typical water quality.	Have the discharges affected operations at your facilities? For instance: increased hydrogen sulf...	Have the discharges affected operations at your facilities? For instance: increased hydrogen sulf...-TEXT	Have the discharges had any negative effects on your infrastructure? For instance: reduced lifeti...
27						
28		No		No		
29						
30		Yes	Discharge permit includes local limits for POTW.	No		
31						

Row No.	Have the discharges had any negative effects on your infrastructure? For instance: reduced lifeti...-TEXT	Please provide any other information you have regarding land ownership, financing, treatment, per...
27		
28		Please see www.sfwater.org/np for more info.
29		
30		Brine discharges are not allowed to Western's POTW
31		

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Lead Author:	Jennifer Thompson CDM Smith

CITY OF LOS ANGELES

TECHNICAL MEMORANDUM NO. 12.5.2
ONSITE TREATMENT FACILITY POLICY STUDY – EVALUATION OF IMPACTS

FINAL
December 2017

707 WILSHIRE BOULEVARD, SUITE 3920 • LOS ANGELES, CALIFORNIA 90017 • P. 213.489.1587 • F. 213.489.1500

CITY OF LOS ANGELES

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LIST OF ABBREVIATIONS

Abbreviation	Description
AFY	acre-feet per year
BOD	biochemical oxygen demand
CCR	California Code of Regulations
CCTV	closed circuit television
City	City of Los Angeles
CY	current year
DCTWRP	Donald C. Tillman Water Reclamation Plant
DDW	Division of Drinking Water
ECLWRF	Edward C. Little Water Recycling Facility
ft/sec	feet per second
GWR	groundwater replenishment
HCF	hundred cubic feet
HWRP	Hyperion Water Reclamation Plant
IEBL	Inland Empire Brine Line
IRP	Integrated Resources Plan
IWMD	Industrial Waste Management Division
LACDPH	Los Angeles County Department of Public Health
LADWP	Los Angeles Department of Water and Power
LAFCO	Local Agency Formation Commission
LAGWRP	Los Angeles-Glendale Water Reclamation Plant
LAMC	Los Angeles Municipal Code
LASAN	Los Angeles Sanitation
MBR	membrane bioreactor
mg/L	milligrams per liter
mgd	million gallons per day
NSF	National Sanitary Foundation
O&M	operations and maintenance
One Water LA	One Water LA 2040 Plan
OOC	Office of Operator Certification
OSTF	onsite treatment facility
PDWF	peak dry weather flow
psi	pounds per square inch
QSFs	Quality Surcharge Fees
RO	reverse osmosis
RWQCB	Regional Water Quality Control Board
SS	suspended solids
SSC	Sewer Service Charge
SWRCB	State Water Resources Control Board
TDS	total dissolved solids
TIWRP	Terminal Island Water Reclamation Plant
TM	Technical Memorandum
WBMWD	West Basin Municipal Water District

ONSITE TREATMENT FACILITY POLICY STUDY – EVALUATION OF IMPACTS

1.0 INTRODUCTION

The City of Los Angeles (City) recently embarked on the One Water LA 2040 Plan. This plan will provide a strategic vision and a collaborative approach for integrated water management. In 2006, the City completed and adopted its first Water Integrated Resources Plan (IRP). This plan was the start of a paradigm shift for the City and resulted in significant achievements. Since then, the water landscape in the City has changed with increased demands, new regulations, and threats of climate change.

In response to these changes and to help achieve water sustainability, the City initiated the One Water LA 2040 Plan. This plan builds upon the success of the Water IRP, which had a planning horizon to year 2020. The One Water LA 2040 Plan takes a holistic and collaborative approach, to consider all water resources from surface water, groundwater, potable water, wastewater, recycled water, dry-weather runoff, and stormwater as "One Water." The plan identifies multi-departmental and multi-agency integration opportunities to manage water in a more efficient, cost effective, and sustainable manner.

The One Water LA 2040 Plan represents the City's continued and improved commitment to proactively manage all its water resources and implement innovative solutions, driven by the Sustainable City pLAn. The Plan will help guide strategic decisions for integrated water projects, programs, and policies within the City.

1.1 Purpose of Technical Memorandum 12.5.2

One Water LA is considering a multitude of options including the potential use of onsite treatment facilities (OSTF). These facilities would be located throughout the City service area and would serve the local needs of a smaller area. They would receive wastewater flows that would be diverted from the sanitary sewer collection system prior to reaching one of the major treatment facilities. Demands for this water could come from industries who may have cooling towers, breweries, and golf courses to name a few.

This special study will:

1. Evaluate onsite treatment policies other public agencies may have in place (Task 12.5.1),
2. Evaluate impacts to the collection system, treatment plants, and financial impacts (Task 12.5.2), and
3. Develop policy, rate structure, and financial recommendations (Task 12.5.3).
4. The information from these TMs will be leveraged to help to form a policy for onsite treatment that could be adopted at a local or regional level.

This Technical Memorandum (TM) No. 12.5.2 presents the potential financial impacts as well as the impacts to LA Sanitation's (LASAN) facilities that could be caused by OSTFs. The facilities evaluated include the wastewater collection system, the water reclamation plants, and existing and planned potable reuse projects.

The remainder of this section discusses background information including the definition of onsite treatment, applicable governing documents, and agencies, and setting.

1.2 Definition of Onsite Treatment

In a broad sense, the term "onsite treatment" may refer to various types of treatment scenarios. In this memo it is used to describe two specific configurations:

1. Reclaimed water treatment systems developed and owned by the City, potentially in partnership with another entity, such as a university or a contract city. The treatment system would treat nearby sewer flows and is assumed to not include solids treatment. Depending on the desired water quality, the onsite treatment may include reverse osmosis (RO) or other processes that will generate a brine.
2. Reclaimed water treatment systems developed and owned by private entities to reclaim water onsite to reduce their potable water demand and/or for pre-treatment of industrial discharges. This onsite treatment could concentrate constituents in the resulting waste stream.

There are two potential onsite treatment schemes that are considered in this TM:

- The first is an OSTF that includes both secondary and advanced treatment processes (RO and advanced oxidation) with waste activated sludge treated onsite and RO concentrate discharged to LASAN's sewer. The financial impacts of this onsite treatment approach are discussed in Section 2.0 and the potential impacts on the City's facilities are discussed in Section 3.0.

- The second is producing recycled water onsite to offset potable water demands for irrigation, cooling towers, and potentially process uses. Non-reclaimable wastes could include primary and/or waste activated sludges, which could either be treated onsite or returned to the sanitary sewer collection system for further treatment and disposal downstream by LASAN. The potential impacts of this onsite treatment approach on the City's facilities are discussed in Section 3.0.

For both of these onsite treatment approaches, it is assumed that a bypass around the onsite treatment process would be provided for periods during process upset or when the facility is out of service for maintenance. The bypass is needed to ensure failsafe disposal in accordance with requirements of Title 22 of the California Code of Regulations (CCR) in lieu of 100 percent redundancy for major process units and equipment and 24-hour storage for non-compliant (or "off-spec") water. This is discussed further in Section 3.2.6. Additionally, for OSTFs that produce reclaimed water for non-potable use onsite, back-up potable water supply is needed to provide potable water during process upsets or when the facility is being maintained.

Note that two of the City's four existing water reclamation plants, Donald C. Tillman Water Reclamation Plant (DCTWRP) and the Los Angeles-Glendale Water Reclamation Plant (LAGWRP), are considered satellite treatment facilities. Both of these plants provide liquid treatment and produce recycled water upstream in the City's collection system, with solids discharged into downstream sewers and conveyed to Hyperion Water Reclamation Plant (HWRP) for treatment. For the purposes of this TM, OSTFs are defined as small facilities at point-of-use locations in LASAN's services area, which would be upstream of one of the City's water reclamation plants, to serve specific non-potable water demands or potentially for groundwater replenishment.

1.3 Governing Documents and Agencies

Numerous governing documents and agencies influence onsite treatment. Below are a few examples and brief description of the role of each:

- LASAN's Industrial Waste Management Division (IWMD) – In accordance with the City's Industrial Waste Control Ordinance, the IWMD administers the City's EPA-approved pre-treatment program, which regulates, monitors, and controls the wastewater discharges of over 16,000 industrial users to protect the sewer collection system, water reclamation plants, and recycled water and biosolids quality. IWMD oversees the adequate implementation and enforcement of pretreatment programs for eight contract cities.
- Los Angeles Regional Water Quality Control Board (RWQCB) – the Los Angeles RWQCB is one of nine RWQCBs under the State Water Resources Control Board (SWRCB) and has jurisdiction over setting standards, issuing waste discharge requirements (permits), determining compliance, and taking enforcement actions. The Los Angeles RWQCB is responsible for permitting the City's four water reclamation plants.
- California Division of Drinking Water (DDW) – regulates public water systems, oversees water recycling projects, permits water treatment devices, supports and promotes water system security, and performs a number of other functions. DDW and the RWQCB are responsible for permitting potable reuse projects.
- CCR Title 22 – This is a component of the California Water Recycling Criteria, which includes guidelines for treatment requirements and uses of recycled water. The standards also require DDW to develop and enforce water and bacteriological treatment standards for water recycling and reuse.

- Los Angeles Regional Basin Plan – The Los Angeles Regional Basin Plan is designed to preserve and enhance water quality and protect the beneficial uses of all regional waters. Specifically, the Basin Plan (i) designates beneficial uses for surface and groundwaters, (ii) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the State's antidegradation policy, and (iii) describes implementation programs to protect all waters in the Region. In addition, the Basin Plan incorporates (by reference) all applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. Those of other agencies are referenced in appropriate sections throughout the Basin Plan.
- The Basin Plan is a resource for the Regional Board and others who use water and/or discharge wastewater in the Los Angeles Region. Other agencies and organizations involved in environmental permitting and resource management activities also use the Basin Plan. Finally, the Basin Plan provides valuable information to the public about local water quality issues[1].
- Proposition 218 – Proposition 218 was a California adopted initiative constitutional amendment in 1996, which limited the methods by which local governments can create or increase taxes, fees and charges without taxpayer consent. It requires voter approval prior to imposition or increase of general taxes and assessments. Wastewater and water rates are subject to Proposition 218 and require a public noticing and protest process, but are not subject to a public vote. Section 2.3 discusses this in more detail.
- Local Agency Formation Commission (LAFCO) – LAFCOs are public agencies established by State Law; they have county-wide jurisdiction and were created with the intent of discouraging urban sprawl and encouraging "orderly and efficient provision of services, such as water, sewer, and fire protection."
- SWRCB Operator certifications – The SWRCB Office of Operator Certification (OOC) has adopted regulations to define the experience and training requirements necessary to meet the minimum levels of competence to administer this responsibility, the State Water Board established the Office of Operator Certification in the Division of Financial Assistance. Applicable treatment facilities must use certified operators.
- Los Angeles County Department of Public Health (LACDPH) – The LACDPH publishes guideline for the safe use of alternate water sources in Los Angeles County. LACDPH recommends treating onsite treating to either National Sanitary Foundation (NSF) 350 or CCR Title 22 standards for both indoor uses (cooling, toilet flushing) and outdoor applications (spray irrigation).

[1] http://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/

1.4 Setting

LASAN's primary responsibility is to clean, collect, and recycle solid and liquid waste generated by residential, commercial, and industrial users in the City and surrounding communities. Their 2,800 staff helps to carry out three primary programs, including: wastewater collection, conveyance, treatment, and disposal; solid resources collection, recycling and disposal; and Watershed Protection. LASAN operates four water reclamation plants: DCTWRP, LAGWRP, HWRP, and Terminal Island Water Reclamation Plant (TIWRP), which serve over four million people throughout 600 square miles and produce over 80 million gallons of reclaimed water per day.

1.5 TM 12.5.2 Organization

TM 12.5.2 is organized as follows:

- Section 2.0 – Financial impacts
- Section 3.0 – Wastewater facilities impacts (sewer system, water reclamation plants, and potable reuse impacts)
- Section 4.0 – Conclusions

2.0 FINANCIAL IMPACTS

OSTFs could have financial impacts to LASAN. Those impacts could take different forms. First, there is the potential of lost revenue as a result of onsite facilities that reduce flows that would otherwise have entered the collection system. Second, should LASAN desire to make up lost revenue from OSTFs with a rate change, it would have to go through the Proposition 218 process. There is a cost associated with study and analysis of alternative methods to recapture lost revenue and public noticing process. These impacts will be discussed further in this section.

The type of OSTF evaluated in this financial impacts section is one that includes both secondary and advanced treatment processes (RO and advanced oxidation) with waste activated sludge treated onsite and RO concentrate discharged to LASAN's sewer.

As discussed in Section 1.1, another onsite treatment approach that could be considered includes producing Title 22 recycled water onsite with solids discharged to the sewer. Under this scenario, it is assumed that the dischargers would be able to reuse water at or nearby their facilities. The financial tradeoffs for this type of onsite treatment include the benefit of reducing potable water purchases from the Los Angeles Department of Water and Power (LADWP), but if solids are returned to the sewer, then the discharger would still be subject to Sewer Service Charge (SSC) and possibly Quality Surcharge Fees (QSFs) to LASAN. The impacts of both types of OSTFs on the LASAN's facilities are discussed in Section 3.0.

Both LASAN and LADWP would need to maintain capacity for the OSTFs to provide failsafe disposal and potable water, respectively, for periods when the OSTF may have a process upset and shutdowns for maintenance. Failsafe disposal is discussed further in Section 3.2.6.

2.1 Potential Lost Revenue

Potential OSTFs if implemented would reclaim water from current wastewater discharges to reduce the user's potable water demands, thus reducing the amount of wastewater discharged to LASAN and avoiding charges from LASAN. The type of onsite treatment facility considered for this assessment of financial impacts is one that includes secondary treatment followed by an advanced water treatment system to produce water suitable for groundwater injection, with waste sludge treated on-site and RO concentrate discharged to the sewer. The resulting product water would be used on-site for irrigation, industrial process water, or even for groundwater injection.

Currently LASAN charges $4.51 per hundred cubic feet (HCF) for discharging normal domestic strength wastewater, which is defined as having a biochemical oxygen demand (BOD) equal to or less than 275 milligrams per liter (mg/L) and suspended solids (SS) equal to or less than 265 mg/L. The charge is referred to as the Sewer Service Charge (SSC). Converting the SSC to gallons the charge is $5.66 per 1,000 gallons. Thus for any OSTF to be economically viable for a discharger, it must currently cost less than $5.66 per 1,000 gallons to build and operate for domestic strength wastewater. This cost is estimated for a facility that does groundwater injection and, as such, the cost does not include any purchased water savings.

In addition to the SSC, LASAN also has surcharges for high strength wastewater discharges called Quality Surcharge Fees (QSF). Users with wastewater strength in excess of domestic limits would also be able to avoid any QSFs by building onsite treatment. There are currently two components to the QSF, a charge for BOD and a charge for SS. The BOD charge is $0.470 per pound and the charge for SS is $0.472 per pound. Users subject to QSFs would have a higher effective cost per 1,000 gallons discharged than just the SSC. For one large system user the effective rate including the QSF rises to about $11.00 per 1,000 gallons. Thus, economic viability of onsite treatment for this one large user subject to the QSF is established if the cost is less than $11.00 per 1,000 gallons; onsite treatment for other users subject to the QSF would only be economically viable at a price less than $11.00 per 1,000 gallons.

Thus, LASAN's potential revenue losses would consist of the avoided SSC and QSF, which a user could avoid through implementing onsite treatment. The economic viability of an onsite treatment system would range between $5.66 per 1,000 gallons and $10.00 per 1,000 gallons depending on how much QSF the user is required to pay.

2.2 Larger Customer Impact

While LASAN has a number of large users, only several have significant QSFs in addition to the SSC. The user with the largest QSF totals some $1.9 million a year, while the next largest is at $0.7 million a year followed by three others with QSFs of about $0.3 million a year. It would be those users for which onsite treatment could potentially be most economically viable.

Looking at the user with approximately $1.9 million in QSFs, their SSC totals some $2.4 million a year. Assuming an OSTF with RO where there would be no discharges of BOD and SS and flow discharges to LASAN would be limited to brine disposal (approximately 10 percent of current flow), the annual adverse revenue impact to LASAN could total some $3.9 million assuming some fees for waste stream disposal. From the perspective of the user, if they could construct and operate an OSTF for less than $3.9 million a year it would be cost effective. If the costs are less than that they would potentially experience real savings.

A revenue loss of $4.1 million to LASAN is approximately 0.83 percent of total annual revenue assuming $500 million in annual user charge revenue. The loss of QSF revenue, or $1.9 million, would represent about 25 percent of total system QSF revenue.

There are a number of other ways to describe the impact to LASAN by an onsite system by this large user. The reduction in flow to LASAN based on current year (CY) 2015 data provided by LASAN would be approximately 450 million gallons per year or about 0.17 percent of total system flow. Using CY 2015 data provided by LASAN, this large user produced 1.7 million pounds of BOD and 4.4 million pounds of TSS, representing about 0.6 percent and 1.4 percent of the system BOD and TSS.

The impacts can also be enumerated in terms of rate impacts. Using LASAN's rate model, the reduction in flow, BOD and SS would require an approximately $0.028 per HCF increase in the SSC, a $0.022 per pound increase in the BOD surcharge, and $0.026 per pound increase in the SS surcharge to make up for the lost system revenue.

2.2.1 Other Large Users

There are several other very large users in LASAN's system, but none with both large SSC and QSF. The other large users are mostly schools, government, and universities with large flow comprised of domestic strength wastewater. Their discharges are not typically at one connection to the system, and thus, the feasibility of onsite treatment is more limited due to the additional infrastructure requirements to combine wastewater flows in a single location. Only one other large user is an industrial user where onsite treatment might physically be feasible, but the potential savings is less than the large users discussed above. The four other users with sizeable QSFs have lower flows and are not in the category of the 10 largest users. However, onsite treatment might physically be feasible because of a single connection to the system and their effective rate might also be in the range of $11.00 per 1,000 gallons making onsite treatment cost effective. In total their potential revenue impact to LASAN would likely be less than the large user described above.

OSTFs, if implemented by a number of large users, would likely have a total financial impact to LASAN of no more than $10 million per year.

2.3 Review of Existing Sewer Rate Structure and Proposition 218 Study

As detailed above, LASAN would potentially have to raise rates in order to recover lost system revenue. LASAN has adopted a series of rate increases for the SSC and QSF that will be effective through July 1, 2020 without further action by LASAN. LASAN complied with the notice and hearing requirements of Proposition 218 in setting the rates for the SSC and the QSF, the only user fees to which Proposition 218 applies. Thus, any change to the SSC and QSF prior to July 1, 2020 would require a new Proposition 218 process.

Proposition 218, known as the Right to Vote on Taxes Act, was approved by California voters on November 5, 1996. It added Articles XIIIC and XIIID to the California Constitution, limiting the application of property-related fees and charges and requiring them to be submitted to property owners for approval or rejection, after notice and public hearing. Proposition 218 also extended the initiative power to reducing or repealing local property-related fees and charges, regardless of the date such fees and charges were imposed. Fees and charges for sewer, water and refuse collection services are exempted from the voter approval provisions of Proposition 218 pursuant to Article XIIID.

Proposition 218 affects LASAN's ability to impose future rate increases because no assurance can be given that future rate increases will not encounter majority protest opposition or be challenged by initiative action authorized under Proposition 218. The Proposition 218 process is also expensive requiring that each customer be notified, given at least 45 days to review and evaluate the potential rate adjustment impact to them, given a chance to protest that adjustment, and conduct hearings.

It has been the preference of LASAN to not conduct another Proposition 218 process until 2020 when the currently approved set of rates ends. However, if OSTFs are implemented by a number of users and system losses grow, LASAN may have no alternative than to begin a costly new Proposition 218 process sooner than planned.

2.3.1 Other Revenue Alternatives

In lieu of raising rates to all other users of the system, it might be possible to mitigate lost revenue from users implementing onsite treatment through standby charges. This would be handled through individual contracts with customers, particularly where users with onsite treatment expect LASAN to provide wastewater conveyance and treatment during periods when the onsite process is not operating either due to regular maintenance or an emergency. Requiring standby service from LASAN means treatment capacity must be held in reserve. That capacity has both a capital cost and maintenance cost. California has a long history of standby charges for wastewater service because of the seasonal nature of discharges by food processors. While such an approach would not recover all lost revenue, it could recover as much as 50 percent. This is estimated from the rate model where the total for the SSC is about 50 percent for operations and maintenance (O&M) and 50 percent is for capital costs, and a standby charge would focus on the capital cost portion.

Another alternative might be to establish a charge for high levels of total dissolved solids (TDS) from OSTFs; particularly if it can be shown such high levels of TDS impede water reuse by LASAN.

Finally, it might also be possible to recover some lost revenue through onsite facility inspection and permit fees.

3.0 WASTEWATER FACILITIES IMPACTS

This section discusses the potential impacts to wastewater facilities due to implementation of OSTFs within the City's service areas. The facilities assessed are the sewer collection system, the water reclamation plants, and plans for potable reuse. This section is a general discussion of the potential impacts if several OSTFs were developed and assumes that solids (i.e., primary and/or waste activated sludges) and/or RO concentrate (if applicable) generated by the OSTF would be discharged to the sewer for treatment. The impacts of specific onsite treatment projects, as well as the cumulative effect of multiple onsite treatment projects, would need to be assessed on a case-by-case basis.

OSTFs have the potential to decrease the amount of wastewater discharged to the collection system, either through pre-treatment to minimize waste discharges or through sewer diversions to treat wastewater locally for reuse. The combination of decreased flow and returning the solids to the sewers will increase the concentrations of BOD and total suspended solids. Returning RO concentrate to the sewer will increase the concentrations of TDS in the City's sewers.

3.1 Sewer Collection System Impacts

This section discusses the potential impacts of OSTFs on the City's sewer collection system. The discussion addresses the potential impact of decreased flows and increased constituent concentrations in the sewers.

Sewers are typically designed with a minimum self-cleaning velocity of 2 to 3 feet per second (ft/sec) to allow for sewer flows to flush the sewers and prevent solids from accumulating within a pipe. Many local cities prefer a minimum flow of at least 3 ft/sec. For example, the City of Los Angeles requires a minimum velocity of 3 ft/sec at peak dry weather flow (PDWF). Reduced flows resulting from onsite treatment could lead to a situation where the 3 ft/sec minimum velocity cannot be achieved under dry weather conditions, which may lead to solids build-up within the City's sewers. This solids build-up in the sewer system could potentially cause odor issues, corrosion, and, if enough sedimentation occurs, then restrictions could form in the sewers.

The increased constituent concentrations in the wastewater coupled with lower velocities increases the likelihood that solids will become stagnant in the sewers and that dissolved oxygen in the wastewater will be depleted, leading to increased formation of hydrogen sulfide, which can cause odors and lead to increased corrosion. From an odor control perspective, critical sections of sewers with low velocities may require odor control. Increased corrosion can be caused by sulfuric acid forming above the water line on the inside of the pipes or structures where the hydrogen sulfide gas comes into contact with moisture or biofilm. The reduced wastewater flows would reduce the depth of wastewater in the sewers and structures causing a greater portion of the interiors of the pipelines and structures to be exposed to sulfuric acid corrosion.

For OSTFs that would discharge solids (i.e., primary and/or waste activated sludges), the location of the discharge point would need to be selected to minimize solids deposition. The connection point would need to have sufficient capacity for the flow, during average day as well as peak flow events, and have sufficient flow to avoid or minimize solids deposition. The discharge locations for OSTFs would need to be evaluated on a case-by-case basis.

For RO concentrate discharges, there is the potential to form scaling in the sewers depending on the combination of RO concentrate and wastewater in the sewers. The Inland Empire Brine Line (IEBL), which conveys salts from inland areas in Riverside and San Bernardino counties to the ocean, has experienced scaling in some segments where RO concentrate is the majority of the flow and has implemented periodic cleaning of the pipelines with citric acid to remove the scale. The scaling increases the roughness of the internal pipe surface, hence increasing the friction and further impeding the flow. In LASAN's sewer system, RO concentrate discharges should be made to segments of the sewers where there will be sufficient mixing of RO concentrate with wastewater to minimize the scaling potential.

Conversely, it should be noted that in some instances where sewers are near capacity, reduced flows may be beneficial to the sewer system.

Additional O&M would be required to reduce the odor and corrosion impacts of solids accumulation and hydrogen sulfide generation cause by the reduced flows and increased concentrations. There are various standard industry practices to remedy solids accumulation, including high-pressure jetting, chain cutters, reaming/grinding, vacuum trucks, and man entry. Most municipal sewer cleaning is performed using a combination of high-pressure jetting and vacuuming. Typical jetting tools produce pressures up to 2,000 pounds per square inch (psi) and can scour debris, sending it toward a downstream manhole for removal. If solids become hardened to the point they cannot be removed via high-pressure jetting, then more advanced equipment and technology may be required. These cleaning methods could be implemented on a periodic basis for preventative maintenance. A closed circuit television (CCTV) inspection can be used to assess cleaning needs. Additional O&M would also be needed for any new odor control systems that are implemented to treat the additional odors.

3.2 Water Reclamation Treatment Impacts

This section discusses potential impacts to the City's water reclamation plants based on implementation of OSTFs. The potential OSTF schemes are discussed in Section 1.1. For onsite treatment, water would be reclaimed onsite and that solids and other residuals, such as RO concentrate or filter backwash, would be discharged to the sewers.

In cases where OSTFs return biosolids to the sewer, there may be impacts to the treatment process of the downstream treatment system. In this case, the treatment system would be receiving a lower overall flow, but an increased concentration of BOD, TSS, and possibly TDS if RO membranes are used in the OSTF. Increases in TSS and BOD concentrations could impact settling and may require a change in operational parameters, such as hydraulic retention time or solids retention time.

The impacts to the water reclamation processes at DCTWRP, LAGWRP, HWRP, and TIWRP are discussed further in the following sections, including preliminary treatment, primary treatment, secondary treatment, tertiary treatment (DCTWRP and LAGWRP only), and solids treatment (HWRP and TIWRP) (see Figure 1). Potential impacts to advanced treatment for proposed potable reuse are discussed in Section 3.3.

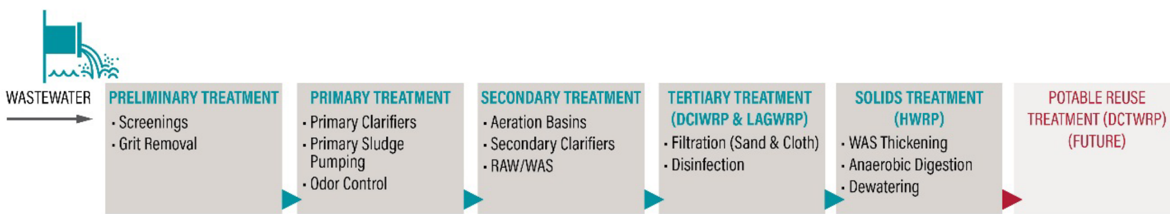

Figure 1 Water Reclamation Plant Processes

3.2.1 Preliminary Treatment Impacts

Preliminary treatment includes screenings, grit removal, influent pumping, and associated odor control. Preliminary treatment operating parameters are generally focused on flow rate and loading of inert materials (i.e., grit and screenings). It is assumed that OSTFs would incorporate preliminary treatment processes to protect OSTF equipment. The following should be considered in assessing the impact on the City's water reclamation plants.

- If inert materials removed at the OSTF are disposed to the collection system and conveyed to downstream treatment facilities, the resulting load would increase the concentration of inert material to be treated at the City's water reclamation plants.
  - Slug loads[2] of grit from industrial users could promote settling and accumulation of solids in the preliminary treatment channels.
  - Screened material, once removed from wastewater stream, has the potential to "rope" together increasing the potential for ragging problems for pumps.

[2] A slug load is any non-routine/episodic discharge, such as an accidental spill or batch discharge from industrial users.

  - Grit and screenings material can conglomerate with organic material increasing the odor generation potential. To the extent that grit and screenings volumes increase, preliminary treatment odors can be expected to increase resulting in the need for additional chemical addition for treatment. Corrosion of structures and equipment is directly related to hydrogen sulfide concentrations which is a key indicator of odor generation in raw wastewater facilities.

- If inert materials removed from the OSTF are not disposed to the collection system (i.e., handled and disposed to approved solid waste facility), then concentration of materials to downstream treatment processes would be unaffected. Furthermore, odor generation potential within the preliminary treatment processes would not be expected to increase significantly.

- The reduction of hydraulic loading on the preliminary treatment processes can likely be accommodated within the typical operability of process units, effectively reducing the duty-time of equipment proportional to flow rate.

Due to the potential adverse impacts on the City's water reclamation plants, inert materials including grit and screenings from OSTFs should not be allowed to be disposed to the sanitary sewer collection system.

3.2.2 Primary Treatment

Primary treatment includes primary clarifiers, primary sludge pumping, and odor control and operating parameters are generally based on flow rate and TSS loading. It is anticipated that any upstream onsite treatment processes would incorporate an activated sludge process that may or may not be preceded by primary treatment. If OSTFs do incorporate primary solids removal, then the solids would likely be discharged to the sewer. The following should be considered in assessing the primary treatment processes at the City's water reclamation plants:

- Primary solids, if discharged to the sanitary sewer collection system and conveyed to the centralized treatment plant will likely settle out in the primary clarifiers. Assuming that the upstream onsite treatment facility does not incorporate any solids treatment process, then the volume or mass of primary solids conveyed downstream would not be expected to increase significantly. As such, the primary clarifier performance and sludge pumping would be unaffected.

- Primary solids are putrescent and commonly associated with odor generation. Increased concentration of primary solids in the influent wastewater as a result of upstream onsite treatment discharges could increase odor potential within the preliminary and primary treatment processes.

- The discharge of activated sludge solids to the collection system, assuming no primary treatment at the OSTF, could negatively impact the settleability of influent solids as waste activated sludge is less dense. Operational changes, potentially including increased settling times and/or chemical addition may be necessary to effectively settle the waste activated sludge in primary clarifiers and avoid carryover into the secondary process.

If primary solids are not discharged to the sanitary sewer (i.e., they are removed, treated, and disposed of to an approved solid waste facility or other acceptable beneficial reuse application), then the concentration to the downstream centralized treatment facility would be unaffected. The reduction of primary solids to the centralized treatment facility can likely be accommodated within the typical operability of process units, effectively reducing the duty-time of equipment proportional to volume or mass loading.

3.2.3 Secondary Treatment

Secondary treatment operating parameters are generally based on flow rate, solids loading, organic loading, and nitrogen content. It is anticipated that any upstream OSTF would incorporate an activated sludge process that may or may not be preceded by primary treatment. The following should be considered in assessing impacts to the downstream centralized treatment plant secondary process:

- Assuming that waste activated solids are discharged to the collection system, the downstream centralized treatment plant will need to treat the mass load in both the secondary treatment process, the sludge digestion process, and solids dewatering and disposal.

- While some treatment is effectively achieved in the upstream OSTF, the solids mass loading is anticipated to be nearly equivalent to the raw wastewater load, albeit characteristically different – high volatile solids primary sludge versus hydrophilic cellular waste activated sludge.

- The waste sludge will exhibit a moderately lower oxygen demand within the secondary process; however, waste activated sludge is also more challenging for digestion requiring greater energy to breakdown cell walls in comparison to primary solids.

- If OSTFs utilize anaerobic processes (e.g., anaerobic digestion and/or anaerobic membrane bioreactor [MBR]), the non-reclaimable waste discharged could increase ammonia loading to the downstream centralized treatment system.

If waste activated sludge is dewatered and disposed of by the OSTF, then solids loading to the downstream centralized treatment system would be reduced during normal operation.

3.2.4 Tertiary Treatment and Title 22 Reuse

Tertiary treatment is used at DCTWRP and LAGWRP to produce Title 22 recycled water, and secondary effluent from HWRP is treated by the West Basin Municipal Water District (WBMWD) at the Edward C. Little Water Recycling Facility (ECLWRF) with multiple process trains to produce several different qualities of recycled water that are used for landscape irrigation, industrial uses, and potable reuse.

The tertiary system at DCTWRP consists of cloth filters followed by disinfection with chloramines; LAGWRP's tertiary system includes sand filters. The efficacy of these processes are dependent on flow rate and secondary effluent quality as measured by turbidity. Disinfection is also affected by nitrite bleed through resulting from partial nitrification. The TDS concentration is also relevant to recycled water use as it impacts basin plan objectives and affects suitability for certain reuse applications (e.g., elevated TDS or chloride concentrations can damage certain plants and grasses). The following should be considered in assessing impacts to the downstream centralized treatment plant tertiary treatment process:

- Reduced influent flows will reduce water available for reuse from DCTWRP and LAGWRP, which will jeopardize meeting the centralized recycled water goals for the City's planned potable reuse project at DCTWRP.
- Stress on the upstream secondary processes (aeration basins and secondary clarifiers) could impact clarification efficacy and potentially cause elevated turbidity levels that could reduce filterability with either the cloth or sand filters (which are used at LAGWRP) and require operational changes to maintain compliance with Title 22 requirements.
- Operational changes could include increased chemical addition (coagulation with metal salts and/or polymer), reduced filter loading rates, and/or increased backwash frequency that reduces filter recovery rates.
- The current treatment trains do not include processes to reduce TDS such that recycled water dissolved solids concentration is a function of influent wastewater dissolved solids plus incremental chemical additions (e.g., polymers, coagulants, disinfectants) at the water reclamation plants. The influent wastewater TDS concentration is the single greatest influence on effluent TDS levels. Brine discharges from OSTFs will result in an incremental increase in recycled water TDS levels or alternatively will required TDS removal.
- TDS loading should be evaluated for each proposed brine discharge to determine the impact on influent loading and resulting effect on recycled water quality.

3.2.5 Solids Treatment

Solids generated from the primary and secondary processes at DCTWRP and LAGWRP are discharged to the sewer and conveyed to HWRP for treatment. The biosolids at HWRP are anaerobically digested, dewatered, and then trucked off-site for beneficial reuse. The anaerobic solids treatment process and dewatering of the resulting biosolids are closely linked. Anaerobic digestion is aimed at reducing the volatile solids fraction, thereby achieving pathogen reduction to meet regulatory requirements for disposal and reuse. The digestion process also breaks down cellular mass, releasing bound and cellular water content which in turn improves dewaterability. Solids reduction and improved dewaterability are directly related to the solids treatment and disposal costs. The following should be considered in assessing impacts to the downstream centralized treatment plant solids processing:

- An increase in the ratio of waste activated sludge to primary sludge will reduce digestion efficiency and decrease dewaterability.
- Assuming the OSTF employs an MBR, the waste solids generated from that treatment process can be expected to exhibit lower settleability which may complicate primary and secondary treatment. Aerobic solids wasted from a MBR may also diminish dewaterability, especially if dewatering directly. If MBR solids are comingled with other primary and/or secondary treatment solids in the sludge digestion process or for dewatering, reduced efficiency could also be anticipated.
- The extent to which onsite treatment solids disposal will impact the City's water reclamation plants is dependent on the characteristics and mass of the solids discharged to the sewer system relative to raw wastewater characteristics.

3.2.6 Bypass and Failsafe Disposal to Sanitary Sewer System

To comply with Title 22 regulations, OSTFs would be required to demonstrate certain reliability and redundancy measures to ensure the stipulated level of safety for public health. Commonly adopted provisions include 100 percent redundancy for major process units and equipment and 24-hour storage for non-compliant (or "off-spec") water. Satellite facilities are typically focused on producing treated water to match daily demands and seeking to minimize costs, both capital and operating and maintenance. As such, treatment capacity is frequently limited to a daily demand as opposed to wastewater peak hour flow rate. Similarly, redundant process trains and equipment significantly increase capital costs and maintenance requirements and are therefore avoided if possible.

As an alternative, OSTFs can be implemented with less redundancy if an alternative "failsafe disposal" method is available. A convenient failsafe disposal method would be to discharge to a local sanitary sewer system, as is assumed for potential OSTFs within LASAN's service area. The following should be considered in assessing impacts to the City's water reclamation plants with respect to availability of treatment capacity for occasional bypass or failsafe disposal from OSTFs:

- OSTFs should retain 100 percent capacity in LASAN's sanitary sewer system if bypassing and/or failsafe disposal to LASAN's system is incorporated into the operational strategy and reclamation permit.

- LASAN must maintain treatment capacity and operational capability for occasional or emergency discharges to the sewer system. Future expansions and plant upgrades should account for these intermittent discharges to ensure that LASAN maintains full compliance with all operating and discharge permit requirements.

3.3 Potable Reuse Impacts

OSTFs have the potential to impact the City's planned potable reuse project at DCTWRP as well as the existing reclamation and potable reuse treatment conducted by WBMWD. The primary impacts on potable reuse that could be caused by onsite treatment are increased TDS, which will impact the quality of the reclaimed water as well as the treatment efficiency, and reduced flows, which could impact the City's goals for the DCTWRP potable reuse project.

The City is currently pursuing a potable reuse project to produce up to 30,000 acre-feet per year (AFY) of new water supply for the City through replenishment to the San Fernando Groundwater Basin. The project would treat a portion of the tertiary effluent produced by DCTWRP with advanced treatment. The potable reuse treatment train is still under development, but could include ozone with biologically activated carbon, which would not reduce the TDS, or partial or full treatment using RO that would reduce the TDS. If there are OSTFs that would discharge high-TDS concentrates to the sewers upstream of DCTWRP, then these would have the potential to increase the TDS of the wastewater influent to DCTWRP. The TDS impacts to the final water quality would need to be assessed and for a potable reuse treatment train without RO, partial RO may need to be added if the recycled water does not comply with the Los Angeles Regional Basin Plan. If the selected potable reuse treatment train includes partial or full RO, then increased TDS will increase the power requirements for RO treatment. RO concentrate discharges may also impact the source control requirements for potable reuse since constituents will be at higher concentrations in RO concentrate than in wastewater.

Additionally, if RO concentrate is generated from OSTFs that treat food processing wastes, then the concentrate will likely be high in organics. These high organics could cause fouling problems on RO treatment if it is used as part of the additional treatment for potable reuse.

The use of OSTFs upstream of DCTWRP would impact the proposed potable reuse project water supply goals due to the reduction of influent wastewater flows. The City may need to redirect wastewater to DCTWRP to make up for the lost flows and meet the project goals, which would increase the overall costs of the project. Using the discharger with the highest QSF (discussed in Section 2.0) as an example, an onsite treatment system could have a capacity of 1.1 million gallons per day (mgd) with approximately 0.1 mgd of RO concentrate returned to the sewer. This would result in a flow reduction upstream of DCTWRP of approximately 1.0 mgd. If the potable reuse project proceeds with full advanced treatment, then this would reduce the potable reuse production capacity by about 0.9 mgd. Potential flow reductions should be taken into account for the potable reuse project sizing to prevent oversizing the facility.

Additionally, some potential onsite treatment customers have discussed injecting their treated flows into the ground to replenish the groundwater aquifer. Although this is similar to the approach of the City's groundwater replenishment (GWR) project, individual users may choose to inject flows into areas of the aquifer with less permeability than what is proposed by the GWR project, leading to a less available source of local groundwater. The difference in travel time to production wells could take many years longer when compared to spreading at the Hansen Spreading Grounds as proposed by the GWR project.

In addition to the City's plans for potable reuse at DCTWRP, the City has an agreement with the WBMWD to provide secondary effluent from HWRP to the ECLWRF in El Segundo, California. The ECLWRF treats the secondary effluent with additional treatment trains to produce multiple different types of water. The product waters include Title 22 recycled water for industrial and irrigation uses, nitrified water for cooling towers, advanced treated water for groundwater recharge for seawater intrusion and potable reuse, and pure and ultra-pure RO water for boiler feed at refineries. Increased TDS in the HWRP water would impact the cost for RO treatment as well as impact the quality of the Title 22 water.

4.0 CONCLUSIONS

This section summarizes the potential impacts from OSTFs on revenues and wastewater facilities. OSTFs will reduce LASAN's revenues and also have the potential to impact LASAN's facilities.

4.1 Financial Impacts Conclusions

The primary conclusions from the financial perspective are as follows:

- The discharger with the largest QSF has the potential to decrease LASAN's annual revenues by approximately $4.1 million by implementing an OSTF with advanced treatment and that the only discharges to LASAN's system would be brine disposal.
- This revenue loss is approximately 0.83 percent of total annual revenue assuming $500 million in annual user charge revenue. The loss of QSF revenue (about $1.9 million) would represent about 25 percent of total system QSF revenue.
- There are several other very large users in LASAN's system, but none with both large SSC and QSF, so it would be more difficult for these users to develop a cost-effective OSTF.
- There are four other users with sizeable QSFs that have lower flows where onsite treatment might be cost effective. But, the potential revenue impact to LASAN would likely be less than the City's largest user described above.
- Onsite treatment systems, if implemented by a number of the larger users, would likely have a total financial impact to LASAN of no more than $10 million per year.

In light of these conclusions, LASAN could consider the following options related to OSTFs:

- Do nothing: The economics of onsite treatment appear to make this a feasible option for only the largest user and a few users with high QSFs.
- Regulate OSTFs: LASAN could establish new regulations to recover lost revenues. Ideas include establishing a TDS limit in the Sewer Use Ordinance, which would apply to all users, or a TDS limit in each discharge permit for industrial users. LASAN could also consider establishing onsite inspection and permit fees.
- Implement Los Angeles Municipal Code (LAMC) 64.30 Prohibitions: In accordance with LAMC 64.30, LASAN will prohibit the discharge of wastewater from an OSTF unless expressly allowed in an industrial wastewater permit. As a condition of the permit, an agreement would be required specifying the City's and the OSTF responsibilities and the cost recovery for services provided for the handling, conveyance, and treatment of wastewater containing BOD/SS/TDS and other pollutants.

- Implement standby charge: Implement a standby charge for users who expect LASAN to provide wastewater treatment during periods when the onsite process is not operating either due to regular maintenance or an emergency. This approach could recover as much as 50 percent of the lost revenue.

- LASAN develop OSTFs and provide operations: LASAN could develop OSTFs and provide operations for dischargers where it is economically viable. LASAN would have more control over the onsite facility discharges and recover some of the lost revenue. LASAN could also consider becoming the contract operator for OSTFs developed by others.

4.2 Wastewater Facilities Impacts Conclusions

Section 3.0 discusses the potential impacts to LASAN's facilities (sewer collection system, the water reclamation plants, and plans for potable reuse) that may be caused by development of OSTFs. The impacts of specific onsite treatment projects, as well as the cumulative effect of multiple onsite treatment projects, would need to be assessed on a case-by-case basis.

Following are the main conclusions about wastewater facilities impacts:

- Impacts to LASAN's facilities are not as significant if there are only a few OSTFs developed. The impacts would be more significant if a greater number of OSTFs are developed. Each OSTF should be evaluated for specific impacts to LASAN's facilities.

- OSTFs may elect to retain 100 percent capacity in LASAN's sanitary sewer system for bypassing and/or failsafe disposal, which would require that LASAN maintain standby treatment capacity and operational capability for occasional or emergency discharges to the sewer system.

- Sewer collection system: The primary impact to LASAN's sewers due to development of OSTFs would be reduced flows and increased constituent concentrations. This combination could lead to solids accumulation in the sewers that could increase odors and corrosion potential. These issues could necessitate the need for additional collection system odor control facilities as well as preventative maintenance for sewer flushing to remove solids. Additionally, RO concentrate discharges could cause scaling if not mixed with sufficient wastewater. Carefully locate sludge discharge points to avoid solids deposition and RO discharge points to minimize scaling. Prohibit the discharge of inert materials (grit and screenings).

- Water reclamation plants: The primary impact of the OSTFs would be the discharge of brine, waste activated sludges and inert materials from OSTFs to the LASAN sewer system. Waste activated sludge could negatively impact settling in the primary clarifiers and is more difficult to digest. Brine treatment will require additional maintenance and costs at the downstream water reclamation plants.

- Water reuse: OSTFs that discharge RO concentrate would increase the TDS of the Title 22 recycled water produced at DCTWRP and LAGWRP, as well as the ECLWRF. The increased TDS could impact the non-potable recycled water users.

- Plans for potable reuse: Reduced wastewater flows and increased TDS could impact the City's plans for potable reuse at DCTWRP. The reduced flows could impact the potable reuse goals and the increased TDS will increase the RO power costs.

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Lead Author:	Jennifer Thompson CDM Smith

CITY OF LOS ANGELES

TECHNICAL MEMORANDUM NO. 12.5.3 ONSITE TREATMENT FACILITY POLICY STUDY – POLICY RECOMMENDATIONS

FINAL

June 2017

707 WILSHIRE BOULEVARD, SUITE 3920 • LOS ANGELES, CALIFORNIA 90017 • P. 213.489.1587 • F. 213.489.1500

CITY OF LOS ANGELES

TECHNICAL MEMORANDUM
NO. 12.5.3
ONSITE TREATMENT FACILITY POLICY STUDY –
POLICY RECOMMENDATIONS

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LIST OF ABBREVIATIONS

Abbreviation	Description
BOD/SS/TDS	biochemical oxygen demand/suspended solids/total dissolved solids
City	City of Los Angeles
DCTWRP	Donald C. Tillman Water Reclamation Plant
ECLWRF	Edward C. Little Water Recycling Facility
HWRP	Hyperion Water Reclamation Plant
IRP	Integrated Resources Plan
IWMD	Industrial Waste Management Division
IWP	Industrial Wastewater Permit
LADWP	Los Angeles Department of Water and Power
LAGWRP	Los Angeles-Glendale Water Reclamation Plant
LAMC	Los Angeles Municipal Code
LASAN	Los Angeles Sanitation
One Water LA	One Water LA 2040 Plan
OSTFs	onsite treatment facilities
QSFs	quality surcharge fees
RO	reverse osmosis
TDS	total dissolved solids
TIWRP	Terminal Island Water Reclamation Plant
TM	technical memorandum

ONSITE TREATMENT FACILITY POLICY STUDY – POLICY RECOMMENDATIONS

1.0 INTRODUCTION

The City of Los Angeles (City), led by Mayor Eric Garcetti, is working on a planning activity, titled the One Water LA 2040 Plan (One Water LA), that aims to cooperatively develop an integrated framework and identify synergies for collaboration within the City and all of its City departments, as well as other agencies/entities, related to wastewater facilities, watersheds, water facilities and water resource efforts. This is a large undertaking as it is comprehensive in nature and connects water to environmental, economic, and social benefits that will build on the success of the City's 2006 Water Integrated Resources Plan (IRP). The development of the One Water LA Plan will result in smarter land use practices, healthier watersheds, greater reliability of our water and wastewater systems, increased efficiency, and operation of our utilities, enhanced livable communities, resilience against climate change, and protection of public health.

One Water LA is considering a multitude of options including the potential use of onsite treatment facilities (OSTFs). These facilities would be located throughout the City service area and would serve the local needs of a smaller area. They would receive wastewater flows that would be diverted from the sanitary sewer collection system prior to reaching one of the major treatment facilities. Demands for this water could come from industries who may have cooling towers, breweries, and golf courses to name a few.

This special study:

1. Evaluates onsite treatment policies other public agencies may have in place (Technical Memorandum [TM] 12.5.1),
2. Evaluates impacts to the collection system, treatment plants, and financial impacts (TM 12.5.2),
3. Develops policy recommendations (this TM, TM 12.5.3), and
4. Rates structure and financial recommendations (TM 12.6).
5. The information from these TMs will be leveraged to help to form a policy for onsite treatment that could be adopted at a local or regional level.

As concluded in TM 12.5.1, after engaging local and national agencies in discussions and distributing a survey regarding onsite treatment policies and practices, it is clear that many agencies are confronted with similar challenges regarding onsite treatment. However, very few have a definitive policy or plan that prepares for onsite treatment issues in the future. Furthermore, most agencies do not have a policy restricting onsite treatment and how such systems could produce recycled water for beneficial use, such as groundwater augmentation or irrigation. Therefore, this TM presents guiding principles for onsite treatment facilities as opposed to a specific policy as was originally envisioned. These recommendations for guiding principals have been developed based on the findings of the analysis to-date, a meeting held with Los Angeles Sanitation (LASAN) on March 7, 2016, and a One Water LA special topic group meeting held on March 22, 2016 that involved community stakeholders.

The remainder of this section discusses background information including the definition of onsite treatment, applicable governing documents, and agencies, and setting.

1.1 Definitions

In a broad sense, the term "onsite treatment" may refer to various types of treatment scenarios. In this memo it is used to describe two specific configurations:

1. Reclaimed water treatment systems developed and owned by the City, potentially in partnership with another entity, such as a university or a contract city. The treatment system would treat nearby sewer flows and is assumed to not include solids treatment. Depending on the desired water quality, the onsite treatment may include reverse osmosis (RO) or other processes that will generate a brine.

2. Reclaimed water treatment systems developed and owned by private entities to reclaim water onsite, prior to being discharged to the public sewers, in order to reduce their potable water demand and/or for pre-treatment of industrial discharges. This onsite treatment could concentrate constituents in the resulting waste stream.

Both of the definitions described above exclude a scenario for which a third party would mine LASAN sewers for liquid flows. Note that two of the City's four existing water reclamation plants, Donald C. Tillman Water Reclamation Plant (DCTWRP) and the Los Angeles-Glendale Water Reclamation Plant (LAGWRP), are considered satellite treatment facilities. Both of these plants provide liquid treatment and produce recycled water upstream in the City's collection system, with solids discharged into downstream sewers and conveyed to Hyperion Water Reclamation Plant (HWRP) for treatment. For the purposes of this TM, OSTFs are defined as small facilities at point-of-use locations in LASAN's services area, which would be upstream of one of the City's water reclamation plants, to serve specific non-potable water demands.

1.2 Impact Evaluation Conclusions

Conclusions of the impact evaluation (TM 12.5.2) are the foundation for policy recommendations included in this TM. Therefore, the conclusions from TM 12.5.2 are reviewed here.

OSTFs could reduce LASAN's revenues and also have the potential to impact LASAN's facilities. LASAN could consider the following options related to onsite treatment facilities:

- Do nothing: The economics of onsite treatment appear to make this a feasible option for only the largest users and a few users with high quality surcharge fees (QSFs). These users are ConocoPhillips, Anheuser Busch, Baxter Healthcare, Juanita Foods, Hostess Brands, and Darling International.
- Implement Los Angeles Municipal Code (LAMC) 64.30 Prohibitions: In accordance with LAMC 64.30, LASAN will prohibit the discharge of wastewater from an OSTF unless expressly allowed in an industrial wastewater permit. As a condition of the permit, an agreement would be required specifying the City's and the OSTF responsibilities and the cost recovery for services provided for the handling, conveyance and treatment of wastewater containing biochemical oxygen demand/suspended solids/total dissolved solids (BOD/SS/TDS) and other pollutants.
- Implement standby charge: Implement a standby charge for users who expect LASAN to provide wastewater treatment during periods when the onsite process is not operating either due to regular maintenance or an emergency. This approach would reduce the risk of other customers subsidizing the cost of privately owned OSTFs.
- Regulate OSTFs: LASAN could establish new regulations. Ideas include establishing onsite inspection and permit fees, possibly a revised QSF structure could be developed to include a tiered rate for solids, total dissolved solids (TDS) limit in the Sewer Use Ordinance, which would apply to all users, or a TDS limit in each discharge permit for industrial users.
- LASAN develop OSTFs and provide operations: LASAN could develop OSTFs and provide operations for dischargers where it is economically viable. LASAN would have more control over the onsite facility discharges and reduce the monitoring efforts. LASAN could also consider becoming the contract operator for onsite treatment facilities developed by others.

Wastewater facilities impacts that could be caused by OSTFs were also assessed as part of TM 12.5.2. Following are the main conclusions about wastewater facilities impacts on the City's existing wastewater facilities (collection system and treatment facilities):

- Impacts to LASAN's facilities are not as significant if there are only a few OSTFs developed. The impacts would be more significant if a greater number of onsite treatment facilities are developed.
- Each onsite facility should be evaluated for specific impacts to LASAN's facilities.

- Onsite treatment facilities may elect to retain 100 percent capacity in LASAN's sanitary sewer system for bypassing and/or failsafe disposal, which would require that LASAN maintain standby treatment capacity and operational capability for occasional or emergency discharges to the sewer system.

- Sewer collection system: The primary impact to LASAN's sewers due to development of onsite treatment facilities would be reduced flows and increased constituent concentrations. This combination could lead to solids accumulation in the sewers that could increase odors and corrosion potential. These issues could necessitate the need for additional collection system odor control facilities as well as preventative maintenance for sewer flushing to remove solids. Additionally, RO or other desalinization processes' concentrate discharges could cause scaling if not mixed with sufficient wastewater. Carefully locate sludge discharge points to avoid solids deposition and RO discharge points to minimize scaling. Prohibit the discharge of inert materials (grit and screenings).

- Water reclamation plants: The primary impact of the onsite treatment facilities would be the discharge of brine, waste activated sludges, and inert materials from onsite treatment facilities to the LASAN sewer system. Waste activated sludge could negatively impact settling in the primary clarifiers and is more difficult to digest. Brine treatment will require additional maintenance and costs at the downstream water reclamation plants.

- Water reuse: Onsite treatment facilities that discharge high salinity concentrate would increase the TDS of the Title 22 recycled water produced at DCTWRP and LAGWRP, as well as the Edward C. Little Water Recycling Facility (ECLWRF). The increased TDS could impact the non-potable recycled water users.

- Plans for potable reuse: Reduced wastewater flows and increased TDS could impact the City's plans for potable reuse at DCTWRP, LAGWRP, the Terminal Island Water Reclamation Plant (TIWRP), and HWRP. The reduced flows could impact the potable reuse goals and the increased TDS will increase the RO power costs.

2.0 GUIDING PRINCIPLES

Based on the findings of TM 12.5.2 (discussed in Section 1.2), it can be concluded that the impacts of each potential OSTF could vary depending on location, size, discharge characteristics, and the water reclamation facility to which they are tributary. Therefore, a prescriptive policy would be difficult to implement as it would not apply across the board. Additionally, TM 12.5.1 summarizes discussions and survey responses from local and national agencies regarding onsite treatment policies and practices. Based on these responses, it is apparent that there are very few agencies that have definitive policies or plans to implement policies to deal with OSTF issues in the future. Therefore, it is recommended that LASAN explore establishing guiding principles that set the basis for how individual facilities will be reviewed and/or approved by LASAN. The City Attorney should be consulted to determine if guiding principles provides sufficient authority for LASAN to approve or deny OSTFs or if new regulations would be required.

To start the process of developing an OSTF, entities wishing to implement OSTFs must submit an application for review to the Industrial Waste Management Division (IWMD) of LASAN. Los Angeles Department of Water and Power (LADWP) should also be notified if the OSTF proposes discharge into the environment, surface water, and/or groundwater. Each application would be reviewed case-by-case based on the guiding principles described herein. LASAN does allow OSTFs in the service area under certain criteria. These criteria may include:

- Existing customers will not pay or subsidize, directly or indirectly, in any way the capital cost or operations of privately owned OSTF.
- Wastewater shall not be taken from LASAN sewers. Such removal may impair the operation of LASAN's system, impairs the City's recycled water program, i.e., reduces the amount of recycled water available for LADWP customers.
- LASAN will not be responsible for the operation or maintenance of privately owned OSTFs. Owners/Operators of privately owned OSTFs will be required to indemnify LASAN.
- Owners/Operators of privately owned OSTFs will be subject to fees that will be paid to LASAN.
- Owner/Operators of privately owned OSTFs are required to obtain an Industrial Wastewater Permit (IWP) from LASAN, and to obtain all other required permits.

The criteria listed above are the main items that will be considered when reviewing an IWP application for an OSTF.

The following guiding principles will be the overarching areas that will be taken into consideration during the review process of a proposed OSTF:

- Owners/Operators of private OSTF will be solely responsible and liable for any and all damages incurred.
- LASAN's mission is to protect public health and the environment. Therefore, protection of public health shall be first and foremost. OSTFs will be required to develop a failure plan that demonstrates that 100 percent of the flows can be disposed in the event of a system failure and may be required to maintain a back-up service for their system.

- OSTFs that are implemented should be solutions that are for the greater good of all LASAN customers. LASAN may develop a criteria framework for evaluating the minimum required benefit. This means that social, environmental, and economic factors will be considered. For example, OSTFs will not be allowed to be used for the primary goal of potable water offset where the City purple pipe system is accessible. Further, all OSTFs should consider the long-term feasibility of such a system. The scope of such projects should be linked to a reduction of potable water use.

- Education and outreach are needed for OSTFs. New OSTFs should communicate with neighbors and provide information regarding potential uses of water treated onsite, which may include irrigation, groundwater recharge, and industrial applications. OSTFs should install and maintain proper signage for projects regarding onsite treated water. Citizens should be educated on the proper use of this water.

- Proper operations and maintenance are required for the sustainability of the OSTF. An entity shall submit an operations and maintenance plan with their IWP application. The design, operation, and maintenance are performed by qualified individuals and approved by LASAN.

- LASAN will evaluate impacts of proposed OSTFs and will specify requirements. LASAN may limit materials that can be returned to the existing sewer, or may assess additional fees. These fees may include a quality surcharge fee or capacity related charge to account for higher costs imposed on LASAN that may arise from high solids and/or TDS discharges by the OSTFs and the need to maintain treatment and conveyance capacity in case the OSTFs are off-line.

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Lead Author:	Jennifer Thompson, CDM Smith

CITY OF LOS ANGELES

TECHNICAL MEMORANDUM NO. 12.6
ON-SITE WASTEWATER TREATMENT PLANT POLICY STUDY – FINANCIAL IMPACTS STUDY

FINAL
September 2017

707 WILSHIRE BOULEVARD, SUITE 3920 • LOS ANGELES, CALIFORNIA 90017 • P. 213.489.1587 • F. 213.572.0361

CITY OF LOS ANGELES

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Abbreviation	Description
ADF	average day flow
AMEL	average monthly effluent limitation
Avg TDS	average total dissolved solids
AVORS	Additional Valley Outfall Relief Sewer
AWPF	Advanced Water Purification Facility
BOD	biochemical oxygen demand
CIS	Coastal Interceptor Sewer
City	City of Los Angeles
COS	Central Outfall Sewer
DCTWRP	Donald C. Tillman Water Reclamation Plant
EVIS	East Valley Interceptor Sewer
gpd	gallons per day
HCF	hundred cubic feet
HWRP	Hyperion Water Reclamation Plant
IRP	integrated resources plan
klb/day	kilopounds per day
LAGWRP	Los Angeles-Glendale Water Reclamation Plant
LASAN	Los Angeles Sanitation
lbs/day	pounds per day
max TDS	maximum total dissolved solids
mg/L	milligrams per liter
mgd	million gallons per day
NCOS	North Central Outfall Sewer
NORS	North Outfall Relief Sewer
NOS	North Outfall Sewer
NPDES	National Pollutant Discharge Elimination System
OSTFs	on-site treatment facilities
QSF	quality surcharge fee
RCLD	replacement cost less depreciation
RO	reverse osmosis
SS	suspended solids
TDS	total dissolved solids
TM	Technical Memorandum
TSS	total suspended solids
West Basin	West Basin Water Recycling Facility
WQO	water quality objectives
WRP	water reclamation plant

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ON-SITE WASTEWATER TREATMENT PLANT POLICY STUDY – FINANCIAL IMPACTS STUDY

1.0 INTRODUCTION

1.1 Background of One Water LA

The City of Los Angeles (City) recently embarked on the One Water LA 2040 Plan. This plan will provide a strategic vision and a collaborative approach for integrated water management. In 2006, the City completed and adopted its first integrated water resources plan (IRP). This plan was the start of a paradigm shift for the City and resulted in significant achievements. Since then, the water landscape in the City has changed with increased demands, new regulations,[SH1] and threats of climate change.

In response to these changes and to help achieve water sustainability, the City initiated the One Water LA 2040 Plan. This plan builds upon the success of the Water IRP, which had a planning horizon to year 2020. The One Water LA 2040 Plan takes a holistic and collaborative approach, to consider all water resources from surface water, groundwater, potable water, wastewater, recycled water, dry-weather runoff, and stormwater as "One Water." The plan identifies multi-departmental and multi-agency integration opportunities to manage water in a more efficient, cost effective, and sustainable manner.

The One Water LA 2040 Plan represents the City's continued and improved commitment to proactively manage all its water resources and implement innovative solutions, driven by the Sustainable City pLAn. The Plan will guide the City with strategic decisions for water resource related projects, programs, and policies that will make Los Angeles a resilient and sustainable City.

1.2 Purpose and Objectives of Task 12.4

One Water LA is considering a multitude of options including the potential use of on-site treatment facilities (OSTFs) and satellite treatment facilities. These facilities would be located throughout the City service area and would serve the local needs of a smaller area or a particular facility. They would treat wastewater flows that could be 1) diverted from the collection system prior to reaching one of the major treatment facilities or 2) generated by a particular facility for use on-site. Demands for this water could come from industries who may have cooling towers, breweries, and golf courses to name a few.

While the City is investigating options for owning and operating OSTFs, several of the City's large industrial and institutional customers have investigated constructing their own OSTFs. This could greatly reduce their Sewer Service Charges by decreasing their discharges to the City's wastewater system. System costs, however, are largely fixed, so additional charges may be needed to maintain system revenues adequate to cover costs of service and prevent reduced revenues from potentially forcing a reduction in the capital improvement program.

The focus of this Technical Memorandum (TM) 12.6 is to 1) evaluate total dissolved solids (TDS) impacts to the City's wastewater system that would result from new brine dischargers; and 2) perform a case study of possible new charges to recover the costs, such as a quality surcharge fee (QSF) to recover TDS-related costs for TDS discharges above domestic strength and a standby charge to recover capacity-related costs.

2.0 TOTAL DISSOLVED SOLIDS EVALUATION

A TDS evaluation was conducted to assess whether the City should pursue a TDS sewer charge based on the potential impact of new brine dischargers on treated water TDS from the Donald C. Tillman Water Reclamation Plant (DCTWRP), Los Angeles-Glendale Water Reclamation Plant (LAGWRP), and Hyperion Water Reclamation Plant (HWRP). The objectives of the TDS evaluation were to establish baseline TDS loads to each facility, evaluate compliance history based on existing regulatory requirements, and assess the impact of new brine dischargers on treated water TDS. To fulfill these objectives, a TDS mass balance was developed for each of the water reclamation plants (WRP).

This section discusses the development of the mass balances, their application in the TDS evaluation, and the results of the evaluation.

2.1 Background

Several of the City's large industrial and institutional sewer service customers have expressed an interest in reclaiming water onsite by constructing and maintaining their own OSTF. While reclaiming water would reduce the amount of flow discharged to the City's system, brine and other waste streams discharged from OSTFs are typically concentrated in contaminants such as TDS that could impact the City's ability to produce reclaimed water and/or comply with regulatory discharge limits.

A mass balance spreadsheet tool was developed to assess the impact of adding new brine dischargers to the service areas feeding DCTWRP, LAGWRP, and HWRP. The mass balances were developed using historic flow and TDS data collected at the WRPs. Where historic data was not available, as in the case of potential future dischargers, planning level assumptions provided by the City were used.

2.2 Assumptions, Historic Data, and Discharge Permits

This section provides a summary of the assumptions, historic data sources, and permit requirements used in the development of the TDS mass balance.

2.2.1 Assumptions

The assumptions used in the development of the mass balances are summarized below.

- General Assumptions (applied to all mass balances)
  - Evaluation of the historic data (discussed in Section 2.3) indicates that DCTWRP and LAGWRP influent TDS concentration is typically higher than effluent TDS concentration. Effluent TDS data for HWRP was not available. Since none of the WRPs have treatment processes intended to remove TDS and there are instances when effluent TDS exceeds influent TDS, it has been assumed for conservatism that the potential impacts on future compliance should be assessed based on the impact on influent TDS and not effluent TDS. For this reason, all mass balances have been configured to calculate influent TDS concentration and load and no credit was taken in the mass balances for TDS reduction within the WRPs. Therefore, the impact of new dischargers on WRP baseline TDS and future permit compliance was assessed based on the assumption that the treated effluent TDS under worst case scenario would be equal to the raw influent TDS.
  - For DCTWRP and LAGWRP, the impact of new dischargers on future permit compliance was assessed by comparing the maximum daily influent TDS concentration and load to the discharge limit. If calculated maximum daily influent TDS concentration or load was sufficiently less than the TDS permit limit, it was concluded that adding the new discharger(s) to the system would not impact the facility's ability to comply with existing TDS limits. For HWRP, the impact of new dischargers was evaluated for information only as the facility does not currently have a TDS permit limit.
  - The average daily TDS concentration was calculated based on the average daily TDS load occurring on the same day as the average day flow (ADF). The average daily TDS concentration was determined by: 1) multiplying the measured daily TDS concentration by the measured daily flow to obtain the daily TDS load; 2) averaging all of the daily TDS loads in the dataset to obtain the average daily TDS load; 3) averaging all the total daily flow values recorded in the data set to obtain the average daily flow; and 4) dividing the average daily load by the average daily flow to obtain the average daily concentration.
  - The maximum daily TDS concentration was calculated based on the maximum daily TDS load occurring on the same day as the ADF. This assumption results in a higher TDS concentration than that recorded on the day that the actual maximum daily TDS load occurred. This conservative assumption was applied

because TDS is only measured once a month, while influent flow is measured daily and, as such, the relationship between flow and TDS concentration could not be sufficiently established. Since higher flows can lead to more dilution and the effluent limits are based on concentration, a more conservative approach was used by assuming it is possible that the maximum day concentration may occur on the same day as the ADF.

- Total influent ADF to the WRP was assumed equal to the total effluent ADF.

- DCTWRP Assumptions
  - DCTWRP receives raw wastewater from two sources: Additional Valley Outfall Relief Sewer (AVORS) and East Valley Interceptor Sewer (EVIS).
  - An existing large industrial customer of Los Angeles Sanitation (LASAN) currently discharges brine upstream of the DCTWRP influent TDS sampling and flow monitoring points with an assumed total daily flow of 40,000 gallons per day (gpd) at a TDS concentration ranging from 3,000 to 3,600 milligrams per liter (mg/L) based on information provided to the City.
  - The existing large industrial customer is planning to expand their OSTF that will discharge brine upstream of the DCTWRP influent TDS sampling and flow monitoring points at an estimated total daily flow of 110,000 gpd. While the brine discharge TDS concentration is expected to be less than the current discharge concentration, the anticipated value is unknown. To be conservative, it was assumed that the brine discharged from the expanded facility will have a TDS concentration of 3,600 mg/L.
  - The DCTWRP effluent TDS measurements are assumed to be the analytical results of the compliance samples.

- LAGWRP Assumptions
  - LAGWRP receives raw wastewater from a single source, the North Outfall Sewer (NOS).
  - The LAGWRP effluent TDS measurements are assumed to be the analytical results of the compliance samples.

- HWRP Assumptions
  - HWRP receives raw wastewater from five sources: North Central Outfall Sewer (NCOS), North Outfall Relief Sewer (NORS), Central Outfall Sewer (COS), Coastal Interceptor Sewer (CIS), and NOS.
  - The three sewer sources with the lowest TDS concentrations (NCOS, NORS, and COS) are combined at the plant with limited mixing during treatment with the higher TDS sewer sources (CIS and NOS).

– Due to the limited mixing between the higher TDS and lower TDS sewer sources, it has been assumed that the treated effluent from CIS and NOS is discharged through the ocean outfall while the treated effluent from NCOS, NORS, and COS can be discharged either through the ocean outfall or to the West Basin Water Recycling Facility (West Basin).
– The City is currently planning for an advanced water purification facility (AWPF) to be located at DCTWRP. The conceptual design is based on diverting 31.25 million gallons per day (mgd) of wastewater upstream of HWRP. The sewer will be diverted from the lower TDS sewer source(s) and treated for reuse. Brine will be rejected from the AWPF at a flow 5.5 mgd and returned to the lower TDS sewer main, combined with raw wastewater, and treated at HWRP.

2.2.2 Historic Data

Where available historic flow and TDS data was used as part of this evaluation. The extent of the historic data used in the TDS evaluation is summarized in Table 1 for each WRP. The raw data compiled for each WRP is provided in Appendix A.

2.2.3 TDS Discharge Permit Limits

DCTWRP, LAGWRP, and HWRP are subject to the waste discharger requirements set forth through their respective National Pollutant Discharge Elimination System (NPDES) permits. The NPDES permits for LAGWRP and DCTWRP establish an average monthly effluent limitation (AMEL) for TDS. For DCTWRP, the TDS AMEL is 950 mg/L and 633,840 pounds per day (lbs/day). For LAGWRP, the TDS AMEL is 950 mg/L and 158,600 lbs/day. The TDS limitation is based on achieving compliance with the water quality objectives (WQOs) set forth in the Water Quality Control Plan for the Los Angeles Region (Basin Plan). The AMEL is defined as the average of the analytical results collected during the calendar month. Per the NPDES permits, if only a single sample is collected during the calendar month and that sample exceeds the AMEL, the discharger may be considered out of compliance for the entire calendar month.

Table 1 Summary of Historic Data
One Water LA 2040 Plan – TM 12.6

WRP	Flow Data	TDS Data	
DCTWRP	Primary influent • Average daily flow • January 1, 2010 and April 11, 2016	Primary influent • One sample per month • October 1, 2010 and April 11, 2016	Product water • One sample per month • January 1, 2010 and April 11, 2016
LAGWRP	Plant influent • Average daily flow • January 1, 2010 and April 11, 2016	Plant influent • One sample per month • October 1, 2010 and April 11, 2016	Final effluent • One sample per month • January 1, 2010 and April 11, 2016
HWRP	Plant influent • Average daily flow for the NOS, NORS, NCOS, COS, and CWIS • January 1, 2010 and April 11, 2016	Plant influent • One sample per month for the NOS, NORS, NCOS, COS, and CWIS • October 1, 2010 and April 11, 2016	No data available

While HWRP does not have an effluent TDS limit, the potential impact of new brine dischargers on effluent TDS was still evaluated because high TDS may impact secondary treatment process performance and/or recycled water quality.

A copy of the NPDES permit for each WRP is provided in Appendix B.

2.3 Data Evaluation

Prior to developing the TDS mass balance for each facility, the historic data was evaluated to identify significant observations or trends in the data and to assess historic compliance with effluent TDS limitations. The findings from the data evaluation are discussed in the sections that follow for each facility.

2.3.1 DCTWRP Data Evaluation

The combined average daily influent wastewater flow from AVORS and EVIS recorded at DCTWRP during the historic data period is shown on Figure 1. During the data period, the influent flow ranged from 37.6 mgd to 68.2 mgd. Typically, DCTWRP operates half of the plant, which has a capacity of 40 mgd. From April through July 2013, DCTWRP operated the entire plant and treated flows in excess of 40 mgd, ranging from 54.2 mgd to 63.8 mgd. While the influent flows fluctuated over time, the data does not show a significant increase or decrease in flows at the beginning of the data period compared to the end of the data period.

A comparison of the influent and effluent TDS concentrations measured over the 65-month data period is provided on Figure 2. Samples were collected from the influent and effluent wastewater streams and analyzed for TDS at a frequency of one day per month. For samples collected on the same day, influent TDS was higher than effluent TDS 94 percent of the time. The influent TDS concentration ranged from 450 to 744 mg/L. The effluent TDS concentration ranged from 412 to 684 mg/L. The maximum observed effluent TDS concentration is well below the AMEL of 950 mg/L. The AMEL is also significantly greater than the maximum influent TDS concentration.

The trend in the data shown on Figure 1 and Figure 2 indicates that the concentration of TDS may be increasing over time, but without a corresponding decrease in influent flow.

Since influent TDS concentration is historically higher than effluent TDS concentration, the change in TDS load (TDS delta) was plotted on Figure 3 to determine whether credit should be taken for TDS removal at the WRP. Since the TDS delta showed significant variation from month to month and at times was negative, it was determined that for conservatism, the impacts of adding new dischargers should be assessed based on achieving TDS water quality objectives at the influent of the WRP. Reduction of TDS at the WRP could be attributed to several factors including variations in sampling methods between the influent and effluent sampling points or potentially the removal of sugars in the biological process. Conversely, an increase in TDS at the WRP could also be attributed to sampling methods, analytical errors, or chemical addition at the facility.

The influent TDS load (in kilopounds per day [klb/day]) observed over the data period is shown on Figure 4. The data shows a generally increasing trend over time due to the increasing concentration over relatively stable influent flows as previously discussed. The maximum observed influent TDS load of 328,840 lbs/day occurred in June 2013 when DCTWRP was operating at a higher than normal influent flow. The maximum observed influent TDS load is well below the AMEL of 633,840 lbs/day.

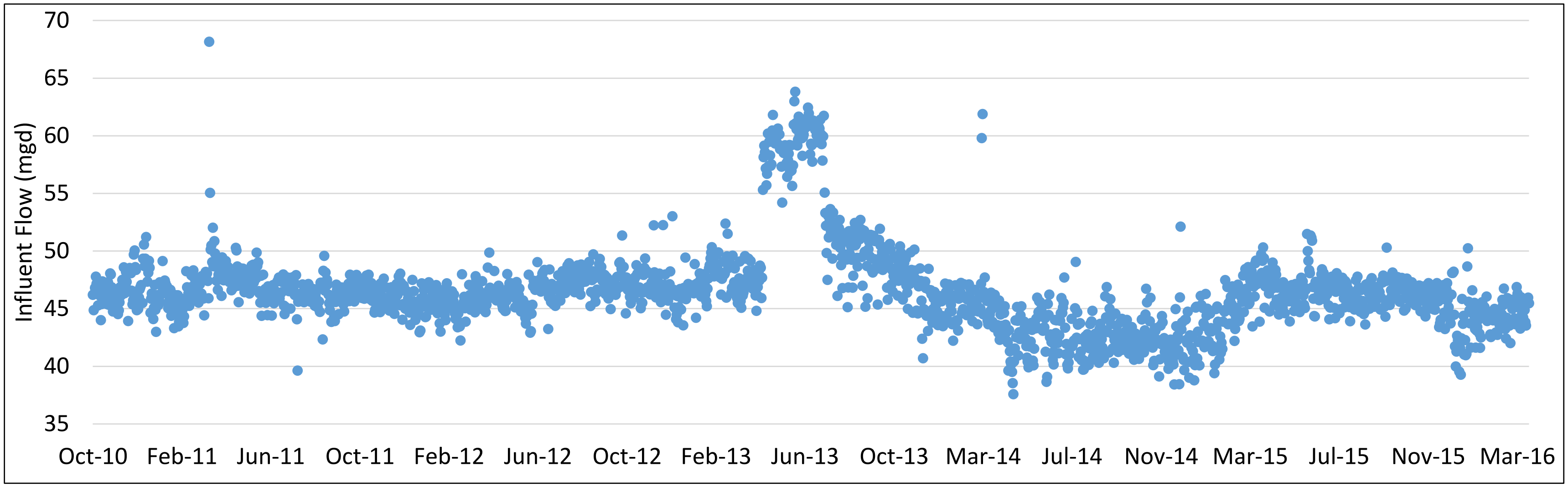


Figure 1 DCTWRP Influent Wastewater Flow

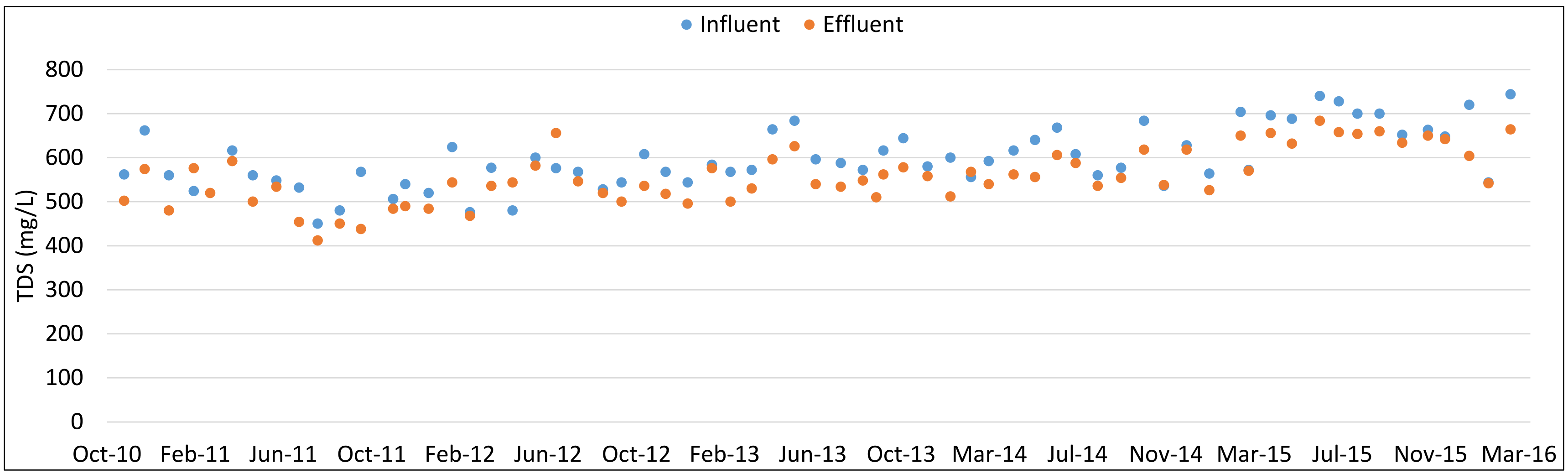


Figure 2 DCTWRP Influent and Effluent TDS Concentration

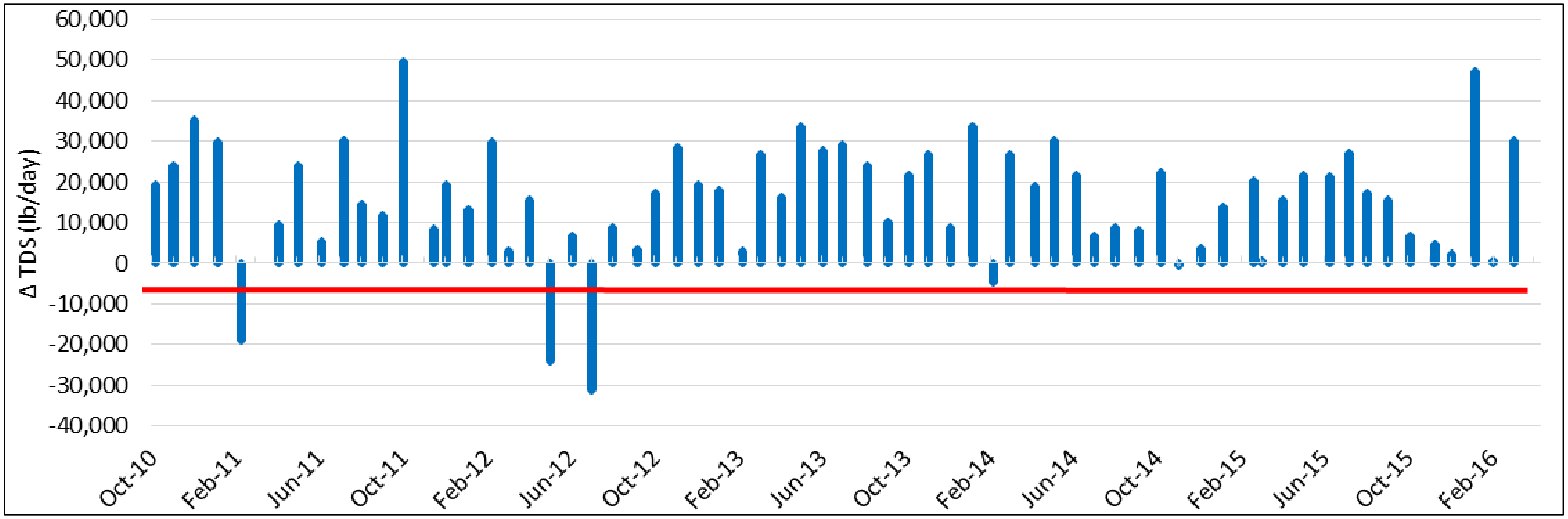


Figure 3 DCTWRP TDS Load Delta (Influent – Effluent)

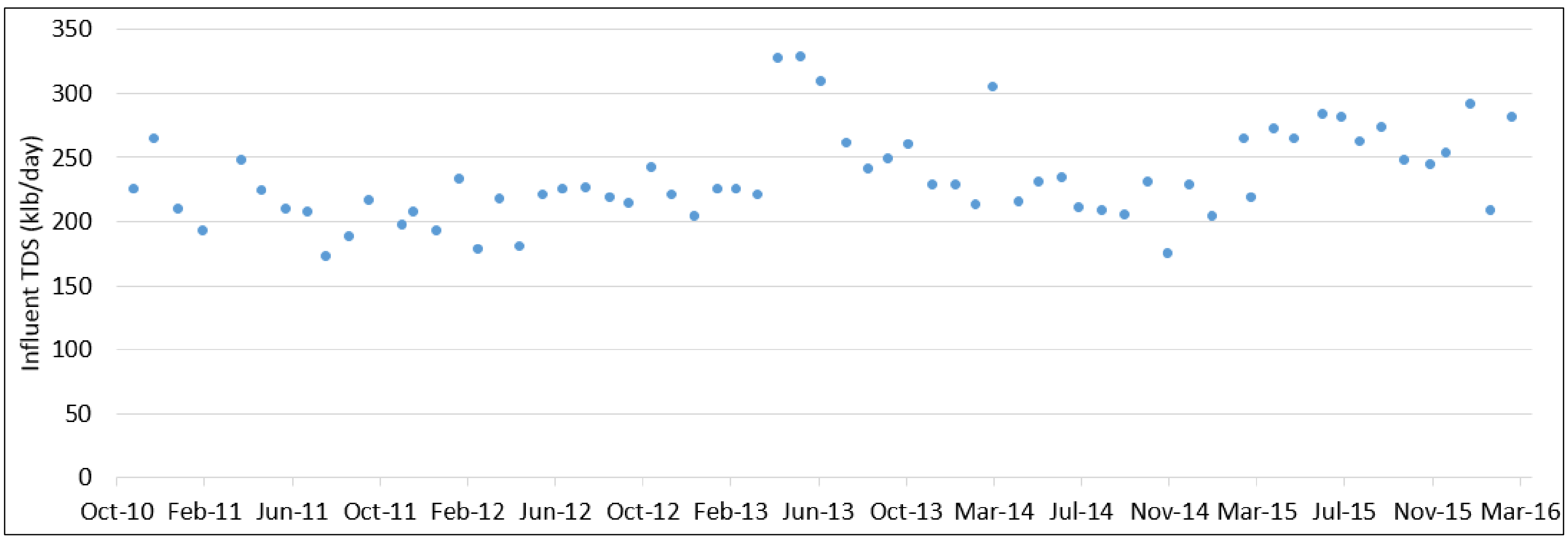


Figure 4 DCTWRP Influent TDS Load

The effluent TDS may also impact the City's planned GWR project in the San Fernando Valley. The City is considering a range of treatment alternatives for the AWPF (to be located at DCTWRP) that may or may not include reverse osmosis (RO) treatment to reduce TDS. Alternative treatment technologies without RO or other TDS removal technologies are being considered. The City is currently evaluating TDS impacts to the San Fernando Basin as part of the Salt and Nutrient Management Plan development. The results of this analysis could indicate that additional TDS discharges to the DCTWRP service area may impact the quality of recycled water replenished to the San Fernando Basin and impact the treatment selection.

2.3.2 LAGWRP Data Evaluation

The average daily influent wastewater flow recorded at the LAGWRP over the historic data period is shown on Figure 5. During the historic data period, influent flows ranged from 12.6 mgd to 22.4 mgd with an ADF of 19.1 mgd. The data shows a steady decrease in influent average daily flow over time with 2010 flows in excess of 20 mgd and 2016 flows approaching 15 mgd, suggesting a 25 percent decrease over the data period.

A comparison of the influent and effluent TDS concentrations measured over the sixty-five-month data period is provided on Figure 6. Similar to DCTWRP, samples were collected from the influent and effluent wastewater streams and analyzed for TDS at a frequency of one time per month. For samples collected on the same day, influent TDS was higher than effluent TDS 95 percent of the time. The influent TDS concentration ranged from 544 to 948 mg/L and the effluent TDS concentration ranged from 446 to 842 mg/L. While the maximum observed effluent TDS concentration is below the AMEL of 950 mg/L, the maximum observed influent TDS concentration is approximately equal to the AMEL. This indicates that the facility may be depending on TDS removal at the WRP to meet the discharge limitation.

The trends in the data shown on Figure 5 and Figure 6 supports that the concentration of TDS is increasing over time with a corresponding decrease in influent flow.

Similar to DCTWRP, the change in influent TDS load (TDS delta) was plotted on Figure 7 to assess whether credit for TDS removal at the WRP should be applied in the mass balance. Since the TDS delta shows a lot of variation from month to month and at times was negative, it was determined for conservatism, that the impacts of adding new dischargers to the collection system should be assessed based on achieving the TDS water quality objectives at the influent to the WRP.

The influent TDS load (in klb/day) measured over the data period is shown on Figure 8. The data supports that the influent load to the plant may be increasing over time. The maximum observed influent load of 154,355 lbs/day occurred in July 2014 and is very close in value to the AMEL of 158,600 lbs/day.

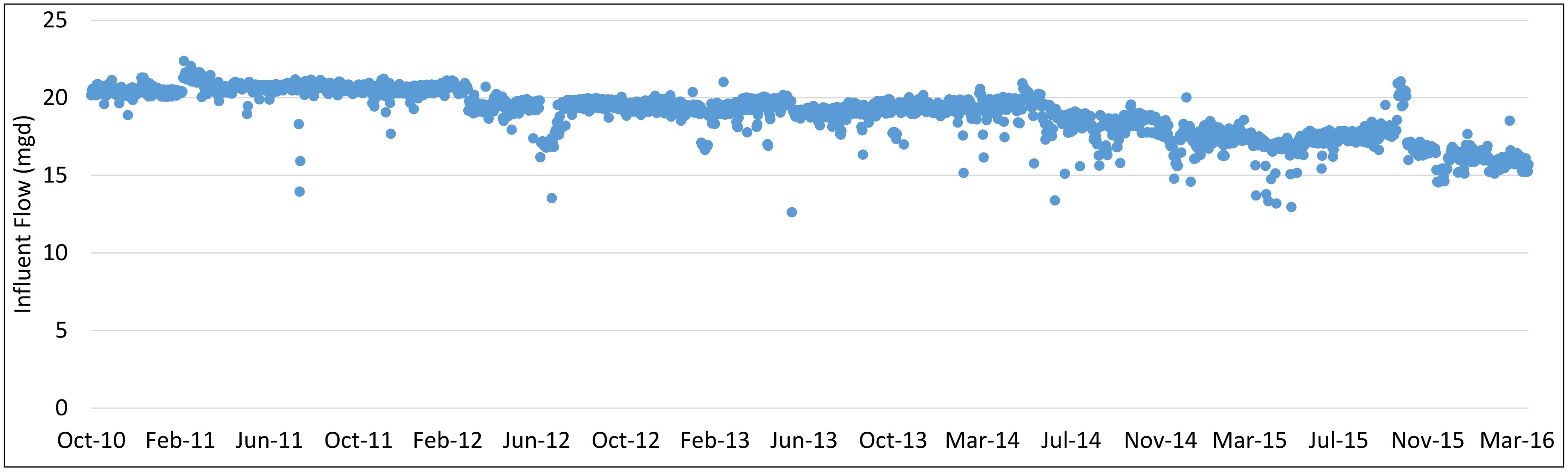


Figure 5 LAGWRP Influent Flow

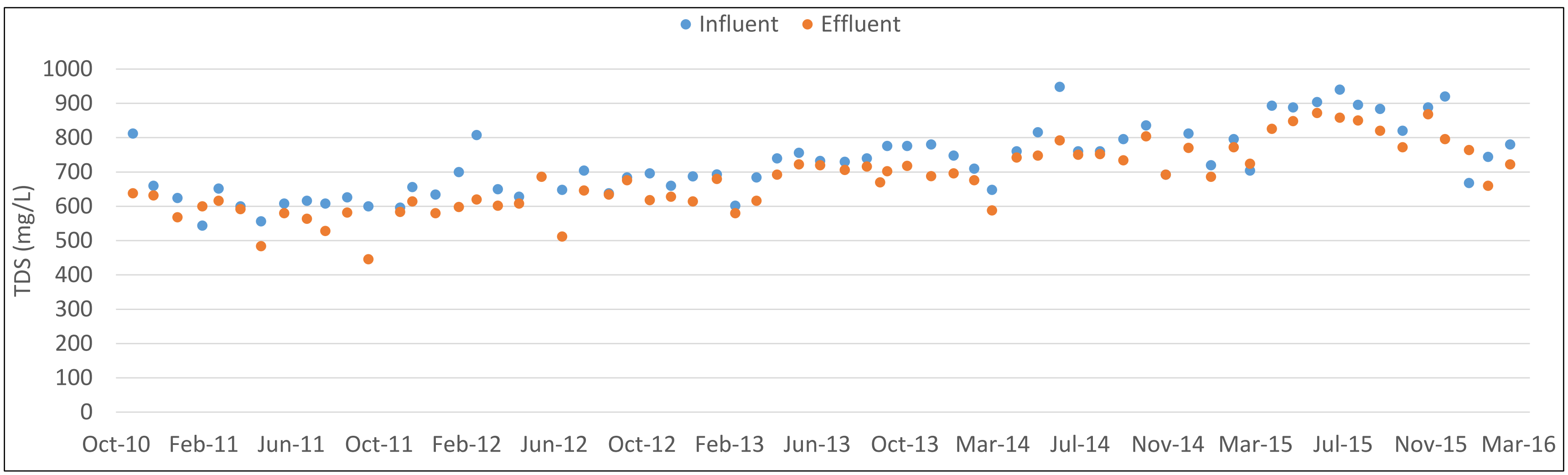


Figure 6 LAGWRP Influent and Effluent TDS Concentration

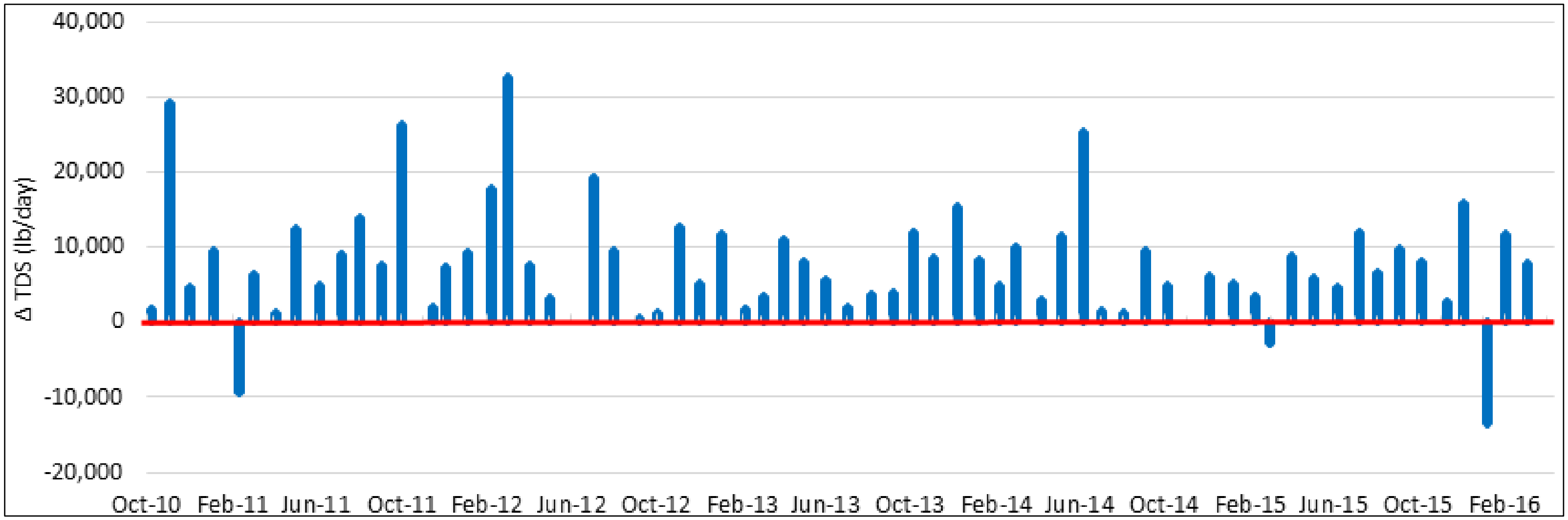


Figure 7 LAGWRP TDS Load Delta (Influent – Effluent)

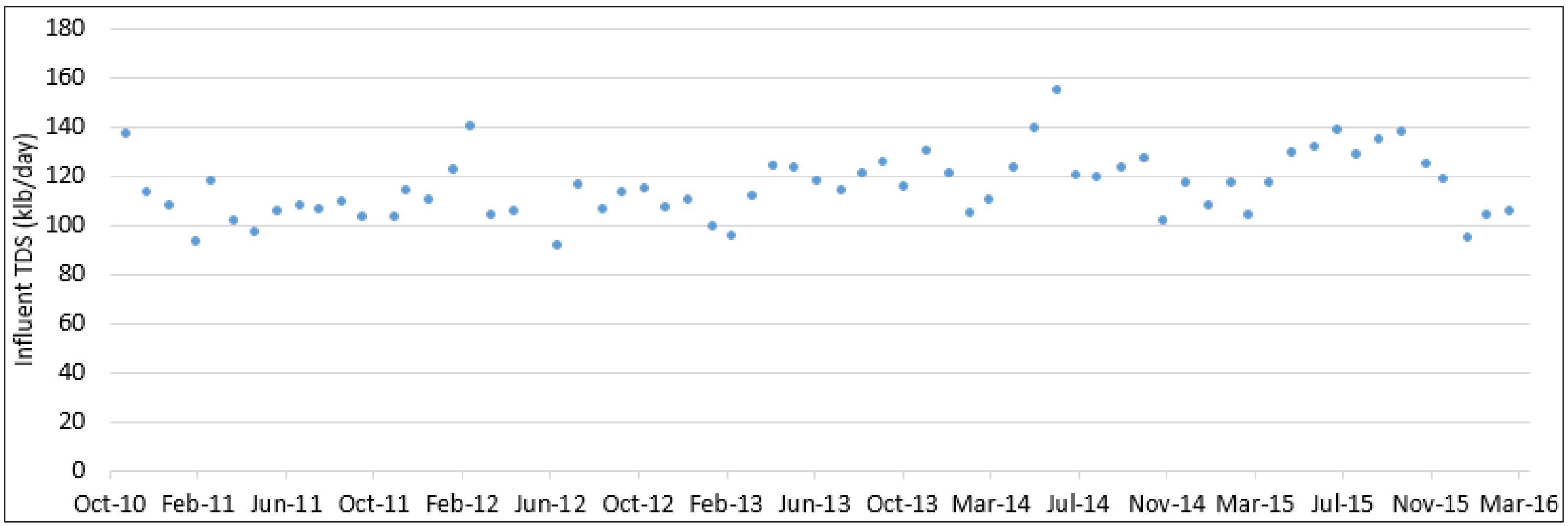


Figure 8 LAGWRP Influent TDS Load

2.3.3 HWRP Data Evaluation

For HWRP, influent flow and TDS load from the higher TDS influent wastewater streams (CIS and NOS) were compared to the lower TDS influent wastewater streams (NCOS, NORS, and COS). The comparison of total average daily influent flow is shown on Figure 9. During the sixty-five-month historic data period, the combined average daily influent flow from the NCOS, NORS, and COS ranged from 151 mgd to 327 mgd with an ADF of 192 mgd. The combined influent flow from the CIS and NOS ranged from 53 mgd to 170 mgd with an ADF of 90 mgd. Both wastewater streams showed influent flows generally decreasing over the data period.

For HWRP, only influent TDS concentration and flow data was available. Effluent TDS is not regulated or monitored as part of the NPDES permit and as such historic TDS data was not available for this evaluation. Figure 10 provides a summary of the influent TDS concentration from each of the service areas. As illustrated on Figure 10, the TDS concentration in the influent wastewater streams to HWRP are generally increasing over time.

The trends in the data shown on Figure 9 and Figure 10 suggest that TDS concentration may be increasing and influent flow may be decreasing over time.

The influent TDS load (in klb/day) measured over the data period from the combined influent wastewater streams is shown on Figure 11. The data supports that the influent load to the plant may be increasing over time. The maximum observed load from the combined CIS and NOS wastewater stream is 1,473,490 lbs/day, which occurred in December 2014. The maximum observed load from the combined NCOS, NORS, and COS wastewater stream is 1,383,701 lbs/day and occurred in October 2015.

2.4 TDS Mass Balances

A mass balance spreadsheet model (OWLA_TDS_MassBalance.xlsx) was developed for each of the WRPs to quantify the impact of new brine dischargers on existing system TDS. Each spreadsheet model accounts for planned brine discharge projects and allows for the addition of up to three new dischargers upstream of the WRP. As discussed in Section 2.2.1 and supported by the data evaluated in Section 2.3, one major assumption built into the mass balances is that the ability to meet the effluent TDS objective was assessed based on meeting the objective at the influent to the WRP. This assumption provides a factor of safety in maintaining regulatory compliance since it does not take credit for potential TDS removal at the WRP.

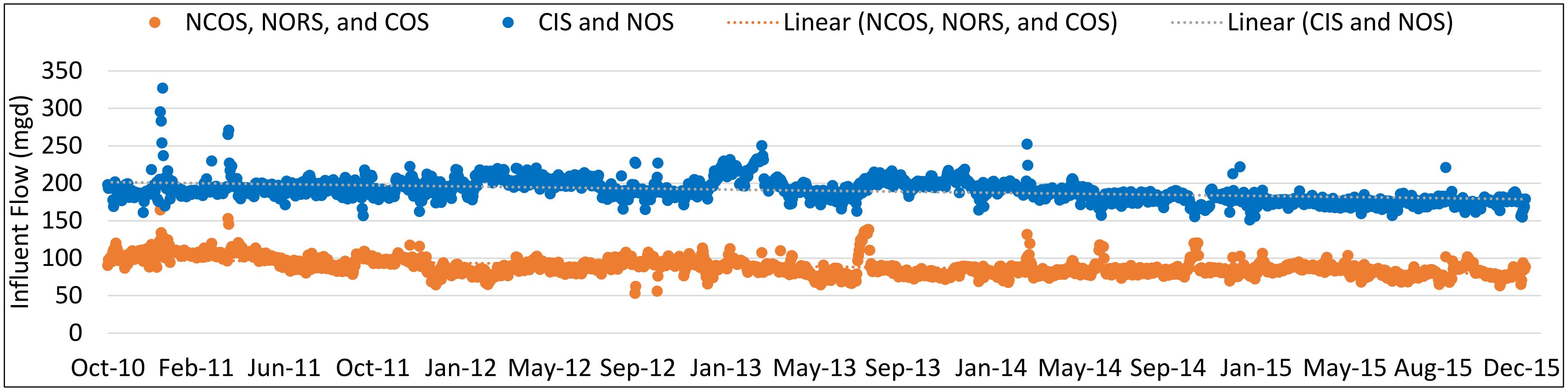


Figure 9 HWRP Influent Flow

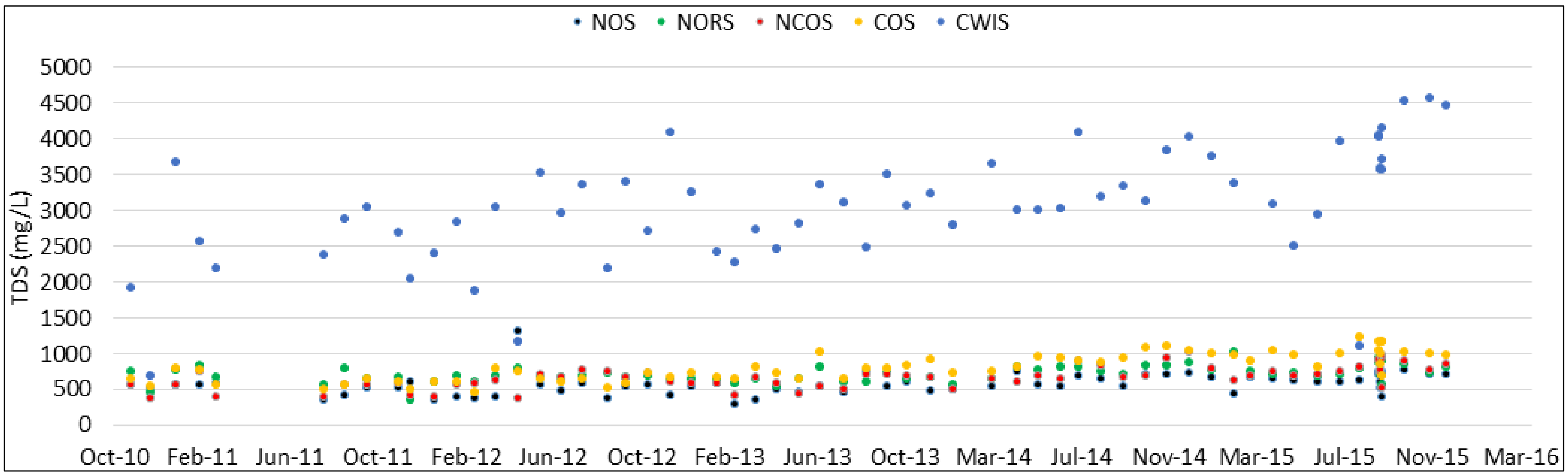


Figure 10 HWRP Influent TDS Concentration by Service Area

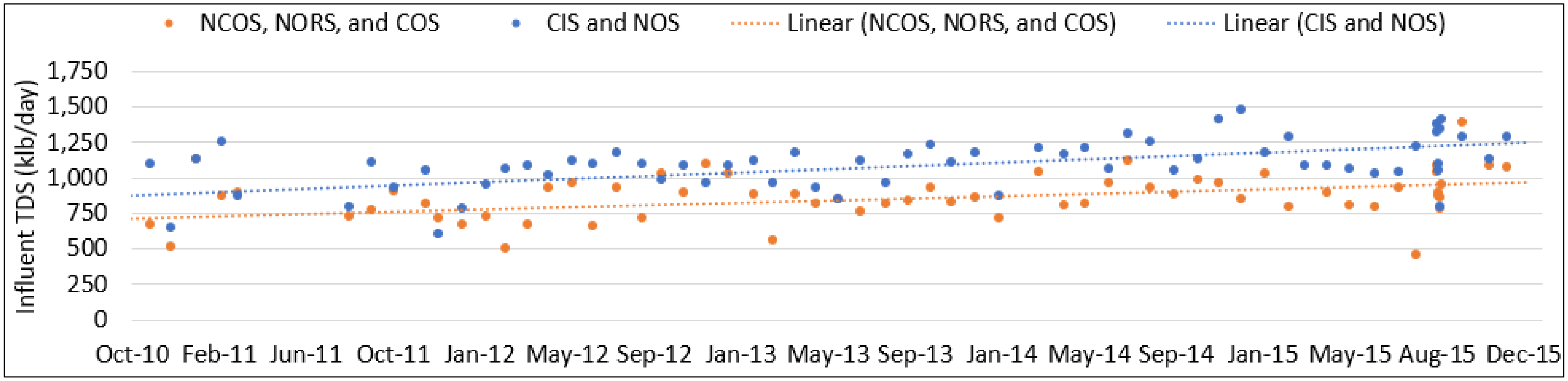


Figure 11 **HWRP Influent TDS Load**

For DCTWRP and LAGWRP, the effluent water quality objective is defined in their respective NPDES permits by the AMEL. Since these facilities take effluent TDS compliance samples at a frequency of one day per month, the mass balances were set up so that permit compliance may be assessed by comparing the maximum daily WRP influent TDS concentration to the AMEL. The maximum daily TDS concentration was calculated using the maximum daily TDS load at the ADF. For reference, the mass balances also provide the average daily TDS concentration calculated using the average daily TDS load at the ADF.

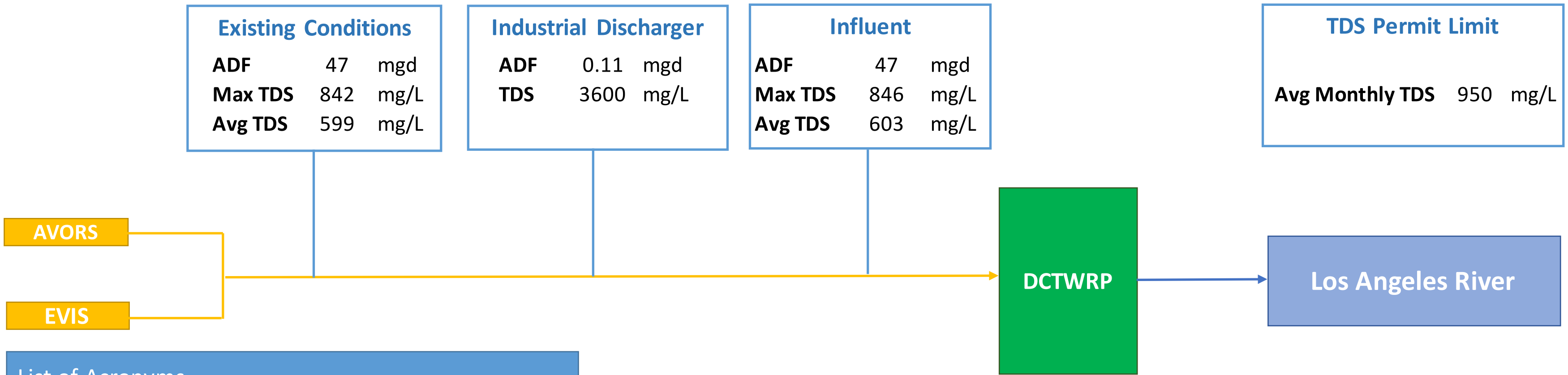
The sections that follow describe the development of the mass balance for each facility, baseline TDS levels within each system, and the potential impact of planned brine dischargers on WRP influent TDS. A printout of the mass balance developed for each WRP can be found Appendix C.

2.4.1 DCTWRP Mass Balance

The mass balance for DCTWRP was developed using the historic influent flow and TDS concentration data discussed in Section 2.3.1 and the planning level assumptions for the increase in brine discharge from the large industrial user's OSTF expansion. As depicted on Figure 12, the influent wastewater to DCTWRP is the combined wastewater from the AVORS and EVIS and includes the brine discharge from the existing industrial customer. The baseline condition is represented by the ADF, maximum total dissolved solids (Max TDS), and average total dissolved solids (Avg TDS) determined from the historic influent data and shown in the 'Existing Conditions' box on Figure 12.

The anticipated brine discharge from the expansion of the industrial customer's OSTF is shown in the 'Industrial Discharger' box on Figure 12. The industrial customer's existing OSTF discharges brine at a total daily flow of 40,000 gpd and a TDS ranging from 3,000 to 3,600 mg/L. The spreadsheet model was developed based on the assumption that the existing brine discharge has a TDS of 3,600 mg/L. The existing brine discharge is subtracted from the future brine discharge in the mass balance to account for the OSTF expansion when assessing the potential impact on system TDS.

As shown on Figure 12, at a brine discharge flow of 110,000 gpd and a TDS concentration of 3,600 mg/L, the industrial customer's OSTF expansion would increase the maximum daily influent TDS from 842 mg/L to 846 mg/L indicating that the additional brine discharged from the expanded OSTF would have a negligible impact on the baseline TDS of the system. Since the influent TDS concentration remains below the WRP's AMEL for TDS of 950 mg/L, the additional brine discharge should not cause compliance issues for TDS.



<u>List of Acronyms</u>
ADF - Average Daily Flow
Avg - Average
Max - Maximum
TDS - Total Dissolved Solids
AVORS - Additional Valley Outfall Relief Sewer
EVIS - East Valley Interceptor Sewer
DCTWRP - Donald C. Tillman Water Reclamation Plant

Figure 12 DCTWRP TDS Mass Balance

2.4.2 LAGWRP Mass Balance

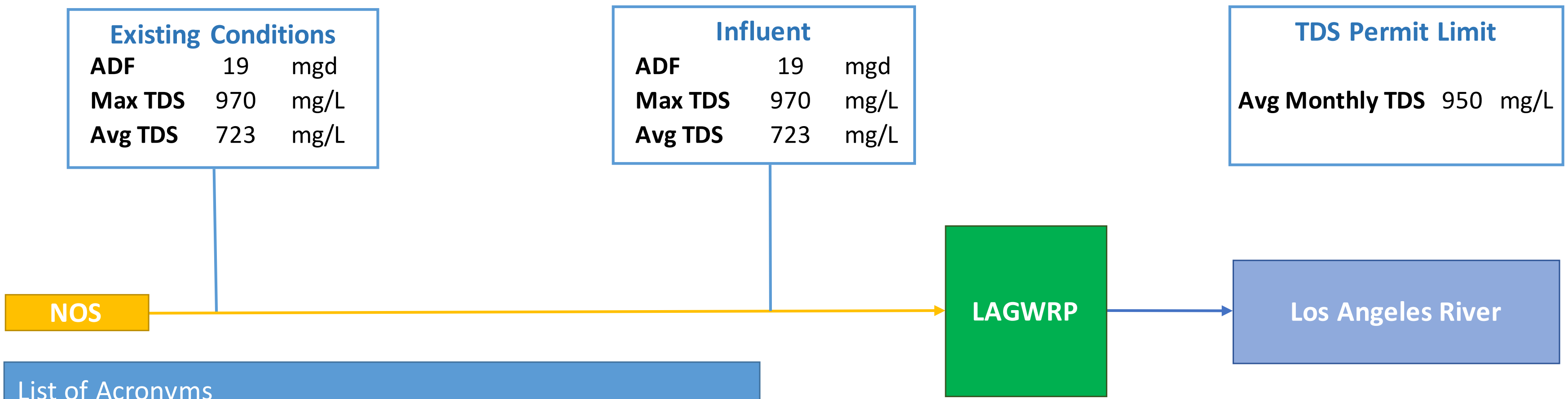
The mass balance for LAGWRP was developed using the historic influent flow and TDS concentration data discussed in Section 2.3.2. The mass balance was used to establish baseline conditions. As shown on Figure 13, the influent wastewater to LAGWRP comes from the NOS. The baseline condition for the ADF, Max TDS, and Avg TDS determined from the historic influent data is shown in the 'Existing Conditions' box on Figure 13.

Planned projects were not included as part of the TDS evaluation for the WRP. The TDS mass balance on Figure 13 shows that the influent Max TDS is currently higher than the WRP's effluent AMEL for TDS concentration of 950 mg/L. However, it is the historic data used for this evaluation shows all effluent TDS compliance samples are below the WRP's effluent TDS AMEL.

2.4.3 HWRP Mass Balance

The mass balance for HWRP was developed using the historic influent flow and TDS concentration data discussed in Section 2.3.3 and the planning level assumptions established for the sewer flow diversion and brine discharge associated with the potential AWPF at DCTWRP. As depicted on Figure 14, the influent wastewater to HWRP can be divided into two sources: the lower TDS wastewater streams (NCOS, NORS, and COS) and the higher TDS wastewater streams (COS and NOS). Since limited mixing occurs between the higher and lower TDS wastewater streams during treatment, the treated effluent from the lower TDS wastewater streams is shown in the mass balance as discharging either to West Basin or to the Ocean Outfall. The higher TDS wastewater streams are assumed to discharge to the Ocean Outfall. HWTP does not have a discharge limitation on TDS.

The ADF, Max TDS, and Avg TDS of the historic influent data represent the baseline condition and are shown in the 'Existing Conditions' box of Figure 14. The AWPF at DCTWRP is a planned project that has not yet been constructed. It is anticipated that the diversion of sewer flows to the AWPF and the subsequent addition of brine to the lower TDS wastewater streams will significantly impact baseline influent TDS concentrations to HWRP. As shown on Figure 14, the combined influent TDS from the NCOS, NORS, and COS are estimated to increase from 1,177 mg/L to 1,359 mg/L at the influent to HWRP when the AWPF is online.



List of Acronyms
ADF - Average Daily Flow
Avg - Average
Max - Maximum
TDS - Total Dissolved Solids
NOS - North Outfall Sewer
LAGWRP - Los Angeles-Glendale Water Reclamation Plant

Figure 13 LAGWRP TDS Mass Balance

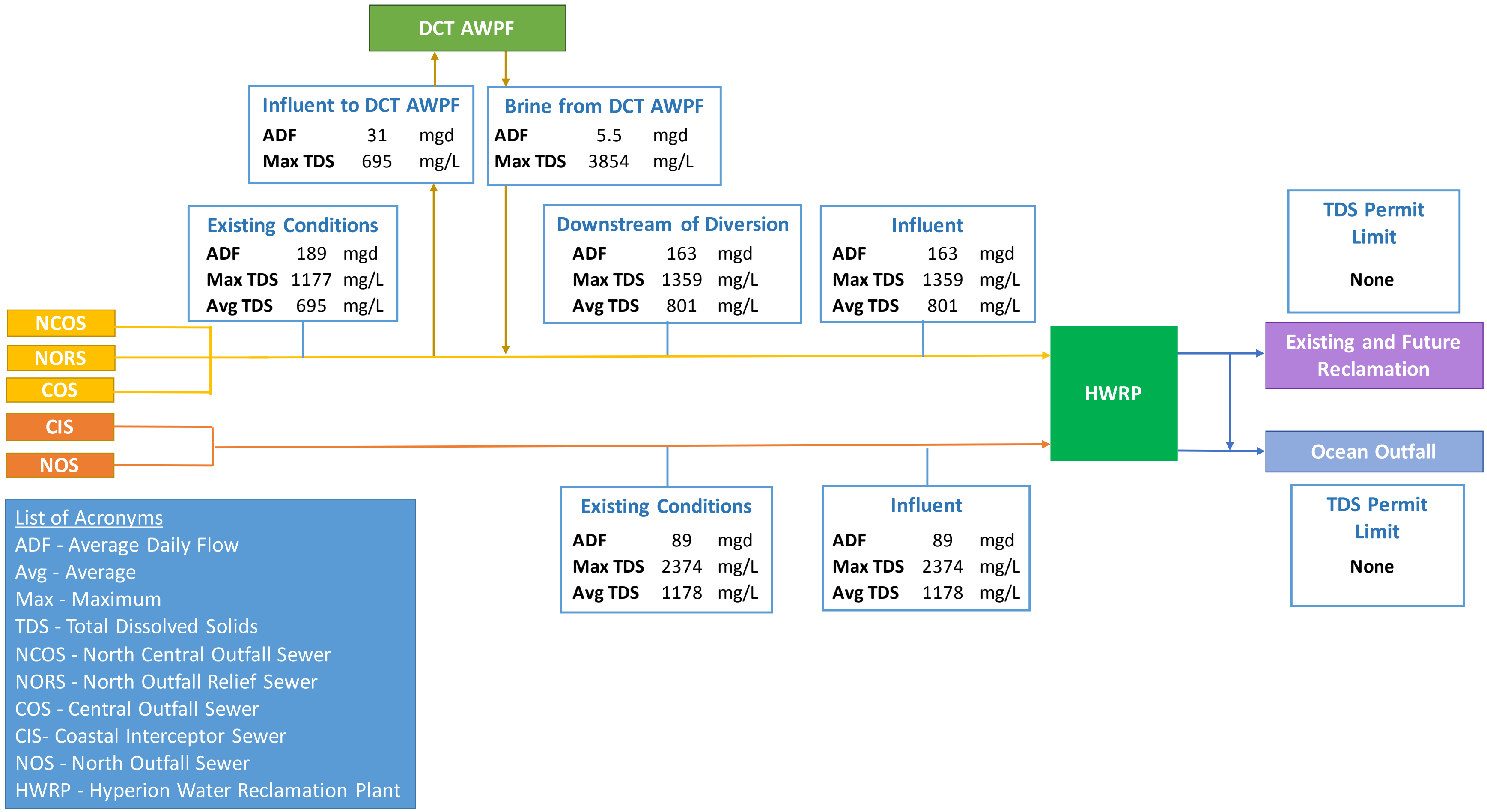


Figure 14 HWRP TDS Mass Balance

2.4.4 HWRP Results

Below is a summary of the results, findings and recommendations identified during the TDS evaluation for HWRP.

- Both the higher and lower TDS influent wastewater streams showed influent flows generally decreasing over the historic data period.
- It is anticipated that the diversion of sewer flows to the potential AWPF at DCTWRP and the subsequent addition of brine to the lower TDS service areas will significantly impact influent TDS concentrations at HWRP.

2.5 TDS Evaluation Results

The results, findings, and recommendations from the TDS evaluation are presented in the section that follows for each facility.

2.5.1 DCTWRP Results

The results, findings, and recommendations from the TDS evaluation for DCTWRP are:

- Influent TDS is generally increasing over time.
- Since the TDS delta showed significant variation from month to month and at times was negative, the impacts of adding new dischargers should be assessed based on achieving TDS water quality objectives at the influent of the WRP.
- The historic data shows that the TDS concentration and load is well below the AMEL.
- The additional brine that would be discharged from the industrial customer's expanded OSTF has a negligible impact on the baseline TDS and should not impact the ability of the WRP to remain in compliance with their TDS AMEL.

2.5.2 LAGWRP Results

Below is a summary of the results, findings and recommendations identified during the TDS evaluation for LAGWRP.

- The historic data shows a steady decrease in influent flow over time.
- The influent TDS concentration is generally increasing over time.
- Since the TDS delta showed significant variation from month to month and at times was negative, the impacts of adding new dischargers should be assessed based on achieving TDS water quality objectives at the influent of the WRP.

- The maximum historic influent load at the baseline condition is very close to exceeding the AMEL.
- Adding brine dischargers to the LAGWRP service areas, including the San Fernando Valley service areas that could get routed to LAGWRP, may cause compliance issues with the WRP's TDS concentration and load AMELs depending on the flow quantity and TDS concentration. Further diversion of Valley wastewater away from LAGWRP needs to be evaluated in more detail to assess potential impacts to the TDS concentration and load AMELs at LAGWRP.

3.0 ALTERNATIVE CHARGE DEVELOPMENT

Section 3.0 describes the case study evaluation performed to determine how to recover costs that may arise from high TDS discharges by an OSTF, the need to maintain treatment and conveyance capacity to serve as back-up to the OSTF should it fail, and "stranded assets" caused by reduced wastewater discharged to the system.

The feasibility of implementing a QSF to recover TDS-related costs for TDS discharges above domestic strength was also considered. Section 2.0 assessed the TDS impacts of an OSTF discharging brine upstream of DCTWRP and concluded that the OSTF evaluated in this case study did not result in an impact that would exceed TDS discharge requirements. Thus, a QSF is not applicable and could not be justified under the requirements of Proposition 218. A QSF may become applicable in the future if wastewater TDS concentrations increase to a point where the TDS AMELs at DCTWRP and LAGWRP are exceeded; this can be tracked as LASAN continues to monitor compliance with the TDS AMELs for DCTWRP and LAGWRP. Therefore, the focus of this evaluation in Section 3.0 was looking at options for a standby charge.

3.1 Case Study Background

An industrial customer of LASAN, is contemplating treating its own wastewater and reusing that treated wastewater for its own purposes. However, several days a year the RO system is expected to be taken out of service for maintenance requiring the customer to have a backup system in which to dispose of the treated wastewater. The customer plans to use LASAN's system for this purpose. Therefore, LASAN is interested in options for charging for standby services (or readiness to serve) for the intermittent use of its system. These charges would reflect the costs associated with reserving capacity in the system and for maintaining that system since LASAN must keep the industrial customer's full capacity requirements available for those days when the customer's RO system is down.

Options were prepared for calculating a standby charge for any customer of LASAN who may decide to treat their own wastewater yet require a backup for wastewater treatment. A standby charge is designed to capture the costs incurred by LASAN to hold some capacity in reserve in case the standby customer needs to release flows into LASAN's system as well as the costs incurred to maintain the collection system.

A potential standby charge was calculated on three bases:

- Net plant investment
- Existing debt service
- Annual maintenance

Using a combination of net plant or existing debt, along with annual maintenance is also an option.

3.2 Calculations

To illustrate the different methodologies, this memo presents the calculations for annual standby charges for the customer. The customer's share of LASAN's system is shown in Table 2. The customer accounts for a very small percentage of the total system with respect to flow, biological oxygen demand (BOD) and total suspended solids (TSS). However, in terms of revenue they represent about $4 million a year of revenue for LASAN, which is less than 1 percent of LASAN's annual revenue.

Table 2 Customer's Share of LASAN System
One Water LA 2040 Plan – TM 12.6

	Volume (mgd)	BOD (lbs/day)	TSS (lbs/day)
System, Total City(1)	560	1,627,000	1,317,000
Large Industrial Customer(2)	1.100	4,415	10,970
Large Industrial Customer as Percent of Total City	0.2%	0.3%	0.8%

Notes:
(1) ASSFC15-16 Final.xls, SFC tab
(2) Volume is from customer's plan, BOD & TSS are Average July 1 – Dec. 31, 2015.

3.2.1 Net Plant Investment Method

A standby charge may be calculated on the net plant investment. This methodology presumes that LASAN made investments in the system based on the industrial customer being a part of the system. Just because the industrial customer leaves the system, the costs associated with that infrastructure do not go away. Therefore, LASAN should be able to recuperate some of those costs without placing the burden on other customers. A charge developed under this methodology must be developed based on the assets in place at the time the customer moves to standby service.

Table 3 shows LASAN's net plant investment as of the end of fiscal year (FY) 2015. Almost 74 percent of collection and treatment system assets are related to flow. The remaining assets are related to treating BOD and handling TSS. The costs are shown on a replacement cost less depreciation (RCLD) basis because LASAN uses RCLD internally to calculate its facilities charges. Using RCLD for the standby charge provides a consistent calculation basis across LASAN.

Table 3 LASAN's Net Plant Investment, FY 2015
One Water LA 2040 Plan – TM 12.6

	RCLD	
	($)	**Percentages**
Flow	$2,904,206,954	73.7%
BOD	$613,553,069	15.6%
Suspended Solids (SS)	$422,233,802	10.7%
Total Amalgamated	**$3,939,993,826**	
Not Billable	$1,405,642,428	
Glendale's Half of LAGWRP	$28,866,144	
Total	**$5,374,502,397**	**100.0%**

Source: ASSFC-15-16.xls

Table 4 shows the total amalgamated cost[1] of $3.9 billion from Table 3 amortized over 20 years at a 5 percent interest rate. The amortized cost of $316 million is then split between volume, BOD and TSS based on the share of related assets using the percentages from Table 3. The customer's share of these costs can then be calculated based on the customer's share of the system, which is shown in Table 2.

Table 4 Estimated Standby Charge, Net Plant Investment Basis
One Water LA 2040 Plan – TM 12.6

	RCLD	
	Amortized Cost	**Customer**
Total Amalgamated	$3,929,993,826	
Amortized at 0.05 Interest & 20 Years	$316,155,298	
Volume-Related	$233,041,080	$457,759
BOD-Related	$49,233,086	$133,608
TSS-Related	$33,881,133	$282,201
Customer's Standby Charge, Annual: All Components		**$873,569**
Customer's Standby Charge, Annual: Volume Only		**$457,759**

Source: ASSFC-15-16.xls

[1] Amalgamated cost is used because larger users are generally on the transmission system, not the distribution system.

Two charges have been developed in Table 3. The first is based on all components (volume, BOD and TSS). Since LASAN built the existing infrastructure presuming that all major customers would continue to need full treatment and collection services, all those costs still need to be recovered. This is true even if the customer will only occasionally deliver treated wastewater. If the customer does not continue to pay its share of those infrastructure costs, the burden will be placed on other customers. The second charge is based only on volume, recognizing the other argument that the customer will only be disposing of treated flow on a standby basis.

3.2.2 Existing Debt Service Method

Another way to capture the costs related to the infrastructure that was built, in part, to serve existing customers, is to base a standby charge on the existing debt service. As with net plant investment, the existing debt service represents the costs incurred to build, repair and replace a system that was designed presuming the industrial customer would remain on the system. This methodology would freeze debt service at the time the industrial customer moved to standby service, as all new debt service would be related to projects that reflect the future needs of the industrial customer. As with the net plant investment approach, user-specific charges must be developed.

Table 5 summarizes the sewer construction and maintenance fund from FY 2015 through FY 2019. Annual existing debt service is approximately $215 million.

Table 5 Sewer Construction & Maintenance Fund Summary
One Water LA 2040 Plan – TM 12.6

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Senior Debt Service(1)	$100,499	$102,642	$87,898	$87,883	$65,811
Series 2015C Senior(1)		$4,633	$5,039	$5,039	$5,039
Subordinate Debt Service Commercial Paper Notes(2)	$733	$467	$500	$500	$500
Variable & Fixed Rate Sub. Bonds	$88,875	$95,058	$109,287	$109,580	$129,541
Accruals for Subsequent Years	$1,080	-$9	$22	-$175	$220
SRF Loan	$13,605	$13,605	$13,605	$13,605	$13,605
Total Debt Service, $1,000	**$204,793**	**$216,396**	**$216,351**	**$216,432**	**$214,716**

Source: Table 22 of the Official Statement.

Notes:

(1) Debt that had been financed prior to customer leaving the system.
(2) For FY 2017-FY 2019 estimated do not include any new CP issues.
(3) Pay-go is not included because those expenditures are already captured through rates.

Table 6 allocates the total debt service to volume, BOD, and TSS based on the percent of net plant investment shown in Table 3. Since cash outlays have already been recuperated through rates, only the outstanding debt service is included. Table 6 also shows the customer's estimated annual charge based on all components and based only on volume.

Table 6 Standby Charge Based on Existing Debt Service Through FY 2019
One Water LA 2040 Plan – TM 12.6

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Volume Portion of Debt Service	$150,954,870	$159,507,552	$159,474,382	$159,534,087	$158,269,208
BOD Portion of Debt Service	$31,891,262	$33,698,131	$33,691,124	$33,703,738	$33,436,515
TSS Portion of Debt Service	$21,946,869	$23,190,317	$23,185,495	$23,194,175	$23,010,278
Customer's Share: All Components	$565,864	$597,924	$597,800	$598,023	$593,282
Customer's Share: Volume Only	$296,518	$313,318	$313,253	$313,371	$310,886

3.2.3 Annual Maintenance Cost Method

The annual maintenance cost method recognizes that LASAN must perform maintenance on the treatment and collection systems so that the system is available and able to take any standby discharge.

The maintenance standby unit rate is based on the amount of estimated annual maintenance costs as a percentage of annual rate based revenue, as shown in Table 7. Maintenance costs are based on half of the general O&M expenses (not including the collection system) plus sanitation project-related annual maintenance expenses. It is presumed that half of the general expenses (predominately salary and benefits) are for operating and half for maintenance. The sanitation project-related costs are the only special fund expenses presumed to be related to sanitation maintenance. Utility costs are also excluded as not maintenance costs.

The estimated annual treatment maintenance costs in FY 2016 are $65 million. The estimated FY 2016 collection system maintenance costs are $7.4 million. The resultant $72.9 million in estimated FY 2016 maintenance costs represent 11.7 percent of estimated rate-based revenue. Given the FY 2016 system charge of $4.23/hundred cubic feet (HCF), the maintenance-based standby-charge is $0.49/HCF. Since a unit rate can be developed, this charge could be assessed on any customer desiring standby service. Applying that unit rate to the customer's flow results in an estimated standby charge of $265,000.

Table 7 Estimated Treatment Maintenance-Based Standby Unit Rate One Water LA 2040 Plan – TM 12.6

	Cost	FY 2015	FY 2016	FY 2017
1	Total General Expense Less Wastewater Collection(1)	$91,283,856	$93,822,422	$93,859,199
2	50% of Line 1	$45,641,928	$46,911,211	$46,929,600
3	Sanitation Project Related(2)	$13,287,000	$17,185,000	$12,825,000
4	Estimated Annual Treatment Maintenance Costs	$58,928,928	$64,096,211	$59,754,600
5	Estimated Collection Maintenance Costs(3)	$7,231,500	$7,432,600	$7,435,500
6	**Total Estimated Maintenance**	**$66,160,428**	**$71,528,811**	**$67,190,100**
7	**Total Estimated Rate Revenue(4)**	**$520,859,000**	**$559,142,000**	**$534,628,000**
8	Maintenance as Percent of Revenue	12.7%	12.8%	12.6%
9	Current Rate, $/HCF	3.97	4.23	4.51
10	**General Standby Charge, $/HCF**	**0.50**	**0.54**	**0.57**
11	**Customer, Annual**	**$270,678**	**$290,458**	**$304,238**

Notes:
(1) Source: Email from client 2/17/12 2:03 pm.
(2) Source: Email from client 2/13/17 2:21 pm.
(3) Source: WO charges FY15 pdf for FY 2015. Future years escalated based on Line 1.
(4) Source: Email from client 2/13/17 1:54 pm.

3.3 Pros and Cons

The matrix presented in Table 8 the pros and cons of each of the standby charge scenarios.

Table 8 Standby Charge Pros and Cons Matrix
One Water LA 2040 Plan – TM 12.6

Methodology	Pros	Cons
Net Plant Investments	• Recuperate a portion of net plant that was put in place, in part, because of customer. • Burden of those costs not spread to other customers.	• User specific (must be developed based on each customer's portion of the system). • Expires after amortization period. • May require a contractual arrangement.
Debt Services	• Recuperate a portion of net plant that was put in place, in part, because of customer. • Burden of those costs not spread to other customers.	• User specific (must be developed based on each customer's portion of the system). • Expires after then existing debt service has been paid off. • If then-existing debt is refunded into a new bond issue (e.g., to obtain lower debt service), accounting becomes more complex. • May require a contractual arrangement.
Annual Maintenance(1)	• Rate applies to anyone requesting standby service. • Becomes part of rate schedule. • Charge is applicable if customer is on standby service. • Burden of those costs not spread to other customers. • Works for new customers that just want standby service.	• Requires Prop 218 approval

Note:

(1) The annual maintenance method applies to customers on Standby service. Other methods are evaluated based on existing customers that want to leave the system.

4.0 PROPOSITION 218 AND POLICY CONSIDERATIONS

Any kind of capacity charge or debt recovery charge like those contemplated under the net plant investment and debt service methods would likely have to be implemented contractually with specific users. These charges may not stand up as a general charge implemented by ordinance.

The maintenance charge may withstand legal challenge. However, it might have some difficulty under Proposition 218 where one is required to show the nexus between charges based on usage and cost of service. It would require some work to clearly show maintenance costs are being incurred all the time even with intermittent use. Even though LASAN went through the Proposition 218 process and adopted a series of rate increases for the SSC and QSF that will be effective through July 1, 2020 without further action by LASAN, if it wants to create a new charge, a new Proposition 218 process must be enacted.

Proposition 218 was approved by California voters on November 5, 1996. It was also known as the Right to Vote on Taxes Act. It added Articles XIIIC and XIIID to the California Constitution. Proposition 218 limits the application of property-related fees and charges and requires them to be submitted to property owners for approval or rejection, after notice and public hearing. Proposition 218 also extended the initiative power to reducing or repealing local property-related fees and charges, regardless of the date such fees and charges were imposed. Fees and charges for sewer, water and refuse collection services are exempted from the voter approval provisions of Proposition 218 pursuant to Article XIIID.

Proposition 218 affects LASAN's ability to impose future rate increases because no assurance can be given that future rate increases will not encounter majority protest opposition or be challenged by initiative action authorized under Proposition 218. The Proposition 218 process is also expensive requiring each customer is notified, given at least 45 days to review and evaluate the potential impact to them of the rate adjustment, given a chance to protest any adjustment, and that hearings are conducted.

It has been the preference of LASAN to not conduct another Proposition 218 process until 2020 when the currently approved set of rates ends. However, if OSTFs are implemented by several users and system losses grow, LASAN may have no alternative than to begin a costly new Proposition 218 process sooner than planned.

5.0 FUTURE CONSIDERATIONS

As part of this evaluation TDS baselines were established for all LASAN's WRPs. LAGWRP is the only WRP in the system that is running near its permit limit for TDS. While Valley flows can be bypassed around DCTWRP to LAGWRP, the industrial discharger that was studied for this TM is assumed to be tributary to DCTWRP only because future wastewater bypasses from the Valley to LAGWRP will be minimized when the GWR project at DCTWRP is implemented. Therefore, it can be concluded that the case study OSTF is will not significantly impact the influent TDS to DCTWRP at this time.

Additionally, the financial analysis carried out in Section 3.0 points to potential challenges in implementing new charges. This could be different should an entity propose to discharge brine to LAGWRP in the future. At this time, LASAN should continue to monitor TDS at the WRPs, especially at the LAGWRP. In the future, should TDS removal be required at LAGWRP, LASAN may need to look at ways to recover the cost of that additional treatment. In addition, LASAN should continue to monitor the status of Proposition 218 as there continue to be court challenges related to it and future implementation of stand-by charges or TDS charges could benefit from potential court rulings or potential legislative remedies.

APPENDIX A – HISTORICAL TDS AND FLOW DATA

Appendix A

Historic TDS and Flow Data

Historic TDS and Flow Data - DCTWRP

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
1/1/2010	45.0		
1/2/2010	45.5		
1/3/2010	45.0		
1/4/2010	48.7		
1/5/2010	47.1		586
1/6/2010	48.2		
1/7/2010	47.8		
1/8/2010	48.1		
1/9/2010	46.6		
1/10/2010	46.7		
1/11/2010	49.2		
1/12/2010	49.0		
1/13/2010	47.7		
1/14/2010	47.8		
1/15/2010	49.1		
1/16/2010	47.5		
1/17/2010	46.2		
1/18/2010	52.0		
1/19/2010	47.6		
1/20/2010	52.4		
1/21/2010	50.1		
1/22/2010	50.3		
1/23/2010	49.6		
1/24/2010	48.9		
1/25/2010	47.4		
1/26/2010	47.6		
1/27/2010	49.2		
1/28/2010	49.4		
1/29/2010	49.1		
1/30/2010	48.0		
1/31/2010	47.3		
2/1/2010	48.6		
2/2/2010	49.0		570
2/3/2010	46.4		
2/4/2010	47.4		
2/5/2010	48.3		
2/6/2010	51.8		
2/7/2010	47.8		
2/8/2010	47.8		
2/9/2010	49.4		
2/10/2010	49.1		
2/11/2010	50.1		
2/12/2010	49.2		
2/13/2010	48.4		
2/14/2010	48.4		
2/15/2010	49.9		
2/16/2010	49.8		
2/17/2010	49.3		
2/18/2010	48.1		
2/19/2010	49.3		
2/20/2010	48.8		
2/21/2010	47.0		
2/22/2010	47.1		
2/23/2010	47.5		
2/24/2010	46.3		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
2/25/2010	46.9		
2/26/2010	46.8		
2/27/2010	48.7		
2/28/2010	40.7		
3/1/2010	43.8		
3/2/2010	47.1		622
3/3/2010	47.3		
3/4/2010	45.4		
3/5/2010	47.4		
3/6/2010	45.9		
3/7/2010	45.7		
3/8/2010	45.6		
3/9/2010	45.8		
3/10/2010	44.0		
3/11/2010	43.7		
3/12/2010	47.5		
3/13/2010	46.1		
3/14/2010	45.4		
3/15/2010	46.7		
3/16/2010	46.7		
3/17/2010	47.4		
3/18/2010	44.2		
3/19/2010	46.5		
3/20/2010	45.0		
3/21/2010	46.5		
3/22/2010	46.3		
3/23/2010	46.6		
3/24/2010	44.9		
3/25/2010	46.4		
3/26/2010	47.2		
3/27/2010	44.9		
3/28/2010	46.3		
3/29/2010	45.9		
3/30/2010	46.3		
3/31/2010	46.0		
4/1/2010	45.9		640
4/2/2010	45.3		
4/3/2010	43.2		
4/4/2010	45.7		
4/5/2010	46.5		
4/6/2010	46.8		
4/7/2010	46.7		
4/8/2010	47.8		
4/9/2010	47.4		
4/10/2010	46.5		
4/11/2010	46.1		
4/12/2010	48.9		
4/13/2010	47.6		
4/14/2010	47.7		
4/15/2010	46.4		
4/16/2010	45.5		
4/17/2010	43.9		
4/18/2010	43.6		
4/19/2010	45.4		
4/20/2010	48.0		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
4/21/2010	44.6		
4/22/2010	45.8		
4/23/2010	45.7		
4/24/2010	45.0		
4/25/2010	46.3		
4/26/2010	46.8		
4/27/2010	44.9		
4/28/2010	46.6		
4/29/2010	47.9		
4/30/2010	48.4		
5/1/2010	46.8		
5/2/2010	45.8		
5/3/2010	47.8		
5/4/2010	46.9		554
5/5/2010	46.7		
5/6/2010	44.2		
5/7/2010	46.0		
5/8/2010	43.9		
5/9/2010	44.0		
5/10/2010	46.5		
5/11/2010	47.3		
5/12/2010	46.8		
5/13/2010	45.6		
5/14/2010	46.2		
5/15/2010	45.0		
5/16/2010	44.6		
5/17/2010	46.3		
5/18/2010	44.4		
5/19/2010	45.7		
5/20/2010	44.2		
5/21/2010	46.4		
5/22/2010	43.5		
5/23/2010	43.8		
5/24/2010	47.6		
5/25/2010	43.9		
5/26/2010	44.8		
5/27/2010	43.3		
5/28/2010	42.2		
5/29/2010	42.7		
5/30/2010	42.1		
5/31/2010	44.2		
6/1/2010	43.0		
6/2/2010	43.9		522
6/3/2010	44.9		
6/4/2010	46.4		
6/5/2010	42.5		
6/6/2010	44.2		
6/7/2010	45.7		
6/8/2010	45.4		
6/9/2010	44.7		
6/10/2010	45.4		
6/11/2010	46.5		
6/12/2010	43.8		
6/13/2010	44.6		
6/14/2010	46.4		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
6/15/2010	45.4		
6/16/2010	46.5		
6/17/2010	44.6		
6/18/2010	47.7		
6/19/2010	44.8		
6/20/2010	45.2		
6/21/2010	45.8		
6/22/2010	46.3		
6/23/2010	45.6		
6/24/2010	45.6		
6/25/2010	47.6		
6/26/2010	47.6		
6/27/2010	45.5		
6/28/2010	47.5		
6/29/2010	47.1		
6/30/2010	46.9		
7/1/2010	46.1		516
7/2/2010	49.3		
7/3/2010	44.8		
7/4/2010	44.5		
7/5/2010	45.5		
7/6/2010	45.6		
7/7/2010	47.8		
7/8/2010	47.4		
7/9/2010	48.8		
7/10/2010	46.2		
7/11/2010	48.0		
7/12/2010	48.5		
7/13/2010	48.4		
7/14/2010	48.5		
7/15/2010	49.0		
7/16/2010	49.9		
7/17/2010	48.7		
7/18/2010	48.8		
7/19/2010	48.9		
7/20/2010	49.5		
7/21/2010	45.6		
7/22/2010	38.2		
7/23/2010	47.0		
7/24/2010	46.8		
7/25/2010	47.6		
7/26/2010	47.9		
7/27/2010	48.2		
7/28/2010	48.0		
7/29/2010	48.4		
7/30/2010	47.9		
7/31/2010	47.0		
8/1/2010	46.7		
8/2/2010	48.0		
8/3/2010	48.6		470
8/4/2010	49.0		
8/5/2010	49.7		
8/6/2010	48.7		
8/7/2010	47.0		
8/8/2010	46.9		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
8/9/2010	47.8		
8/10/2010	47.8		
8/11/2010	46.9		
8/12/2010	48.9		
8/13/2010	47.9		
8/14/2010	45.5		
8/15/2010	46.9		
8/16/2010	49.5		
8/17/2010	46.0		
8/18/2010	42.5		
8/19/2010	46.5		
8/20/2010	46.4		
8/21/2010	44.1		
8/22/2010	47.1		
8/23/2010	49.1		
8/24/2010	47.0		
8/25/2010	49.0		
8/26/2010	48.4		
8/27/2010	48.5		
8/28/2010	47.1		
8/29/2010	47.0		
8/30/2010	48.6		
8/31/2010	48.4		
9/1/2010	48.1		514
9/2/2010	46.9		
9/3/2010	46.2		
9/4/2010	43.0		
9/5/2010	43.4		
9/6/2010	44.7		
9/7/2010	43.8		
9/8/2010	46.6		
9/9/2010	45.4		
9/10/2010	46.9		
9/11/2010	44.6		
9/12/2010	46.6		
9/13/2010	46.1		
9/14/2010	47.1		
9/15/2010	46.7		
9/16/2010	47.1		
9/17/2010	47.2		
9/18/2010	44.8		
9/19/2010	46.4		
9/20/2010	48.1		
9/21/2010	47.0		
9/22/2010	46.9		
9/23/2010	46.5		
9/24/2010	47.7		
9/25/2010	45.0		
9/26/2010	46.7		
9/27/2010	47.8		
9/28/2010	48.2		
9/29/2010	47.7		
9/30/2010	48.3		
10/1/2010	48.0		
10/2/2010	47.0		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
10/3/2010	46.4		
10/4/2010	47.6		
10/5/2010	46.4	586	536
10/6/2010	46.6		
10/7/2010	46.7		
10/8/2010	47.2		
10/9/2010	46.2		
10/10/2010	44.9		
10/11/2010	46.3		
10/12/2010	46.8		
10/13/2010	47.8		
10/14/2010	47.2		
10/15/2010	46.5		
10/16/2010	45.3		
10/17/2010	46.5		
10/18/2010	46.3		
10/19/2010	46.1		
10/20/2010	44.0		
10/21/2010	45.4		
10/22/2010	47.4		
10/23/2010	45.5		
10/24/2010	45.8		
10/25/2010	46.8		
10/26/2010	47.2		
10/27/2010	46.5		
10/28/2010	45.4		
10/29/2010	46.5		
10/30/2010	47.3		
10/31/2010	45.4		
11/1/2010	46.5		
11/2/2010	48.1	562	502
11/3/2010	48.0		
11/4/2010	46.9		
11/5/2010	45.9		
11/6/2010	44.8		
11/7/2010	44.9		
11/8/2010	46.0		
11/9/2010	46.3		
11/10/2010	46.7		
11/11/2010	45.5		
11/12/2010	45.7		
11/13/2010	44.5		
11/14/2010	44.9		
11/15/2010	45.6		
11/16/2010	46.9		
11/17/2010	46.2		
11/18/2010	46.8		
11/19/2010	47.5		
11/20/2010	47.0		
11/21/2010	48.6		
11/22/2010	46.3		
11/23/2010	47.0		
11/24/2010	48.2		
11/25/2010	47.3		
11/26/2010	46.7		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
11/27/2010	43.9		
11/28/2010	46.5		
11/29/2010	48.5		
11/30/2010	48.3		
12/1/2010	48.1	662	574
12/2/2010	46.6		
12/3/2010	45.4		
12/4/2010	45.7		
12/5/2010	49.7		
12/6/2010	50.1		
12/7/2010	48.6		
12/8/2010	48.4		
12/9/2010	44.9		
12/10/2010	46.0		
12/11/2010	45.0		
12/12/2010	46.0		
12/13/2010	46.7		
12/14/2010	46.9		
12/15/2010	47.1		
12/16/2010	45.5		
12/17/2010	45.5		
12/18/2010	49.3		
12/19/2010	50.6		
12/20/2010	48.7		
12/21/2010	49.3		
12/22/2010	51.2		
12/23/2010	49.0		
12/24/2010	47.4		
12/25/2010	48.1		
12/26/2010	49.2		
12/27/2010	48.6		
12/28/2010	44.6		
12/29/2010	45.9		
12/30/2010	46.3		
12/31/2010	46.1		
1/1/2011	44.1		
1/2/2011	45.1		
1/3/2011	47.1		
1/4/2011	44.9	560	480
1/5/2011	43.0		
1/6/2011	46.2		
1/7/2011	45.9		
1/8/2011	45.3		
1/9/2011	45.8		
1/10/2011	47.3		
1/11/2011	46.2		
1/12/2011	46.3		
1/13/2011	47.0		
1/14/2011	49.1		
1/15/2011	46.4		
1/16/2011	46.6		
1/17/2011	47.4		
1/18/2011	47.2		
1/19/2011	46.3		
1/20/2011	46.9		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
1/21/2011	45.5		
1/22/2011	45.0		
1/23/2011	45.4		
1/24/2011	45.9		
1/25/2011	46.7		
1/26/2011	44.4		
1/27/2011	45.4		
1/28/2011	44.8		
1/29/2011	45.2		
1/30/2011	43.3		
1/31/2011	46.2		
2/1/2011	46.0		
2/2/2011	44.7		
2/3/2011	44.9		
2/4/2011	46.2		
2/5/2011	43.5		
2/6/2011	43.9		
2/7/2011	45.8		
2/8/2011	44.1	524	576
2/9/2011	45.9		
2/10/2011	45.2		
2/11/2011	45.0		
2/12/2011	43.8		
2/13/2011	44.3		
2/14/2011	45.4		
2/15/2011	45.4		
2/16/2011	48.3		
2/17/2011	46.9		
2/18/2011	45.4		
2/19/2011	46.3		
2/20/2011	45.3		
2/21/2011	45.8		
2/22/2011	46.7		
2/23/2011	47.9		
2/24/2011	46.9		
2/25/2011	47.9		
2/26/2011	48.3		
2/27/2011	47.7		
2/28/2011	46.7		
3/1/2011	47.4		
3/2/2011	46.3		
3/3/2011	47.7		520
3/4/2011	46.0		
3/5/2011	45.5		
3/6/2011	46.1		
3/7/2011	47.1		
3/8/2011	45.9		
3/9/2011	46.3		
3/10/2011	47.8		
3/11/2011	47.7		
3/12/2011	45.9		
3/13/2011	44.4		
3/14/2011	47.8		
3/15/2011	48.2		
3/16/2011	48.1		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
3/17/2011	48.1		
3/18/2011	47.4		
3/19/2011	45.9		
3/20/2011	68.2		
3/21/2011	55.1		
3/22/2011	50.1		
3/23/2011	50.5		
3/24/2011	49.0		
3/25/2011	52.0		
3/26/2011	48.7		
3/27/2011	50.9		
3/28/2011	49.8		
3/29/2011	49.0		
3/30/2011	47.4		
3/31/2011	49.0		
4/1/2011	46.6		
4/2/2011	48.0		
4/3/2011	48.2	616	592
4/4/2011	49.4		
4/5/2011	48.7		
4/6/2011	46.1		
4/7/2011	49.5		
4/8/2011	47.5		
4/9/2011	47.5		
4/10/2011	48.8		
4/11/2011	49.0		
4/12/2011	49.1		
4/13/2011	47.8		
4/14/2011	48.4		
4/15/2011	48.6		
4/16/2011	47.8		
4/17/2011	47.3		
4/18/2011	47.6		
4/19/2011	48.0		
4/20/2011	46.6		
4/21/2011	47.2		
4/22/2011	47.3		
4/23/2011	46.9		
4/24/2011	47.2		
4/25/2011	47.5		
4/26/2011	50.3		
4/27/2011	50.1		
4/28/2011	48.7		
4/29/2011	47.0		
4/30/2011	45.6		
5/1/2011	48.2		
5/2/2011	48.2	560	500
5/3/2011	48.5		
5/4/2011	48.1		
5/5/2011	47.4		
5/6/2011	48.5		
5/7/2011	47.8		
5/8/2011	46.4		
5/9/2011	48.3		
5/10/2011	48.1		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
5/11/2011	47.2		
5/12/2011	48.2		
5/13/2011	48.3		
5/14/2011	47.2		
5/15/2011	46.3		
5/16/2011	46.8		
5/17/2011	47.8		
5/18/2011	48.8		
5/19/2011	48.2		
5/20/2011	48.8		
5/21/2011	47.3		
5/22/2011	48.4		
5/23/2011	48.3		
5/24/2011	47.6		
5/25/2011	49.9		
5/26/2011	48.7		
5/27/2011	49.0		
5/28/2011	46.5		
5/29/2011	46.3		
5/30/2011	45.5		
5/31/2011	47.9		
6/1/2011	44.4		
6/2/2011	46.0		
6/3/2011	48.0		
6/4/2011	46.0	548	534
6/5/2011	46.6		
6/6/2011	46.7		
6/7/2011	45.5		
6/8/2011	46.7		
6/9/2011	44.4		
6/10/2011	46.9		
6/11/2011	45.7		
6/12/2011	46.7		
6/13/2011	46.3		
6/14/2011	46.8		
6/15/2011	44.4		
6/16/2011	47.0		
6/17/2011	47.1		
6/18/2011	45.5		
6/19/2011	46.3		
6/20/2011	46.5		
6/21/2011	46.2		
6/22/2011	46.1		
6/23/2011	47.4		
6/24/2011	47.5		
6/25/2011	47.7		
6/26/2011	45.9		
6/27/2011	46.3		
6/28/2011	47.6		
6/29/2011	46.4		
6/30/2011	47.3		
7/1/2011	48.0		
7/2/2011	45.3		
7/3/2011	44.5		
7/4/2011	45.2		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
7/5/2011	47.3		
7/6/2011	46.7	532	454
7/7/2011	47.7		
7/8/2011	47.2		
7/9/2011	46.5		
7/10/2011	46.6		
7/11/2011	45.0		
7/12/2011	47.6		
7/13/2011	46.5		
7/14/2011	47.7		
7/15/2011	46.7		
7/16/2011	46.5		
7/17/2011	46.2		
7/18/2011	47.1		
7/19/2011	47.9		
7/20/2011	44.1		
7/21/2011	39.6		
7/22/2011	45.6		
7/23/2011	46.0		
7/24/2011	45.6		
7/25/2011	46.3		
7/26/2011	45.8		
7/27/2011	46.3		
7/28/2011	47.1		
7/29/2011	45.9		
7/30/2011	45.6		
7/31/2011	45.8		
8/1/2011	46.1	450	412
8/2/2011	46.2		
8/3/2011	46.7		
8/4/2011	45.8		
8/5/2011	47.1		
8/6/2011	45.7		
8/7/2011	46.8		
8/8/2011	45.6		
8/9/2011	46.2		
8/10/2011	46.8		
8/11/2011	46.5		
8/12/2011	46.7		
8/13/2011	45.6		
8/14/2011	45.3		
8/15/2011	46.3		
8/16/2011	45.8		
8/17/2011	45.8		
8/18/2011	45.1		
8/19/2011	46.8		
8/20/2011	45.6		
8/21/2011	44.7		
8/22/2011	47.3		
8/23/2011	47.0		
8/24/2011	47.3		
8/25/2011	42.3		
8/26/2011	48.3		
8/27/2011	49.6		
8/28/2011	46.6		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
8/29/2011	48.2		
8/30/2011	47.4		
8/31/2011	47.5		
9/1/2011	47.1	480	450
9/2/2011	46.2		
9/3/2011	45.5		
9/4/2011	44.9		
9/5/2011	45.7		
9/6/2011	43.9		
9/7/2011	45.7		
9/8/2011	45.9		
9/9/2011	45.6		
9/10/2011	44.3		
9/11/2011	43.9		
9/12/2011	45.6		
9/13/2011	47.1		
9/14/2011	46.6		
9/15/2011	46.4		
9/16/2011	44.5		
9/17/2011	45.9		
9/18/2011	46.2		
9/19/2011	45.9		
9/20/2011	46.9		
9/21/2011	46.3		
9/22/2011	46.8		
9/23/2011	45.4		
9/24/2011	44.8		
9/25/2011	46.3		
9/26/2011	46.4		
9/27/2011	46.7		
9/28/2011	46.6		
9/29/2011	46.9		
9/30/2011	47.2		
10/1/2011	45.7	568	438
10/2/2011	48.0		
10/3/2011	46.3		
10/4/2011	46.4		
10/5/2011	46.0		
10/6/2011	47.1		
10/7/2011	47.7		
10/8/2011	45.6		
10/9/2011	47.4		
10/10/2011	47.7		
10/11/2011	47.9		
10/12/2011	47.6		
10/13/2011	46.4		
10/14/2011	47.3		
10/15/2011	46.5		
10/16/2011	47.3		
10/17/2011	46.7		
10/18/2011	46.2		
10/19/2011	45.9		
10/20/2011	47.0		
10/21/2011	47.4		
10/22/2011	45.9		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
10/23/2011	47.5		
10/24/2011	46.1		
10/25/2011	47.9		
10/26/2011	46.9		
10/27/2011	46.7		
10/28/2011	48.0		
10/29/2011	45.9		
10/30/2011	46.2		
10/31/2011	46.7		
11/1/2011	47.2		
11/2/2011	45.7		
11/3/2011	47.0		
11/4/2011	46.8		
11/5/2011	44.7		
11/6/2011	44.9		
11/7/2011	46.2		
11/8/2011	45.1		
11/9/2011	45.3		
11/10/2011	45.3		
11/11/2011	45.8		
11/12/2011	44.7		
11/13/2011	44.7		
11/14/2011	47.2		
11/15/2011	46.9	506	484
11/16/2011	46.1		
11/17/2011	46.8		
11/18/2011	47.6		
11/19/2011	45.1		
11/20/2011	45.8		
11/21/2011	45.6		
11/22/2011	45.7		
11/23/2011	46.8		
11/24/2011	46.0		
11/25/2011	45.5		
11/26/2011	44.8		
11/27/2011	46.1		
11/28/2011	46.6		
11/29/2011	46.9		
11/30/2011	45.2		
12/1/2011	45.2		
12/2/2011	46.1	540	490
12/3/2011	44.6		
12/4/2011	45.7		
12/5/2011	46.1		
12/6/2011	47.2		
12/7/2011	46.2		
12/8/2011	46.5		
12/9/2011	47.8		
12/10/2011	45.3		
12/11/2011	48.1		
12/12/2011	47.3		
12/13/2011	47.0		
12/14/2011	44.1		
12/15/2011	45.4		
12/16/2011	47.0		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
12/17/2011	45.3		
12/18/2011	45.0		
12/19/2011	46.5		
12/20/2011	46.5		
12/21/2011	46.4		
12/22/2011	45.9		
12/23/2011	44.8		
12/24/2011	44.7		
12/25/2011	43.6		
12/26/2011	44.8		
12/27/2011	45.1		
12/28/2011	47.5		
12/29/2011	45.6		
12/30/2011	46.5		
12/31/2011	44.7		
1/1/2012	44.0		
1/2/2012	44.7		
1/3/2012	45.2		
1/4/2012	44.7	520	484
1/5/2012	44.6		
1/6/2012	44.5		
1/7/2012	43.0		
1/8/2012	43.1		
1/9/2012	45.9		
1/10/2012	47.2		
1/11/2012	45.2		
1/12/2012	46.0		
1/13/2012	46.6		
1/14/2012	45.7		
1/15/2012	44.3		
1/16/2012	44.3		
1/17/2012	45.1		
1/18/2012	45.2		
1/19/2012	45.5		
1/20/2012	47.3		
1/21/2012	45.5		
1/22/2012	45.0		
1/23/2012	44.9		
1/24/2012	46.7		
1/25/2012	46.2		
1/26/2012	45.7		
1/27/2012	45.3		
1/28/2012	45.0		
1/29/2012	46.4		
1/30/2012	47.1		
1/31/2012	46.4		
2/1/2012	44.6		
2/2/2012	45.8		
2/3/2012	45.3		
2/4/2012	43.7		
2/5/2012	43.0		
2/6/2012	44.8	624	544
2/7/2012	45.7		
2/8/2012	44.9		
2/9/2012	46.2		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
2/10/2012	46.7		
2/11/2012	44.5		
2/12/2012	44.0		
2/13/2012	46.8		
2/14/2012	47.2		
2/15/2012	45.3		
2/16/2012	46.3		
2/17/2012	46.3		
2/18/2012	45.6		
2/19/2012	45.1		
2/20/2012	45.5		
2/21/2012	46.5		
2/22/2012	45.3		
2/23/2012	45.7		
2/24/2012	46.2		
2/25/2012	44.6		
2/26/2012	44.1		
2/27/2012	45.0		
2/28/2012	44.0		
2/29/2012	43.4		
3/1/2012	44.6		
3/2/2012	45.1	476	468
3/3/2012	43.5		
3/4/2012	42.3		
3/5/2012	45.3		
3/6/2012	48.0		
3/7/2012	45.3		
3/8/2012	45.6		
3/9/2012	46.1		
3/10/2012	45.0		
3/11/2012	43.9		
3/12/2012	45.5		
3/13/2012	45.6		
3/14/2012	45.4		
3/15/2012	45.8		
3/16/2012	47.1		
3/17/2012	46.2		
3/18/2012	44.9		
3/19/2012	45.7		
3/20/2012	45.4		
3/21/2012	45.3		
3/22/2012	46.0		
3/23/2012	46.9		
3/24/2012	44.7		
3/25/2012	47.8		
3/26/2012	47.6		
3/27/2012	45.9		
3/28/2012	46.8		
3/29/2012	46.2		
3/30/2012	46.6		
3/31/2012	45.0		
4/1/2012	45.3	577	536
4/2/2012	45.5		
4/3/2012	47.4		
4/4/2012	45.9		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
4/5/2012	45.2		
4/6/2012	45.4		
4/7/2012	44.8		
4/8/2012	44.7		
4/9/2012	45.4		
4/10/2012	46.1		
4/11/2012	48.6		
4/12/2012	46.6		
4/13/2012	49.9		
4/14/2012	46.8		
4/15/2012	46.7		
4/16/2012	46.0		
4/17/2012	46.5		
4/18/2012	46.6		
4/19/2012	46.7		
4/20/2012	48.3		
4/21/2012	46.5		
4/22/2012	46.3		
4/23/2012	45.7		
4/24/2012	46.8		
4/25/2012	46.8		
4/26/2012	47.0		
4/27/2012	46.6		
4/28/2012	46.5		
4/29/2012	46.4		
4/30/2012	46.3		
5/1/2012	45.3	480	544
5/2/2012	45.0		
5/3/2012	45.8		
5/4/2012	45.2		
5/5/2012	44.8		
5/6/2012	44.8		
5/7/2012	45.7		
5/8/2012	48.0		
5/9/2012	46.5		
5/10/2012	46.8		
5/11/2012	47.2		
5/12/2012	46.8		
5/13/2012	47.2		
5/14/2012	46.2		
5/15/2012	46.6		
5/16/2012	46.8		
5/17/2012	46.4		
5/18/2012	46.2		
5/19/2012	45.1		
5/20/2012	45.9		
5/21/2012	47.3		
5/22/2012	46.9		
5/23/2012	46.8		
5/24/2012	46.2		
5/25/2012	46.8		
5/26/2012	45.1		
5/27/2012	44.8		
5/28/2012	45.5		
5/29/2012	45.7		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
5/30/2012	45.7		
5/31/2012	45.4		
6/1/2012	45.2		
6/2/2012	44.2	600	582
6/3/2012	43.7		
6/4/2012	44.3		
6/5/2012	44.4		
6/6/2012	45.3		
6/7/2012	48.0		
6/8/2012	44.5		
6/9/2012	42.9		
6/10/2012	43.1		
6/11/2012	44.6		
6/12/2012	45.4		
6/13/2012	46.9		
6/14/2012	47.4		
6/15/2012	47.3		
6/16/2012	46.6		
6/17/2012	47.0		
6/18/2012	47.1		
6/19/2012	49.0		
6/20/2012	47.4		
6/21/2012	46.7		
6/22/2012	47.2		
6/23/2012	47.6		
6/24/2012	46.5		
6/25/2012	47.5		
6/26/2012	48.0		
6/27/2012	48.2		
6/28/2012	47.4		
6/29/2012	48.4		
6/30/2012	46.9		
7/1/2012	47.1	576	656
7/2/2012	46.9		
7/3/2012	46.7		
7/4/2012	43.3		
7/5/2012	46.0		
7/6/2012	48.4		
7/7/2012	46.1		
7/8/2012	45.6		
7/9/2012	47.2		
7/10/2012	45.9		
7/11/2012	45.4		
7/12/2012	45.6		
7/13/2012	46.7		
7/14/2012	45.3		
7/15/2012	46.7		
7/16/2012	46.8		
7/17/2012	46.9		
7/18/2012	47.9		
7/19/2012	47.0		
7/20/2012	47.1		
7/21/2012	45.7		
7/22/2012	46.3		
7/23/2012	47.8		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
7/24/2012	48.3		
7/25/2012	47.3		
7/26/2012	47.7		
7/27/2012	47.6		
7/28/2012	46.4		
7/29/2012	46.9		
7/30/2012	46.7		
7/31/2012	48.8		
8/1/2012	48.0	568	546
8/2/2012	49.0		
8/3/2012	47.8		
8/4/2012	47.0		
8/5/2012	46.7		
8/6/2012	48.2		
8/7/2012	47.5		
8/8/2012	48.2		
8/9/2012	47.5		
8/10/2012	46.4		
8/11/2012	47.1		
8/12/2012	48.6		
8/13/2012	48.0		
8/14/2012	48.8		
8/15/2012	47.9		
8/16/2012	46.7		
8/17/2012	47.3		
8/18/2012	46.2		
8/19/2012	48.8		
8/20/2012	48.5		
8/21/2012	47.3		
8/22/2012	47.5		
8/23/2012	48.3		
8/24/2012	47.6		
8/25/2012	47.4		
8/26/2012	48.3		
8/27/2012	47.5		
8/28/2012	48.1		
8/29/2012	48.2		
8/30/2012	49.1		
8/31/2012	48.2		
9/1/2012	45.2		
9/2/2012	46.4		
9/3/2012	47.5		
9/4/2012	48.3		
9/5/2012	49.7	528	520
9/6/2012	47.6		
9/7/2012	46.2		
9/8/2012	45.6		
9/9/2012	46.4		
9/10/2012	46.7		
9/11/2012	48.1		
9/12/2012	48.0		
9/13/2012	48.9		
9/14/2012	49.3		
9/15/2012	46.5		
9/16/2012	48.6		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
9/17/2012	47.7		
9/18/2012	47.4		
9/19/2012	46.7		
9/20/2012	48.0		
9/21/2012	47.9		
9/22/2012	46.3		
9/23/2012	47.6		
9/24/2012	47.7		
9/25/2012	47.6		
9/26/2012	45.9		
9/27/2012	47.4		
9/28/2012	47.2		
9/29/2012	45.0		
9/30/2012	46.8		
10/1/2012	47.4	544	500
10/2/2012	47.4		
10/3/2012	46.4		
10/4/2012	47.5		
10/5/2012	47.0		
10/6/2012	46.2		
10/7/2012	46.6		
10/8/2012	47.8		
10/9/2012	47.8		
10/10/2012	46.9		
10/11/2012	49.0		
10/12/2012	49.0		
10/13/2012	46.9		
10/14/2012	48.5		
10/15/2012	51.4		
10/16/2012	47.7		
10/17/2012	48.6		
10/18/2012	47.0		
10/19/2012	47.7		
10/20/2012	44.6		
10/21/2012	47.7		
10/22/2012	47.2		
10/23/2012	46.6		
10/24/2012	47.1		
10/25/2012	47.2		
10/26/2012	46.0		
10/27/2012	45.5		
10/28/2012	46.5		
10/29/2012	47.3		
10/30/2012	46.9		
10/31/2012	45.9		
11/1/2012	47.5		
11/2/2012	47.8	608	536
11/3/2012	47.8		
11/4/2012	48.8		
11/5/2012	48.0		
11/6/2012	46.8		
11/7/2012	46.5		
11/8/2012	46.8		
11/9/2012	46.4		
11/10/2012	45.1		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
11/11/2012	45.6		
11/12/2012	45.5		
11/13/2012	46.4		
11/14/2012	47.9		
11/15/2012	48.5		
11/16/2012	49.4		
11/17/2012	46.7		
11/18/2012	48.3		
11/19/2012	46.8		
11/20/2012	46.8		
11/21/2012	46.9		
11/22/2012	46.6		
11/23/2012	46.3		
11/24/2012	46.4		
11/25/2012	47.3		
11/26/2012	47.0		
11/27/2012	47.8		
11/28/2012	52.2		
11/29/2012	48.2		
11/30/2012	47.8		
12/1/2012	46.0		
12/2/2012	46.6	568	518
12/3/2012	46.8		
12/4/2012	47.4		
12/5/2012	46.7		
12/6/2012	48.0		
12/7/2012	46.6		
12/8/2012	45.6		
12/9/2012	46.4		
12/10/2012	46.7		
12/11/2012	52.3		
12/12/2012	46.8		
12/13/2012	47.1		
12/14/2012	48.0		
12/15/2012	44.5		
12/16/2012	46.1		
12/17/2012	46.4		
12/18/2012	45.7		
12/19/2012	46.8		
12/20/2012	47.1		
12/21/2012	48.2		
12/22/2012	46.5		
12/23/2012	46.3		
12/24/2012	53.0		
12/25/2012	46.6		
12/26/2012	46.6		
12/27/2012	45.1		
12/28/2012	46.2		
12/29/2012	44.1		
12/30/2012	44.5		
12/31/2012	46.1		
1/1/2013	43.8		
1/2/2013	45.1	544	496
1/3/2013	46.5		
1/4/2013	46.7		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
1/5/2013	44.9		
1/6/2013	45.9		
1/7/2013	46.6		
1/8/2013	43.6		
1/9/2013	46.8		
1/10/2013	46.8		
1/11/2013	49.4		
1/12/2013	45.8		
1/13/2013	46.6		
1/14/2013	46.8		
1/15/2013	47.1		
1/16/2013	46.5		
1/17/2013	46.8		
1/18/2013	46.5		
1/19/2013	46.5		
1/20/2013	46.4		
1/21/2013	46.4		
1/22/2013	47.0		
1/23/2013	46.3		
1/24/2013	48.9		
1/25/2013	46.5		
1/26/2013	44.2		
1/27/2013	47.2		
1/28/2013	46.5		
1/29/2013	46.8		
1/30/2013	47.2		
1/31/2013	48.1		
2/1/2013	47.5		
2/2/2013	46.1		
2/3/2013	46.4		
2/4/2013	46.3		
2/5/2013	46.3	584	576
2/6/2013	48.0		
2/7/2013	47.2		
2/8/2013	46.2		
2/9/2013	45.7		
2/10/2013	45.2		
2/11/2013	46.7		
2/12/2013	47.6		
2/13/2013	48.5		
2/14/2013	48.8		
2/15/2013	49.4		
2/16/2013	49.9		
2/17/2013	50.3		
2/18/2013	49.5		
2/19/2013	49.7		
2/20/2013	47.8		
2/21/2013	49.6		
2/22/2013	49.9		
2/23/2013	48.6		
2/24/2013	49.7		
2/25/2013	48.8		
2/26/2013	49.9		
2/27/2013	48.3		
2/28/2013	47.7		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
3/1/2013	47.8		
3/2/2013	46.2		
3/3/2013	47.6	568	500
3/4/2013	47.9		
3/5/2013	49.1		
3/6/2013	48.0		
3/7/2013	48.0		
3/8/2013	52.4		
3/9/2013	46.0		
3/10/2013	49.6		
3/11/2013	51.5		
3/12/2013	48.5		
3/13/2013	49.5		
3/14/2013	48.7		
3/15/2013	48.9		
3/16/2013	46.4		
3/17/2013	46.8		
3/18/2013	49.6		
3/19/2013	46.9		
3/20/2013	47.3		
3/21/2013	48.5		
3/22/2013	46.9		
3/23/2013	46.2		
3/24/2013	45.9		
3/25/2013	45.5		
3/26/2013	47.3		
3/27/2013	47.6		
3/28/2013	49.1		
3/29/2013	45.7		
3/30/2013	45.1		
3/31/2013	46.1		
4/1/2013	46.2		
4/2/2013	46.4	572	530
4/3/2013	47.0		
4/4/2013	49.6		
4/5/2013	49.4		
4/6/2013	47.4		
4/7/2013	47.7		
4/8/2013	48.3		
4/9/2013	49.3		
4/10/2013	48.1		
4/11/2013	47.1		
4/12/2013	49.1		
4/13/2013	47.1		
4/14/2013	47.8		
4/15/2013	46.7		
4/16/2013	47.3		
4/17/2013	48.4		
4/18/2013	48.0		
4/19/2013	46.2		
4/20/2013	44.8		
4/21/2013	46.2		
4/22/2013	46.9		
4/23/2013	48.2		
4/24/2013	47.4		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
4/25/2013	48.7		
4/26/2013	48.6		
4/27/2013	45.9		
4/28/2013	47.7		
4/29/2013	55.3		
4/30/2013	58.2		
5/1/2013	59.2	664	596
5/2/2013	58.6		
5/3/2013	57.2		
5/4/2013	55.7		
5/5/2013	56.7		
5/6/2013	60.2		
5/7/2013	57.4		
5/8/2013	59.5		
5/9/2013	58.3		
5/10/2013	57.4		
5/11/2013	57.5		
5/12/2013	60.5		
5/13/2013	61.8		
5/14/2013	59.8		
5/15/2013	59.6		
5/16/2013	59.3		
5/17/2013	60.1		
5/18/2013	59.9		
5/19/2013	60.4		
5/20/2013	60.6		
5/21/2013	59.2		
5/22/2013	60.1		
5/23/2013	58.9		
5/24/2013	59.0		
5/25/2013	57.3		
5/26/2013	54.2		
5/27/2013	58.9		
5/28/2013	58.5		
5/29/2013	58.9		
5/30/2013	59.2		
5/31/2013	58.5		
6/1/2013	57.6	684	626
6/2/2013	56.5		
6/3/2013	57.9		
6/4/2013	58.5		
6/5/2013	59.2		
6/6/2013	56.9		
6/7/2013	59.2		
6/8/2013	57.0		
6/9/2013	55.7		
6/10/2013	57.4		
6/11/2013	61.0		
6/12/2013	63.0		
6/13/2013	63.8		
6/14/2013	61.1		
6/15/2013	60.6		
6/16/2013	59.2		
6/17/2013	59.7		
6/18/2013	61.7		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
6/19/2013	60.1		
6/20/2013	60.5		
6/21/2013	61.5		
6/22/2013	59.8		
6/23/2013	58.3		
6/24/2013	59.9		
6/25/2013	60.1		
6/26/2013	60.6		
6/27/2013	61.0		
6/28/2013	61.4		
6/29/2013	60.8		
6/30/2013	61.6		
7/1/2013	62.4	596	540
7/2/2013	61.9		
7/3/2013	61.1		
7/4/2013	58.4		
7/5/2013	59.3		
7/6/2013	59.2		
7/7/2013	57.8		
7/8/2013	61.3		
7/9/2013	60.8		
7/10/2013	60.9		
7/11/2013	60.5		
7/12/2013	61.1		
7/13/2013	60.1		
7/14/2013	59.4		
7/15/2013	60.3		
7/16/2013	60.8		
7/17/2013	60.6		
7/18/2013	61.4		
7/19/2013	60.2		
7/20/2013	59.3		
7/21/2013	57.9		
7/22/2013	60.0		
7/23/2013	61.7		
7/24/2013	55.1		
7/25/2013	53.3		
7/26/2013	52.2		
7/27/2013	49.8		
7/28/2013	47.5		
7/29/2013	53.1		
7/30/2013	51.2		
7/31/2013	52.6		
8/1/2013	53.6		
8/2/2013	51.7		
8/3/2013	51.5		
8/4/2013	49.3		
8/5/2013	53.3	588	534
8/6/2013	52.4		
8/7/2013	52.5		
8/8/2013	51.5		
8/9/2013	50.6		
8/10/2013	51.1		
8/11/2013	46.1		
8/12/2013	51.2		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
8/13/2013	52.0		
8/14/2013	52.7		
8/15/2013	50.3		
8/16/2013	48.8		
8/17/2013	49.5		
8/18/2013	46.8		
8/19/2013	51.5		
8/20/2013	51.5		
8/21/2013	50.8		
8/22/2013	51.5		
8/23/2013	49.7		
8/24/2013	49.3		
8/25/2013	45.1		
8/26/2013	46.9		
8/27/2013	51.7		
8/28/2013	49.7		
8/29/2013	51.2		
8/30/2013	50.4		
8/31/2013	49.3		
9/1/2013	46.8		
9/2/2013	47.9		
9/3/2013	51.9		
9/4/2013	52.5		
9/5/2013	50.5	572	548
9/6/2013	50.6		
9/7/2013	49.4		
9/8/2013	48.7		
9/9/2013	51.6		
9/10/2013	51.4		
9/11/2013	51.0		
9/12/2013	52.7		
9/13/2013	51.9		
9/14/2013	49.5		
9/15/2013	47.0		
9/16/2013	51.4		
9/17/2013	51.8		
9/18/2013	50.0		
9/19/2013	45.2		
9/20/2013	49.7		
9/21/2013	48.7		
9/22/2013	45.9		
9/23/2013	50.2		
9/24/2013	50.8		510
9/25/2013	49.6		
9/26/2013	51.4		
9/27/2013	51.4		
9/28/2013	48.3		
9/29/2013	48.1		
9/30/2013	51.3		
10/1/2013	49.3		
10/2/2013	50.9		
10/3/2013	50.9		
10/4/2013	48.6	616	562
10/5/2013	48.5		
10/6/2013	45.4		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
10/7/2013	49.1		
10/8/2013	51.0		
10/9/2013	51.9		
10/10/2013	50.5		
10/11/2013	49.5		
10/12/2013	49.9		
10/13/2013	48.4		
10/14/2013	50.3		
10/15/2013	49.6		
10/16/2013	48.9		
10/17/2013	50.2		
10/18/2013	49.1		
10/19/2013	46.8		
10/20/2013	45.8		
10/21/2013	48.8		
10/22/2013	50.6		
10/23/2013	50.6		
10/24/2013	50.1		
10/25/2013	47.1		
10/26/2013	48.4		
10/27/2013	46.5		
10/28/2013	47.9		
10/29/2013	49.5		
10/30/2013	49.4		
10/31/2013	48.5		
11/1/2013	48.5	644	578
11/2/2013	47.9		
11/3/2013	46.1		
11/4/2013	47.4		
11/5/2013	49.1		
11/6/2013	50.4		
11/7/2013	49.9		
11/8/2013	49.8		
11/9/2013	48.6		
11/10/2013	45.8		
11/11/2013	49.0		
11/12/2013	49.0		
11/13/2013	48.0		
11/14/2013	49.4		
11/15/2013	47.0		
11/16/2013	46.4		
11/17/2013	45.0		
11/18/2013	47.5		
11/19/2013	47.1		
11/20/2013	48.3		
11/21/2013	49.9		
11/22/2013	48.4		
11/23/2013	47.9		
11/24/2013	44.7		
11/25/2013	47.8		
11/26/2013	50.1		
11/27/2013	48.3		
11/28/2013	47.6		
11/29/2013	44.8		
11/30/2013	44.8		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
12/1/2013	44.6		
12/2/2013	46.9		
12/3/2013	47.3		
12/4/2013	48.5		
12/5/2013	47.4	580	558
12/6/2013	45.7		
12/7/2013	42.4		
12/8/2013	40.7		
12/9/2013	45.0		
12/10/2013	44.9		
12/11/2013	47.4		
12/12/2013	46.8		
12/13/2013	44.4		
12/14/2013	44.5		
12/15/2013	43.1		
12/16/2013	48.5		
12/17/2013	46.6		
12/18/2013	46.6		
12/19/2013	46.6		
12/20/2013	46.2		
12/21/2013	43.8		
12/22/2013	45.0		
12/23/2013	45.9		
12/24/2013	46.4		
12/25/2013	44.3		
12/26/2013	45.4		
12/27/2013	45.4		
12/28/2013	44.7		
12/29/2013	43.6		
12/30/2013	45.9		
12/31/2013	46.1		
1/1/2014	44.2		
1/2/2014	46.0		
1/3/2014	45.6		
1/4/2014	44.4		
1/5/2014	43.5		
1/6/2014	45.8	600	512
1/7/2014	43.8		
1/8/2014	47.2		
1/9/2014	46.4		
1/10/2014	46.0		
1/11/2014	44.0		
1/12/2014	46.6		
1/13/2014	47.1		
1/14/2014	44.7		
1/15/2014	46.0		
1/16/2014	45.4		
1/17/2014	44.8		
1/18/2014	43.7		
1/19/2014	42.2		
1/20/2014	43.9		
1/21/2014	46.2		
1/22/2014	47.0		
1/23/2014	46.1		
1/24/2014	44.0		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
1/25/2014	43.9		
1/26/2014	43.1		
1/27/2014	45.9		
1/28/2014	46.9		
1/29/2014	46.5		
1/30/2014	47.2		
1/31/2014	44.6		
2/1/2014	44.8		
2/2/2014	45.0		
2/3/2014	47.1		
2/4/2014	46.0	556	568
2/5/2014	44.6		
2/6/2014	46.1		
2/7/2014	44.4		
2/8/2014	45.8		
2/9/2014	44.8		
2/10/2014	47.1		
2/11/2014	46.0		
2/12/2014	46.8		
2/13/2014	45.5		
2/14/2014	45.2		
2/15/2014	43.9		
2/16/2014	44.8		
2/17/2014	45.7		
2/18/2014	46.6		
2/19/2014	45.4		
2/20/2014	45.7		
2/21/2014	45.4		
2/22/2014	43.6		
2/23/2014	44.8		
2/24/2014	45.9		
2/25/2014	46.0		
2/26/2014	45.0		
2/27/2014	47.2		
2/28/2014	59.8		
3/1/2014	61.9	592	540
3/2/2014	44.5		
3/3/2014	46.5		
3/4/2014	47.7		
3/5/2014	46.0		
3/6/2014	46.3		
3/7/2014	45.7		
3/8/2014	44.0		
3/9/2014	43.6		
3/10/2014	45.6		
3/11/2014	44.5		
3/12/2014	44.8		
3/13/2014	46.4		
3/14/2014	45.0		
3/15/2014	43.9		
3/16/2014	43.6		
3/17/2014	43.4		
3/18/2014	46.2		
3/19/2014	45.4		
3/20/2014	45.5		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
3/21/2014	43.5		
3/22/2014	43.6		
3/23/2014	42.9		
3/24/2014	45.7		
3/25/2014	42.3		
3/26/2014	44.5		
3/27/2014	44.9		
3/28/2014	43.5		
3/29/2014	44.8		
3/30/2014	43.5		
3/31/2014	44.6		
4/1/2014	45.2		
4/2/2014	43.6		
4/3/2014	42.9		
4/4/2014	42.2		
4/5/2014	42.1	616	562
4/6/2014	39.6		
4/7/2014	43.2		
4/8/2014	41.3		
4/9/2014	40.4		
4/10/2014	40.2		
4/11/2014	39.5		
4/12/2014	38.6		
4/13/2014	37.6		
4/14/2014	40.4		
4/15/2014	41.5		
4/16/2014	44.0		
4/17/2014	42.5		
4/18/2014	45.2		
4/19/2014	44.0		
4/20/2014	40.9		
4/21/2014	43.0		
4/22/2014	42.4		
4/23/2014	44.4		
4/24/2014	45.2		
4/25/2014	43.0		
4/26/2014	42.7		
4/27/2014	42.6		
4/28/2014	43.9		
4/29/2014	43.4		
4/30/2014	42.4		
5/1/2014	41.8		
5/2/2014	40.8		
5/3/2014	40.4		
5/4/2014	39.9		
5/5/2014	43.2	640	556
5/6/2014	41.7		
5/7/2014	42.2		
5/8/2014	43.8		
5/9/2014	43.2		
5/10/2014	40.5		
5/11/2014	40.1		
5/12/2014	41.5		
5/13/2014	43.6		
5/14/2014	43.3		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
5/15/2014	44.1		
5/16/2014	46.0		
5/17/2014	43.3		
5/18/2014	44.7		
5/19/2014	45.6		
5/20/2014	45.6		
5/21/2014	44.9		
5/22/2014	44.9		
5/23/2014	44.6		
5/24/2014	43.1		
5/25/2014	43.1		
5/26/2014	43.4		
5/27/2014	44.2		
5/28/2014	41.3		
5/29/2014	38.7		
5/30/2014	39.1		
5/31/2014	45.4		
6/1/2014	44.5		
6/2/2014	46.2		
6/3/2014	42.5		
6/4/2014	42.8		
6/5/2014	42.1	668	606
6/6/2014	41.2		
6/7/2014	40.6		
6/8/2014	40.2		
6/9/2014	41.9		
6/10/2014	44.0		
6/11/2014	42.9		
6/12/2014	44.0		
6/13/2014	42.6		
6/14/2014	42.0		
6/15/2014	41.1		
6/16/2014	42.7		
6/17/2014	44.0		
6/18/2014	44.6		
6/19/2014	45.9		
6/20/2014	44.6		
6/21/2014	45.1		
6/22/2014	45.5		
6/23/2014	47.7		
6/24/2014	43.4		
6/25/2014	41.0		
6/26/2014	41.9		
6/27/2014	40.1		
6/28/2014	39.8		
6/29/2014	40.3		
6/30/2014	41.0		
7/1/2014	41.6	608	588
7/2/2014	41.8		
7/3/2014	44.1		
7/4/2014	41.7		
7/5/2014	41.9		
7/6/2014	42.2		
7/7/2014	42.3		
7/8/2014	45.0		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
7/9/2014	49.1		
7/10/2014	42.5		
7/11/2014	44.7		
7/12/2014	43.6		
7/13/2014	40.8		
7/14/2014	42.4		
7/15/2014	43.8		
7/16/2014	41.3		
7/17/2014	40.5		
7/18/2014	40.6		
7/19/2014	39.7		
7/20/2014	39.7		
7/21/2014	40.5		
7/22/2014	42.6		
7/23/2014	41.9		
7/24/2014	42.1		
7/25/2014	42.8		
7/26/2014	42.2		
7/27/2014	40.1		
7/28/2014	41.6		
7/29/2014	43.7		
7/30/2014	42.6		
7/31/2014	43.9		
8/1/2014	44.8	560	536
8/2/2014	40.8		
8/3/2014	40.6		
8/4/2014	42.5		
8/5/2014	42.8		
8/6/2014	41.8		
8/7/2014	41.6		
8/8/2014	41.1		
8/9/2014	42.5		
8/10/2014	40.3		
8/11/2014	43.2		
8/12/2014	43.7		
8/13/2014	41.5		
8/14/2014	42.4		
8/15/2014	41.7		
8/16/2014	41.2		
8/17/2014	40.7		
8/18/2014	43.1		
8/19/2014	46.1		
8/20/2014	44.3		
8/21/2014	46.9		
8/22/2014	43.0		
8/23/2014	44.1		
8/24/2014	41.2		
8/25/2014	45.0		
8/26/2014	45.8		
8/27/2014	43.7		
8/28/2014	44.4		
8/29/2014	41.6		
8/30/2014	42.7		
8/31/2014	40.3		
9/1/2014	42.3		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
9/2/2014	44.6		
9/3/2014	42.6	577	554
9/4/2014	43.5		
9/5/2014	42.2		
9/6/2014	41.3		
9/7/2014	41.7		
9/8/2014	42.8		
9/9/2014	43.8		
9/10/2014	42.4		
9/11/2014	44.1		
9/12/2014	41.4		
9/13/2014	41.7		
9/14/2014	41.5		
9/15/2014	43.0		
9/16/2014	43.8		
9/17/2014	42.2		
9/18/2014	44.0		
9/19/2014	42.1		
9/20/2014	41.5		
9/21/2014	41.1		
9/22/2014	42.7		
9/23/2014	43.2		
9/24/2014	42.0		
9/25/2014	43.4		
9/26/2014	42.0		
9/27/2014	42.1		
9/28/2014	40.6		
9/29/2014	42.6		
9/30/2014	42.9		
10/1/2014	42.0		
10/2/2014	42.4		
10/3/2014	41.4		
10/4/2014	41.2		
10/5/2014	40.7	684	618
10/6/2014	42.4		
10/7/2014	42.7		
10/8/2014	41.9		
10/9/2014	44.1		
10/10/2014	41.5		
10/11/2014	41.3		
10/12/2014	41.2		
10/13/2014	43.1		
10/14/2014	44.5		
10/15/2014	46.7		
10/16/2014	45.6		
10/17/2014	41.8		
10/18/2014	42.2		
10/19/2014	42.5		
10/20/2014	43.9		
10/21/2014	46.0		
10/22/2014	42.8		
10/23/2014	42.8		
10/24/2014	41.6		
10/25/2014	40.1		
10/26/2014	40.5		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
10/27/2014	43.3		
10/28/2014	43.1		
10/29/2014	43.3		
10/30/2014	42.3		
10/31/2014	42.1		
11/1/2014	42.0		
11/2/2014	39.1	536	538
11/3/2014	40.6		
11/4/2014	43.6		
11/5/2014	41.9		
11/6/2014	44.4		
11/7/2014	43.8		
11/8/2014	42.0		
11/9/2014	42.5		
11/10/2014	41.3		
11/11/2014	42.0		
11/12/2014	41.6		
11/13/2014	41.4		
11/14/2014	40.8		
11/15/2014	39.8		
11/16/2014	40.4		
11/17/2014	41.5		
11/18/2014	42.3		
11/19/2014	42.0		
11/20/2014	42.3		
11/21/2014	40.5		
11/22/2014	40.2		
11/23/2014	38.4		
11/24/2014	40.9		
11/25/2014	45.0		
11/26/2014	43.5		
11/27/2014	42.2		
11/28/2014	42.7		
11/29/2014	41.4		
11/30/2014	38.5		
12/1/2014	46.0		
12/2/2014	52.1		
12/3/2014	43.2		
12/4/2014	43.8	628	618
12/5/2014	40.8		
12/6/2014	40.6		
12/7/2014	39.7		
12/8/2014	44.0		
12/9/2014	44.1		
12/10/2014	42.3		
12/11/2014	42.1		
12/12/2014	44.8		
12/13/2014	40.4		
12/14/2014	39.0		
12/15/2014	42.7		
12/16/2014	42.5		
12/17/2014	41.6		
12/18/2014	42.6		
12/19/2014	41.3		
12/20/2014	40.6		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
12/21/2014	38.8		
12/22/2014	40.1		
12/23/2014	45.1		
12/24/2014	45.2		
12/25/2014	40.7		
12/26/2014	43.0		
12/27/2014	42.1		
12/28/2014	40.1		
12/29/2014	42.2		
12/30/2014	46.1		
12/31/2014	45.3		
1/1/2015	42.2		
1/2/2015	45.1		
1/3/2015	43.8		
1/4/2015	41.7		
1/5/2015	43.5	564	526
1/6/2015	46.3		
1/7/2015	44.4		
1/8/2015	45.0		
1/9/2015	42.2		
1/10/2015	42.2		
1/11/2015	43.0		
1/12/2015	44.6		
1/13/2015	43.3		
1/14/2015	43.0		
1/15/2015	41.8		
1/16/2015	41.3		
1/17/2015	41.4		
1/18/2015	39.4		
1/19/2015	40.2		
1/20/2015	45.0		
1/21/2015	43.3		
1/22/2015	45.2		
1/23/2015	43.9		
1/24/2015	41.4		
1/25/2015	40.6		
1/26/2015	42.6		
1/27/2015	41.2		
1/28/2015	42.1		
1/29/2015	41.5		
1/30/2015	43.9		
1/31/2015	44.9		
2/1/2015	44.7		
2/2/2015	47.5		
2/3/2015	44.9		
2/4/2015	44.9		
2/5/2015	46.9		
2/6/2015	43.7		
2/7/2015	45.5		
2/8/2015	43.7		
2/9/2015	45.7		
2/10/2015	46.0		
2/11/2015	45.4		
2/12/2015	47.0		
2/13/2015	46.2		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
2/14/2015	44.7		
2/15/2015	42.2		
2/16/2015	43.2		
2/17/2015	44.2		
2/18/2015	45.1	704	650
2/19/2015	46.7		
2/20/2015	47.1		
2/21/2015	43.9		
2/22/2015	44.1		
2/23/2015	46.8		
2/24/2015	46.1		
2/25/2015	46.6		
2/26/2015	45.6		
2/27/2015	47.9		
2/28/2015	44.7		
3/1/2015	45.8	572	570
3/2/2015	48.4		
3/3/2015	46.3		
3/4/2015	46.8		
3/5/2015	46.2		
3/6/2015	48.6		
3/7/2015	45.4		
3/8/2015	45.5		
3/9/2015	47.4		
3/10/2015	47.8		
3/11/2015	48.3		
3/12/2015	43.5		
3/13/2015	47.5		
3/14/2015	46.9		
3/15/2015	46.1		
3/16/2015	48.9		
3/17/2015	49.2		
3/18/2015	47.1		
3/19/2015	47.7		
3/20/2015	47.2		
3/21/2015	47.5		
3/22/2015	43.9		
3/23/2015	47.6		
3/24/2015	49.7		
3/25/2015	48.1		
3/26/2015	49.2		
3/27/2015	50.3		
3/28/2015	49.4		
3/29/2015	45.1		
3/30/2015	47.0		
3/31/2015	47.8		
4/1/2015	47.0	696	656
4/2/2015	48.3		
4/3/2015	46.8		
4/4/2015	46.3		
4/5/2015	44.8		
4/6/2015	46.8		
4/7/2015	47.4		
4/8/2015	47.9		
4/9/2015	49.0		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
4/10/2015	46.8		
4/11/2015	47.2		
4/12/2015	45.3		
4/13/2015	48.4		
4/14/2015	48.0		
4/15/2015	45.8		
4/16/2015	46.8		
4/17/2015	47.2		
4/18/2015	44.5		
4/19/2015	45.0		
4/20/2015	45.9		
4/21/2015	45.9		
4/22/2015	44.9		
4/23/2015	45.1		
4/24/2015	47.3		
4/25/2015	46.2		
4/26/2015	44.6		
4/27/2015	46.9		
4/28/2015	46.8		
4/29/2015	46.2		
4/30/2015	46.4		
5/1/2015	46.2	688	632
5/2/2015	45.6		
5/3/2015	43.9		
5/4/2015	46.1		
5/5/2015	47.0		
5/6/2015	47.1		
5/7/2015	46.5		
5/8/2015	46.8		
5/9/2015	44.8		
5/10/2015	45.5		
5/11/2015	47.2		
5/12/2015	46.1		
5/13/2015	46.6		
5/14/2015	46.2		
5/15/2015	45.4		
5/16/2015	46.4		
5/17/2015	44.7		
5/18/2015	47.1		
5/19/2015	47.7		
5/20/2015	47.0		
5/21/2015	47.4		
5/22/2015	46.2		
5/23/2015	45.4		
5/24/2015	45.1		
5/25/2015	46.6		
5/26/2015	46.8		
5/27/2015	51.5		
5/28/2015	50.0		
5/29/2015	49.2		
5/30/2015	48.3		
5/31/2015	48.1		
6/1/2015	51.4		
6/2/2015	51.2		
6/3/2015	50.9		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
6/4/2015	46.9		
6/5/2015	45.9		
6/6/2015	44.4		
6/7/2015	44.3		
6/8/2015	47.3		
6/9/2015	46.0	740	684
6/10/2015	46.9		
6/11/2015	46.7		
6/12/2015	46.1		
6/13/2015	45.7		
6/14/2015	46.3		
6/15/2015	46.1		
6/16/2015	48.0		
6/17/2015	48.4		
6/18/2015	47.3		
6/19/2015	48.1		
6/20/2015	46.6		
6/21/2015	45.8		
6/22/2015	46.8		
6/23/2015	47.4		
6/24/2015	46.3		
6/25/2015	47.2		
6/26/2015	45.3		
6/27/2015	44.1		
6/28/2015	45.1		
6/29/2015	46.9		
6/30/2015	47.8		
7/1/2015	47.8		
7/2/2015	46.9		
7/3/2015	47.3		
7/4/2015	45.1		
7/5/2015	44.2		
7/6/2015	46.5	728	658
7/7/2015	48.1		
7/8/2015	47.7		
7/9/2015	47.8		
7/10/2015	47.5		
7/11/2015	44.6		
7/12/2015	45.0		
7/13/2015	47.2		
7/14/2015	47.7		
7/15/2015	47.7		
7/16/2015	46.4		
7/17/2015	45.9		
7/18/2015	45.1		
7/19/2015	47.4		
7/20/2015	47.3		
7/21/2015	47.1		
7/22/2015	46.8		
7/23/2015	46.7		
7/24/2015	45.9		
7/25/2015	45.1		
7/26/2015	43.9		
7/27/2015	45.4		
7/28/2015	45.5		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
7/29/2015	45.2		
7/30/2015	46.4		
7/31/2015	45.8		
8/1/2015	44.9	700	654
8/2/2015	45.0		
8/3/2015	47.5		
8/4/2015	46.6		
8/5/2015	47.8		
8/6/2015	46.6		
8/7/2015	46.8		
8/8/2015	45.7		
8/9/2015	44.8		
8/10/2015	46.6		
8/11/2015	46.7		
8/12/2015	45.5		
8/13/2015	45.7		
8/14/2015	44.5		
8/15/2015	44.7		
8/16/2015	43.6		
8/17/2015	47.1		
8/18/2015	47.1		
8/19/2015	46.8		
8/20/2015	46.5		
8/21/2015	46.4		
8/22/2015	45.0		
8/23/2015	45.8		
8/24/2015	47.5		
8/25/2015	47.7		
8/26/2015	46.9		
8/27/2015	46.3		
8/28/2015	46.2		
8/29/2015	45.2		
8/30/2015	45.5		
8/31/2015	46.6		
9/1/2015	46.9	700	660
9/2/2015	46.5		
9/3/2015	46.7		
9/4/2015	46.1		
9/5/2015	46.4		
9/6/2015	44.9		
9/7/2015	46.0		
9/8/2015	47.4		
9/9/2015	47.3		
9/10/2015	47.9		
9/11/2015	47.5		
9/12/2015	45.2		
9/13/2015	44.3		
9/14/2015	47.4		
9/15/2015	50.3		
9/16/2015	47.7		
9/17/2015	47.6		
9/18/2015	45.8		
9/19/2015	45.3		
9/20/2015	45.7		
9/21/2015	46.6		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
9/22/2015	46.1		
9/23/2015	48.1		
9/24/2015	47.5		
9/25/2015	47.1		
9/26/2015	46.0		
9/27/2015	47.6		
9/28/2015	47.0		
9/29/2015	46.9		
9/30/2015	47.7		
10/1/2015	46.6		
10/2/2015	47.1		
10/3/2015	45.6	652	634
10/4/2015	45.8		
10/5/2015	47.2		
10/6/2015	47.7		
10/7/2015	46.8		
10/8/2015	47.2		
10/9/2015	44.8		
10/10/2015	45.9		
10/11/2015	45.0		
10/12/2015	46.3		
10/13/2015	47.6		
10/14/2015	46.2		
10/15/2015	47.4		
10/16/2015	46.7		
10/17/2015	46.8		
10/18/2015	45.5		
10/19/2015	47.0		
10/20/2015	47.3		
10/21/2015	46.6		
10/22/2015	46.9		
10/23/2015	46.2		
10/24/2015	46.9		
10/25/2015	45.3		
10/26/2015	46.2		
10/27/2015	45.5		
10/28/2015	46.5		
10/29/2015	46.6		
10/30/2015	47.0		
10/31/2015	46.2		
11/1/2015	44.8		
11/2/2015	46.9		
11/3/2015	45.7		
11/4/2015	46.2		
11/5/2015	46.1		
11/6/2015	46.9		
11/7/2015	44.6		
11/8/2015	44.3	663	650
11/9/2015	45.5		
11/10/2015	46.9		
11/11/2015	45.1		
11/12/2015	47.2		
11/13/2015	45.9		
11/14/2015	46.3		
11/15/2015	45.0		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
11/16/2015	46.8		
11/17/2015	46.5		
11/18/2015	46.3		
11/19/2015	46.4		
11/20/2015	44.9		
11/21/2015	44.9		
11/22/2015	45.7		
11/23/2015	46.9		
11/24/2015	47.2		
11/25/2015	45.9		
11/26/2015	45.6		
11/27/2015	43.4		
11/28/2015	43.7		
11/29/2015	44.0		
11/30/2015	46.8		
12/1/2015	46.2		
12/2/2015	47.0	648	642
12/3/2015	47.1		
12/4/2015	44.7		
12/5/2015	43.2		
12/6/2015	45.8		
12/7/2015	46.7		
12/8/2015	47.2		
12/9/2015	45.8		
12/10/2015	45.1		
12/11/2015	44.3		
12/12/2015	44.1		
12/13/2015	43.7		
12/14/2015	46.2		
12/15/2015	48.1		
12/16/2015	48.1		
12/17/2015	48.2		
12/18/2015	44.5		
12/19/2015	41.7		
12/20/2015	40.0		
12/21/2015	41.3		
12/22/2015	42.7		
12/23/2015	42.3		
12/24/2015	41.9		
12/25/2015	39.5		
12/26/2015	41.6		
12/27/2015	39.3		
12/28/2015	42.4		
12/29/2015	45.8		
12/30/2015	43.7		
12/31/2015	44.4		
1/1/2016	41.0		
1/2/2016	42.3		
1/3/2016	41.0		
1/4/2016	41.1		
1/5/2016	48.7	720	604
1/6/2016	50.2		
1/7/2016	45.6		
1/8/2016	44.9		
1/9/2016	43.7		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
1/10/2016	41.6		
1/11/2016	44.7		
1/12/2016	46.6		
1/13/2016	45.4		
1/14/2016	44.5		
1/15/2016	45.5		
1/16/2016	43.3		
1/17/2016	41.6		
1/18/2016	43.1		
1/19/2016	43.4		
1/20/2016	44.8		
1/21/2016	44.1		
1/22/2016	42.8		
1/23/2016	41.6		
1/24/2016	42.5		
1/25/2016	44.4		
1/26/2016	45.6		
1/27/2016	44.7		
1/28/2016	45.0		
1/29/2016	45.2		
1/30/2016	44.2		
1/31/2016	44.6		
2/1/2016	46.1	544	542
2/2/2016	43.9		
2/3/2016	44.6		
2/4/2016	44.2		
2/5/2016	44.3		
2/6/2016	42.8		
2/7/2016	42.6		
2/8/2016	44.6		
2/9/2016	44.8		
2/10/2016	44.0		
2/11/2016	44.2		
2/12/2016	45.0		
2/13/2016	44.2		
2/14/2016	42.9		
2/15/2016	44.2		
2/16/2016	42.7		
2/17/2016	44.6		
2/18/2016	44.1		
2/19/2016	43.6		
2/20/2016	43.9		
2/21/2016	43.8		
2/22/2016	44.5		
2/23/2016	45.8		
2/24/2016	45.3		
2/25/2016	46.8		
2/26/2016	43.9		
2/27/2016	43.2		
2/28/2016	42.4		
2/29/2016	44.2		
3/1/2016	45.9		
3/2/2016	45.5		
3/3/2016	45.5	744	664
3/4/2016	43.5		

	DCT:OPS:HEADWORKS	DCT:OPS:PRIMARY INFLUENT	DCT:EMD:PRODUCT WATER
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
3/5/2016	42.0		
3/6/2016	43.9		
3/7/2016	45.8		
3/8/2016	45.0		
3/9/2016	45.2		
3/10/2016	45.2		
3/11/2016	44.2		
3/12/2016	43.7		
3/13/2016	43.7		
3/14/2016	46.9		
3/15/2016	46.3		
3/16/2016	45.3		
3/17/2016	45.7		
3/18/2016	45.1		
3/19/2016	43.3		
3/20/2016	46.0		
3/21/2016	44.5		
3/22/2016	45.3		
3/23/2016	44.2		
3/24/2016	44.9		
3/25/2016	44.9		
3/26/2016	43.8		
3/27/2016	43.5		
3/28/2016	45.5		
3/29/2016	45.5		
3/30/2016	46.0		
3/31/2016	45.5		
4/1/2016	45.2		
4/2/2016	43.3		
4/3/2016	44.3		
4/4/2016	45.9		
4/5/2016	46.7		
4/6/2016	45.6		
4/7/2016	44.5		
4/8/2016	46.7		
4/9/2016	42.6		
4/10/2016	44.8		
4/11/2016	46.4		

Historic TDS and Flow Data - LAGWRP

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
1/1/2010	20.2		
1/2/2010	19.8		
1/3/2010	19.9		
1/4/2010	20.2		
1/5/2010	20.1		702
1/6/2010	20.2		
1/7/2010	20.0		
1/8/2010	20.4		
1/9/2010	20.0		
1/10/2010	19.9		
1/11/2010	20.2		
1/12/2010	20.2		
1/13/2010	20.2		
1/14/2010	20.2		
1/15/2010	20.2		
1/16/2010	20.0		
1/17/2010	19.8		
1/18/2010	20.7		
1/19/2010	20.3		
1/20/2010	20.5		
1/21/2010	20.5		
1/22/2010	20.7		
1/23/2010	20.3		
1/24/2010	20.0		
1/25/2010	19.7		
1/26/2010	19.6		
1/27/2010	19.5		
1/28/2010	20.0		
1/29/2010	20.1		
1/30/2010	20.0		
1/31/2010	19.9		
2/1/2010	20.2		
2/2/2010	20.2		694
2/3/2010	19.3		
2/4/2010	20.2		
2/5/2010	20.3		
2/6/2010	20.5		
2/7/2010	20.3		
2/8/2010	20.4		
2/9/2010	19.8		
2/10/2010	16.9		
2/11/2010	20.3		
2/12/2010	20.5		
2/13/2010	20.1		
2/14/2010	19.9		
2/15/2010	20.1		
2/16/2010	20.2		
2/17/2010	20.3		
2/18/2010	20.3		
2/19/2010	20.4		
2/20/2010	20.1		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
2/21/2010	19.9		
2/22/2010	20.3		
2/23/2010	20.3		
2/24/2010	20.2		
2/25/2010	20.1		
2/26/2010	20.4		
2/27/2010	20.1		
2/28/2010	20.0		
3/1/2010	20.5		
3/2/2010	20.3		694
3/3/2010	20.3		
3/4/2010	20.4		
3/5/2010	20.3		
3/6/2010	20.1		
3/7/2010	20.2		
3/8/2010	20.4		
3/9/2010	20.8		
3/10/2010	20.3		
3/11/2010	19.9		
3/12/2010	20.2		
3/13/2010	20.0		
3/14/2010	19.9		
3/15/2010	20.3		
3/16/2010	20.4		
3/17/2010	20.3		
3/18/2010	20.4		
3/19/2010	20.4		
3/20/2010	20.0		
3/21/2010	20.0		
3/22/2010	20.2		
3/23/2010	20.3		
3/24/2010	20.2		
3/25/2010	20.3		
3/26/2010	20.3		
3/27/2010	20.0		
3/28/2010	19.9		
3/29/2010	20.2		
3/30/2010	20.3		
3/31/2010	20.3		
4/1/2010	20.2		756
4/2/2010	20.3		
4/3/2010	20.0		
4/4/2010	20.0		
4/5/2010	20.5		
4/6/2010	20.2		
4/7/2010	20.2		
4/8/2010	20.2		
4/9/2010	20.2		
4/10/2010	20.0		
4/11/2010	19.8		
4/12/2010	20.8		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
4/13/2010	20.2		
4/14/2010	20.2		
4/15/2010	20.2		
4/16/2010	20.3		
4/17/2010	20.1		
4/18/2010	20.0		
4/19/2010	20.5		
4/20/2010	20.5		
4/21/2010	20.5		
4/22/2010	20.5		
4/23/2010	20.3		
4/24/2010	20.2		
4/25/2010	20.1		
4/26/2010	20.5		
4/27/2010	20.5		
4/28/2010	20.4		
4/29/2010	20.4		
4/30/2010	20.4		
5/1/2010	20.1		
5/2/2010	20.0		
5/3/2010	20.3		
5/4/2010	20.3		636
5/5/2010	20.4		
5/6/2010	20.3		
5/7/2010	20.4		
5/8/2010	20.3		
5/9/2010	20.1		
5/10/2010	20.3		
5/11/2010	20.3		
5/12/2010	19.6		
5/13/2010	20.3		
5/14/2010	20.4		
5/15/2010	20.1		
5/16/2010	20.0		
5/17/2010	20.3		
5/18/2010	20.1		
5/19/2010	20.4		
5/20/2010	20.4		
5/21/2010	20.4		
5/22/2010	20.2		
5/23/2010	20.1		
5/24/2010	20.3		
5/25/2010	20.3		
5/26/2010	20.3		
5/27/2010	20.3		
5/28/2010	20.3		
5/29/2010	19.2		
5/30/2010	20.1		
5/31/2010	20.1		
6/1/2010	20.1		
6/2/2010	20.3		670

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
6/3/2010	20.4		
6/4/2010	20.4		
6/5/2010	20.2		
6/6/2010	20.2		
6/7/2010	20.5		
6/8/2010	20.4		
6/9/2010	20.4		
6/10/2010	20.6		
6/11/2010	20.7		
6/12/2010	20.4		
6/13/2010	20.2		
6/14/2010	20.6		
6/15/2010	20.6		
6/16/2010	20.5		
6/17/2010	20.6		
6/18/2010	20.6		
6/19/2010	20.4		
6/20/2010	20.3		
6/21/2010	20.6		
6/22/2010	20.5		
6/23/2010	20.4		
6/24/2010	20.6		
6/25/2010	20.7		
6/26/2010	20.7		
6/27/2010	20.3		
6/28/2010	20.6		
6/29/2010	20.6		
6/30/2010	20.7		
7/1/2010	20.6		654
7/2/2010	20.7		
7/3/2010	20.4		
7/4/2010	20.3		
7/5/2010	20.3		
7/6/2010	20.6		
7/7/2010	20.6		
7/8/2010	20.6		
7/9/2010	20.6		
7/10/2010	20.6		
7/11/2010	20.2		
7/12/2010	20.6		
7/13/2010	20.9		
7/14/2010	20.9		
7/15/2010	20.6		
7/16/2010	18.9		
7/17/2010	20.6		
7/18/2010	20.4		
7/19/2010	20.7		
7/20/2010	20.7		
7/21/2010	20.9		
7/22/2010	20.9		
7/23/2010	20.7		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
7/24/2010	20.5		
7/25/2010	20.3		
7/26/2010	20.6		
7/27/2010	20.5		
7/28/2010	20.8		
7/29/2010	20.6		
7/30/2010	20.9		
7/31/2010	20.5		
8/1/2010	20.3		
8/2/2010	20.7		
8/3/2010	20.8		636
8/4/2010	20.6		
8/5/2010	20.8		
8/6/2010	20.9		
8/7/2010	20.4		
8/8/2010	20.2		
8/9/2010	20.5		
8/10/2010	20.8		
8/11/2010	20.8		
8/12/2010	20.5		
8/13/2010	20.5		
8/14/2010	20.6		
8/15/2010	20.3		
8/16/2010	20.5		
8/17/2010	20.8		
8/18/2010	20.9		
8/19/2010	20.6		
8/20/2010	20.6		
8/21/2010	20.4		
8/22/2010	20.3		
8/23/2010	20.7		
8/24/2010	20.9		
8/25/2010	20.7		
8/26/2010	20.9		
8/27/2010	20.6		
8/28/2010	20.3		
8/29/2010	20.2		
8/30/2010	20.6		
8/31/2010	20.6		
9/1/2010	20.6		624
9/2/2010	20.5		
9/3/2010	20.8		
9/4/2010	20.5		
9/5/2010	20.4		
9/6/2010	20.4		
9/7/2010	20.6		
9/8/2010	20.8		
9/9/2010	20.3		
9/10/2010	21.0		
9/11/2010	20.4		
9/12/2010	20.3		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
9/13/2010	20.6		
9/14/2010	20.5		
9/15/2010	20.6		
9/16/2010	20.6		
9/17/2010	20.6		
9/18/2010	20.4		
9/19/2010	20.3		
9/20/2010	20.6		
9/21/2010	20.6		
9/22/2010	20.5		
9/23/2010	20.5		
9/24/2010	20.6		
9/25/2010	20.4		
9/26/2010	20.3		
9/27/2010	20.7		
9/28/2010	20.6		
9/29/2010	20.6		
9/30/2010	20.7		
10/1/2010	20.7		
10/2/2010	20.5		
10/3/2010	20.3		
10/4/2010	20.5		
10/5/2010	20.5	644	634
10/6/2010	20.6		
10/7/2010	20.5		
10/8/2010	20.6		
10/9/2010	20.3		
10/10/2010	20.2		
10/11/2010	20.4		
10/12/2010	20.6		
10/13/2010	20.6		
10/14/2010	20.6		
10/15/2010	20.6		
10/16/2010	20.3		
10/17/2010	20.2		
10/18/2010	20.9		
10/19/2010	20.9		
10/20/2010	20.9		
10/21/2010	20.8		
10/22/2010	20.8		
10/23/2010	20.3		
10/24/2010	20.2		
10/25/2010	20.7		
10/26/2010	20.5		
10/27/2010	20.5		
10/28/2010	19.6		
10/29/2010	20.6		
10/30/2010	20.8		
10/31/2010	20.1		
11/1/2010	20.5		
11/2/2010	20.2	812	638

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
11/3/2010	20.8		
11/4/2010	20.8		
11/5/2010	21.0		
11/6/2010	20.6		
11/7/2010	20.4		
11/8/2010	21.1		
11/9/2010	20.4		
11/10/2010	20.5		
11/11/2010	20.4		
11/12/2010	20.6		
11/13/2010	20.2		
11/14/2010	20.2		
11/15/2010	20.6		
11/16/2010	20.5		
11/17/2010	20.4		
11/18/2010	19.7		
11/19/2010	20.5		
11/20/2010	20.5		
11/21/2010	20.7		
11/22/2010	20.5		
11/23/2010	20.4		
11/24/2010	20.5		
11/25/2010	20.3		
11/26/2010	20.2		
11/27/2010	20.2		
11/28/2010	20.1		
11/29/2010	20.5		
11/30/2010	18.9		
12/1/2010	20.5	660	632
12/2/2010	20.5		
12/3/2010	20.5		
12/4/2010	20.2		
12/5/2010	20.0		
12/6/2010	20.7		
12/7/2010	19.9		
12/8/2010	20.0		
12/9/2010	20.6		
12/10/2010	20.6		
12/11/2010	20.2		
12/12/2010	20.2		
12/13/2010	20.3		
12/14/2010	20.5		
12/15/2010	20.5		
12/16/2010	20.4		
12/17/2010	20.5		
12/18/2010	20.4		
12/19/2010	21.3		
12/20/2010	20.9		
12/21/2010	21.3		
12/22/2010	21.3		
12/23/2010	20.9		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
12/24/2010	20.6		
12/25/2010	20.3		
12/26/2010	20.7		
12/27/2010	20.4		
12/28/2010	20.5		
12/29/2010	20.1		
12/30/2010	20.9		
12/31/2010	20.5		
1/1/2011	20.4		
1/2/2011	20.1		
1/3/2011	20.8		
1/4/2011	20.7	624	568
1/5/2011	20.7		
1/6/2011	20.7		
1/7/2011	20.6		
1/8/2011	20.3		
1/9/2011	20.3		
1/10/2011	20.6		
1/11/2011	20.5		
1/12/2011	20.5		
1/13/2011	20.3		
1/14/2011	20.5		
1/15/2011	20.2		
1/16/2011	20.1		
1/17/2011	20.4		
1/18/2011	20.5		
1/19/2011	20.5		
1/20/2011	20.5		
1/21/2011	20.5		
1/22/2011	20.2		
1/23/2011	20.1		
1/24/2011	20.5		
1/25/2011	20.5		
1/26/2011	20.5		
1/27/2011	20.5		
1/28/2011	20.5		
1/29/2011	20.2		
1/30/2011	20.1		
1/31/2011	20.5		
2/1/2011	20.5		
2/2/2011	20.5		
2/3/2011	20.5		
2/4/2011	20.5		
2/5/2011	20.3		
2/6/2011	20.1		
2/7/2011	20.5		
2/8/2011	20.4	544	600
2/9/2011	20.4		
2/10/2011	20.4		
2/11/2011	20.4		
2/12/2011	20.3		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
2/13/2011	20.3		
2/14/2011	20.4		
2/15/2011	21.3		
2/16/2011	22.4		
2/17/2011	21.4		
2/18/2011	21.6		
2/19/2011	21.4		
2/20/2011	21.2		
2/21/2011	21.3		
2/22/2011	21.4		
2/23/2011	21.4		
2/24/2011	21.4		
2/25/2011	21.1		
2/26/2011	22.0		
2/27/2011	21.0		
2/28/2011	21.4		
3/1/2011	21.4		
3/2/2011	21.4		
3/3/2011	21.7	652	616
3/4/2011	21.5		
3/5/2011	21.1		
3/6/2011	21.0		
3/7/2011	21.3		
3/8/2011	21.4		
3/9/2011	21.3		
3/10/2011	21.6		
3/11/2011	21.3		
3/12/2011	21.0		
3/13/2011	20.0		
3/14/2011	21.4		
3/15/2011	21.3		
3/16/2011	20.7		
3/17/2011	20.6		
3/18/2011	20.6		
3/19/2011	20.8		
3/20/2011	20.2		
3/21/2011	21.4		
3/22/2011	21.1		
3/23/2011	21.0		
3/24/2011	21.1		
3/25/2011	21.5		
3/26/2011	20.6		
3/27/2011	20.5		
3/28/2011	20.9		
3/29/2011	20.8		
3/30/2011	20.7		
3/31/2011	20.9		
4/1/2011	20.4		
4/2/2011	20.6		
4/3/2011	20.3	600	592
4/4/2011	20.7		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
4/5/2011	21.0		
4/6/2011	19.8		
4/7/2011	20.6		
4/8/2011	20.5		
4/9/2011	20.3		
4/10/2011	20.3		
4/11/2011	20.7		
4/12/2011	20.7		
4/13/2011	20.7		
4/14/2011	20.6		
4/15/2011	20.7		
4/16/2011	20.5		
4/17/2011	20.3		
4/18/2011	20.7		
4/19/2011	20.6		
4/20/2011	20.6		
4/21/2011	20.6		
4/22/2011	20.7		
4/23/2011	20.4		
4/24/2011	20.3		
4/25/2011	20.9		
4/26/2011	20.9		
4/27/2011	21.0		
4/28/2011	20.8		
4/29/2011	21.0		
4/30/2011	20.7		
5/1/2011	20.6		
5/2/2011	20.9	556	484
5/3/2011	20.9		
5/4/2011	20.9		
5/5/2011	20.8		
5/6/2011	20.9		
5/7/2011	20.6		
5/8/2011	20.5		
5/9/2011	20.8		
5/10/2011	20.8		
5/11/2011	20.8		
5/12/2011	20.8		
5/13/2011	20.8		
5/14/2011	20.7		
5/15/2011	19.0		
5/16/2011	19.5		
5/17/2011	20.8		
5/18/2011	21.0		
5/19/2011	20.8		
5/20/2011	20.9		
5/21/2011	20.6		
5/22/2011	20.6		
5/23/2011	20.4		
5/24/2011	20.8		
5/25/2011	20.8		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
5/26/2011	20.8		
5/27/2011	20.9		
5/28/2011	20.6		
5/29/2011	20.4		
5/30/2011	20.5		
5/31/2011	20.8		
6/1/2011	19.9		
6/2/2011	20.7		
6/3/2011	20.8		
6/4/2011	20.7	608	580
6/5/2011	20.5		
6/6/2011	20.8		
6/7/2011	20.7		
6/8/2011	20.8		
6/9/2011	20.8		
6/10/2011	20.8		
6/11/2011	20.5		
6/12/2011	20.4		
6/13/2011	20.8		
6/14/2011	20.8		
6/15/2011	19.9		
6/16/2011	20.7		
6/17/2011	20.7		
6/18/2011	20.8		
6/19/2011	20.3		
6/20/2011	20.7		
6/21/2011	20.7		
6/22/2011	20.8		
6/23/2011	20.7		
6/24/2011	20.9		
6/25/2011	20.5		
6/26/2011	20.4		
6/27/2011	20.8		
6/28/2011	20.8		
6/29/2011	20.8		
6/30/2011	20.7		
7/1/2011	20.8		
7/2/2011	20.6		
7/3/2011	20.5		
7/4/2011	20.5		
7/5/2011	20.8		
7/6/2011	20.9	616	564
7/7/2011	20.8		
7/8/2011	20.9		
7/9/2011	20.7		
7/10/2011	20.7		
7/11/2011	21.0		
7/12/2011	20.8		
7/13/2011	20.9		
7/14/2011	20.8		
7/15/2011	20.8		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
7/16/2011	20.5		
7/17/2011	20.5		
7/18/2011	20.7		
7/19/2011	20.8		
7/20/2011	20.9		
7/21/2011	21.2		
7/22/2011	21.0		
7/23/2011	20.6		
7/24/2011	20.5		
7/25/2011	20.8		
7/26/2011	18.3		
7/27/2011	13.9		
7/28/2011	15.9		
7/29/2011	21.0		
7/30/2011	20.7		
7/31/2011	20.5		
8/1/2011	20.9	608	528
8/2/2011	21.0		
8/3/2011	20.2		
8/4/2011	21.1		
8/5/2011	20.9		
8/6/2011	20.6		
8/7/2011	20.5		
8/8/2011	20.8		
8/9/2011	20.8		
8/10/2011	20.6		
8/11/2011	20.9		
8/12/2011	21.2		
8/13/2011	20.7		
8/14/2011	20.6		
8/15/2011	20.9		
8/16/2011	20.1		
8/17/2011	20.9		
8/18/2011	20.9		
8/19/2011	20.9		
8/20/2011	20.6		
8/21/2011	20.6		
8/22/2011	20.9		
8/23/2011	20.8		
8/24/2011	20.9		
8/25/2011	21.1		
8/26/2011	20.9		
8/27/2011	20.9		
8/28/2011	20.6		
8/29/2011	21.0		
8/30/2011	20.8		
8/31/2011	20.8		
9/1/2011	20.8	626	582
9/2/2011	20.8		
9/3/2011	20.4		
9/4/2011	20.3		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
9/5/2011	20.2		
9/6/2011	20.8		
9/7/2011	21.0		
9/8/2011	20.9		
9/9/2011	20.9		
9/10/2011	20.6		
9/11/2011	20.5		
9/12/2011	20.9		
9/13/2011	20.8		
9/14/2011	20.8		
9/15/2011	20.9		
9/16/2011	20.8		
9/17/2011	20.6		
9/18/2011	20.2		
9/19/2011	21.0		
9/20/2011	21.0		
9/21/2011	21.0		
9/22/2011	20.8		
9/23/2011	20.8		
9/24/2011	20.6		
9/25/2011	20.4		
9/26/2011	20.7		
9/27/2011	20.8		
9/28/2011	20.8		
9/29/2011	20.8		
9/30/2011	20.8		
10/1/2011	20.5	600	446
10/2/2011	20.4		
10/3/2011	20.8		
10/4/2011	20.7		
10/5/2011	20.7		
10/6/2011	20.7		
10/7/2011	20.7		
10/8/2011	20.5		
10/9/2011	20.2		
10/10/2011	20.7		
10/11/2011	20.7		
10/12/2011	20.7		
10/13/2011	20.4		
10/14/2011	20.5		
10/15/2011	20.6		
10/16/2011	20.4		
10/17/2011	20.9		
10/18/2011	20.8		
10/19/2011	20.7		
10/20/2011	20.7		
10/21/2011	20.7		
10/22/2011	20.4		
10/23/2011	20.3		
10/24/2011	20.8		
10/25/2011	20.7		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
10/26/2011	20.8		
10/27/2011	20.8		
10/28/2011	20.5		
10/29/2011	20.4		
10/30/2011	20.4		
10/31/2011	20.7		
11/1/2011	21.0		
11/2/2011	20.7		
11/3/2011	20.6		
11/4/2011	20.8		
11/5/2011	19.7		
11/6/2011	20.1		
11/7/2011	19.7		
11/8/2011	19.4		
11/9/2011	20.0		
11/10/2011	20.7		
11/11/2011	20.6		
11/12/2011	20.8		
11/13/2011	20.5		
11/14/2011	20.7		
11/15/2011	20.6	596	584
11/16/2011	20.2		
11/17/2011	20.9		
11/18/2011	21.1		
11/19/2011	20.8		
11/20/2011	20.8		
11/21/2011	21.2		
11/22/2011	20.3		
11/23/2011	20.1		
11/24/2011	19.1		
11/25/2011	20.3		
11/26/2011	20.2		
11/27/2011	20.2		
11/28/2011	20.7		
11/29/2011	21.0		
11/30/2011	19.7		
12/1/2011	17.7		
12/2/2011	20.7	656	614
12/3/2011	20.4		
12/4/2011	20.3		
12/5/2011	20.7		
12/6/2011	20.6		
12/7/2011	20.6		
12/8/2011	20.6		
12/9/2011	20.6		
12/10/2011	20.3		
12/11/2011	20.3		
12/12/2011	20.7		
12/13/2011	20.9		
12/14/2011	20.6		
12/15/2011	20.7		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
12/16/2011	20.7		
12/17/2011	20.4		
12/18/2011	20.3		
12/19/2011	20.7		
12/20/2011	20.6		
12/21/2011	20.7		
12/22/2011	20.7		
12/23/2011	20.7		
12/24/2011	20.5		
12/25/2011	20.2		
12/26/2011	20.2		
12/27/2011	20.5		
12/28/2011	19.7		
12/29/2011	20.6		
12/30/2011	20.7		
12/31/2011	20.5		
1/1/2012	20.4		
1/2/2012	19.3		
1/3/2012	20.8		
1/4/2012	20.8	634	580
1/5/2012	20.5		
1/6/2012	20.3		
1/7/2012	20.0		
1/8/2012	20.0		
1/9/2012	20.4		
1/10/2012	20.7		
1/11/2012	20.8		
1/12/2012	20.7		
1/13/2012	20.3		
1/14/2012	20.3		
1/15/2012	20.2		
1/16/2012	20.5		
1/17/2012	20.8		
1/18/2012	20.7		
1/19/2012	20.7		
1/20/2012	20.8		
1/21/2012	20.7		
1/22/2012	20.3		
1/23/2012	20.5		
1/24/2012	20.6		
1/25/2012	20.7		
1/26/2012	20.8		
1/27/2012	20.9		
1/28/2012	20.5		
1/29/2012	20.3		
1/30/2012	20.8		
1/31/2012	20.7		
2/1/2012	20.7		
2/2/2012	20.8		
2/3/2012	20.7		
2/4/2012	20.5		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
2/5/2012	20.4		
2/6/2012	20.9	700	598
2/7/2012	20.9		
2/8/2012	20.7		
2/9/2012	20.9		
2/10/2012	20.6		
2/11/2012	20.6		
2/12/2012	20.5		
2/13/2012	21.0		
2/14/2012	20.1		
2/15/2012	20.9		
2/16/2012	20.9		
2/17/2012	21.1		
2/18/2012	20.7		
2/19/2012	20.6		
2/20/2012	20.8		
2/21/2012	21.0		
2/22/2012	20.9		
2/23/2012	21.0		
2/24/2012	21.1		
2/25/2012	20.9		
2/26/2012	20.7		
2/27/2012	21.0		
2/28/2012	20.8		
2/29/2012	20.7		
3/1/2012	20.6		
3/2/2012	20.7	808	620
3/3/2012	20.4		
3/4/2012	20.2		
3/5/2012	20.6		
3/6/2012	20.7		
3/7/2012	20.6		
3/8/2012	20.7		
3/9/2012	20.7		
3/10/2012	20.3		
3/11/2012	20.3		
3/12/2012	20.7		
3/13/2012	21.0		
3/14/2012	20.8		
3/15/2012	20.7		
3/16/2012	20.7		
3/17/2012	20.6		
3/18/2012	19.2		
3/19/2012	19.8		
3/20/2012	19.6		
3/21/2012	19.6		
3/22/2012	19.7		
3/23/2012	19.7		
3/24/2012	19.2		
3/25/2012	19.0		
3/26/2012	20.2		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
3/27/2012	19.6		
3/28/2012	19.6		
3/29/2012	19.6		
3/30/2012	19.6		
3/31/2012	19.1		
4/1/2012	19.1	650	602
4/2/2012	19.6		
4/3/2012	19.6		
4/4/2012	19.6		
4/5/2012	19.5		
4/6/2012	19.6		
4/7/2012	19.3		
4/8/2012	19.1		
4/9/2012	19.5		
4/10/2012	19.5		
4/11/2012	20.7		
4/12/2012	19.5		
4/13/2012	19.5		
4/14/2012	19.2		
4/15/2012	18.7		
4/16/2012	19.3		
4/17/2012	19.4		
4/18/2012	19.1		
4/19/2012	19.6		
4/20/2012	19.7		
4/21/2012	19.3		
4/22/2012	19.1		
4/23/2012	20.0		
4/24/2012	19.9		
4/25/2012	20.0		
4/26/2012	20.2		
4/27/2012	20.1		
4/28/2012	19.6		
4/29/2012	19.5		
4/30/2012	20.1		
5/1/2012	20.0	628	608
5/2/2012	20.0		
5/3/2012	19.9		
5/4/2012	20.1		
5/5/2012	18.7		
5/6/2012	18.5		
5/7/2012	19.3		
5/8/2012	19.8		
5/9/2012	19.8		
5/10/2012	19.4		
5/11/2012	19.4		
5/12/2012	19.0		
5/13/2012	18.8		
5/14/2012	19.3		
5/15/2012	19.3		
5/16/2012	19.4		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
5/17/2012	17.9		
5/18/2012	19.4		
5/19/2012	19.0		
5/20/2012	19.0		
5/21/2012	19.5		
5/22/2012	19.7		
5/23/2012	19.7		
5/24/2012	19.7		
5/25/2012	19.8		
5/26/2012	19.3		
5/27/2012	19.0		
5/28/2012	19.1		
5/29/2012	19.6		
5/30/2012	19.7		
5/31/2012	19.7		
6/1/2012	19.9		
6/2/2012	19.3		686
6/3/2012	19.3		
6/4/2012	19.8		
6/5/2012	19.7		
6/6/2012	19.3		
6/7/2012	19.9		
6/8/2012	19.7		
6/9/2012	19.3		
6/10/2012	19.2		
6/11/2012	19.7		
6/12/2012	19.8		
6/13/2012	19.6		
6/14/2012	19.7		
6/15/2012	19.8		
6/16/2012	17.4		
6/17/2012	19.2		
6/18/2012	19.6		
6/19/2012	19.6		
6/20/2012	19.7		
6/21/2012	19.2		
6/22/2012	19.8		
6/23/2012	19.4		
6/24/2012	19.3		
6/25/2012	19.8		
6/26/2012	16.2		
6/27/2012	17.1		
6/28/2012	17.1		
6/29/2012	17.2		
6/30/2012	17.0		
7/1/2012	16.9	648	512
7/2/2012	17.1		
7/3/2012	17.1		
7/4/2012	16.8		
7/5/2012	17.0		
7/6/2012	17.1		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
7/7/2012	16.9		
7/8/2012	16.8		
7/9/2012	17.1		
7/10/2012	17.1		
7/11/2012	17.4		
7/12/2012	13.5		
7/13/2012	17.2		
7/14/2012	17.0		
7/15/2012	16.8		
7/16/2012	17.8		
7/17/2012	17.7		
7/18/2012	17.9		
7/19/2012	18.4		
7/20/2012	19.5		
7/21/2012	18.5		
7/22/2012	17.6		
7/23/2012	18.8		
7/24/2012	18.0		
7/25/2012	19.7		
7/26/2012	19.7		
7/27/2012	19.7		
7/28/2012	19.4		
7/29/2012	19.3		
7/30/2012	19.7		
7/31/2012	18.2		
8/1/2012	19.7	704	646
8/2/2012	19.7		
8/3/2012	19.9		
8/4/2012	19.4		
8/5/2012	19.3		
8/6/2012	19.8		
8/7/2012	19.8		
8/8/2012	19.8		
8/9/2012	18.9		
8/10/2012	19.6		
8/11/2012	19.7		
8/12/2012	19.4		
8/13/2012	19.8		
8/14/2012	19.8		
8/15/2012	19.8		
8/16/2012	19.8		
8/17/2012	19.8		
8/18/2012	19.5		
8/19/2012	19.3		
8/20/2012	19.9		
8/21/2012	19.8		
8/22/2012	19.9		
8/23/2012	19.8		
8/24/2012	19.8		
8/25/2012	19.4		
8/26/2012	19.3		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
8/27/2012	19.9		
8/28/2012	19.9		
8/29/2012	19.7		
8/30/2012	19.8		
8/31/2012	20.0		
9/1/2012	19.5		
9/2/2012	19.1		
9/3/2012	19.2		
9/4/2012	19.8		
9/5/2012	19.9	638	634
9/6/2012	19.8		
9/7/2012	19.7		
9/8/2012	19.5		
9/9/2012	19.4		
9/10/2012	19.9		
9/11/2012	20.0		
9/12/2012	19.8		
9/13/2012	19.8		
9/14/2012	19.9		
9/15/2012	19.5		
9/16/2012	19.3		
9/17/2012	19.8		
9/18/2012	19.8		
9/19/2012	19.8		
9/20/2012	19.8		
9/21/2012	19.9		
9/22/2012	19.5		
9/23/2012	19.3		
9/24/2012	19.8		
9/25/2012	19.7		
9/26/2012	19.7		
9/27/2012	19.7		
9/28/2012	19.9		
9/29/2012	18.7		
9/30/2012	19.4		
10/1/2012	19.8	684	676
10/2/2012	19.8		
10/3/2012	19.9		
10/4/2012	19.8		
10/5/2012	19.8		
10/6/2012	19.5		
10/7/2012	19.3		
10/8/2012	19.7		
10/9/2012	19.8		
10/10/2012	19.8		
10/11/2012	19.7		
10/12/2012	19.7		
10/13/2012	19.3		
10/14/2012	19.3		
10/15/2012	19.8		
10/16/2012	20.0		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
10/17/2012	20.1		
10/18/2012	19.8		
10/19/2012	19.8		
10/20/2012	19.3		
10/21/2012	19.1		
10/22/2012	19.7		
10/23/2012	19.6		
10/24/2012	18.8		
10/25/2012	19.6		
10/26/2012	19.5		
10/27/2012	19.3		
10/28/2012	19.2		
10/29/2012	19.7		
10/30/2012	19.6		
10/31/2012	19.7		
11/1/2012	19.5		
11/2/2012	19.7	696	618
11/3/2012	19.3		
11/4/2012	19.1		
11/5/2012	19.6		
11/6/2012	19.7		
11/7/2012	19.8		
11/8/2012	19.6		
11/9/2012	19.7		
11/10/2012	19.4		
11/11/2012	19.1		
11/12/2012	19.4		
11/13/2012	18.9		
11/14/2012	19.7		
11/15/2012	19.7		
11/16/2012	19.7		
11/17/2012	19.3		
11/18/2012	19.4		
11/19/2012	19.8		
11/20/2012	19.8		
11/21/2012	19.7		
11/22/2012	19.4		
11/23/2012	19.1		
11/24/2012	19.1		
11/25/2012	19.2		
11/26/2012	19.8		
11/27/2012	19.6		
11/28/2012	19.7		
11/29/2012	19.9		
11/30/2012	19.7		
12/1/2012	19.4		
12/2/2012	19.4	660	628
12/3/2012	20.1		
12/4/2012	19.6		
12/5/2012	19.0		
12/6/2012	19.8		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
12/7/2012	19.6		
12/8/2012	19.2		
12/9/2012	19.1		
12/10/2012	19.7		
12/11/2012	19.5		
12/12/2012	19.5		
12/13/2012	19.9		
12/14/2012	19.6		
12/15/2012	19.3		
12/16/2012	19.0		
12/17/2012	19.5		
12/18/2012	19.9		
12/19/2012	19.5		
12/20/2012	19.6		
12/21/2012	19.5		
12/22/2012	19.2		
12/23/2012	19.1		
12/24/2012	20.2		
12/25/2012	18.8		
12/26/2012	19.8		
12/27/2012	19.4		
12/28/2012	19.2		
12/29/2012	19.1		
12/30/2012	19.0		
12/31/2012	19.2		
1/1/2013	19.1		
1/2/2013	19.2	687	614
1/3/2013	19.6		
1/4/2013	19.5		
1/5/2013	19.1		
1/6/2013	19.0		
1/7/2013	19.8		
1/8/2013	18.5		
1/9/2013	19.5		
1/10/2013	19.6		
1/11/2013	19.1		
1/12/2013	19.2		
1/13/2013	18.8		
1/14/2013	19.3		
1/15/2013	19.4		
1/16/2013	19.5		
1/17/2013	19.5		
1/18/2013	19.5		
1/19/2013	19.0		
1/20/2013	19.1		
1/21/2013	19.2		
1/22/2013	19.4		
1/23/2013	19.3		
1/24/2013	20.4		
1/25/2013	19.6		
1/26/2013	19.2		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
1/27/2013	19.0		
1/28/2013	19.5		
1/29/2013	19.5		
1/30/2013	19.5		
1/31/2013	19.5		
2/1/2013	19.5		
2/2/2013	19.3		
2/3/2013	18.9		
2/4/2013	19.4		
2/5/2013	17.1	693	680
2/6/2013	17.0		
2/7/2013	16.9		
2/8/2013	16.9		
2/9/2013	16.8		
2/10/2013	16.6		
2/11/2013	16.8		
2/12/2013	16.9		
2/13/2013	16.9		
2/14/2013	16.9		
2/15/2013	18.8		
2/16/2013	19.1		
2/17/2013	19.0		
2/18/2013	19.1		
2/19/2013	19.6		
2/20/2013	18.3		
2/21/2013	18.6		
2/22/2013	19.5		
2/23/2013	18.9		
2/24/2013	18.3		
2/25/2013	19.3		
2/26/2013	19.2		
2/27/2013	19.7		
2/28/2013	19.4		
3/1/2013	19.5		
3/2/2013	19.1		
3/3/2013	18.9	602	580
3/4/2013	19.4		
3/5/2013	19.4		
3/6/2013	19.5		
3/7/2013	19.5		
3/8/2013	21.0		
3/9/2013	19.1		
3/10/2013	18.9		
3/11/2013	19.5		
3/12/2013	19.5		
3/13/2013	19.6		
3/14/2013	19.6		
3/15/2013	19.6		
3/16/2013	19.1		
3/17/2013	19.0		
3/18/2013	19.6		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
3/19/2013	19.5		
3/20/2013	19.5		
3/21/2013	19.5		
3/22/2013	19.5		
3/23/2013	19.1		
3/24/2013	19.2		
3/25/2013	19.7		
3/26/2013	18.4		
3/27/2013	18.1		
3/28/2013	18.1		
3/29/2013	18.7		
3/30/2013	19.1		
3/31/2013	19.1		
4/1/2013	19.4		
4/2/2013	19.5	684	616
4/3/2013	19.9		
4/4/2013	19.8		
4/5/2013	20.0		
4/6/2013	19.4		
4/7/2013	19.2		
4/8/2013	19.8		
4/9/2013	20.0		
4/10/2013	17.8		
4/11/2013	19.5		
4/12/2013	19.9		
4/13/2013	19.5		
4/14/2013	19.2		
4/15/2013	20.0		
4/16/2013	19.8		
4/17/2013	19.9		
4/18/2013	19.9		
4/19/2013	19.8		
4/20/2013	19.5		
4/21/2013	19.3		
4/22/2013	19.8		
4/23/2013	18.1		
4/24/2013	18.3		
4/25/2013	18.9		
4/26/2013	19.9		
4/27/2013	19.5		
4/28/2013	19.3		
4/29/2013	19.9		
4/30/2013	19.9		
5/1/2013	20.0	740	692
5/2/2013	20.1		
5/3/2013	20.1		
5/4/2013	19.6		
5/5/2013	19.6		
5/6/2013	20.0		
5/7/2013	19.9		
5/8/2013	17.0		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
5/9/2013	16.9		
5/10/2013	19.1		
5/11/2013	18.9		
5/12/2013	18.6		
5/13/2013	19.7		
5/14/2013	19.9		
5/15/2013	19.9		
5/16/2013	19.9		
5/17/2013	20.0		
5/18/2013	19.6		
5/19/2013	19.4		
5/20/2013	19.9		
5/21/2013	19.9		
5/22/2013	19.9		
5/23/2013	20.0		
5/24/2013	19.9		
5/25/2013	19.3		
5/26/2013	19.0		
5/27/2013	19.2		
5/28/2013	19.8		
5/29/2013	20.0		
5/30/2013	20.2		
5/31/2013	20.0		
6/1/2013	19.5	756	722
6/2/2013	19.5		
6/3/2013	19.9		
6/4/2013	20.1		
6/5/2013	19.9		
6/6/2013	19.8		
6/7/2013	19.9		
6/8/2013	19.7		
6/9/2013	19.5		
6/10/2013	19.8		
6/11/2013	12.6		
6/12/2013	19.3		
6/13/2013	19.1		
6/14/2013	19.1		
6/15/2013	18.9		
6/16/2013	18.8		
6/17/2013	19.1		
6/18/2013	19.2		
6/19/2013	19.2		
6/20/2013	19.2		
6/21/2013	19.0		
6/22/2013	18.9		
6/23/2013	18.7		
6/24/2013	19.2		
6/25/2013	19.0		
6/26/2013	19.0		
6/27/2013	19.2		
6/28/2013	19.2		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
6/29/2013	19.0		
6/30/2013	19.0		
7/1/2013	19.3	732	720
7/2/2013	19.3		
7/3/2013	19.4		
7/4/2013	18.9		
7/5/2013	19.2		
7/6/2013	19.0		
7/7/2013	18.7		
7/8/2013	19.2		
7/9/2013	19.3		
7/10/2013	19.3		
7/11/2013	19.5		
7/12/2013	19.4		
7/13/2013	19.2		
7/14/2013	19.1		
7/15/2013	19.2		
7/16/2013	19.2		
7/17/2013	19.2		
7/18/2013	18.5		
7/19/2013	19.2		
7/20/2013	18.2		
7/21/2013	18.8		
7/22/2013	19.2		
7/23/2013	19.3		
7/24/2013	19.3		
7/25/2013	19.4		
7/26/2013	19.3		
7/27/2013	19.1		
7/28/2013	18.8		
7/29/2013	19.3		
7/30/2013	19.3		
7/31/2013	19.2		
8/1/2013	19.2		
8/2/2013	19.2		
8/3/2013	19.0		
8/4/2013	18.9		
8/5/2013	18.6	730	706
8/6/2013	18.1		
8/7/2013	19.2		
8/8/2013	19.3		
8/9/2013	19.3		
8/10/2013	19.1		
8/11/2013	19.0		
8/12/2013	19.4		
8/13/2013	19.4		
8/14/2013	18.7		
8/15/2013	19.4		
8/16/2013	18.3		
8/17/2013	17.7		
8/18/2013	17.6		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
8/19/2013	17.9		
8/20/2013	18.6		
8/21/2013	19.4		
8/22/2013	19.3		
8/23/2013	19.4		
8/24/2013	18.9		
8/25/2013	18.9		
8/26/2013	18.6		
8/27/2013	19.3		
8/28/2013	19.4		
8/29/2013	19.7		
8/30/2013	19.4		
8/31/2013	19.5		
9/1/2013	19.0		
9/2/2013	19.0		
9/3/2013	19.5		
9/4/2013	19.5		
9/5/2013	19.5	740	716
9/6/2013	19.7		
9/7/2013	19.1		
9/8/2013	19.0		
9/9/2013	19.6		
9/10/2013	19.4		
9/11/2013	19.4		
9/12/2013	19.4		
9/13/2013	19.4		
9/14/2013	19.1		
9/15/2013	18.9		
9/16/2013	18.1		
9/17/2013	17.9		
9/18/2013	16.3		
9/19/2013	19.5		
9/20/2013	19.4		
9/21/2013	19.1		
9/22/2013	18.9		
9/23/2013	19.3		
9/24/2013	19.3		670
9/25/2013	19.4		
9/26/2013	18.4		
9/27/2013	18.8		
9/28/2013	19.0		
9/29/2013	18.9		
9/30/2013	19.3		
10/1/2013	19.3		
10/2/2013	19.4		
10/3/2013	19.6		
10/4/2013	19.4	776	702
10/5/2013	19.0		
10/6/2013	18.8		
10/7/2013	19.5		
10/8/2013	19.8		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
10/9/2013	19.0		
10/10/2013	19.6		
10/11/2013	19.8		
10/12/2013	19.4		
10/13/2013	19.1		
10/14/2013	19.7		
10/15/2013	19.8		
10/16/2013	19.8		
10/17/2013	19.6		
10/18/2013	19.4		
10/19/2013	19.2		
10/20/2013	19.0		
10/21/2013	19.6		
10/22/2013	19.7		
10/23/2013	19.9		
10/24/2013	19.6		
10/25/2013	19.9		
10/26/2013	19.3		
10/27/2013	19.0		
10/28/2013	19.5		
10/29/2013	17.7		
10/30/2013	17.8		
10/31/2013	17.8		
11/1/2013	17.8	776	718
11/2/2013	17.8		
11/3/2013	17.3		
11/4/2013	17.7		
11/5/2013	19.4		
11/6/2013	19.6		
11/7/2013	19.7		
11/8/2013	19.7		
11/9/2013	19.2		
11/10/2013	19.0		
11/11/2013	19.3		
11/12/2013	19.6		
11/13/2013	19.7		
11/14/2013	17.0		
11/15/2013	19.7		
11/16/2013	19.6		
11/17/2013	19.1		
11/18/2013	19.5		
11/19/2013	19.7		
11/20/2013	19.7		
11/21/2013	20.0		
11/22/2013	19.6		
11/23/2013	19.2		
11/24/2013	19.0		
11/25/2013	19.5		
11/26/2013	19.8		
11/27/2013	19.6		
11/28/2013	19.4		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
11/29/2013	19.0		
11/30/2013	19.2		
12/1/2013	19.0		
12/2/2013	19.6		
12/3/2013	19.6		
12/4/2013	19.8		
12/5/2013	19.9	780	688
12/6/2013	19.8		
12/7/2013	19.2		
12/8/2013	19.3		
12/9/2013	19.6		
12/10/2013	19.6		
12/11/2013	20.2		
12/12/2013	19.6		
12/13/2013	19.7		
12/14/2013	19.3		
12/15/2013	19.1		
12/16/2013	19.6		
12/17/2013	19.7		
12/18/2013	19.7		
12/19/2013	19.6		
12/20/2013	19.6		
12/21/2013	19.2		
12/22/2013	19.2		
12/23/2013	19.4		
12/24/2013	19.5		
12/25/2013	19.0		
12/26/2013	19.1		
12/27/2013	19.4		
12/28/2013	19.1		
12/29/2013	19.2		
12/30/2013	19.4		
12/31/2013	19.7		
1/1/2014	19.2		
1/2/2014	19.2		
1/3/2014	19.6		
1/4/2014	18.8		
1/5/2014	19.0		
1/6/2014	19.3	748	696
1/7/2014	19.4		
1/8/2014	19.4		
1/9/2014	19.6		
1/10/2014	19.4		
1/11/2014	19.2		
1/12/2014	19.0		
1/13/2014	19.5		
1/14/2014	19.4		
1/15/2014	19.8		
1/16/2014	19.9		
1/17/2014	19.8		
1/18/2014	19.4		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
1/19/2014	19.2		
1/20/2014	19.6		
1/21/2014	19.8		
1/22/2014	19.2		
1/23/2014	19.8		
1/24/2014	19.7		
1/25/2014	19.6		
1/26/2014	19.0		
1/27/2014	19.8		
1/28/2014	18.4		
1/29/2014	18.9		
1/30/2014	19.2		
1/31/2014	19.9		
2/1/2014	19.6		
2/2/2014	19.2		
2/3/2014	19.8		
2/4/2014	17.6	710	676
2/5/2014	15.2		
2/6/2014	19.6		
2/7/2014	19.8		
2/8/2014	19.2		
2/9/2014	19.4		
2/10/2014	19.7		
2/11/2014	19.9		
2/12/2014	19.9		
2/13/2014	19.4		
2/14/2014	19.7		
2/15/2014	18.9		
2/16/2014	18.6		
2/17/2014	18.8		
2/18/2014	19.5		
2/19/2014	19.2		
2/20/2014	19.4		
2/21/2014	19.0		
2/22/2014	19.0		
2/23/2014	18.6		
2/24/2014	19.1		
2/25/2014	19.4		
2/26/2014	19.2		
2/27/2014	20.3		
2/28/2014	20.6		
3/1/2014	20.3	648	588
3/2/2014	19.2		
3/3/2014	19.9		
3/4/2014	17.6		
3/5/2014	16.2		
3/6/2014	19.5		
3/7/2014	19.5		
3/8/2014	19.0		
3/9/2014	18.6		
3/10/2014	18.8		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
3/11/2014	19.2		
3/12/2014	19.3		
3/13/2014	19.9		
3/14/2014	19.9		
3/15/2014	19.7		
3/16/2014	19.1		
3/17/2014	19.0		
3/18/2014	19.7		
3/19/2014	19.8		
3/20/2014	19.8		
3/21/2014	19.0		
3/22/2014	19.3		
3/23/2014	19.4		
3/24/2014	19.9		
3/25/2014	18.6		
3/26/2014	19.8		
3/27/2014	19.7		
3/28/2014	19.7		
3/29/2014	19.2		
3/30/2014	19.4		
3/31/2014	19.5		
4/1/2014	20.0		
4/2/2014	18.5		
4/3/2014	17.5		
4/4/2014	19.8		
4/5/2014	19.4	760	742
4/6/2014	19.2		
4/7/2014	19.7		
4/8/2014	19.9		
4/9/2014	20.0		
4/10/2014	19.9		
4/11/2014	19.8		
4/12/2014	19.6		
4/13/2014	19.4		
4/14/2014	19.8		
4/15/2014	19.9		
4/16/2014	19.9		
4/17/2014	20.0		
4/18/2014	19.9		
4/19/2014	19.5		
4/20/2014	19.1		
4/21/2014	19.7		
4/22/2014	18.4		
4/23/2014	19.7		
4/24/2014	18.4		
4/25/2014	19.9		
4/26/2014	19.7		
4/27/2014	19.2		
4/28/2014	20.9		
4/29/2014	20.6		
4/30/2014	20.6		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
5/1/2014	20.6		
5/2/2014	20.5		
5/3/2014	20.2		
5/4/2014	20.0		
5/5/2014	20.4	816	748
5/6/2014	20.4		
5/7/2014	20.0		
5/8/2014	19.9		
5/9/2014	19.9		
5/10/2014	19.5		
5/11/2014	19.4		
5/12/2014	19.8		
5/13/2014	18.8		
5/14/2014	15.8		
5/15/2014	20.1		
5/16/2014	20.1		
5/17/2014	19.9		
5/18/2014	19.8		
5/19/2014	20.2		
5/20/2014	20.3		
5/21/2014	20.0		
5/22/2014	20.0		
5/23/2014	20.2		
5/24/2014	19.5		
5/25/2014	18.8		
5/26/2014	18.6		
5/27/2014	19.5		
5/28/2014	19.6		
5/29/2014	18.3		
5/30/2014	17.3		
5/31/2014	17.8		
6/1/2014	17.8		
6/2/2014	18.2		
6/3/2014	18.2		
6/4/2014	19.4		
6/5/2014	19.5	948	792
6/6/2014	19.2		
6/7/2014	18.9		
6/8/2014	17.5		
6/9/2014	18.0		
6/10/2014	19.1		
6/11/2014	19.1		
6/12/2014	13.4		
6/13/2014	19.3		
6/14/2014	18.9		
6/15/2014	18.7		
6/16/2014	18.7		
6/17/2014	18.7		
6/18/2014	18.7		
6/19/2014	18.9		
6/20/2014	18.8		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
6/21/2014	18.4		
6/22/2014	18.3		
6/23/2014	18.8		
6/24/2014	18.8		
6/25/2014	18.4		
6/26/2014	15.1		
6/27/2014	18.9		
6/28/2014	18.2		
6/29/2014	18.2		
6/30/2014	17.8		
7/1/2014	18.9	760	750
7/2/2014	18.9		
7/3/2014	19.0		
7/4/2014	17.8		
7/5/2014	18.1		
7/6/2014	18.4		
7/7/2014	19.0		
7/8/2014	17.9		
7/9/2014	19.1		
7/10/2014	19.1		
7/11/2014	18.8		
7/12/2014	18.5		
7/13/2014	18.3		
7/14/2014	18.9		
7/15/2014	19.0		
7/16/2014	18.3		
7/17/2014	15.6		
7/18/2014	18.8		
7/19/2014	18.2		
7/20/2014	18.0		
7/21/2014	18.8		
7/22/2014	18.7		
7/23/2014	18.9		
7/24/2014	19.0		
7/25/2014	18.9		
7/26/2014	18.5		
7/27/2014	18.2		
7/28/2014	18.9		
7/29/2014	18.7		
7/30/2014	18.8		
7/31/2014	18.8		
8/1/2014	18.8	760	752
8/2/2014	18.3		
8/3/2014	18.0		
8/4/2014	18.1		
8/5/2014	17.3		
8/6/2014	17.5		
8/7/2014	17.4		
8/8/2014	17.5		
8/9/2014	17.2		
8/10/2014	17.0		

Date	LAG:OPS:PLANT INFLUENT FLOW MGD	LAG:OPS:PLANT INFLUENT TDS (mg/L)	LAG:OPS:FINAL EFFLUENT TDS (mg/L)
8/11/2014	18.0		
8/12/2014	16.3		
8/13/2014	15.6		
8/14/2014	18.9		
8/15/2014	18.8		
8/16/2014	18.2		
8/17/2014	18.2		
8/18/2014	16.4		
8/19/2014	16.5		
8/20/2014	16.8		
8/21/2014	16.9		
8/22/2014	16.9		
8/23/2014	16.7		
8/24/2014	16.3		
8/25/2014	18.5		
8/26/2014	18.7		
8/27/2014	18.1		
8/28/2014	18.6		
8/29/2014	18.6		
8/30/2014	18.0		
8/31/2014	17.6		
9/1/2014	17.8		
9/2/2014	18.6		
9/3/2014	18.5	796	734
9/4/2014	18.7		
9/5/2014	18.6		
9/6/2014	16.8		
9/7/2014	16.8		
9/8/2014	17.9		
9/9/2014	17.3		
9/10/2014	17.8		
9/11/2014	15.8		
9/12/2014	18.1		
9/13/2014	17.9		
9/14/2014	18.0		
9/15/2014	18.5		
9/16/2014	18.9		
9/17/2014	18.9		
9/18/2014	17.7		
9/19/2014	18.5		
9/20/2014	18.0		
9/21/2014	18.3		
9/22/2014	18.5		
9/23/2014	18.6		
9/24/2014	18.8		
9/25/2014	19.4		
9/26/2014	19.6		
9/27/2014	18.5		
9/28/2014	18.2		
9/29/2014	19.1		
9/30/2014	18.2		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
10/1/2014	18.7		
10/2/2014	18.7		
10/3/2014	18.7		
10/4/2014	18.2		
10/5/2014	18.2	836	804
10/6/2014	18.8		
10/7/2014	18.9		
10/8/2014	19.0		
10/9/2014	19.0		
10/10/2014	18.4		
10/11/2014	17.7		
10/12/2014	17.8		
10/13/2014	18.5		
10/14/2014	18.8		
10/15/2014	18.9		
10/16/2014	18.8		
10/17/2014	18.6		
10/18/2014	17.8		
10/19/2014	17.8		
10/20/2014	18.6		
10/21/2014	18.7		
10/22/2014	18.6		
10/23/2014	18.9		
10/24/2014	18.6		
10/25/2014	17.8		
10/26/2014	17.7		
10/27/2014	18.5		
10/28/2014	18.7		
10/29/2014	18.7		
10/30/2014	18.8		
10/31/2014	18.5		
11/1/2014	18.6		
11/2/2014	17.6	692	692
11/3/2014	18.4		
11/4/2014	18.0		
11/5/2014	18.1		
11/6/2014	18.2		
11/7/2014	18.1		
11/8/2014	17.8		
11/9/2014	17.5		
11/10/2014	17.7		
11/11/2014	18.1		
11/12/2014	18.2		
11/13/2014	18.6		
11/14/2014	18.1		
11/15/2014	17.6		
11/16/2014	17.7		
11/17/2014	18.2		
11/18/2014	17.2		
11/19/2014	17.1		
11/20/2014	16.9		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
11/21/2014	17.2		
11/22/2014	17.0		
11/23/2014	16.9		
11/24/2014	16.3		
11/25/2014	14.8		
11/26/2014	16.4		
11/27/2014	15.8		
11/28/2014	15.9		
11/29/2014	15.6		
11/30/2014	15.6		
12/1/2014	16.4		
12/2/2014	17.4		
12/3/2014	17.6		
12/4/2014	17.3	812	770
12/5/2014	16.5		
12/6/2014	17.7		
12/7/2014	17.8		
12/8/2014	18.3		
12/9/2014	18.2		
12/10/2014	18.2		
12/11/2014	18.0		
12/12/2014	20.0		
12/13/2014	17.6		
12/14/2014	17.5		
12/15/2014	17.9		
12/16/2014	18.2		
12/17/2014	18.1		
12/18/2014	14.6		
12/19/2014	17.9		
12/20/2014	17.3		
12/21/2014	17.2		
12/22/2014	17.6		
12/23/2014	16.1		
12/24/2014	17.5		
12/25/2014	16.1		
12/26/2014	16.8		
12/27/2014	16.9		
12/28/2014	16.7		
12/29/2014	17.7		
12/30/2014	17.8		
12/31/2014	17.6		
1/1/2015	16.3		
1/2/2015	16.9		
1/3/2015	16.9		
1/4/2015	17.0		
1/5/2015	17.9	720	686
1/6/2015	18.2		
1/7/2015	18.0		
1/8/2015	18.1		
1/9/2015	17.8		
1/10/2015	17.5		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
1/11/2015	16.8		
1/12/2015	16.7		
1/13/2015	18.0		
1/14/2015	18.5		
1/15/2015	18.4		
1/16/2015	18.2		
1/17/2015	17.3		
1/18/2015	17.1		
1/19/2015	17.8		
1/20/2015	18.0		
1/21/2015	18.0		
1/22/2015	18.1		
1/23/2015	18.0		
1/24/2015	17.4		
1/25/2015	17.5		
1/26/2015	18.1		
1/27/2015	18.0		
1/28/2015	18.0		
1/29/2015	17.1		
1/30/2015	17.2		
1/31/2015	16.3		
2/1/2015	16.3		
2/2/2015	16.9		
2/3/2015	16.3		
2/4/2015	17.8		
2/5/2015	17.9		
2/6/2015	17.6	796	772
2/7/2015	17.2		
2/8/2015	17.4		
2/9/2015	18.0		
2/10/2015	17.0		
2/11/2015	17.6		
2/12/2015	17.8		
2/13/2015	17.7		
2/14/2015	17.3		
2/15/2015	17.1		
2/16/2015	17.7		
2/17/2015	17.7		
2/18/2015	17.8		
2/19/2015	18.0		
2/20/2015	17.8		
2/21/2015	17.2		
2/22/2015	17.7		
2/23/2015	18.3		
2/24/2015	18.0		
2/25/2015	18.0		
2/26/2015	17.9		
2/27/2015	17.3		
2/28/2015	17.2		
3/1/2015	17.7	704	724
3/2/2015	18.6		

Date	LAG:OPS:PLANT INFLUENT FLOW MGD	LAG:OPS:PLANT INFLUENT TDS (mg/L)	LAG:OPS:FINAL EFFLUENT TDS (mg/L)
3/3/2015	17.6		
3/4/2015	17.6		
3/5/2015	17.5		
3/6/2015	17.4		
3/7/2015	17.3		
3/8/2015	17.6		
3/9/2015	17.7		
3/10/2015	17.5		
3/11/2015	17.4		
3/12/2015	17.8		
3/13/2015	17.6		
3/14/2015	17.2		
3/15/2015	16.9		
3/16/2015	17.4		
3/17/2015	17.1		
3/18/2015	15.6		
3/19/2015	13.7		
3/20/2015	17.3		
3/21/2015	17.2		
3/22/2015	16.9		
3/23/2015	17.5		
3/24/2015	17.3		
3/25/2015	17.4		
3/26/2015	17.4		
3/27/2015	17.3		
3/28/2015	17.0		
3/29/2015	16.8		
3/30/2015	17.3		
3/31/2015	17.2		
4/1/2015	15.6	893	826
4/2/2015	13.8		
4/3/2015	16.9		
4/4/2015	16.8		
4/5/2015	13.3		
4/6/2015	17.0		
4/7/2015	16.9		
4/8/2015	16.9		
4/9/2015	14.8		
4/10/2015	16.6		
4/11/2015	16.5		
4/12/2015	16.7		
4/13/2015	16.9		
4/14/2015	17.1		
4/15/2015	15.1		
4/16/2015	13.2		
4/17/2015	17.1		
4/18/2015	17.1		
4/19/2015	17.0		
4/20/2015	17.2		
4/21/2015	16.7		
4/22/2015	17.0		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
4/23/2015	16.8		
4/24/2015	16.7		
4/25/2015	16.9		
4/26/2015	16.8		
4/27/2015	16.8		
4/28/2015	17.2		
4/29/2015	17.2		
4/30/2015	17.0		
5/1/2015	17.4	888	848
5/2/2015	16.9		
5/3/2015	17.2		
5/4/2015	17.2		
5/5/2015	16.3		
5/6/2015	15.1		
5/7/2015	13.0		
5/8/2015	16.4		
5/9/2015	16.6		
5/10/2015	16.5		
5/11/2015	17.0		
5/12/2015	16.8		
5/13/2015	17.0		
5/14/2015	17.0		
5/15/2015	15.2		
5/16/2015	16.4		
5/17/2015	16.9		
5/18/2015	17.3		
5/19/2015	17.2		
5/20/2015	17.5		
5/21/2015	17.4		
5/22/2015	17.2		
5/23/2015	16.8		
5/24/2015	16.3		
5/25/2015	17.0		
5/26/2015	17.2		
5/27/2015	17.0		
5/28/2015	17.2		
5/29/2015	17.7		
5/30/2015	17.3		
5/31/2015	17.5		
6/1/2015	17.8		
6/2/2015	17.9		
6/3/2015	17.6		
6/4/2015	17.5	904	872
6/5/2015	17.5		
6/6/2015	17.3		
6/7/2015	17.1		
6/8/2015	17.7		
6/9/2015	17.5		
6/10/2015	17.4		
6/11/2015	17.6		
6/12/2015	17.7		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
6/13/2015	17.0		
6/14/2015	17.3		
6/15/2015	17.7		
6/16/2015	17.6		
6/17/2015	17.1		
6/18/2015	15.4		
6/19/2015	16.3		
6/20/2015	17.2		
6/21/2015	17.0		
6/22/2015	17.8		
6/23/2015	17.7		
6/24/2015	17.8		
6/25/2015	17.8		
6/26/2015	17.7		
6/27/2015	17.1		
6/28/2015	17.1		
6/29/2015	17.9		
6/30/2015	17.8		
7/1/2015	17.7		
7/2/2015	17.6		
7/3/2015	16.8		
7/4/2015	16.2		
7/5/2015	16.6		
7/6/2015	17.6	940	858
7/7/2015	17.7		
7/8/2015	17.7		
7/9/2015	17.6		
7/10/2015	17.5		
7/11/2015	17.2		
7/12/2015	17.3		
7/13/2015	17.9		
7/14/2015	17.6		
7/15/2015	17.5		
7/16/2015	17.6		
7/17/2015	17.6		
7/18/2015	17.3		
7/19/2015	17.4		
7/20/2015	17.9		
7/21/2015	17.8		
7/22/2015	17.8		
7/23/2015	17.7		
7/24/2015	17.6		
7/25/2015	17.2		
7/26/2015	17.3		
7/27/2015	17.7		
7/28/2015	17.7		
7/29/2015	17.7		
7/30/2015	17.3		
7/31/2015	17.8		
8/1/2015	17.2	896	850
8/2/2015	17.2		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
8/3/2015	17.7		
8/4/2015	17.5		
8/5/2015	17.1		
8/6/2015	17.7		
8/7/2015	17.6		
8/8/2015	17.3		
8/9/2015	17.4		
8/10/2015	17.8		
8/11/2015	17.9		
8/12/2015	17.8		
8/13/2015	17.9		
8/14/2015	17.8		
8/15/2015	17.2		
8/16/2015	17.3		
8/17/2015	18.2		
8/18/2015	17.2		
8/19/2015	17.3		
8/20/2015	17.5		
8/21/2015	17.1		
8/22/2015	17.3		
8/23/2015	17.4		
8/24/2015	18.0		
8/25/2015	18.0		
8/26/2015	18.4		
8/27/2015	18.4		
8/28/2015	17.6		
8/29/2015	17.0		
8/30/2015	16.8		
8/31/2015	18.0		
9/1/2015	18.2	884	820
9/2/2015	18.1		
9/3/2015	18.0		
9/4/2015	17.9		
9/5/2015	17.3		
9/6/2015	16.6		
9/7/2015	17.5		
9/8/2015	18.2		
9/9/2015	18.3		
9/10/2015	17.8		
9/11/2015	18.2		
9/12/2015	17.8		
9/13/2015	17.8		
9/14/2015	18.1		
9/15/2015	19.5		
9/16/2015	18.1		
9/17/2015	18.0		
9/18/2015	17.9		
9/19/2015	17.6		
9/20/2015	17.7		
9/21/2015	18.2		
9/22/2015	18.0		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
9/23/2015	18.1		
9/24/2015	17.5		
9/25/2015	18.1		
9/26/2015	17.7		
9/27/2015	17.6		
9/28/2015	17.9		
9/29/2015	17.9		
9/30/2015	17.9		
10/1/2015	18.6		
10/2/2015	20.9		
10/3/2015	20.1	820	772
10/4/2015	20.2		
10/5/2015	21.0		
10/6/2015	21.1		
10/7/2015	20.6		
10/8/2015	19.4		
10/9/2015	20.1		
10/10/2015	19.5		
10/11/2015	20.0		
10/12/2015	20.4		
10/13/2015	20.4		
10/14/2015	20.1		
10/15/2015	17.1		
10/16/2015	17.0		
10/17/2015	16.0		
10/18/2015	17.0		
10/19/2015	17.0		
10/20/2015	17.2		
10/21/2015	17.0		
10/22/2015	16.9		
10/23/2015	16.6		
10/24/2015	16.6		
10/25/2015	16.7		
10/26/2015	16.9		
10/27/2015	16.4		
10/28/2015	17.0		
10/29/2015	16.9		
10/30/2015	16.8		
10/31/2015	16.3		
11/1/2015	16.8		
11/2/2015	17.2		
11/3/2015	16.7		
11/4/2015	16.9		
11/5/2015	16.7		
11/6/2015	16.3		
11/7/2015	16.8		
11/8/2015	16.8	888	868
11/9/2015	16.9		
11/10/2015	16.4		
11/11/2015	17.0		
11/12/2015	16.8		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
11/13/2015	16.7		
11/14/2015	16.5		
11/15/2015	16.4		
11/16/2015	16.7		
11/17/2015	16.9		
11/18/2015	16.9		
11/19/2015	16.8		
11/20/2015	16.8		
11/21/2015	16.6		
11/22/2015	16.6		
11/23/2015	16.7		
11/24/2015	16.4		
11/25/2015	15.3		
11/26/2015	14.6		
11/27/2015	14.6		
11/28/2015	14.5		
11/29/2015	14.6		
11/30/2015	15.3		
12/1/2015	15.3		
12/2/2015	15.4	920	796
12/3/2015	15.4		
12/4/2015	15.5		
12/5/2015	14.9		
12/6/2015	14.6		
12/7/2015	15.3		
12/8/2015	15.3		
12/9/2015	15.4		
12/10/2015	15.4		
12/11/2015	16.1		
12/12/2015	16.1		
12/13/2015	15.9		
12/14/2015	16.0		
12/15/2015	16.5		
12/16/2015	16.7		
12/17/2015	16.8		
12/18/2015	16.5		
12/19/2015	16.2		
12/20/2015	16.2		
12/21/2015	16.6		
12/22/2015	16.4		
12/23/2015	16.5		
12/24/2015	16.5		
12/25/2015	15.2		
12/26/2015	15.2		
12/27/2015	16.0		
12/28/2015	16.4		
12/29/2015	16.4		
12/30/2015	16.5		
12/31/2015	16.1		
1/1/2016	15.2		
1/2/2016	15.4		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
1/3/2016	15.1		
1/4/2016	16.4		
1/5/2016	17.0	668	764
1/6/2016	16.9		
1/7/2016	17.7		
1/8/2016	16.7		
1/9/2016	15.9		
1/10/2016	16.5		
1/11/2016	16.9		
1/12/2016	15.9		
1/13/2016	16.6		
1/14/2016	16.8		
1/15/2016	16.3		
1/16/2016	16.0		
1/17/2016	15.9		
1/18/2016	16.5		
1/19/2016	16.4		
1/20/2016	16.5		
1/21/2016	16.5		
1/22/2016	16.1		
1/23/2016	16.0		
1/24/2016	16.2		
1/25/2016	16.6		
1/26/2016	16.5		
1/27/2016	16.6		
1/28/2016	16.5		
1/29/2016	16.4		
1/30/2016	16.0		
1/31/2016	16.2		
2/1/2016	16.6	744	660
2/2/2016	16.6		
2/3/2016	16.7		
2/4/2016	16.9		
2/5/2016	16.2		
2/6/2016	15.2		
2/7/2016	15.2		
2/8/2016	15.9		
2/9/2016	15.9		
2/10/2016	16.0		
2/11/2016	15.8		
2/12/2016	15.9		
2/13/2016	15.2		
2/14/2016	15.1		
2/15/2016	15.5		
2/16/2016	15.3		
2/17/2016	15.9		
2/18/2016	16.0		
2/19/2016	16.0		
2/20/2016	15.6		
2/21/2016	15.4		
2/22/2016	15.9		

	LAG:OPS:PLANT INFLUENT	LAG:OPS:PLANT INFLUENT	LAG:OPS:FINAL EFFLUENT
Date	**FLOW MGD**	**TDS (mg/L)**	**TDS (mg/L)**
2/23/2016	16.1		
2/24/2016	16.2		
2/25/2016	16.1		
2/26/2016	16.1		
2/27/2016	15.6		
2/28/2016	15.5		
2/29/2016	16.2		
3/1/2016	16.0		
3/2/2016	16.2		
3/3/2016	16.2	780	722
3/4/2016	16.3		
3/5/2016	15.7		
3/6/2016	18.5		
3/7/2016	16.6		
3/8/2016	16.2		
3/9/2016	15.9		
3/10/2016	16.2		
3/11/2016	16.4		
3/12/2016	15.8		
3/13/2016	15.7		
3/14/2016	16.4		
3/15/2016	16.3		
3/16/2016	16.4		
3/17/2016	16.2		
3/18/2016	16.3		
3/19/2016	15.7		
3/20/2016	15.7		
3/21/2016	16.2		
3/22/2016	16.0		
3/23/2016	15.3		
3/24/2016	15.2		
3/25/2016	15.9		
3/26/2016	15.7		
3/27/2016	15.6		
3/28/2016	16.1		
3/29/2016	15.3		
3/30/2016	15.2		
3/31/2016	15.3		
4/1/2016	15.7		
4/2/2016	15.8		
4/3/2016	15.5		
4/4/2016	16.3		
4/5/2016	15.2		
4/6/2016	15.4		
4/7/2016	15.7		
4/8/2016	16.2		
4/9/2016	15.8		
4/10/2016	15.8		
4/11/2016	15.5		

Historic TDS and Flow Data - HWRP

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
106.98		1/1/2010	101		1/1/2010	2		1/1/2010	21.295	
114.231		1/2/2010	105		1/2/2010	2		1/2/2010	22.236	
115.895		1/3/2010	105		1/3/2010	2		1/3/2010	22.448	
119.475		1/4/2010	109		1/4/2010	2		1/4/2010	23.302	
122.112		1/5/2010	109		1/5/2010	2		1/5/2010	23.229	
121.356		1/6/2010	111		1/6/2010	2		1/6/2010	23.386	
122.571		1/7/2010	111		1/7/2010	2		1/7/2010	23.172	
123.686		1/8/2010	110		1/8/2010	2		1/8/2010	24.173	
122.464		1/9/2010	109		1/9/2010	2		1/9/2010	23.077	
120.852		1/10/2010	109		1/10/2010	2		1/10/2010	22.698	
122.222		1/11/2010	109		1/11/2010	2		1/11/2010	23.373	
123.383		1/12/2010	111		1/12/2010	2		1/12/2010	23.204	
122.954		1/13/2010	112		1/13/2010	2		1/13/2010	23.517	
123.269		1/14/2010	112		1/14/2010	2		1/14/2010	22.622	
124.632		1/15/2010	107		1/15/2010	2		1/15/2010	22.92	
124.934		1/16/2010	107		1/16/2010	2		1/16/2010	22.841	
121.169		1/17/2010	111		1/17/2010	2		1/17/2010	23.058	
160.859		1/18/2010	134.446		1/18/2010	2		1/18/2010	27.001	
152.424		1/19/2010	124.676		1/19/2010	2		1/19/2010	25.267	
164.654		1/20/2010	144.188		1/20/2010	2		1/20/2010	27.656	
161.891		1/21/2010	136.545		1/21/2010	2		1/21/2010	27.039	
161.213		1/22/2010	127		1/22/2010	2		1/22/2010	26.525	
144.143		1/23/2010	116		1/23/2010	2		1/23/2010	23.901	
133.965		1/24/2010	112		1/24/2010	2		1/24/2010	23.569	
136.791		1/25/2010	110		1/25/2010	2		1/25/2010	24.019	
122.855		1/26/2010	109		1/26/2010	2		1/26/2010	23.602	
100.596		1/27/2010	102		1/27/2010	2		1/27/2010	24.295	
100.673		1/28/2010	102		1/28/2010	2		1/28/2010	24.652	
97.5		1/29/2010	95.043		1/29/2010	2		1/29/2010	25.439	
95.798		1/30/2010	99.642		1/30/2010	2		1/30/2010	26.02	
93.107		1/31/2010	104.767		1/31/2010	2		1/31/2010	25.674	
94.375		2/1/2010	104.991		2/1/2010	2		2/1/2010	26.305	
95.071		2/2/2010	104.782		2/2/2010	2		2/2/2010	25.704	
93.819		2/3/2010	97.685		2/3/2010	2		2/3/2010	24.11	
94.493		2/4/2010	97.713		2/4/2010	2		2/4/2010	24.973	
101.488		2/5/2010	105.092		2/5/2010	2		2/5/2010	28.309	
146.226		2/6/2010	147.584		2/6/2010	2		2/6/2010	33.496	
104.16		2/7/2010	103.036		2/7/2010	2		2/7/2010	25.332	
102.481		2/8/2010	98.963		2/8/2010	2		2/8/2010	24.72	
105.67		2/9/2010	103.796		2/9/2010	2		2/9/2010	24.872	
102.743		2/10/2010	99.07		2/10/2010	2		2/10/2010	24.674	
102.72		2/11/2010	98.955		2/11/2010	2		2/11/2010	25.047	
102.492		2/12/2010	100.444		2/12/2010	2		2/12/2010	26.238	
100.32		2/13/2010	107		2/13/2010	2		2/13/2010	29	
95.317		2/14/2010	101		2/14/2010	2		2/14/2010	29.708	
100.275		2/15/2010	102		2/15/2010	2		2/15/2010	31.041	
102.46		2/16/2010	100		2/16/2010	2		2/16/2010	31.011	
102.055		2/17/2010	103		2/17/2010	2		2/17/2010	30.859	
99.253		2/18/2010	101		2/18/2010	2		2/18/2010	30.721	
96.062		2/19/2010	95.894		2/19/2010	2		2/19/2010	30.795	
97.414		2/20/2010	94.578		2/20/2010	2		2/20/2010	29.207	
92.975		2/21/2010	89.911		2/21/2010	2		2/21/2010	29.385	
97.213		2/22/2010	90.627		2/22/2010	2		2/22/2010	29.557	
96.607		2/23/2010	91.291		2/23/2010	2		2/23/2010	29.169	
95.329		2/24/2010	88.178		2/24/2010	2		2/24/2010	29.837	
96.07		2/25/2010	89.251		2/25/2010	2		2/25/2010	28.882	
96.182		2/26/2010	91.385		2/26/2010	2		2/26/2010	27.158	
112.43		2/27/2010	104.512		2/27/2010	2		2/27/2010	29.345	
97.567		2/28/2010	92.701		2/28/2010	2		2/28/2010	27.042	
100		3/1/2010	98		3/1/2010	2		3/1/2010	27	
97.883		3/2/2010	97		3/2/2010	2		3/2/2010	28.204	
101		3/3/2010	99		3/3/2010	2		3/3/2010	23.85	
104		3/4/2010	99		3/4/2010	2		3/4/2010	23.814	
103		3/5/2010	100		3/5/2010	2		3/5/2010	23.729	
103		3/6/2010	99		3/6/2010	2		3/6/2010	23.598	
105		3/7/2010	100		3/7/2010	2		3/7/2010	23.236	
101		3/8/2010	97		3/8/2010	2		3/8/2010	24.105	
100.599		3/9/2010	98		3/9/2010	2		3/9/2010	27	
101		3/10/2010	99		3/10/2010	2		3/10/2010	24.258	
98.507		3/11/2010	99		3/11/2010	2		3/11/2010	29	
97.781		3/12/2010	100		3/12/2010	2		3/12/2010	28	
96.482		3/13/2010	99		3/13/2010	2		3/13/2010	29	
92.77		3/14/2010	98		3/14/2010	2		3/14/2010	25.955	
97.177		3/15/2010	98		3/15/2010	2		3/15/2010	26.742	
97.476		3/16/2010	97		3/16/2010	2		3/16/2010	29	
98.991		3/17/2010	99		3/17/2010	2		3/17/2010	26.562	
102		3/18/2010	99		3/18/2010	2		3/18/2010	26.522	
98.557		3/19/2010	101		3/19/2010	2		3/19/2010	26.596	
101		3/20/2010	95.396		3/20/2010	2		3/20/2010	26.197	
93.303		3/21/2010	97.803		3/21/2010	2		3/21/2010	25.891	
97.39		3/22/2010	100.541		3/22/2010	2		3/22/2010	26.81	
97.573		3/23/2010	101.488		3/23/2010	2		3/23/2010	26.54	
98.38		3/24/2010	100.325		3/24/2010	2		3/24/2010	26.363	
100		3/25/2010	96.095		3/25/2010	2		3/25/2010	26.277	
96.616		3/26/2010	98		3/26/2010	2		3/26/2010	29	
94.074		3/27/2010	93.275		3/27/2010	2		3/27/2010	24.269	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
89.845		3/28/2010	90.957		3/28/2010	2		3/28/2010	23.727	
95.299		3/29/2010	94.72		3/29/2010	2		3/29/2010	24.616	
94.937		3/30/2010	99.213		3/30/2010	2		3/30/2010	28.213	
95.399		3/31/2010	98.213		3/31/2010	2		3/31/2010	27.213	
102		4/1/2010	96.968		4/1/2010	2		4/1/2010	24.189	
100		4/2/2010	100.951		4/2/2010	2		4/2/2010	24.235	
97		4/3/2010	101.656		4/3/2010	2		4/3/2010	23.416	
96		4/4/2010	97.513		4/4/2010	2		4/4/2010	23.002	
101		4/5/2010	103.334		4/5/2010	2		4/5/2010	23.379	
96.66		4/6/2010	104.179		4/6/2010	2		4/6/2010	22.28	
96.423		4/7/2010	103.296		4/7/2010	2		4/7/2010	23.139	
95.414		4/8/2010	100.403		4/8/2010	2		4/8/2010	23.992	
97		4/9/2010	99.128		4/9/2010	2		4/9/2010	24.124	
93		4/10/2010	97.727		4/10/2010	2		4/10/2010	23.483	
99		4/11/2010	93.332		4/11/2010	2		4/11/2010	23.127	
110		4/12/2010	106.409		4/12/2010	2		4/12/2010	24.798	
100		4/13/2010	98.22		4/13/2010	2		4/13/2010	22.267	
99		4/14/2010	97.168		4/14/2010	2		4/14/2010	22.459	
101		4/15/2010	95.22		4/15/2010	2		4/15/2010	24.198	
103		4/16/2010	94.157		4/16/2010	2		4/16/2010	24.122	
101		4/17/2010	93.695		4/17/2010	2		4/17/2010	23.461	
99		4/18/2010	90.735		4/18/2010	2		4/18/2010	22.969	
107		4/19/2010	93.992		4/19/2010	2		4/19/2010	23.886	
109		4/20/2010	97.141		4/20/2010	2		4/20/2010	23.707	
100.978		4/21/2010	100.179		4/21/2010	2		4/21/2010	22.836	
98		4/22/2010	98.609		4/22/2010	2		4/22/2010	22.408	
95.515		4/23/2010	99.182		4/23/2010	2		4/23/2010	23.2	
94		4/24/2010	97.639		4/24/2010	2		4/24/2010	23.413	
99		4/25/2010	90.183		4/25/2010	2		4/25/2010	23.162	
106		4/26/2010	90.997		4/26/2010	2		4/26/2010	23.938	
107		4/27/2010	93.023		4/27/2010	2		4/27/2010	23.908	
105		4/28/2010	92.596		4/28/2010	2		4/28/2010	24.188	
100		4/29/2010	98		4/29/2010	2		4/29/2010	24.047	
100		4/30/2010	96		4/30/2010	2		4/30/2010	23.77	
94.507		5/1/2010	100		5/1/2010	2		5/1/2010	23.22	
91.312		5/2/2010	99		5/2/2010	2		5/2/2010	22.878	
95.597		5/3/2010	98		5/3/2010	2		5/3/2010	23.688	
97.204		5/4/2010	103		5/4/2010	2		5/4/2010	23.429	
97.984		5/5/2010	97.398		5/5/2010	2		5/5/2010	23.604	
98.113		5/6/2010	94.167		5/6/2010	2		5/6/2010	23.694	
99.763		5/7/2010	93.637		5/7/2010	2		5/7/2010	23.738	
97.309		5/8/2010	93.82		5/8/2010	2		5/8/2010	23.081	
92.647		5/9/2010	88.498		5/9/2010	2		5/9/2010	22.487	
97.623		5/10/2010	89.417		5/10/2010	2		5/10/2010	23.435	
99.168		5/11/2010	98		5/11/2010	2		5/11/2010	23.552	
99.876		5/12/2010	101		5/12/2010	2		5/12/2010	23.177	
99.102		5/13/2010	101		5/13/2010	2		5/13/2010	23.581	
97.97		5/14/2010	92		5/14/2010	2		5/14/2010	23.612	
95.902		5/15/2010	95		5/15/2010	2		5/15/2010	23.127	
91.554		5/16/2010	88		5/16/2010	2		5/16/2010	22.768	
93.929		5/17/2010	97.948		5/17/2010	2		5/17/2010	24.135	
96.326		5/18/2010	93		5/18/2010	2		5/18/2010	23.391	
96.863		5/19/2010	94		5/19/2010	2		5/19/2010	22.208	
97.086		5/20/2010	93		5/20/2010	2		5/20/2010	22.305	
97.225		5/21/2010	93		5/21/2010	2		5/21/2010	23.317	
94.021		5/22/2010	93		5/22/2010	2		5/22/2010	23.265	
90.073		5/23/2010	90		5/23/2010	2		5/23/2010	23.099	
94.918		5/24/2010	92		5/24/2010	2		5/24/2010	23.761	
96.157		5/25/2010	94		5/25/2010	2		5/25/2010	23.639	
95.869		5/26/2010	93		5/26/2010	2		5/26/2010	23.497	
94.78		5/27/2010	92		5/27/2010	2		5/27/2010	22.758	
95.944		5/28/2010	95		5/28/2010	2		5/28/2010	23.027	
93.448		5/29/2010	92		5/29/2010	2		5/29/2010	22.864	
87.245		5/30/2010	86		5/30/2010	2		5/30/2010	22.139	
90.287		5/31/2010	90		5/31/2010	2		5/31/2010	23.208	
95.381		6/1/2010	99		6/1/2010	2		6/1/2010	23.314	
94.599		6/2/2010	100		6/2/2010	2		6/2/2010	23.256	
96.03		6/3/2010	99		6/3/2010	2		6/3/2010	23.202	
96.07		6/4/2010	100		6/4/2010	2		6/4/2010	23.478	
94.154		6/5/2010	99		6/5/2010	2		6/5/2010	23.022	
91.873		6/6/2010	98		6/6/2010	2		6/6/2010	22.738	
96.187		6/7/2010	97		6/7/2010	2		6/7/2010	23.448	
96.351		6/8/2010	100		6/8/2010	2		6/8/2010	23.233	
96.579		6/9/2010	98		6/9/2010	2		6/9/2010	23.291	
95.931		6/10/2010	95		6/10/2010	2		6/10/2010	23.6	
95.16		6/11/2010	98		6/11/2010	2		6/11/2010	23.553	
92.932		6/12/2010	94		6/12/2010	2		6/12/2010	23.042	
90.54		6/13/2010	93		6/13/2010	2		6/13/2010	22.624	
100		6/14/2010	93		6/14/2010	2		6/14/2010	23.615	
97.887		6/15/2010	96		6/15/2010	2		6/15/2010	23.533	
99		6/16/2010	90		6/16/2010	2		6/16/2010	23.298	
96.242		6/17/2010	92		6/17/2010	2		6/17/2010	21.588	
100		6/18/2010	96		6/18/2010	2		6/18/2010	0	
99		6/19/2010	93		6/19/2010	2		6/19/2010	0	
92		6/20/2010	89		6/20/2010	2		6/20/2010	0	
93.318		6/21/2010	97		6/21/2010	2		6/21/2010	0	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
100		6/22/2010	98		6/22/2010	2		6/22/2010	0	
100		6/23/2010	98		6/23/2010	2		6/23/2010	0	
98		6/24/2010	98		6/24/2010	2		6/24/2010	0	
100		6/25/2010	98		6/25/2010	2		6/25/2010	0	
98		6/26/2010	98		6/26/2010	2		6/26/2010	0	
94		6/27/2010	92		6/27/2010	2		6/27/2010	0	
97		6/28/2010	98		6/28/2010	2		6/28/2010	0	
99		6/29/2010	98.054		6/29/2010	2		6/29/2010	0	
95.436		6/30/2010	99.939		6/30/2010	2		6/30/2010	13	
95.717		7/1/2010	99.651		7/1/2010	2		7/1/2010	23	
96.962		7/2/2010	98		7/2/2010	2		7/2/2010	23	
91.256		7/3/2010	92		7/3/2010	2		7/3/2010	22.09	
85.605		7/4/2010	87.082		7/4/2010	2		7/4/2010	21.742	
85.472		7/5/2010	93.344		7/5/2010	2		7/5/2010	22.402	
92.126		7/6/2010	103.091		7/6/2010	2		7/6/2010	22.449	
97		7/7/2010	92.647		7/7/2010	2		7/7/2010	22.973	
92.576		7/8/2010	95.195		7/8/2010	2		7/8/2010	23.08	
94.271		7/9/2010	96.378		7/9/2010	2		7/9/2010	23.067	
91.895		7/10/2010	95.281		7/10/2010	2		7/10/2010	22.729	
90		7/11/2010	90.421		7/11/2010	2		7/11/2010	22.248	
91.991		7/12/2010	94.588		7/12/2010	2		7/12/2010	23.08	
95.626		7/13/2010	97.486		7/13/2010	2		7/13/2010	22.918	
96.79		7/14/2010	99.017		7/14/2010	2		7/14/2010	23.08	
96.476		7/15/2010	98.807		7/15/2010	2		7/15/2010	23.324	
98.978		7/16/2010	99.38		7/16/2010	2		7/16/2010	23.303	
92.39		7/17/2010	96.257		7/17/2010	2		7/17/2010	22.758	
88.991		7/18/2010	91.193		7/18/2010	2		7/18/2010	22.52	
95.045		7/19/2010	99.511		7/19/2010	2		7/19/2010	23.257	
96.85		7/20/2010	100.904		7/20/2010	2		7/20/2010	23.042	
96.676		7/21/2010	98.662		7/21/2010	2		7/21/2010	23.018	
102.462		7/22/2010	100.043		7/22/2010	2		7/22/2010	22.947	
95.33		7/23/2010	98.054		7/23/2010	2		7/23/2010	23.12	
91.113		7/24/2010	96.298		7/24/2010	2		7/24/2010	22.656	
87.499		7/25/2010	91.375		7/25/2010	2		7/25/2010	22.347	
92.252		7/26/2010	95.728		7/26/2010	2		7/26/2010	23.063	
93.618		7/27/2010	99.238		7/27/2010	2		7/27/2010	23.102	
94.771		7/28/2010	99.746		7/28/2010	2		7/28/2010	22.999	
93.798		7/29/2010	99.437		7/29/2010	2		7/29/2010	23.036	
95.347		7/30/2010	99.053		7/30/2010	2		7/30/2010	23.023	
90.529		7/31/2010	96.654		7/31/2010	2		7/31/2010	22.344	
87.172		8/1/2010	93.263		8/1/2010	2		8/1/2010	22.064	
92.067		8/2/2010	95.875		8/2/2010	2		8/2/2010	22.728	
96.151		8/3/2010	99.101		8/3/2010	2		8/3/2010	22.628	
94.637		8/4/2010	98.277		8/4/2010	2		8/4/2010	22.465	
95.639		8/5/2010	98.37		8/5/2010	2		8/5/2010	22.675	
95.459		8/6/2010	98.16		8/6/2010	2		8/6/2010	22.613	
90.511		8/7/2010	92.471		8/7/2010	2		8/7/2010	22.126	
86.376		8/8/2010	87.794		8/8/2010	2		8/8/2010	21.868	
92.14		8/9/2010	97.329		8/9/2010	2		8/9/2010	22.954	
94.831		8/10/2010	97.551		8/10/2010	2		8/10/2010	22.829	
94.294		8/11/2010	97.809		8/11/2010	2		8/11/2010	22.715	
92.689		8/12/2010	96.867		8/12/2010	2		8/12/2010	22.801	
93.434		8/13/2010	97.793		8/13/2010	2		8/13/2010	22.748	
91.653		8/14/2010	95.501		8/14/2010	2		8/14/2010	22.195	
86.581		8/15/2010	91.155		8/15/2010	2		8/15/2010	21.884	
92.082		8/16/2010	94.804		8/16/2010	2		8/16/2010	22.761	
96.213		8/17/2010	98.145		8/17/2010	2		8/17/2010	22.659	
96.008		8/18/2010	98.935		8/18/2010	2		8/18/2010	22.634	
94.442		8/19/2010	98.868		8/19/2010	2		8/19/2010	22.815	
94.039		8/20/2010	98.482		8/20/2010	2		8/20/2010	23.086	
90.968		8/21/2010	95.53		8/21/2010	2		8/21/2010	22.472	
87.656		8/22/2010	90.318		8/22/2010	2		8/22/2010	22.012	
93.216		8/23/2010	94.677		8/23/2010	2		8/23/2010	22.83	
96.51		8/24/2010	97.87		8/24/2010	2		8/24/2010	22.759	
96.762		8/25/2010	100.848		8/25/2010	2		8/25/2010	22.9	
96.29		8/26/2010	104.051		8/26/2010	2		8/26/2010	23.219	
94.604		8/27/2010	104.143		8/27/2010	2		8/27/2010	23.047	
90.946		8/28/2010	100.039		8/28/2010	2		8/28/2010	22.33	
87.645		8/29/2010	96.48		8/29/2010	2		8/29/2010	21.828	
94.355		8/30/2010	99.738		8/30/2010	2		8/30/2010	22.314	
95.053		8/31/2010	99.58		8/31/2010	2		8/31/2010	22.106	
93.837		9/1/2010	97.781		9/1/2010	2		9/1/2010	22.328	
94.418		9/2/2010	97.117		9/2/2010	2		9/2/2010	22.315	
94.685		9/3/2010	97.225		9/3/2010	2		9/3/2010	22.449	
90.333		9/4/2010	94.703		9/4/2010	2		9/4/2010	21.666	
84.9		9/5/2010	88.356		9/5/2010	2		9/5/2010	21.081	
86.761		9/6/2010	92.162		9/6/2010	2		9/6/2010	22.149	
93.303		9/7/2010	98.835		9/7/2010	2		9/7/2010	22.483	
94.266		9/8/2010	96.076		9/8/2010	2		9/8/2010	22.548	
97.564		9/9/2010	90.099		9/9/2010	2		9/9/2010	22.451	
96.557		9/10/2010	90.608		9/10/2010	2		9/10/2010	23.101	
92.549		9/11/2010	88.709		9/11/2010	2		9/11/2010	22.66	
90.118		9/12/2010	85.375		9/12/2010	2		9/12/2010	22.37	
94.58		9/13/2010	87.702		9/13/2010	2		9/13/2010	23.1	
94.947		9/14/2010	95.254		9/14/2010	2		9/14/2010	23.003	
95.502		9/15/2010	99.672		9/15/2010	2		9/15/2010	22.915	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
95.439		9/16/2010	98.347		9/16/2010	2		9/16/2010	22.97	
95.963		9/17/2010	97.71		9/17/2010	2		9/17/2010	23.086	
92.827		9/18/2010	96.581		9/18/2010	2		9/18/2010	22.481	
91.386		9/19/2010	94.073		9/19/2010	2		9/19/2010	22.585	
96.394		9/20/2010	95.368		9/20/2010	2		9/20/2010	22.904	
96.07		9/21/2010	95.24		9/21/2010	2		9/21/2010	22.707	
95.956		9/22/2010	95.421		9/22/2010	2		9/22/2010	22.82	
96.286		9/23/2010	95.82		9/23/2010	2		9/23/2010	22.775	
96.594		9/24/2010	93.973		9/24/2010	2		9/24/2010	22.885	
95.249		9/25/2010	93.495		9/25/2010	2		9/25/2010	22.582	
92.802		9/26/2010	88.59		9/26/2010	2		9/26/2010	22.385	
98.054		9/27/2010	89.544		9/27/2010	2		9/27/2010	22.929	
99.369		9/28/2010	91.253		9/28/2010	2		9/28/2010	22.926	
99		9/29/2010	91		9/29/2010	2		9/29/2010	23	
98.628		9/30/2010	90.064		9/30/2010	2		9/30/2010	23.214	
99.693		10/1/2010	91.055		10/1/2010	2		10/1/2010	23.418	
96.545		10/2/2010	89.403		10/2/2010	2		10/2/2010	22.797	
93.972		10/3/2010	85.452		10/3/2010	2		10/3/2010	22.352	
96.024		10/4/2010	84.342		10/4/2010	2		10/4/2010	23.731	
95.9	700	10/5/2010	88.143	756	10/5/2010	2	652	10/5/2010	22.304	3600
99.295		10/6/2010	91.552		10/6/2010	2		10/6/2010	26.299	
97.601		10/7/2010	89.416		10/7/2010	2		10/7/2010	21.994	
98.294		10/8/2010	94.19		10/8/2010	2		10/8/2010	22.796	
96.018		10/9/2010	100.258		10/9/2010	2		10/9/2010	22.614	
92.702		10/10/2010	98.537		10/10/2010	2		10/10/2010	22.448	
96.585		10/11/2010	96.332		10/11/2010	2		10/11/2010	22.99	
97.121		10/12/2010	96.255		10/12/2010	2		10/12/2010	22.627	
96.759		10/13/2010	94.881		10/13/2010	2		10/13/2010	22.635	
96.884		10/14/2010	95.275		10/14/2010	2		10/14/2010	22.775	
96.564		10/15/2010	99.421		10/15/2010	2		10/15/2010	22.688	
93.705		10/16/2010	82.127		10/16/2010	2		10/16/2010	22.03	
91.196		10/17/2010	75.974		10/17/2010	2		10/17/2010	22.09	
98.717		10/18/2010	94.758		10/18/2010	2		10/18/2010	23.021	
105.647		10/19/2010	94.166		10/19/2010	2		10/19/2010	23.306	
105.152		10/20/2010	91.138		10/20/2010	2		10/20/2010	22.983	
100.35		10/21/2010	88.636		10/21/2010	2		10/21/2010	22.176	
97.295		10/22/2010	87.677		10/22/2010	2		10/22/2010	22.411	
94.975		10/23/2010	91		10/23/2010	2		10/23/2010	21.748	
92.423		10/24/2010	90		10/24/2010	2		10/24/2010	21.727	
97.833		10/25/2010	91		10/25/2010	2		10/25/2010	23.95	
96.196		10/26/2010	92		10/26/2010	2		10/26/2010	22.638	
95.073		10/27/2010	90		10/27/2010	2		10/27/2010	22.093	
90.909		10/28/2010	84		10/28/2010	2		10/28/2010	20.943	
95.039		10/29/2010	89		10/29/2010	2		10/29/2010	22.275	
97.384		10/30/2010	95		10/30/2010	2		10/30/2010	23.657	
91.327		10/31/2010	90		10/31/2010	2		10/31/2010	21.966	
92.712		11/1/2010	99		11/1/2010	2		11/1/2010	22.721	
97.125	760	11/2/2010	99	572	11/2/2010	2	656	11/2/2010	22.146	1920
98.311		11/3/2010	98		11/3/2010	2		11/3/2010	22.705	
98.031		11/4/2010	99		11/4/2010	2		11/4/2010	23.245	
98.319		11/5/2010	99		11/5/2010	2		11/5/2010	23.05	
95.671		11/6/2010	89.118		11/6/2010	2		11/6/2010	22.249	
92.632		11/7/2010	86.407		11/7/2010	2		11/7/2010	22.055	
97.754		11/8/2010	88.488		11/8/2010	2		11/8/2010	24.609	
94.964		11/9/2010	88.538		11/9/2010	2		11/9/2010	22.793	
95.132		11/10/2010	88.576		11/10/2010	2		11/10/2010	22.893	
95.069		11/11/2010	93.127		11/11/2010	2		11/11/2010	22.819	
95.399		11/12/2010	91.176		11/12/2010	2		11/12/2010	22.34	
93.836		11/13/2010	90.962		11/13/2010	2		11/13/2010	21.387	
90.632		11/14/2010	88.128		11/14/2010	2		11/14/2010	21.273	
94.749		11/15/2010	88.585		11/15/2010	2		11/15/2010	21.937	
95.804		11/16/2010	90.285		11/16/2010	2		11/16/2010	21.794	
95.5		11/17/2010	89.732		11/17/2010	2		11/17/2010	21.866	
95.952		11/18/2010	89.274		11/18/2010	2		11/18/2010	21.814	
94.539		11/19/2010	87.466		11/19/2010	2		11/19/2010	21.602	
94.009		11/20/2010	88.218		11/20/2010	2		11/20/2010	20.788	
94.676		11/21/2010	88.908		11/21/2010	2		11/21/2010	20.457	
93.805		11/22/2010	89.676		11/22/2010	2		11/22/2010	21.281	
95.257		11/23/2010	89.143		11/23/2010	2		11/23/2010	20.974	
95.806		11/24/2010	88.969		11/24/2010	2		11/24/2010	20.644	
95.387		11/25/2010	89.126		11/25/2010	2		11/25/2010	19.262	
82.587		11/26/2010	76.312		11/26/2010	2		11/26/2010	18.809	
89.465		11/27/2010	84.202		11/27/2010	2		11/27/2010	19.264	
93.078		11/28/2010	86.419		11/28/2010	2		11/28/2010	19.632	
96.471		11/29/2010	88.957		11/29/2010	2		11/29/2010	20.24	
98.797		11/30/2010	88.863		11/30/2010	2		11/30/2010	20.292	
96.088	456	12/1/2010	88.919	368	12/1/2010	2	552	12/1/2010	21.863	688
96.034		12/2/2010	89.694		12/2/2010	2		12/2/2010	23.292	
95.197		12/3/2010	88.273		12/3/2010	2		12/3/2010	23.085	
91.825		12/4/2010	92.524		12/4/2010	2		12/4/2010	22.645	
91.009		12/5/2010	92.546		12/5/2010	2		12/5/2010	23.306	
97.854		12/6/2010	92.699		12/6/2010	2		12/6/2010	24.393	
99		12/7/2010	117.171		12/7/2010	2		12/7/2010	23.386	
97.187		12/8/2010	91		12/8/2010	2		12/8/2010	23.025	
96.056		12/9/2010	99		12/9/2010	2		12/9/2010	22.802	
96.154		12/10/2010	99		12/10/2010	2		12/10/2010	22.784	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
93.498		12/11/2010	102		12/11/2010	2		12/11/2010	22.418	
90.671		12/12/2010	97		12/12/2010	2		12/12/2010	22.381	
94.511		12/13/2010	99		12/13/2010	2		12/13/2010	23.142	
94.653		12/14/2010	105		12/14/2010	2		12/14/2010	23.07	
92.892		12/15/2010	84		12/15/2010	2		12/15/2010	23.089	
93.225		12/16/2010	81		12/16/2010	2		12/16/2010	23.302	
93.644		12/17/2010	80		12/17/2010	2		12/17/2010	24.936	
101.453		12/18/2010	102		12/18/2010	2		12/18/2010	29.31	
143.426		12/19/2010	150		12/19/2010	2		12/19/2010	37.948	
130		12/20/2010	151		12/20/2010	2		12/20/2010	34.054	
113		12/21/2010	139		12/21/2010	2		12/21/2010	30.607	
146		12/22/2010	179		12/22/2010	2		12/22/2010	30.376	
113		12/23/2010	122		12/23/2010	2		12/23/2010	24.912	
106.48		12/24/2010	97.934		12/24/2010	2		12/24/2010	22.242	
88.267		12/25/2010	79.378		12/25/2010	2		12/25/2010	21.64	
104.942		12/26/2010	95.185		12/26/2010	2		12/26/2010	23.402	
100.439		12/27/2010	90.348		12/27/2010	2		12/27/2010	23.068	
99.591		12/28/2010	91.523		12/28/2010	2		12/28/2010	23.874	
109.883		12/29/2010	104.798		12/29/2010	2		12/29/2010	27.457	
104.059		12/30/2010	96.285		12/30/2010	2		12/30/2010	24.379	
104.121		12/31/2010	98.937		12/31/2010	2		12/31/2010	24.271	
87.85		1/1/2011	89		1/1/2011	2		1/1/2011	22.346	
92.041		1/2/2011	93		1/2/2011	2		1/2/2011	27.466	
101.462		1/3/2011	99		1/3/2011	2		1/3/2011	23.638	
101.731	768	1/4/2011	99	560	1/4/2011	2	796	1/4/2011	23.686	3680
100.91		1/5/2011	96		1/5/2011	2		1/5/2011	25.966	
99.981		1/6/2011	95		1/6/2011	2		1/6/2011	25.695	
99.087		1/7/2011	94		1/7/2011	2		1/7/2011	27.107	
96.1		1/8/2011	92		1/8/2011	2		1/8/2011	26.725	
94.402		1/9/2011	92		1/9/2011	2		1/9/2011	26.53	
98.066		1/10/2011	93		1/10/2011	2		1/10/2011	25.663	
97.59		1/11/2011	94		1/11/2011	2		1/11/2011	25.684	
98.474		1/12/2011	93		1/12/2011	2		1/12/2011	27.2	
98.173		1/13/2011	92		1/13/2011	2		1/13/2011	27.078	
97.723		1/14/2011	93		1/14/2011	2		1/14/2011	26.782	
94.99		1/15/2011	94		1/15/2011	2		1/15/2011	26.133	
91.711		1/16/2011	89		1/16/2011	2		1/16/2011	25.333	
97.157		1/17/2011	92		1/17/2011	2		1/17/2011	26.686	
97.898		1/18/2011	91		1/18/2011	2		1/18/2011	26.554	
96.123		1/19/2011	91		1/19/2011	2		1/19/2011	26.305	
95.7		1/20/2011	91		1/20/2011	2		1/20/2011	26.76	
95.863		1/21/2011	91		1/21/2011	2		1/21/2011	26.843	
93.684		1/22/2011	90		1/22/2011	2		1/22/2011	26.336	
92.035		1/23/2011	88		1/23/2011	2		1/23/2011	25.748	
95.364		1/24/2011	90		1/24/2011	2		1/24/2011	26.085	
96.828		1/25/2011	88		1/25/2011	2		1/25/2011	26.307	
96.606		1/26/2011	89		1/26/2011	2		1/26/2011	26.027	
96.235		1/27/2011	90		1/27/2011	2		1/27/2011	25.612	
97.06		1/28/2011	91		1/28/2011	2		1/28/2011	26.444	
94.719		1/29/2011	92		1/29/2011	2		1/29/2011	25.708	
91.299		1/30/2011	92		1/30/2011	2		1/30/2011	26.431	
95.556		1/31/2011	93		1/31/2011	2		1/31/2011	26.422	
99		2/1/2011	87.09		2/1/2011	2		2/1/2011	25.759	
100		2/2/2011	86.945		2/2/2011	2		2/2/2011	25.829	
100		2/3/2011	86.496		2/3/2011	2		2/3/2011	24.992	
102		2/4/2011	86.713		2/4/2011	2		2/4/2011	24.267	
100		2/5/2011	87.317		2/5/2011	2		2/5/2011	23.686	
99		2/6/2011	85.718		2/6/2011	2		2/6/2011	23.273	
99		2/7/2011	84.893		2/7/2011	2		2/7/2011	23.536	
100	844	2/8/2011	85.452	748	2/8/2011	2	764	2/8/2011	22.021	2570
100		2/9/2011	84.907		2/9/2011	2		2/9/2011	21.575	
102		2/10/2011	84.936		2/10/2011	2		2/10/2011	21.706	
100		2/11/2011	84.915		2/11/2011	2		2/11/2011	21.777	
99		2/12/2011	84.47		2/12/2011	2		2/12/2011	21.234	
99		2/13/2011	83.159		2/13/2011	2		2/13/2011	21.087	
100		2/14/2011	81.617		2/14/2011	2		2/14/2011	21.527	
95.492		2/15/2011	89		2/15/2011	2		2/15/2011	21.621	
104.049		2/16/2011	94		2/16/2011	2		2/16/2011	25.574	
97.588		2/17/2011	92		2/17/2011	2		2/17/2011	22.377	
99.535		2/18/2011	95		2/18/2011	2		2/18/2011	23.301	
103.793		2/19/2011	100		2/19/2011	2		2/19/2011	24.095	
99.212		2/20/2011	95		2/20/2011	2		2/20/2011	22.35	
96.117		2/21/2011	92		2/21/2011	2		2/21/2011	23.794	
97.689		2/22/2011	93		2/22/2011	2		2/22/2011	24.798	
95.88		2/23/2011	92		2/23/2011	2		2/23/2011	25.788	
94.366		2/24/2011	92		2/24/2011	2		2/24/2011	25.617	
95.095		2/25/2011	97		2/25/2011	2		2/25/2011	27.784	
113.766		2/26/2011	114		2/26/2011	2		2/26/2011	26.835	
93.2		2/27/2011	95		2/27/2011	2		2/27/2011	24.313	
94.242		2/28/2011	95		2/28/2011	2		2/28/2011	26.551	
93.707		3/1/2011	99		3/1/2011	2		3/1/2011	27.224	
93.092		3/2/2011	99		3/2/2011	2		3/2/2011	27.866	
94.598	664	3/3/2011	99	404	3/3/2011	2	568	3/3/2011	27.854	2190
94.025		3/4/2011	100		3/4/2011	2		3/4/2011	27.782	
90.739		3/5/2011	100		3/5/2011	2		3/5/2011	26.865	
88.212		3/6/2011	95		3/6/2011	2		3/6/2011	26.409	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
91.107		3/7/2011	97		3/7/2011	2		3/7/2011	26.861	
91.225		3/8/2011	96		3/8/2011	2		3/8/2011	26.532	
91.385		3/9/2011	95		3/9/2011	2		3/9/2011	26.424	
92.655		3/10/2011	95		3/10/2011	2		3/10/2011	26.611	
93.602		3/11/2011	95		3/11/2011	2		3/11/2011	26.378	
90.245		3/12/2011	95		3/12/2011	2		3/12/2011	26.124	
89.972		3/13/2011	94		3/13/2011	2		3/13/2011	25.611	
94.926		3/14/2011	94		3/14/2011	2		3/14/2011	26.379	
96.337		3/15/2011	95.545		3/15/2011	2		3/15/2011	26.435	
95.927		3/16/2011	95.944		3/16/2011	2		3/16/2011	26.344	
95.187		3/17/2011	96.605		3/17/2011	2		3/17/2011	26.489	
95.304		3/18/2011	98.131		3/18/2011	2		3/18/2011	26.043	
93.106		3/19/2011	98.512		3/19/2011	2		3/19/2011	25.464	
130		3/20/2011	133		3/20/2011	2		3/20/2011	35.983	
135		3/21/2011	134		3/21/2011	2		3/21/2011	27.346	
115		3/22/2011	110		3/22/2011	2		3/22/2011	24.447	
111		3/23/2011	104		3/23/2011	2		3/23/2011	26.372	
108		3/24/2011	99		3/24/2011	2		3/24/2011	23.826	
112.894		3/25/2011	108		3/25/2011	2		3/25/2011	26.334	
102.16		3/26/2011	94.707		3/26/2011	2		3/26/2011	24.332	
101.025		3/27/2011	92.754		3/27/2011	2		3/27/2011	25.78	
102.642		3/28/2011	98		3/28/2011	2		3/28/2011	26.078	
102.79		3/29/2011	98		3/29/2011	2		3/29/2011	27.012	
101.762		3/30/2011	99		3/30/2011	2		3/30/2011	29.421	
101.276		3/31/2011	100		3/31/2011	2		3/31/2011	31.704	
102.205		4/1/2011	102		4/1/2011	2		4/1/2011	31.551	
97.41		4/2/2011	99		4/2/2011	2		4/2/2011	30.566	
93.399		4/3/2011	87.448		4/3/2011	2		4/3/2011	30.479	
98.238		4/4/2011	89.08		4/4/2011	2		4/4/2011	31.027	
99.325		4/5/2011	90.862		4/5/2011	2		4/5/2011	30.623	
92.999		4/6/2011	84.419		4/6/2011	2		4/6/2011	29.513	
98.666		4/7/2011	90.25		4/7/2011	2		4/7/2011	30.962	
98.096		4/8/2011	92.165		4/8/2011	2		4/8/2011	31.084	
94.124		4/9/2011	96		4/9/2011	2		4/9/2011	29.849	
92.81		4/10/2011	94		4/10/2011	2		4/10/2011	29.417	
97.249		4/11/2011	95		4/11/2011	2		4/11/2011	29.637	
97.959		4/12/2011	94		4/12/2011	2		4/12/2011	29.873	
97.047		4/13/2011	95		4/13/2011	2		4/13/2011	29.776	
96.256		4/14/2011	96		4/14/2011	2		4/14/2011	29.735	
96.998		4/15/2011	95		4/15/2011	2		4/15/2011	29.739	
95.316		4/16/2011	95		4/16/2011	2		4/16/2011	29.276	
92.143		4/17/2011	92		4/17/2011	2		4/17/2011	29.012	
95.154		4/18/2011	92		4/18/2011	2		4/18/2011	29.757	
96.301		4/19/2011	94		4/19/2011	2		4/19/2011	29.827	
96.5		4/20/2011	94		4/20/2011	2		4/20/2011	29.616	
96.476		4/21/2011	91		4/21/2011	2		4/21/2011	29.528	
95.801		4/22/2011	92		4/22/2011	2		4/22/2011	29.388	
94.124		4/23/2011	91		4/23/2011	2		4/23/2011	28.775	
90.07		4/24/2011	90		4/24/2011	2		4/24/2011	28.103	
98.095		4/25/2011	94		4/25/2011	2		4/25/2011	28.959	
102.792		4/26/2011	95		4/26/2011	2		4/26/2011	27.589	
103.243		4/27/2011	95		4/27/2011	2		4/27/2011	26.031	
100.63		4/28/2011	95		4/28/2011	2		4/28/2011	25.482	
101.021		4/29/2011	95		4/29/2011	2		4/29/2011	25.648	
97.998		4/30/2011	93		4/30/2011	2		4/30/2011	25.804	
95.033		5/1/2011	97		5/1/2011	2		5/1/2011	25.495	
99.147		5/2/2011	97		5/2/2011	2		5/2/2011	26.096	
100.986		5/3/2011	95		5/3/2011	2		5/3/2011	26.667	
101.954		5/4/2011	96		5/4/2011	2		5/4/2011	27.36	
102.348		5/5/2011	96		5/5/2011	2		5/5/2011	27.217	
101.826		5/6/2011	96		5/6/2011	2		5/6/2011	26.92	
98.433		5/7/2011	96		5/7/2011	2		5/7/2011	26.858	
91.603		5/8/2011	94		5/8/2011	2		5/8/2011	25.542	
99.259		5/9/2011	91		5/9/2011	2		5/9/2011	26.705	
97.255		5/10/2011	93		5/10/2011	2		5/10/2011	26.706	
97.845		5/11/2011	98		5/11/2011	2		5/11/2011	26.962	
100.666		5/12/2011	95		5/12/2011	2		5/12/2011	27.182	
101.049		5/13/2011	94		5/13/2011	2		5/13/2011	27.116	
96.103		5/14/2011	93		5/14/2011	2		5/14/2011	26.068	
94.724		5/15/2011	91		5/15/2011	2		5/15/2011	26.222	
99.349		5/16/2011	94		5/16/2011	2		5/16/2011	26.129	
98.079		5/17/2011	97		5/17/2011	2		5/17/2011	28.405	
99.811		5/18/2011	97		5/18/2011	2		5/18/2011	26.573	
98.449		5/19/2011	95		5/19/2011	2		5/19/2011	26.221	
98.906		5/20/2011	95		5/20/2011	2		5/20/2011	27.039	
95.955		5/21/2011	93		5/21/2011	2		5/21/2011	26.186	
91.291		5/22/2011	89		5/22/2011	2		5/22/2011	25.846	
97.347		5/23/2011	94		5/23/2011	2		5/23/2011	26.383	
98.202		5/24/2011	95		5/24/2011	2		5/24/2011	26.103	
99.565		5/25/2011	95		5/25/2011	2		5/25/2011	26.439	
99.283		5/26/2011	95		5/26/2011	2		5/26/2011	26.46	
99.259		5/27/2011	96		5/27/2011	2		5/27/2011	26.707	
95.216		5/28/2011	92		5/28/2011	2		5/28/2011	25.924	
88.071		5/29/2011	89		5/29/2011	2		5/29/2011	25.036	
90.837		5/30/2011	92		5/30/2011	2		5/30/2011	25.7	
97.02		5/31/2011	94		5/31/2011	2		5/31/2011	26.111	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
93.483		6/1/2011	85.234		6/1/2011	7.341		6/1/2011	24.824	
92.369		6/2/2011	83.611		6/2/2011	7.811		6/2/2011	25.12	
98.873		6/3/2011	88.57		6/3/2011	8.393		6/3/2011	26.553	
95.263		6/4/2011	90.029		6/4/2011	8.105		6/4/2011	25.966	
93.677		6/5/2011	69.424		6/5/2011	8.03		6/5/2011	25.725	
97.951		6/6/2011	80.247		6/6/2011	7.764		6/6/2011	26.47	
100.494		6/7/2011	94.842		6/7/2011	7.349		6/7/2011	26.522	
100.094		6/8/2011	93.346		6/8/2011	7.456		6/8/2011	26.356	
99.152		6/9/2011	93.681		6/9/2011	7.433		6/9/2011	26.564	
98.124		6/10/2011	96.528		6/10/2011	4.261		6/10/2011	26.549	
94.016		6/11/2011	94.843		6/11/2011	4.425		6/11/2011	25.981	
91.598		6/12/2011	92.112		6/12/2011	4.216		6/12/2011	25.691	
97.562		6/13/2011	95.74		6/13/2011	3.743		6/13/2011	26.545	
99.343		6/14/2011	98.495		6/14/2011	2.871		6/14/2011	26.358	
93.522		6/15/2011	89.641		6/15/2011	4.445		6/15/2011	24.752	
95.751		6/16/2011	88.744		6/16/2011	7.303		6/16/2011	25.405	
98.083		6/17/2011	91.553		6/17/2011	7.418		6/17/2011	26.012	
94.574		6/18/2011	90.958		6/18/2011	6.934		6/18/2011	25.087	
90.557		6/19/2011	85.713		6/19/2011	6.868		6/19/2011	24.451	
97.063		6/20/2011	90.514		6/20/2011	6.546		6/20/2011	25.678	
99.147		6/21/2011	93.908		6/21/2011	6.209		6/21/2011	25.469	
99.208		6/22/2011	93.977		6/22/2011	5.407		6/22/2011	25.284	
99.121		6/23/2011	93.835		6/23/2011	5.339		6/23/2011	25.253	
99.093		6/24/2011	93.455		6/24/2011	5.966		6/24/2011	25.34	
95.861		6/25/2011	91.809		6/25/2011	5.248		6/25/2011	24.623	
91.933		6/26/2011	88.12		6/26/2011	5.009		6/26/2011	24.56	
97.868		6/27/2011	94.156		6/27/2011	4.569		6/27/2011	25.335	
99.079		6/28/2011	98.15		6/28/2011	4.271		6/28/2011	25.239	
98.286		6/29/2011	96.883		6/29/2011	4.176		6/29/2011	25.436	
98.041		6/30/2011	97.399		6/30/2011	3.872		6/30/2011	25.417	
99.496		7/1/2011	98.806		7/1/2011	4.583		7/1/2011	25.575	
95.646		7/2/2011	96.187		7/2/2011	5.435		7/2/2011	24.721	
90		7/3/2011	89.3		7/3/2011	6.067		7/3/2011	24.165	
91.19		7/4/2011	92.595		7/4/2011	6.39		7/4/2011	24.542	
96.605		7/5/2011	96.269		7/5/2011	6.586		7/5/2011	25.451	
100.698		7/6/2011	101.615		7/6/2011	6.721		7/6/2011	25.657	
100.874		7/7/2011	102.114		7/7/2011	6.722		7/7/2011	25.723	
100.266		7/8/2011	103.572		7/8/2011	6.606		7/8/2011	25.792	
96.972		7/9/2011	102.814		7/9/2011	6.648		7/9/2011	25.382	
92.767		7/10/2011	99.78		7/10/2011	6.71		7/10/2011	24.965	
97.197		7/11/2011	97.826		7/11/2011	7.007		7/11/2011	25.749	
98.354		7/12/2011	91.284		7/12/2011	7.221		7/12/2011	25.975	
97.726		7/13/2011	91.135		7/13/2011	7.103		7/13/2011	26.07	
98.288		7/14/2011	90.213		7/14/2011	7.15		7/14/2011	25.983	
98.883		7/15/2011	91.036		7/15/2011	7.216		7/15/2011	25.887	
94.703		7/16/2011	88.605		7/16/2011	7.102		7/16/2011	25.385	
91.906		7/17/2011	84.373		7/17/2011	7.182		7/17/2011	25.175	
98.036		7/18/2011	88.645		7/18/2011	7.201		7/18/2011	25.886	
100.784		7/19/2011	91.613		7/19/2011	7.234		7/19/2011	25.909	
100.168		7/20/2011	91.141		7/20/2011	7.239		7/20/2011	25.852	
101.364		7/21/2011	88.23		7/21/2011	6.828		7/21/2011	24.403	
100.968		7/22/2011	91.711		7/22/2011	7.127		7/22/2011	26.082	
95.836		7/23/2011	88.537		7/23/2011	7.289		7/23/2011	25.457	
93.029		7/24/2011	83.274		7/24/2011	7.258		7/24/2011	25.228	
98.907		7/25/2011	88.846		7/25/2011	7.294		7/25/2011	26.043	
99.063		7/26/2011	92.958		7/26/2011	7.105		7/26/2011	25.999	
97.551		7/27/2011	93.413		7/27/2011	7.228		7/27/2011	25.779	
97.71		7/28/2011	95.67		7/28/2011	2		7/28/2011	25.997	
100.107		7/29/2011	96.336		7/29/2011	7.172		7/29/2011	25.952	
96.376		7/30/2011	93.225		7/30/2011	7.048		7/30/2011	25.271	
92.74		7/31/2011	89.037		7/31/2011	7.308		7/31/2011	24.987	
97.899	560	8/1/2011	90.978	404	8/1/2011	7.126	500	8/1/2011	25.832	2380
99.626		8/2/2011	93.554		8/2/2011	7.248		8/2/2011	25.792	
100.317		8/3/2011	93.583		8/3/2011	7.288		8/3/2011	25.473	
100.724		8/4/2011	94.043		8/4/2011	7.245		8/4/2011	25.504	
99.598		8/5/2011	95.527		8/5/2011	7.268		8/5/2011	25.911	
95.59		8/6/2011	94.13		8/6/2011	7.239		8/6/2011	25.476	
92.402		8/7/2011	90.264		8/7/2011	7.925		8/7/2011	24.986	
97.793		8/8/2011	94.424		8/8/2011	7.949		8/8/2011	25.643	
99.929		8/9/2011	96.807		8/9/2011	8.067		8/9/2011	25.08	
100.534		8/10/2011	92.9		8/10/2011	7.619		8/10/2011	24.4	
100.525		8/11/2011	89.633		8/11/2011	7.209		8/11/2011	24.087	
101.901		8/12/2011	91.17		8/12/2011	7.122		8/12/2011	24.214	
96.41		8/13/2011	88.151		8/13/2011	7.149		8/13/2011	23.42	
93.24		8/14/2011	84.635		8/14/2011	7.101		8/14/2011	23.034	
97.41		8/15/2011	89.771		8/15/2011	7.14		8/15/2011	23.919	
99.942		8/16/2011	92.931		8/16/2011	7.243		8/16/2011	23.926	
100.199		8/17/2011	91.129		8/17/2011	7.108		8/17/2011	23.907	
100.509		8/18/2011	90.841		8/18/2011	6.754		8/18/2011	24.234	
100.19		8/19/2011	88.918		8/19/2011	6.768		8/19/2011	24.079	
95.175		8/20/2011	85.949		8/20/2011	6.642		8/20/2011	23.505	
91.675		8/21/2011	82.081		8/21/2011	7.191		8/21/2011	23.274	
96.746		8/22/2011	86.737		8/22/2011	7.463		8/22/2011	23.958	
97.934		8/23/2011	90.623		8/23/2011	7.371		8/23/2011	23.984	
102.588		8/24/2011	91.943		8/24/2011	7.191		8/24/2011	24.066	
107.768		8/25/2011	92.775		8/25/2011	7.275		8/25/2011	24.075	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
104.455		8/26/2011	94.778		8/26/2011	7		8/26/2011	23.859	
94.981		8/27/2011	91.943		8/27/2011	7.081		8/27/2011	23.491	
83.067		8/28/2011	88.496		8/28/2011	7.263		8/28/2011	22.966	
86.155		8/29/2011	92.013		8/29/2011	7.259		8/29/2011	23.691	
83.591		8/30/2011	94.277		8/30/2011	7.172		8/30/2011	23.542	
89.814		8/31/2011	91.231		8/31/2011	7.155		8/31/2011	23.308	
101.168	788	9/1/2011	89.547	556	9/1/2011	7.155	560	9/1/2011	22.446	2880
101.164		9/2/2011	90.289		9/2/2011	7.244		9/2/2011	22.601	
96.991		9/3/2011	87.869		9/3/2011	7.173		9/3/2011	22.011	
90.972		9/4/2011	82.053		9/4/2011	7.229		9/4/2011	21.417	
94.163		9/5/2011	86.051		9/5/2011	7.225		9/5/2011	22.05	
102.86		9/6/2011	92.04		9/6/2011	7.219		9/6/2011	22.749	
104.064		9/7/2011	93.194		9/7/2011	7.113		9/7/2011	22.661	
101.725		9/8/2011	95.233		9/8/2011	3.993		9/8/2011	21.72	
103.19		9/9/2011	94.049		9/9/2011	3.963		9/9/2011	23.516	
100.359		9/10/2011	92.126		9/10/2011	4.189		9/10/2011	23.001	
96.949		9/11/2011	87.976		9/11/2011	4.196		9/11/2011	22.805	
104.102		9/12/2011	89.999		9/12/2011	4.152		9/12/2011	23.781	
104.513		9/13/2011	91.321		9/13/2011	4.152		9/13/2011	23.569	
104.344		9/14/2011	91.534		9/14/2011	4.016		9/14/2011	23.452	
102.433		9/15/2011	90.599		9/15/2011	4.034		9/15/2011	23.603	
102.051		9/16/2011	74.254		9/16/2011	4.079		9/16/2011	23.286	
99.29		9/17/2011	63.013		9/17/2011	4.076		9/17/2011	22.913	
96.176		9/18/2011	56.333		9/18/2011	4.2		9/18/2011	23.024	
104.481		9/19/2011	90.845		9/19/2011	4.188		9/19/2011	23.699	
107.242		9/20/2011	106.335		9/20/2011	4.034		9/20/2011	23.028	
104.95		9/21/2011	102.527		9/21/2011	4.126		9/21/2011	22.775	
103.441		9/22/2011	95.626		9/22/2011	4.743		9/22/2011	23.246	
101.821		9/23/2011	92.968		9/23/2011	4.105		9/23/2011	23.1	
97.799		9/24/2011	91.442		9/24/2011	4.155		9/24/2011	22.166	
91.127		9/25/2011	91.579		9/25/2011	4.329		9/25/2011	21.945	
85.087		9/26/2011	95.605		9/26/2011	4.101		9/26/2011	22.882	
87.219		9/27/2011	99.927		9/27/2011	4.009		9/27/2011	22.91	
88.521		9/28/2011	102.163		9/28/2011	4.027		9/28/2011	22.621	
101.809		9/29/2011	104.861		9/29/2011	4.006		9/29/2011	23.416	
100.952		9/30/2011	103.036		9/30/2011	3.976		9/30/2011	23.416	
89	644	10/1/2011	90	572	10/1/2011	4.241	652	10/1/2011	22.915	3050
87		10/2/2011	89		10/2/2011	4.176		10/2/2011	22.718	
92		10/3/2011	90		10/3/2011	4.134		10/3/2011	23.192	
90		10/4/2011	90		10/4/2011	3.977		10/4/2011	22.92	
98		10/5/2011	91		10/5/2011	4		10/5/2011	23	
98		10/6/2011	90		10/6/2011	4.094		10/6/2011	22.916	
96		10/7/2011	90		10/7/2011	4.195		10/7/2011	23.621	
92		10/8/2011	89		10/8/2011	3.222		10/8/2011	23.073	
86		10/9/2011	90		10/9/2011	2.157		10/9/2011	22.855	
95		10/10/2011	90		10/10/2011	1.167		10/10/2011	23.443	
95		10/11/2011	91		10/11/2011	1.152		10/11/2011	23.34	
96		10/12/2011	90		10/12/2011	1.009		10/12/2011	23.399	
96		10/13/2011	90		10/13/2011	0.727		10/13/2011	23.076	
96		10/14/2011	94		10/14/2011	2		10/14/2011	23.31	
93		10/15/2011	94		10/15/2011	1		10/15/2011	23.368	
90		10/16/2011	91		10/16/2011	2		10/16/2011	22.836	
94		10/17/2011	91		10/17/2011	1		10/17/2011	23.674	
97		10/18/2011	91		10/18/2011	2		10/18/2011	23.51	
96		10/19/2011	91		10/19/2011	1		10/19/2011	23.596	
95		10/20/2011	90		10/20/2011	2		10/20/2011	23.568	
95		10/21/2011	91		10/21/2011	1		10/21/2011	23.195	
92		10/22/2011	93		10/22/2011	2		10/22/2011	22.596	
89		10/23/2011	90		10/23/2011	1		10/23/2011	22.381	
94		10/24/2011	91		10/24/2011	2		10/24/2011	23.121	
94		10/25/2011	90		10/25/2011	2.837		10/25/2011	22.911	
98		10/26/2011	89		10/26/2011	4.189		10/26/2011	22.969	
94		10/27/2011	89		10/27/2011	4.202		10/27/2011	22.953	
96		10/28/2011	90		10/28/2011	4.247		10/28/2011	22.934	
92		10/29/2011	90		10/29/2011	4.238		10/29/2011	22.757	
89		10/30/2011	89		10/30/2011	4.191		10/30/2011	22.002	
94		10/31/2011	90		10/31/2011	4.259		10/31/2011	22.683	
99.096		11/1/2011	100.772		11/1/2011	4.273		11/1/2011	23.223	
101.361		11/2/2011	101.091		11/2/2011	4.275		11/2/2011	23.13	
101.031		11/3/2011	98.505		11/3/2011	4.198		11/3/2011	23.234	
102.358		11/4/2011	97.977		11/4/2011	4.147		11/4/2011	26.203	
98.586		11/5/2011	97.071		11/5/2011	4.368		11/5/2011	22.639	
98.43		11/6/2011	97.154		11/6/2011	4.684		11/6/2011	25.121	
101.171		11/7/2011	96.628		11/7/2011	4.199		11/7/2011	23.599	
102.572		11/8/2011	97.324		11/8/2011	4.117		11/8/2011	23.01	
101.707		11/9/2011	96.014		11/9/2011	4.167		11/9/2011	22.768	
99.784		11/10/2011	91.873		11/10/2011	4.233		11/10/2011	22.357	
99.626		11/11/2011	94.073		11/11/2011	4.238		11/11/2011	22.377	
99.02		11/12/2011	94.852		11/12/2011	4.159		11/12/2011	24.205	
96.62		11/13/2011	94.174		11/13/2011	4.11		11/13/2011	21.964	
100.586		11/14/2011	95.68		11/14/2011	4.403		11/14/2011	22.91	
100.888	660	11/15/2011	95.873	592	11/15/2011	4.171	604	11/15/2011	21.471	2690
101.094		11/16/2011	94.685		11/16/2011	4.222		11/16/2011	21.566	
100.684		11/17/2011	95.668		11/17/2011	3.935		11/17/2011	21.35	
94.757		11/18/2011	92.041		11/18/2011	4.049		11/18/2011	20.145	
97.841		11/19/2011	99.884		11/19/2011	4.098		11/19/2011	20.779	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
106.814		11/20/2011	110.656		11/20/2011	4.786		11/20/2011	26.723	
102.344		11/21/2011	102.464		11/21/2011	4.164		11/21/2011	19.592	
101.15		11/22/2011	102.989		11/22/2011	4.066		11/22/2011	20.427	
101.222		11/23/2011	104.365		11/23/2011	4.06		11/23/2011	21.826	
98.53		11/24/2011	103.429		11/24/2011	4.149		11/24/2011	20.232	
87.265		11/25/2011	91.328		11/25/2011	4.082		11/25/2011	19.888	
92.198		11/26/2011	95.846		11/26/2011	4.275		11/26/2011	20.211	
92.858		11/27/2011	95.068		11/27/2011	4.243		11/27/2011	20.319	
98.821		11/28/2011	95.415		11/28/2011	4.13		11/28/2011	21.231	
99.568		11/29/2011	95.702		11/29/2011	4.25		11/29/2011	20.833	
99.597		11/30/2011	95.39		11/30/2011	4.09		11/30/2011	19.131	
91		12/1/2011	87		12/1/2011	4.038		12/1/2011	18.804	
92	360	12/2/2011	87.241	428	12/2/2011	3.985	512	12/2/2011	18.6	2040
97.363		12/3/2011	60.834		12/3/2011	4.144		12/3/2011	16.847	
95.199		12/4/2011	75.809		12/4/2011	4.139		12/4/2011	16.469	
98.261		12/5/2011	87		12/5/2011	4.032		12/5/2011	16.838	
99.658		12/6/2011	72.648		12/6/2011	4.008		12/6/2011	15.857	
99.486		12/7/2011	84.396		12/7/2011	3.991		12/7/2011	17.652	
99.291		12/8/2011	86		12/8/2011	3.382		12/8/2011	18.162	
99.22		12/9/2011	86		12/9/2011	2.79		12/9/2011	17.829	
97.417		12/10/2011	90		12/10/2011	1.429		12/10/2011	16.981	
95.393		12/11/2011	85		12/11/2011	4		12/11/2011	16.587	
104.72		12/12/2011	95		12/12/2011	4		12/12/2011	24.015	
105.146		12/13/2011	103		12/13/2011	4		12/13/2011	18.168	
100.882		12/14/2011	99		12/14/2011	4		12/14/2011	17.923	
100.264		12/15/2011	93.022		12/15/2011	4		12/15/2011	17.541	
100.181		12/16/2011	89.142		12/16/2011	4		12/16/2011	17.705	
97.244		12/17/2011	88.842		12/17/2011	4		12/17/2011	16.817	
95.558		12/18/2011	87.647		12/18/2011	4		12/18/2011	16.391	
99.419		12/19/2011	108.892		12/19/2011	1.117		12/19/2011	17.342	
102.67		12/20/2011	102.375		12/20/2011	1.231		12/20/2011	17.685	
101.227		12/21/2011	101.949		12/21/2011	0.991		12/21/2011	17.782	
100.679		12/22/2011	100.267		12/22/2011	2.509		12/22/2011	17.673	
100.521		12/23/2011	97.151		12/23/2011	5.189		12/23/2011	16.855	
99.759		12/24/2011	97.271		12/24/2011	5.914		12/24/2011	15.441	
85.546		12/25/2011	81.722		12/25/2011	6.317		12/25/2011	13.204	
90.19		12/26/2011	86.596		12/26/2011	6.567		12/26/2011	15.239	
98.096		12/27/2011	90.219		12/27/2011	6.497		12/27/2011	16.302	
100.582		12/28/2011	92.68		12/28/2011	5.275		12/28/2011	18.11	
99.921		12/29/2011	93		12/29/2011	4.083		12/29/2011	22.279	
100.358		12/30/2011	95		12/30/2011	3.92		12/30/2011	22.299	
101.81		12/31/2011	96		12/31/2011	4.093		12/31/2011	22.424	
87.482		1/1/2012	82.839		1/1/2012	3.956		1/1/2012	21.064	
93.241		1/2/2012	82.604		1/2/2012	4.034		1/2/2012	22.477	
97.999		1/3/2012	82.324		1/3/2012	3.61		1/3/2012	23.104	
98.357	600	1/4/2012	84.511	400	1/4/2012	2.3	600	1/4/2012	22.775	2400
98.922		1/5/2012	87.867		1/5/2012	1.633		1/5/2012	23.311	
99.427		1/6/2012	91.403		1/6/2012	1.272		1/6/2012	23.86	
96.708		1/7/2012	90.518		1/7/2012	1.029		1/7/2012	22.614	
96.149		1/8/2012	89.264		1/8/2012	1.034		1/8/2012	21.629	
99.591		1/9/2012	91.636		1/9/2012	1.002		1/9/2012	22.612	
100.791		1/10/2012	93.773		1/10/2012	1		1/10/2012	23.206	
100.201		1/11/2012	93.533		1/11/2012	1		1/11/2012	23.244	
98.758		1/12/2012	92.844		1/12/2012	1		1/12/2012	23.282	
99.608		1/13/2012	92.858		1/13/2012	1		1/13/2012	23.115	
96.731		1/14/2012	90.012		1/14/2012	1		1/14/2012	22.659	
93.18		1/15/2012	85.325		1/15/2012	1		1/15/2012	21.993	
98.603		1/16/2012	91.65		1/16/2012	1		1/16/2012	23.134	
101.521		1/17/2012	91.168		1/17/2012	3.129		1/17/2012	22.75	
100.497		1/18/2012	95.322		1/18/2012	4.272		1/18/2012	22.658	
100.055		1/19/2012	104.176		1/19/2012	4.204		1/19/2012	23.188	
99.883		1/20/2012	103.675		1/20/2012	4.165		1/20/2012	23.134	
104.36		1/21/2012	109.547		1/21/2012	4.363		1/21/2012	26.523	
97		1/22/2012	102.072		1/22/2012	4.274		1/22/2012	21.839	
105.073		1/23/2012	108.163		1/23/2012	4		1/23/2012	23.857	
102.621		1/24/2012	102.956		1/24/2012	4.153		1/24/2012	22.474	
101.749		1/25/2012	100.43		1/25/2012	4.172		1/25/2012	23.923	
101.466		1/26/2012	97.959		1/26/2012	4.205		1/26/2012	23.913	
101.878		1/27/2012	94.903		1/27/2012	4.085		1/27/2012	23.371	
101.089		1/28/2012	92.495		1/28/2012	4.282		1/28/2012	22.737	
100.543		1/29/2012	88.524		1/29/2012	4.286		1/29/2012	22.496	
106.318		1/30/2012	87.277		1/30/2012	4.953		1/30/2012	23.076	
108.544		1/31/2012	88.097		1/31/2012	4.839		1/31/2012	22.89	
109.263		2/1/2012	84.768		2/1/2012	5.243		2/1/2012	22.954	
110.457		2/2/2012	82.332		2/2/2012	5.329		2/2/2012	23.225	
110.843		2/3/2012	82.223		2/3/2012	5.214		2/3/2012	23.185	
104.175		2/4/2012	79.529		2/4/2012	5.406		2/4/2012	22.746	
101.147		2/5/2012	76.648		2/5/2012	5.696		2/5/2012	22.357	
99.095	680	2/6/2012	76.322	560	2/6/2012	5.543	600	2/6/2012	21.914	2840
98.727		2/7/2012	79.557		2/7/2012	5.474		2/7/2012	17.768	
99.948		2/8/2012	77.338		2/8/2012	5.618		2/8/2012	18.521	
99.539		2/9/2012	75.475		2/9/2012	5.672		2/9/2012	17.998	
100.176		2/10/2012	79.085		2/10/2012	5.6		2/10/2012	18.097	
96.853		2/11/2012	77.44		2/11/2012	6.007		2/11/2012	17.24	
95.129		2/12/2012	76.776		2/12/2012	5.695		2/12/2012	17.104	
97.539		2/13/2012	79.573		2/13/2012	5.669		2/13/2012	18.361	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
100.463		2/14/2012	84.408		2/14/2012	5.741		2/14/2012	18.668	
99.413		2/15/2012	93.446		2/15/2012	4.94		2/15/2012	18.807	
101.24		2/16/2012	104.537		2/16/2012	4.302		2/16/2012	18.307	
101.974		2/17/2012	104.711		2/17/2012	4.314		2/17/2012	20.089	
98.956		2/18/2012	102.468		2/18/2012	4.116		2/18/2012	22.458	
94.394		2/19/2012	97.844		2/19/2012	4.362		2/19/2012	21.937	
98.176		2/20/2012	103.189		2/20/2012	4.301		2/20/2012	22.945	
101.514		2/21/2012	107.388		2/21/2012	4.306		2/21/2012	22.957	
101.115		2/22/2012	112.414		2/22/2012	4.275		2/22/2012	22.838	
100.507		2/23/2012	112.611		2/23/2012	4.3		2/23/2012	23.179	
99.422		2/24/2012	110.727		2/24/2012	6.255		2/24/2012	23.011	
97.721		2/25/2012	111.842		2/25/2012	3.968		2/25/2012	22.696	
94.377		2/26/2012	109.222		2/26/2012	4.112		2/26/2012	22.509	
97.162		2/27/2012	108.509		2/27/2012	4.028		2/27/2012	23.127	
94.477		2/28/2012	109.246		2/28/2012	4.056		2/28/2012	22.903	
93.515		2/29/2012	110.47		2/29/2012	3.926		2/29/2012	22.174	
98.929		3/1/2012	110.64		3/1/2012	4.017		3/1/2012	21.904	
100.108	616	3/2/2012	111.905	576	3/2/2012	4.065	468	3/2/2012	22.537	1890
98.295		3/3/2012	111.018		3/3/2012	4.067		3/3/2012	20.584	
96.658		3/4/2012	109.078		3/4/2012	4.033		3/4/2012	20.656	
99.695		3/5/2012	109.082		3/5/2012	3.934		3/5/2012	21.134	
100.044		3/6/2012	109.782		3/6/2012	3.935		3/6/2012	20.274	
100.844		3/7/2012	110.641		3/7/2012	4.112		3/7/2012	18.939	
107.806		3/8/2012	104.183		3/8/2012	4.096		3/8/2012	19.13	
112.516		3/9/2012	95.115		3/9/2012	2.482		3/9/2012	18.969	
110.91		3/10/2012	93.88		3/10/2012	2.568		3/10/2012	17.981	
107.997		3/11/2012	89.676		3/11/2012	2.557		3/11/2012	17.599	
113.023		3/12/2012	93.118		3/12/2012	2.511		3/12/2012	20.413	
115.12		3/13/2012	94.417		3/13/2012	2.5		3/13/2012	23.699	
112.988		3/14/2012	92.402		3/14/2012	2.49		3/14/2012	23.666	
112.758		3/15/2012	91.549		3/15/2012	2.45		3/15/2012	22.458	
112.908		3/16/2012	91.906		3/16/2012	2.62		3/16/2012	19.918	
118.187		3/17/2012	98.579		3/17/2012	2.897		3/17/2012	24.7	
110.949		3/18/2012	91.875		3/18/2012	2.643		3/18/2012	20.867	
111.288		3/19/2012	91.61		3/19/2012	2.53		3/19/2012	19.605	
111.898		3/20/2012	92.476		3/20/2012	2.562		3/20/2012	20.09	
111.414		3/21/2012	93.603		3/21/2012	2.458		3/21/2012	21.047	
110.739		3/22/2012	95.47		3/22/2012	2.483		3/22/2012	21.381	
110.546		3/23/2012	93.675		3/23/2012	2.35		3/23/2012	21.055	
109.703		3/24/2012	91.826		3/24/2012	2.516		3/24/2012	20.513	
117.246		3/25/2012	98.039		3/25/2012	3.094		3/25/2012	25.719	
118.053		3/26/2012	96.564		3/26/2012	2.6		3/26/2012	21.34	
112.419		3/27/2012	91.837		3/27/2012	2.489		3/27/2012	19.618	
113.07		3/28/2012	90.765		3/28/2012	2.191		3/28/2012	21.338	
111.812		3/29/2012	89.845		3/29/2012	2.1		3/29/2012	20.908	
111.977		3/30/2012	90.164		3/30/2012	2.229		3/30/2012	20.533	
108.845		3/31/2012	88.325		3/31/2012	2.513		3/31/2012	19.578	
107.498	680	4/1/2012	87.211	632	4/1/2012	2.557	800	4/1/2012	18.036	3050
110.051		4/2/2012	87.533		4/2/2012	2.194		4/2/2012	18.361	
111.349		4/3/2012	89.49		4/3/2012	2.23		4/3/2012	19.191	
111.508		4/4/2012	89.422		4/4/2012	2.186		4/4/2012	18.511	
111.268		4/5/2012	89.22		4/5/2012	2.274		4/5/2012	19.581	
110.674		4/6/2012	88.299		4/6/2012	2.288		4/6/2012	19.341	
109.654		4/7/2012	87.324		4/7/2012	2.391		4/7/2012	18.442	
106.988		4/8/2012	85.091		4/8/2012	2.474		4/8/2012	17.911	
109.527		4/9/2012	87.647		4/9/2012	2.266		4/9/2012	19.416	
111.272		4/10/2012	90.409		4/10/2012	1.451		4/10/2012	19.473	
118.396		4/11/2012	100.231		4/11/2012	1.381		4/11/2012	22.459	
111.125		4/12/2012	89.626		4/12/2012	2.612		4/12/2012	17.336	
119.103		4/13/2012	97.475		4/13/2012	2.6		4/13/2012	20.899	
111.562		4/14/2012	90.064		4/14/2012	2.291		4/14/2012	17.725	
108.795		4/15/2012	85.8		4/15/2012	2.262		4/15/2012	16.855	
111.961		4/16/2012	88.922		4/16/2012	2.192		4/16/2012	17.388	
112.119		4/17/2012	90.459		4/17/2012	2.071		4/17/2012	17.868	
115.113		4/18/2012	90.925		4/18/2012	2.137		4/18/2012	18.032	
111.803		4/19/2012	89.747		4/19/2012	2.236		4/19/2012	18.403	
112.876		4/20/2012	90.886		4/20/2012	2.173		4/20/2012	18.355	
110.554		4/21/2012	87.908		4/21/2012	2.214		4/21/2012	17.412	
107.857		4/22/2012	84.166		4/22/2012	2.278		4/22/2012	17.176	
109.097		4/23/2012	87.061		4/23/2012	2.334		4/23/2012	18.357	
110.19		4/24/2012	94.433		4/24/2012	2.082		4/24/2012	17.981	
109.804		4/25/2012	94.967		4/25/2012	2.245		4/25/2012	17.701	
112.314		4/26/2012	103.225		4/26/2012	2.244		4/26/2012	22.201	
110.777		4/27/2012	96.74		4/27/2012	1.993		4/27/2012	17.337	
110.134		4/28/2012	91.705		4/28/2012	1.557		4/28/2012	17.543	
107.63		4/29/2012	88.846		4/29/2012	1.189		4/29/2012	16.961	
109.415		4/30/2012	90.165		4/30/2012	1.108		4/30/2012	17.639	
109.044	800	5/1/2012	91.051	368	5/1/2012	1.024	748	5/1/2012	16.747	1170
108.167		5/2/2012	91.798		5/2/2012	1.021		5/2/2012	16.907	
109.621		5/3/2012	92.133		5/3/2012	0		5/3/2012	17.028	
110.539		5/4/2012	95.001		5/4/2012	0		5/4/2012	17.162	
109.64		5/5/2012	95.397		5/5/2012	0		5/5/2012	16.81	
107.278		5/6/2012	92.225		5/6/2012	0		5/6/2012	16.454	
112.97		5/7/2012	97.736		5/7/2012	0		5/7/2012	17.409	
118.623		5/8/2012	99.765		5/8/2012	1.877		5/8/2012	19.357	
116.429		5/9/2012	95.89		5/9/2012	1.953		5/9/2012	23.732	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
109.903		5/10/2012	91		5/10/2012	2.222		5/10/2012	23.911	
110.096		5/11/2012	90.711		5/11/2012	2.153		5/11/2012	24.318	
108.34		5/12/2012	89.283		5/12/2012	2.442		5/12/2012	23.312	
104.912		5/13/2012	84.745		5/13/2012	2.258		5/13/2012	23.091	
108.236		5/14/2012	89.621		5/14/2012	2.35		5/14/2012	23.921	
112.067		5/15/2012	94.008		5/15/2012	2.075		5/15/2012	23.281	
112.428		5/16/2012	94.644		5/16/2012	3		5/16/2012	23.179	
113.188		5/17/2012	93.95		5/17/2012	4		5/17/2012	23.424	
112.983		5/18/2012	91.053		5/18/2012	4		5/18/2012	23.545	
112.256		5/19/2012	89.023		5/19/2012	4.154		5/19/2012	23.045	
109.348		5/20/2012	84.996		5/20/2012	4.429		5/20/2012	22.848	
112.779		5/21/2012	88.365		5/21/2012	4.227		5/21/2012	23.571	
112.898		5/22/2012	89.278		5/22/2012	5.121		5/22/2012	23.456	
112.919		5/23/2012	88.31		5/23/2012	5		5/23/2012	23.611	
111.505		5/24/2012	87.609		5/24/2012	4		5/24/2012	23.879	
111.489		5/25/2012	86.724		5/25/2012	5		5/25/2012	23.621	
108.714		5/26/2012	83.643		5/26/2012	4		5/26/2012	22.732	
104.092		5/27/2012	76.764		5/27/2012	5		5/27/2012	22.093	
107.583		5/28/2012	81.594		5/28/2012	4		5/28/2012	23.15	
111.268		5/29/2012	84.79		5/29/2012	5		5/29/2012	23.788	
111.067		5/30/2012	86.148		5/30/2012	5		5/30/2012	23.695	
111.135		5/31/2012	84.25		5/31/2012	9.627		5/31/2012	23.215	
111.396		6/1/2012	83.804		6/1/2012	11.154		6/1/2012	22.97	
109.161	684	6/2/2012	71.46	708	6/2/2012	13.258	640	6/2/2012	22.281	3520
106.558		6/3/2012	72.727		6/3/2012	15.303		6/3/2012	18.779	
109.84		6/4/2012	74.826		6/4/2012	16.399		6/4/2012	19.685	
112.87		6/5/2012	77.391		6/5/2012	17.057		6/5/2012	19.737	
111.396		6/6/2012	78		6/6/2012	18.091		6/6/2012	20.48	
115.362		6/7/2012	77		6/7/2012	18.71		6/7/2012	20.221	
110.554		6/8/2012	78		6/8/2012	18.848		6/8/2012	20.608	
108.485		6/9/2012	74.241		6/9/2012	19.095		6/9/2012	18.99	
105.929		6/10/2012	71.336		6/10/2012	19.281		6/10/2012	18.653	
110.432		6/11/2012	75.098		6/11/2012	19.522		6/11/2012	19.205	
111.699		6/12/2012	85.484		6/12/2012	9.503		6/12/2012	19.133	
111.602		6/13/2012	90.85		6/13/2012	2.137		6/13/2012	18.718	
111.009		6/14/2012	91.006		6/14/2012	2.196		6/14/2012	18.528	
111.203		6/15/2012	90.467		6/15/2012	2.154		6/15/2012	18.625	
110.839		6/16/2012	90.263		6/16/2012	2.247		6/16/2012	18.703	
107.11		6/17/2012	86.098		6/17/2012	2.347		6/17/2012	18.353	
110.282		6/18/2012	89.787		6/18/2012	2.243		6/18/2012	19.095	
111.237		6/19/2012	92.726		6/19/2012	2.218		6/19/2012	18.348	
111.607		6/20/2012	93.216		6/20/2012	2.335		6/20/2012	18.082	
111.971		6/21/2012	93.556		6/21/2012	2.389		6/21/2012	17.952	
112.373		6/22/2012	94.532		6/22/2012	2.282		6/22/2012	18.07	
110.366		6/23/2012	92.138		6/23/2012	2.263		6/23/2012	17.287	
107.208		6/24/2012	86.165		6/24/2012	2.366		6/24/2012	16.855	
109.84		6/25/2012	89.497		6/25/2012	2.414		6/25/2012	17.9	
113.63		6/26/2012	93.343		6/26/2012	2.241		6/26/2012	17.535	
113.479		6/27/2012	93.079		6/27/2012	2.381		6/27/2012	17.97	
113.642		6/28/2012	93.566		6/28/2012	2.363		6/28/2012	18.552	
114.473		6/29/2012	94.42		6/29/2012	2.33		6/29/2012	18.328	
111.914		6/30/2012	91.054		6/30/2012	2.384		6/30/2012	17.512	
109.396	660	7/1/2012	88.604	660	7/1/2012	2.324	600	7/1/2012	16.596	2960
113.638		7/2/2012	88.746		7/2/2012	2.453		7/2/2012	17.799	
116.145		7/3/2012	91.718		7/3/2012	2.306		7/3/2012	17.64	
110.936		7/4/2012	88.245		7/4/2012	2.439		7/4/2012	16.549	
110.585		7/5/2012	85.893		7/5/2012	2.401		7/5/2012	17.305	
115.195		7/6/2012	91.185		7/6/2012	2.295		7/6/2012	17.484	
113.071		7/7/2012	87.714		7/7/2012	2.174		7/7/2012	16.85	
110.089		7/8/2012	80.656		7/8/2012	2.333		7/8/2012	16.48	
114.4		7/9/2012	87.616		7/9/2012	2.321		7/9/2012	17.967	
114.525		7/10/2012	93.423		7/10/2012	2.195		7/10/2012	23.115	
115.035		7/11/2012	94.395		7/11/2012	2.204		7/11/2012	24.018	
117.884		7/12/2012	93.843		7/12/2012	2.303		7/12/2012	23.749	
115.477		7/13/2012	93.621		7/13/2012	2.33		7/13/2012	24.256	
113.383		7/14/2012	92.934		7/14/2012	2.275		7/14/2012	23.244	
109.674		7/15/2012	87.788		7/15/2012	2.262		7/15/2012	22.722	
113.353		7/16/2012	90.62		7/16/2012	2.425		7/16/2012	23.907	
114.604		7/17/2012	92.674		7/17/2012	2.294		7/17/2012	23.535	
115		7/18/2012	93		7/18/2012	2		7/18/2012	24	
113.866		7/19/2012	93.187		7/19/2012	2.283		7/19/2012	23.495	
113.691		7/20/2012	92.694		7/20/2012	2.229		7/20/2012	23.647	
111.001		7/21/2012	88.737		7/21/2012	2.296		7/21/2012	23.065	
108.311		7/22/2012	85.651		7/22/2012	2.293		7/22/2012	22.547	
113.088		7/23/2012	90.449		7/23/2012	2.254		7/23/2012	23.395	
114.154		7/24/2012	92.765		7/24/2012	2.224		7/24/2012	23.113	
112.307		7/25/2012	92.245		7/25/2012	2.546		7/25/2012	22.545	
111.859		7/26/2012	92.825		7/26/2012	2.452		7/26/2012	22.718	
112.784		7/27/2012	93.511		7/27/2012	2.189		7/27/2012	22.561	
109.472		7/28/2012	89.684		7/28/2012	2.368		7/28/2012	22.153	
106.44		7/29/2012	87.082		7/29/2012	2.329		7/29/2012	21.913	
111.544		7/30/2012	93.548		7/30/2012	2.365		7/30/2012	22.604	
114.059		7/31/2012	94.325		7/31/2012	2.074		7/31/2012	22.157	
100	692	8/1/2012	91.907	772	8/1/2012	2.259	656	8/1/2012	21.78	3360
100		8/2/2012	93		8/2/2012	2.302		8/2/2012	22.245	
100		8/3/2012	94.19		8/3/2012	2.356		8/3/2012	22.047	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
100		8/4/2012	92.244		8/4/2012	2.332		8/4/2012	21.455	
100		8/5/2012	78		8/5/2012	2.589		8/5/2012	21.012	
100		8/6/2012	87		8/6/2012	2.132		8/6/2012	21.862	
100		8/7/2012	90		8/7/2012	2.24		8/7/2012	21.693	
100		8/8/2012	90		8/8/2012	2.293		8/8/2012	21.82	
100		8/9/2012	90		8/9/2012	2.347		8/9/2012	21.755	
100		8/10/2012	90		8/10/2012	2.274		8/10/2012	22.115	
90		8/11/2012	90		8/11/2012	2.354		8/11/2012	21.58	
86		8/12/2012	90		8/12/2012	2.316		8/12/2012	21.154	
91		8/13/2012	90		8/13/2012	2.311		8/13/2012	22.907	
91		8/14/2012	95		8/14/2012	2.46		8/14/2012	23.318	
89		8/15/2012	95		8/15/2012	2.332		8/15/2012	23.151	
90		8/16/2012	100		8/16/2012	2.212		8/16/2012	23.322	
101.011		8/17/2012	96		8/17/2012	2.192		8/17/2012	23.451	
95.677		8/18/2012	90		8/18/2012	2.426		8/18/2012	22.912	
89.541		8/19/2012	90		8/19/2012	2.306		8/19/2012	22.692	
91.954		8/20/2012	90		8/20/2012	2.425		8/20/2012	23.223	
88.686		8/21/2012	97.873		8/21/2012	2.289		8/21/2012	23.365	
87.815		8/22/2012	97.092		8/22/2012	2.234		8/22/2012	23.647	
97		8/23/2012	90		8/23/2012	2.199		8/23/2012	23.278	
100		8/24/2012	90		8/24/2012	2.245		8/24/2012	23.215	
100		8/25/2012	80		8/25/2012	2.287		8/25/2012	22.634	
100		8/26/2012	80		8/26/2012	2.22		8/26/2012	22.231	
100		8/27/2012	85		8/27/2012	2.287		8/27/2012	23.016	
101.768		8/28/2012	85		8/28/2012	2.381		8/28/2012	22.971	
101.152		8/29/2012	85		8/29/2012	2.4		8/29/2012	22.849	
100		8/30/2012	84		8/30/2012	2.34		8/30/2012	22.603	
112.54		8/31/2012	94.795		8/31/2012	2.193		8/31/2012	25.524	
96		9/1/2012	79		9/1/2012	2.337		9/1/2012	24.81	
89		9/2/2012	74		9/2/2012	2.335		9/2/2012	24.131	
96		9/3/2012	80		9/3/2012	2.376		9/3/2012	24.527	
100		9/4/2012	88		9/4/2012	2.267		9/4/2012	25.621	
97	730	9/5/2012	80	750	9/5/2012	2.326	520	9/5/2012	25.433	2200
97		9/6/2012	80		9/6/2012	2.278		9/6/2012	25.719	
98		9/7/2012	85		9/7/2012	2.117		9/7/2012	25.647	
96		9/8/2012	84		9/8/2012	2.179		9/8/2012	25.01	
94		9/9/2012	82		9/9/2012	1.791		9/9/2012	24.976	
99		9/10/2012	84		9/10/2012	1.301		9/10/2012	25.776	
100		9/11/2012	85		9/11/2012	2		9/11/2012	25.13	
96		9/12/2012	92		9/12/2012	1.029		9/12/2012	25.361	
100		9/13/2012	85		9/13/2012	1.779		9/13/2012	25.304	
99		9/14/2012	98		9/14/2012	1.112		9/14/2012	24.455	
95		9/15/2012	94		9/15/2012	1.016		9/15/2012	23.257	
94		9/16/2012	92		9/16/2012	1.005		9/16/2012	23.365	
99		9/17/2012	98		9/17/2012	1		9/17/2012	24.269	
113.872		9/18/2012	113.014		9/18/2012	1		9/18/2012	23.952	
113.141		9/19/2012	112.34		9/19/2012	1		9/19/2012	23.898	
96		9/20/2012	96		9/20/2012	1		9/20/2012	24.935	
96		9/21/2012	96		9/21/2012	1		9/21/2012	25.787	
95		9/22/2012	96		9/22/2012	1		9/22/2012	25.346	
93		9/23/2012	93		9/23/2012	1		9/23/2012	25.174	
94		9/24/2012	94		9/24/2012	1		9/24/2012	25.839	
95		9/25/2012	95		9/25/2012	1		9/25/2012	25.732	
94		9/26/2012	94		9/26/2012	1		9/26/2012	25.709	
94		9/27/2012	95		9/27/2012	1		9/27/2012	26.139	
95		9/28/2012	96		9/28/2012	1.379		9/28/2012	26.088	
94		9/29/2012	94		9/29/2012	1.808		9/29/2012	25.487	
91		9/30/2012	92		9/30/2012	1.762		9/30/2012	25.49	
96	672	10/1/2012	79	664	10/1/2012	2	592	10/1/2012	25	3410
89		10/2/2012	74		10/2/2012	2		10/2/2012	24	
96		10/3/2012	80		10/3/2012	2		10/3/2012	25	
100		10/4/2012	88		10/4/2012	2		10/4/2012	26	
97		10/5/2012	80		10/5/2012	2		10/5/2012	25	
97		10/6/2012	80		10/6/2012	2		10/6/2012	26	
98		10/7/2012	85		10/7/2012	2		10/7/2012	26	
96		10/8/2012	84		10/8/2012	2		10/8/2012	25	
94		10/9/2012	82		10/9/2012	2		10/9/2012	25	
99		10/10/2012	84		10/10/2012	2		10/10/2012	26	
100		10/11/2012	85		10/11/2012	2		10/11/2012	25	
96		10/12/2012	92		10/12/2012	2		10/12/2012	25	
100		10/13/2012	85		10/13/2012	2		10/13/2012	25	
99		10/14/2012	98		10/14/2012	2		10/14/2012	24	
95		10/15/2012	94		10/15/2012	2		10/15/2012	23	
94		10/16/2012	92		10/16/2012	2		10/16/2012	23	
99		10/17/2012	98		10/17/2012	2		10/17/2012	24	
104		10/18/2012	102		10/18/2012	2		10/18/2012	24	
113		10/19/2012	112		10/19/2012	2		10/19/2012	24	
96		10/20/2012	96		10/20/2012	2		10/20/2012	25	
96		10/21/2012	96		10/21/2012	2		10/21/2012	26	
95		10/22/2012	96		10/22/2012	2		10/22/2012	25	
93		10/23/2012	93		10/23/2012	2		10/23/2012	25	
94		10/24/2012	94		10/24/2012	2		10/24/2012	26	
95		10/25/2012	95		10/25/2012	2		10/25/2012	26	
94		10/26/2012	94		10/26/2012	2		10/26/2012	26	
94		10/27/2012	95		10/27/2012	2		10/27/2012	26	
95		10/28/2012	96		10/28/2012	2		10/28/2012	26	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
94		10/29/2012	94		10/29/2012	2		10/29/2012	26	
91		10/30/2012	92		10/30/2012	2		10/30/2012	26	
96		10/31/2012	96		10/31/2012	2		10/31/2012	26	
90		11/1/2012	81		11/1/2012	6		11/1/2012	22	
95	684	11/2/2012	82	736	11/2/2012	7	724	11/2/2012	23	2720
94		11/3/2012	80		11/3/2012	7		11/3/2012	24	
95		11/4/2012	81		11/4/2012	6		11/4/2012	21	
95		11/5/2012	82		11/5/2012	7		11/5/2012	23	
96		11/6/2012	82		11/6/2012	7		11/6/2012	24	
96		11/7/2012	83		11/7/2012	7		11/7/2012	24	
96		11/8/2012	82		11/8/2012	7.323		11/8/2012	24	
100		11/9/2012	86		11/9/2012	3.511		11/9/2012	24	
94		11/10/2012	90		11/10/2012	3.854		11/10/2012	24	
92		11/11/2012	85		11/11/2012	3.887		11/11/2012	24	
98		11/12/2012	84		11/12/2012	4.033		11/12/2012	25	
98		11/13/2012	84		11/13/2012	3.709		11/13/2012	26.646	
91		11/14/2012	89		11/14/2012	3.791		11/14/2012	27.04	
95		11/15/2012	83		11/15/2012	3.767		11/15/2012	26.673	
95		11/16/2012	84		11/16/2012	3.563		11/16/2012	28.022	
94		11/17/2012	84		11/17/2012	4.121		11/17/2012	30.193	
94		11/18/2012	88		11/18/2012	4.042		11/18/2012	25	
95		11/19/2012	86		11/19/2012	3.984		11/19/2012	24	
96		11/20/2012	90		11/20/2012	3.942		11/20/2012	25	
96		11/21/2012	90		11/21/2012	4.02		11/21/2012	27	
95		11/22/2012	90		11/22/2012	3.98		11/22/2012	27	
84		11/23/2012	84		11/23/2012	3.325		11/23/2012	20	
89		11/24/2012	86		11/24/2012	3.904		11/24/2012	22	
90		11/25/2012	90		11/25/2012	4.319		11/25/2012	23	
95		11/26/2012	90		11/26/2012	3.668		11/26/2012	24	
97		11/27/2012	89		11/27/2012	3.817		11/27/2012	25	
94		11/28/2012	94		11/28/2012	3.714		11/28/2012	25	
107		11/29/2012	88.632		11/29/2012	3.676		11/29/2012	23	
114.264		11/30/2012	81.17		11/30/2012	3.793		11/30/2012	30.548	
109.215		12/1/2012	77.944		12/1/2012	3.703		12/1/2012	25.483	
107.235	624	12/2/2012	76.26	608	12/2/2012	4.025	668	12/2/2012	25.112	4100
113.683		12/3/2012	76.829		12/3/2012	3.714		12/3/2012	28.044	
109.848		12/4/2012	73.544		12/4/2012	3.695		12/4/2012	26.347	
109.978		12/5/2012	71.37		12/5/2012	3.653		12/5/2012	27.665	
108.202		12/6/2012	80.069		12/6/2012	3.753		12/6/2012	27.186	
108.494		12/7/2012	92.372		12/7/2012	3.978		12/7/2012	27.019	
107.41		12/8/2012	90.305		12/8/2012	4.783		12/8/2012	26.354	
105.036		12/9/2012	78.768		12/9/2012	5.348		12/9/2012	25.917	
106.691		12/10/2012	73.719		12/10/2012	5.914		12/10/2012	26.564	
108.289		12/11/2012	66.116		12/11/2012	7.265		12/11/2012	26.649	
107.504		12/12/2012	81.444		12/12/2012	5.739		12/12/2012	26.851	
108.613		12/13/2012	73.974		12/13/2012	3.78		12/13/2012	29.606	
108.286		12/14/2012	90.822		12/14/2012	3.995		12/14/2012	27.028	
107.559		12/15/2012	79		12/15/2012	7.069		12/15/2012	26.908	
103.176		12/16/2012	79		12/16/2012	7.817		12/16/2012	26.544	
107.447		12/17/2012	79		12/17/2012	7.895		12/17/2012	26.821	
112.29		12/18/2012	79		12/18/2012	4.991		12/18/2012	29.353	
108.477		12/19/2012	79		12/19/2012	1.831		12/19/2012	28.381	
107.905		12/20/2012	79		12/20/2012	2.056		12/20/2012	27.614	
108.232		12/21/2012	79		12/21/2012	3.139		12/21/2012	27.614	
105.585		12/22/2012	79		12/22/2012	3.346		12/22/2012	26.165	
102.937		12/23/2012	79		12/23/2012	3.548		12/23/2012	24.982	
112.808		12/24/2012	79		12/24/2012	2.565		12/24/2012	31.573	
96.097		12/25/2012	79		12/25/2012	3.726		12/25/2012	22.537	
105.259		12/26/2012	79		12/26/2012	6.244		12/26/2012	26.234	
107.071		12/27/2012	79		12/27/2012	8.326		12/27/2012	25.466	
108.014		12/28/2012	79		12/28/2012	9.821		12/28/2012	25.966	
108.09		12/29/2012	79		12/29/2012	10.671		12/29/2012	26.417	
105.41		12/30/2012	79		12/30/2012	11.148		12/30/2012	24.449	
110.091		12/31/2012	79		12/31/2012	10.774		12/31/2012	26.861	
95.504		1/1/2013	91.219		1/1/2013	9.309		1/1/2013	25.464	
101.57	648	1/2/2013	99.06	584	1/2/2013	9.406	736	1/2/2013	28.117	3260
103.857		1/3/2013	102.779		1/3/2013	9.974		1/3/2013	28.062	
104.45		1/4/2013	102.176		1/4/2013	9.987		1/4/2013	27.805	
91.484		1/5/2013	102.321		1/5/2013	8.985		1/5/2013	32.597	
101.347		1/6/2013	100.653		1/6/2013	9.394		1/6/2013	27.426	
103.102		1/7/2013	99.348		1/7/2013	11.016		1/7/2013	27.474	
99.674		1/8/2013	96.752		1/8/2013	10.523		1/8/2013	26.329	
102.96		1/9/2013	102.597		1/9/2013	10.975		1/9/2013	27.175	
104.073		1/10/2013	103.25		1/10/2013	11.099		1/10/2013	27.253	
103.704		1/11/2013	100.78		1/11/2013	15.255		1/11/2013	27.511	
102.841		1/12/2013	103.329		1/12/2013	15.488		1/12/2013	27.502	
102.07		1/13/2013	106.601		1/13/2013	13.76		1/13/2013	27.452	
104.385		1/14/2013	106.612		1/14/2013	14.466		1/14/2013	27.721	
105.425		1/15/2013	108.46		1/15/2013	14.963		1/15/2013	26.647	
104.899		1/16/2013	108.907		1/16/2013	15.84		1/16/2013	26.937	
105.337		1/17/2013	111.79		1/17/2013	6.823		1/17/2013	26.4	
105.473		1/18/2013	111.273		1/18/2013	1.053		1/18/2013	27.256	
103.868		1/19/2013	112.138		1/19/2013	1.043		1/19/2013	26.657	
100.169		1/20/2013	107.55		1/20/2013	1.075		1/20/2013	26.137	
103.526		1/21/2013	110.945		1/21/2013	1.069		1/21/2013	27.316	
104.678		1/22/2013	110.354		1/22/2013	1.109		1/22/2013	38.285	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
104.849		1/23/2013	109.316		1/23/2013	1.107		1/23/2013	38.657	
112.366		1/24/2013	118.067		1/24/2013	1.059		1/24/2013	32.555	
105.467		1/25/2013	110.649		1/25/2013	1.057		1/25/2013	28.411	
105.354		1/26/2013	111.117		1/26/2013	1.107		1/26/2013	26.911	
102.886		1/27/2013	107.945		1/27/2013	1.031		1/27/2013	26.353	
104.81		1/28/2013	104.471		1/28/2013	5.344		1/28/2013	27.37	
105.487		1/29/2013	100.378		1/29/2013	12.136		1/29/2013	28.15	
104.631		1/30/2013	102.897		1/30/2013	11.621		1/30/2013	28.251	
104.797		1/31/2013	106.762		1/31/2013	11.402		1/31/2013	28.303	
104.862		2/1/2013	107.332		2/1/2013	11.292		2/1/2013	28.774	
103.576		2/2/2013	106.751		2/2/2013	11.503		2/2/2013	28.054	
103.276		2/3/2013	103.257		2/3/2013	11.901		2/3/2013	27.792	
104.053		2/4/2013	101.611		2/4/2013	12.136		2/4/2013	28.993	
105.994	652	2/5/2013	98.012	580	2/5/2013	11.989	660	2/5/2013	27.927	2420
106.941		2/6/2013	79.493		2/6/2013	12.035		2/6/2013	27.02	
107.758		2/7/2013	80.011		2/7/2013	12.382		2/7/2013	27.805	
106.775		2/8/2013	81.3		2/8/2013	12.673		2/8/2013	27.846	
106.393		2/9/2013	82.021		2/9/2013	12.754		2/9/2013	27.07	
105.134		2/10/2013	78.795		2/10/2013	12.727		2/10/2013	26.366	
106.128		2/11/2013	77.788		2/11/2013	12.884		2/11/2013	27.285	
108.14		2/12/2013	78.653		2/12/2013	12.543		2/12/2013	26.87	
107.897		2/13/2013	75.731		2/13/2013	12.814		2/13/2013	26.816	
106.465		2/14/2013	94.372		2/14/2013	5.985		2/14/2013	26.302	
104.958		2/15/2013	110.517		2/15/2013	1.141		2/15/2013	25.701	
103.744		2/16/2013	111.512		2/16/2013	1.027		2/16/2013	24.898	
100.566		2/17/2013	107.306		2/17/2013	1.112		2/17/2013	24.236	
103.131		2/18/2013	111.698		2/18/2013	1.029		2/18/2013	25.299	
104.395		2/19/2013	111.224		2/19/2013	1.067		2/19/2013	26.057	
105.741		2/20/2013	112.448		2/20/2013	1.105		2/20/2013	25.309	
104.981		2/21/2013	110.453		2/21/2013	3.557		2/21/2013	24.77	
104.811		2/22/2013	109.161		2/22/2013	6.231		2/22/2013	25.342	
104.333		2/23/2013	112.775		2/23/2013	5.271		2/23/2013	25.04	
102.507		2/24/2013	112.503		2/24/2013	5.539		2/24/2013	24.357	
104.808		2/25/2013	113.889		2/25/2013	6.345		2/25/2013	25.43	
105.211		2/26/2013	115.517		2/26/2013	7.284		2/26/2013	24.924	
103.654		2/27/2013	117.586		2/27/2013	8.084		2/27/2013	24.938	
103.997		2/28/2013	117.247		2/28/2013	8.956		2/28/2013	24.707	
104.998		3/1/2013	117.819		3/1/2013	9.441		3/1/2013	25.147	
104.397		3/2/2013	118.146		3/2/2013	10.17		3/2/2013	24.832	
101.962	588	3/3/2013	115.034	412	3/3/2013	11.772	656	3/3/2013	21.966	2280
104.165		3/4/2013	112.67		3/4/2013	12.148		3/4/2013	22.377	
103.916		3/5/2013	113.349		3/5/2013	11.608		3/5/2013	22.037	
103.528		3/6/2013	126.121		3/6/2013	1		3/6/2013	22.686	
103.145		3/7/2013	126.9		3/7/2013	1		3/7/2013	23.948	
113.212		3/8/2013	136.048		3/8/2013	1		3/8/2013	26.66	
104.306		3/9/2013	131.435		3/9/2013	1.048		3/9/2013	21.027	
101.92		3/10/2013	127.362		3/10/2013	2.166		3/10/2013	20.81	
92.305		3/11/2013	112.162		3/11/2013	1.574		3/11/2013	22.388	
97.768		3/12/2013	97.982		3/12/2013	1.263		3/12/2013	24.497	
99.766		3/13/2013	89.211		3/13/2013	9.533		3/13/2013	29.412	
99.101		3/14/2013	85.652		3/14/2013	12.384		3/14/2013	29.088	
100.214		3/15/2013	96.538		3/15/2013	1.072		3/15/2013	28.795	
97.779		3/16/2013	95.168		3/16/2013	2.068		3/16/2013	28.268	
95.561		3/17/2013	89.634		3/17/2013	4.392		3/17/2013	28.199	
96.924		3/18/2013	90.496		3/18/2013	5.315		3/18/2013	28.896	
97.658		3/19/2013	91.794		3/19/2013	6.73		3/19/2013	28.805	
97.947		3/20/2013	91.205		3/20/2013	8.44		3/20/2013	29.007	
97.665		3/21/2013	64.441		3/21/2013	36.896		3/21/2013	29.681	
99.083		3/22/2013	66.653		3/22/2013	36.308		3/22/2013	29.596	
98.485		3/23/2013	68.281		3/23/2013	36.504		3/23/2013	28.981	
95.641		3/24/2013	65.665		3/24/2013	37.071		3/24/2013	28.783	
97.732		3/25/2013	67.95		3/25/2013	37.106		3/25/2013	28.939	
99.157		3/26/2013	72.124		3/26/2013	35.109		3/26/2013	28.626	
100.655		3/27/2013	69.578		3/27/2013	36.363		3/27/2013	28.555	
101.333		3/28/2013	69.272		3/28/2013	37.104		3/28/2013	28.458	
101.502		3/29/2013	70.15		3/29/2013	36.809		3/29/2013	28.285	
98.803		3/30/2013	68.107		3/30/2013	37.915		3/30/2013	27.269	
94.656		3/31/2013	62.61		3/31/2013	38.012		3/31/2013	27.253	
97.538		4/1/2013	65.826		4/1/2013	37.78		4/1/2013	28.073	
100.982	648	4/2/2013	66.362	676	4/2/2013	37.597	824	4/2/2013	27.968	2740
100.698		4/3/2013	86.873		4/3/2013	15.693		4/3/2013	27.954	
99.586		4/4/2013	99.066		4/4/2013	1.099		4/4/2013	27.99	
100.054		4/5/2013	98.421		4/5/2013	1.069		4/5/2013	27.922	
98.727		4/6/2013	96.283		4/6/2013	1.151		4/6/2013	27.534	
96.346		4/7/2013	91.696		4/7/2013	1.061		4/7/2013	27.404	
98.306		4/8/2013	90.473		4/8/2013	1.087		4/8/2013	27.928	
98.825		4/9/2013	91.202		4/9/2013	1.083		4/9/2013	27.538	
100.039		4/10/2013	91.456		4/10/2013	1.011		4/10/2013	27.877	
99.97		4/11/2013	90.854		4/11/2013	1.03		4/11/2013	27.965	
99.146		4/12/2013	88.617		4/12/2013	1.006		4/12/2013	27.682	
96.432		4/13/2013	84.663		4/13/2013	1.013		4/13/2013	27.004	
94.364		4/14/2013	76.722		4/14/2013	1.004		4/14/2013	27.047	
96.924		4/15/2013	74.033		4/15/2013	1.309		4/15/2013	27.423	
98.623		4/16/2013	74.902		4/16/2013	1.118		4/16/2013	27.353	
98.774		4/17/2013	72.533		4/17/2013	1.365		4/17/2013	27.439	
98.645		4/18/2013	79.018		4/18/2013	1.512		4/18/2013	27.512	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
99.216		4/19/2013	92.02		4/19/2013	1.107		4/19/2013	27.853	
97.806		4/20/2013	92.856		4/20/2013	1.25		4/20/2013	27.589	
94.954		4/21/2013	90.396		4/21/2013	1.331		4/21/2013	27.49	
99.02		4/22/2013	91.603		4/22/2013	1.041		4/22/2013	28.12	
101.009		4/23/2013	93.097		4/23/2013	1.056		4/23/2013	27.645	
100.198		4/24/2013	92.818		4/24/2013	1.047		4/24/2013	27.713	
100.056		4/25/2013	92.072		4/25/2013	1.026		4/25/2013	27.786	
100.676		4/26/2013	92.892		4/26/2013	1.027		4/26/2013	27.815	
98.397		4/27/2013	93.846		4/27/2013	1		4/27/2013	27.287	
95.87		4/28/2013	90.704		4/28/2013	1.015		4/28/2013	26.969	
98.936		4/29/2013	91.493		4/29/2013	1.041		4/29/2013	27.717	
100.926		4/30/2013	92.36		4/30/2013	1.026		4/30/2013	27.535	
101.17	544	5/1/2013	93.942	596	5/1/2013	1.031	732	5/1/2013	27.598	2460
102.105		5/2/2013	97.043		5/2/2013	1.01		5/2/2013	27.637	
102.361		5/3/2013	97.83		5/3/2013	1.007		5/3/2013	27.623	
100.529		5/4/2013	96.787		5/4/2013	1.017		5/4/2013	27.261	
96.31		5/5/2013	91.677		5/5/2013	1.028		5/5/2013	26.645	
103.014		5/6/2013	95.914		5/6/2013	1.04		5/6/2013	29.413	
100.813		5/7/2013	94.483		5/7/2013	1.094		5/7/2013	27.875	
97.18		5/8/2013	90.921		5/8/2013	1.026		5/8/2013	27.539	
98.211		5/9/2013	89.884		5/9/2013	1.078		5/9/2013	27.571	
97.944		5/10/2013	86.381		5/10/2013	1.052		5/10/2013	27.743	
96.404		5/11/2013	86.064		5/11/2013	1.012		5/11/2013	27.261	
92.753		5/12/2013	79.968		5/12/2013	1.001		5/12/2013	26.885	
97.745		5/13/2013	84.761		5/13/2013	1		5/13/2013	26.122	
99.673		5/14/2013	88.726		5/14/2013	1		5/14/2013	24.713	
97.837		5/15/2013	87.795		5/15/2013	1		5/15/2013	24.613	
97.208		5/16/2013	88.347		5/16/2013	1		5/16/2013	24.275	
97.982		5/17/2013	89.078		5/17/2013	1		5/17/2013	23.791	
95.409		5/18/2013	88.816		5/18/2013	1		5/18/2013	23.113	
93.378		5/19/2013	86.695		5/19/2013	1		5/19/2013	22.94	
96.733		5/20/2013	90.186		5/20/2013	1		5/20/2013	23.853	
97.308		5/21/2013	92.181		5/21/2013	1		5/21/2013	23.717	
96.451		5/22/2013	91.346		5/22/2013	1		5/22/2013	24.978	
94.321		5/23/2013	90.686		5/23/2013	1.05		5/23/2013	26.414	
94.948		5/24/2013	91.255		5/24/2013	1.049		5/24/2013	26.731	
91.519		5/25/2013	88.985		5/25/2013	1.044		5/25/2013	25.598	
87.208		5/26/2013	83.05		5/26/2013	1.056		5/26/2013	25.043	
89.935		5/27/2013	87.699		5/27/2013	1.06		5/27/2013	26.036	
94.812		5/28/2013	91.582		5/28/2013	1.019		5/28/2013	26.719	
96.426		5/29/2013	92.967		5/29/2013	1.06		5/29/2013	26.476	
95.561		5/30/2013	93.883		5/30/2013	1.036		5/30/2013	26.727	
95.241		5/31/2013	93.084		5/31/2013	1.052		5/31/2013	26.785	
92.985	648	6/1/2013	91.173	448	6/1/2013	1.085	640	6/1/2013	26.847	2820
90.898		6/2/2013	86.807		6/2/2013	1.07		6/2/2013	19.628	
93.698		6/3/2013	86.853		6/3/2013	1.035		6/3/2013	27.739	
95.231		6/4/2013	89.179		6/4/2013	1.066		6/4/2013	27.747	
94.653		6/5/2013	89.518		6/5/2013	1.072		6/5/2013	27.953	
94.579		6/6/2013	90.472		6/6/2013	1.042		6/6/2013	26.944	
95.403		6/7/2013	91.412		6/7/2013	1.058		6/7/2013	25.71	
92.419		6/8/2013	90.457		6/8/2013	1.064		6/8/2013	25.442	
90.335		6/9/2013	86.089		6/9/2013	1.113		6/9/2013	25.165	
94.163		6/10/2013	89.678		6/10/2013	1.056		6/10/2013	25.975	
101.288		6/11/2013	94.444		6/11/2013	1.061		6/11/2013	25.791	
96.39		6/12/2013	91.502		6/12/2013	1.078		6/12/2013	25.441	
96.606		6/13/2013	91.521		6/13/2013	1.067		6/13/2013	25.579	
97.739		6/14/2013	91.695		6/14/2013	1.079		6/14/2013	25.645	
94.04		6/15/2013	88.869		6/15/2013	1.098		6/15/2013	25.013	
90.518		6/16/2013	83.762		6/16/2013	1.124		6/16/2013	24.482	
95.236		6/17/2013	86.861		6/17/2013	1.09		6/17/2013	25.794	
97.036		6/18/2013	88.008		6/18/2013	1.098		6/18/2013	26.184	
96.775		6/19/2013	87.908		6/19/2013	1.083		6/19/2013	23.408	
96.76		6/20/2013	89.853		6/20/2013	1.053		6/20/2013	16.999	
96.978		6/21/2013	88.952		6/21/2013	1.027		6/21/2013	16.053	
94.032		6/22/2013	83.669		6/22/2013	1.083		6/22/2013	15.378	
90.271		6/23/2013	74.185		6/23/2013	1.044		6/23/2013	14.762	
94.396		6/24/2013	75.988		6/24/2013	1.082		6/24/2013	16.568	
96.586		6/25/2013	78.101		6/25/2013	1.078		6/25/2013	16.279	
98.008		6/26/2013	76.876		6/26/2013	1.081		6/26/2013	16.522	
98.676		6/27/2013	79.273		6/27/2013	1.125		6/27/2013	16.805	
98.399		6/28/2013	93.212		6/28/2013	2.8		6/28/2013	16.977	
96.185		6/29/2013	90.036		6/29/2013	4.49		6/29/2013	16.248	
96.439		6/30/2013	87.004		6/30/2013	5.745		6/30/2013	15.949	
96.728	816	7/1/2013	89.689	540	7/1/2013	6.344	1020	7/1/2013	17.185	3360
98.585		7/2/2013	91.537		7/2/2013	5.649		7/2/2013	16.872	
97.115		7/3/2013	92.632		7/3/2013	1.052		7/3/2013	17.176	
93.172		7/4/2013	89.792		7/4/2013	1.094		7/4/2013	16.211	
91.735		7/5/2013	86.994		7/5/2013	1.087		7/5/2013	16.764	
92.774		7/6/2013	88.046		7/6/2013	1.081		7/6/2013	15.692	
92.338		7/7/2013	85.169		7/7/2013	1.053		7/7/2013	15.578	
96.078		7/8/2013	87.733		7/8/2013	1.103		7/8/2013	17.524	
97.871		7/9/2013	89.203		7/9/2013	1.084		7/9/2013	17.258	
97.526		7/10/2013	87.021		7/10/2013	1.062		7/10/2013	17.04	
96.774		7/11/2013	83.704		7/11/2013	1.07		7/11/2013	17.291	
97.826		7/12/2013	82.672		7/12/2013	1.041		7/12/2013	17.925	
95.211		7/13/2013	77.194		7/13/2013	1.089		7/13/2013	16.111	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
91.448		7/14/2013	70.041		7/14/2013	1.082		7/14/2013	15.584	
95.874		7/15/2013	86.045		7/15/2013	1.058		7/15/2013	16.838	
96.403		7/16/2013	99.518		7/16/2013	1.43		7/16/2013	16.785	
96.722		7/17/2013	99.427		7/17/2013	1.635		7/17/2013	16.942	
98.136		7/18/2013	99.871		7/18/2013	1.928		7/18/2013	17.191	
97.887		7/19/2013	99.823		7/19/2013	1.898		7/19/2013	17.846	
94.828		7/20/2013	97.765		7/20/2013	1.917		7/20/2013	16.791	
91.385		7/21/2013	92.937		7/21/2013	2.622		7/21/2013	15.767	
96.326		7/22/2013	96.952		7/22/2013	3.063		7/22/2013	17.294	
98.318		7/23/2013	99.094		7/23/2013	3.248		7/23/2013	17.022	
101.782		7/24/2013	99.765		7/24/2013	3.508		7/24/2013	17.007	
103.02		7/25/2013	100.329		7/25/2013	3.004		7/25/2013	17.224	
102.278		7/26/2013	99.052		7/26/2013	3.121		7/26/2013	17.02	
99.585		7/27/2013	96.803		7/27/2013	3.274		7/27/2013	16.578	
95.505		7/28/2013	91.624		7/28/2013	3.327		7/28/2013	15.266	
99.311		7/29/2013	94.321		7/29/2013	3.493		7/29/2013	18.943	
104.532		7/30/2013	95.342		7/30/2013	3.524		7/30/2013	17.174	
105.275		7/31/2013	97.42		7/31/2013	2.327		7/31/2013	17.104	
104.391		8/1/2013	101.314		8/1/2013	1.112		8/1/2013	22.255	
105.243		8/2/2013	103.093		8/2/2013	1.053		8/2/2013	22.585	
101.857		8/3/2013	103.087		8/3/2013	1.05		8/3/2013	21.544	
98.865		8/4/2013	98.546		8/4/2013	1.018		8/4/2013	21.027	
103.315	616	8/5/2013	98.165	504	8/5/2013	3.309	652	8/5/2013	21.854	3120
110.493		8/6/2013	97.285		8/6/2013	7.171		8/6/2013	21.986	
105.045		8/7/2013	96.054		8/7/2013	7.051		8/7/2013	21.94	
105.288		8/8/2013	96.299		8/8/2013	8.328		8/8/2013	21.948	
105.057		8/9/2013	94.07		8/9/2013	10.486		8/9/2013	22.04	
102.118		8/10/2013	90.083		8/10/2013	12.807		8/10/2013	21.247	
99.087		8/11/2013	84.596		8/11/2013	13.963		8/11/2013	21.094	
105.636		8/12/2013	88.126		8/12/2013	14.633		8/12/2013	21.985	
108.054		8/13/2013	88.713		8/13/2013	15.263		8/13/2013	21.752	
109.61		8/14/2013	88.441		8/14/2013	15.784		8/14/2013	21.747	
107.337		8/15/2013	87.132		8/15/2013	16.451		8/15/2013	22.034	
108.067		8/16/2013	87.023		8/16/2013	16.16		8/16/2013	22.295	
104.952		8/17/2013	85.26		8/17/2013	16.67		8/17/2013	21.645	
102.447		8/18/2013	81.923		8/18/2013	16.969		8/18/2013	21.309	
106.478		8/19/2013	84.844		8/19/2013	17.169		8/19/2013	22.089	
107.808		8/20/2013	84.769		8/20/2013	17.871		8/20/2013	21.887	
107.873		8/21/2013	83.043		8/21/2013	18.004		8/21/2013	22.094	
107.198		8/22/2013	81.131		8/22/2013	18.1		8/22/2013	22.144	
108.608		8/23/2013	79.775		8/23/2013	18.541		8/23/2013	22.311	
106.341		8/24/2013	78.21		8/24/2013	18.655		8/24/2013	21.501	
104.289		8/25/2013	76.327		8/25/2013	18.681		8/25/2013	21.244	
108.628		8/26/2013	81.904		8/26/2013	18.646		8/26/2013	21.585	
108.573		8/27/2013	85.777		8/27/2013	18.753		8/27/2013	21.516	
107.96		8/28/2013	84.5		8/28/2013	18.911		8/28/2013	21.96	
108.848		8/29/2013	84.657		8/29/2013	19.061		8/29/2013	21.721	
110.654		8/30/2013	86.683		8/30/2013	19.116		8/30/2013	21.921	
107.139		8/31/2013	82.659		8/31/2013	19.214		8/31/2013	21.189	
101.566		9/1/2013	74.536		9/1/2013	19.426		9/1/2013	20.8	
104.604		9/2/2013	79.03		9/2/2013	19.532		9/2/2013	21.635	
108.744		9/3/2013	80.965		9/3/2013	19.562		9/3/2013	22.09	
108.793		9/4/2013	90.415		9/4/2013	8.604		9/4/2013	21.945	
108.575	612	9/5/2013	100.875	712	9/5/2013	1.053	796	9/5/2013	22.359	2480
107.016		9/6/2013	100.043		9/6/2013	1.068		9/6/2013	22.36	
104.748		9/7/2013	99.908		9/7/2013	1.055		9/7/2013	21.899	
102.472		9/8/2013	96.992		9/8/2013	1.151		9/8/2013	21.76	
106.193		9/9/2013	97.739		9/9/2013	1.043		9/9/2013	22.177	
107.186		9/10/2013	98.652		9/10/2013	1.05		9/10/2013	21.993	
109.941		9/11/2013	100.054		9/11/2013	1.08		9/11/2013	22.062	
106.864		9/12/2013	97.299		9/12/2013	1.055		9/12/2013	22.142	
108.744		9/13/2013	96.673		9/13/2013	1.04		9/13/2013	22.185	
107.283		9/14/2013	96.237		9/14/2013	1.068		9/14/2013	21.792	
103.879		9/15/2013	92.472		9/15/2013	1.072		9/15/2013	21.548	
108.342		9/16/2013	94.526		9/16/2013	1.124		9/16/2013	21.549	
105.679		9/17/2013	94.949		9/17/2013	1.085		9/17/2013	20.704	
105.31		9/18/2013	94.291		9/18/2013	1.036		9/18/2013	20.681	
105.174		9/19/2013	94.22		9/19/2013	1.037		9/19/2013	20.879	
102.408		9/20/2013	90.919		9/20/2013	1.042		9/20/2013	20.523	
99.562		9/21/2013	87.128		9/21/2013	1.065		9/21/2013	19.981	
97.71		9/22/2013	83.457		9/22/2013	1.136		9/22/2013	20.204	
100.826		9/23/2013	86.294		9/23/2013	1.025		9/23/2013	20.646	
102.221		9/24/2013	87.26		9/24/2013	1.064		9/24/2013	20.318	
102.408		9/25/2013	86.051		9/25/2013	1.005		9/25/2013	19.852	
101.937		9/26/2013	87.392		9/26/2013	1.006		9/26/2013	20.189	
102.189		9/27/2013	94.275		9/27/2013	1.028		9/27/2013	21.983	
101.247		9/28/2013	94.122		9/28/2013	1.073		9/28/2013	21.573	
99.866		9/29/2013	91.816		9/29/2013	1.083		9/29/2013	21.393	
102.801		9/30/2013	93.405		9/30/2013	1.072		9/30/2013	22.291	
103.906		10/1/2013	95.56		10/1/2013	1.042		10/1/2013	22.226	
104.172		10/2/2013	95.096		10/2/2013	1.186		10/2/2013	22.31	
104.303		10/3/2013	94.139		10/3/2013	2.114		10/3/2013	22.222	
104.455	732	10/4/2013	94.134	716	10/4/2013	4.235	800	10/4/2013	22.194	3510
101.517		10/5/2013	91.507		10/5/2013	5.459		10/5/2013	21.518	
101.032		10/6/2013	86.273		10/6/2013	8.496		10/6/2013	21.542	
104.517		10/7/2013	87.65		10/7/2013	8.134		10/7/2013	22.095	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
105.151		10/8/2013	89.123		10/8/2013	8.023		10/8/2013	22.012	
105.132		10/9/2013	89.516		10/9/2013	7.176		10/9/2013	23.675	
104.816		10/10/2013	91.292		10/10/2013	5.789		10/10/2013	22.269	
105.394		10/11/2013	91.588		10/11/2013	5.182		10/11/2013	22.065	
103.454		10/12/2013	91.371		10/12/2013	4.906		10/12/2013	21.829	
100.986		10/13/2013	89.208		10/13/2013	4.649		10/13/2013	21.524	
104.211		10/14/2013	92.589		10/14/2013	4.101		10/14/2013	22.3	
104.852		10/15/2013	93.975		10/15/2013	3.295		10/15/2013	21.921	
104.48		10/16/2013	93.905		10/16/2013	3.042		10/16/2013	22.084	
105.098		10/17/2013	94.521		10/17/2013	2.582		10/17/2013	22.121	
106.006		10/18/2013	92.661		10/18/2013	2.661		10/18/2013	22.225	
104.753		10/19/2013	93.252		10/19/2013	2.515		10/19/2013	21.718	
101.965		10/20/2013	90.862		10/20/2013	2.602		10/20/2013	21.532	
107.661		10/21/2013	94.139		10/21/2013	2.468		10/21/2013	22.162	
111.298		10/22/2013	95.982		10/22/2013	2.767		10/22/2013	21.928	
111.387		10/23/2013	95.32		10/23/2013	2.832		10/23/2013	22.004	
107.193		10/24/2013	93.172		10/24/2013	2.676		10/24/2013	22.017	
107.013		10/25/2013	93.396		10/25/2013	2.349		10/25/2013	21.868	
104.921		10/26/2013	92.354		10/26/2013	2.264		10/26/2013	21.424	
102.374		10/27/2013	89.69		10/27/2013	2.176		10/27/2013	21.23	
104.032		10/28/2013	91.494		10/28/2013	1.595		10/28/2013	21.893	
106.404		10/29/2013	94.305		10/29/2013	1.057		10/29/2013	21.838	
108.841		10/30/2013	91.502		10/30/2013	1.082		10/30/2013	22.204	
108.42		10/31/2013	88.077		10/31/2013	1.21		10/31/2013	21.735	
106.838	648	11/1/2013	89.486	696	11/1/2013	1.232	844	11/1/2013	21.994	3060
109.098		11/2/2013	91.199		11/2/2013	1.166		11/2/2013	21.559	
106.758		11/3/2013	89.312		11/3/2013	1.118		11/3/2013	21.254	
108.387		11/4/2013	88.948		11/4/2013	1.146		11/4/2013	21.995	
109.269		11/5/2013	90.453		11/5/2013	1.167		11/5/2013	21.984	
110.747		11/6/2013	89.608		11/6/2013	1.194		11/6/2013	21.868	
111.8		11/7/2013	89.127		11/7/2013	1.31		11/7/2013	21.884	
111.278		11/8/2013	89.717		11/8/2013	1.171		11/8/2013	22.125	
108.922		11/9/2013	90.278		11/9/2013	1.154		11/9/2013	21.711	
107.416		11/10/2013	86.093		11/10/2013	1.186		11/10/2013	21.186	
113.688		11/11/2013	89.996		11/11/2013	1.216		11/11/2013	22.246	
118.019		11/12/2013	89.233		11/12/2013	1.237		11/12/2013	22.094	
122.015		11/13/2013	90.616		11/13/2013	1.159		11/13/2013	21.894	
123.791		11/14/2013	92.183		11/14/2013	1.242		11/14/2013	21.938	
121.475		11/15/2013	89.97		11/15/2013	1.324		11/15/2013	21.866	
120.199		11/16/2013	90.554		11/16/2013	1.139		11/16/2013	21.377	
119.964		11/17/2013	88.648		11/17/2013	1.337		11/17/2013	21.284	
115.767		11/18/2013	88.066		11/18/2013	1.291		11/18/2013	22.05	
117.255		11/19/2013	89.75		11/19/2013	1.293		11/19/2013	21.969	
116.017		11/20/2013	88.18		11/20/2013	1.185		11/20/2013	22.084	
118.308		11/21/2013	89.494		11/21/2013	1.248		11/21/2013	25.246	
117.824		11/22/2013	87.018		11/22/2013	1.164		11/22/2013	21.613	
119.86		11/23/2013	87.713		11/23/2013	1.151		11/23/2013	20.698	
115.187		11/24/2013	85.055		11/24/2013	1.106		11/24/2013	20.069	
112.221		11/25/2013	87.309		11/25/2013	1.224		11/25/2013	21.316	
113.746		11/26/2013	88.814		11/26/2013	1.261		11/26/2013	21.549	
114.989		11/27/2013	89.821		11/27/2013	1.2		11/27/2013	21.945	
120.994		11/28/2013	90.397		11/28/2013	1.164		11/28/2013	20.331	
108.629		11/29/2013	77.395		11/29/2013	1.201		11/29/2013	20.986	
121.207		11/30/2013	85.546		11/30/2013	1.223		11/30/2013	20.102	
118.785		12/1/2013	84.947		12/1/2013	1.285		12/1/2013	19.918	
122.312		12/2/2013	87.555		12/2/2013	1.202		12/2/2013	21.697	
124.247		12/3/2013	89.91		12/3/2013	1.253		12/3/2013	22.124	
123.601		12/4/2013	91.323		12/4/2013	1.197		12/4/2013	21.99	
121.304	672	12/5/2013	88.006	664	12/5/2013	1.231	920	12/5/2013	22.289	3230
127.145		12/6/2013	90.374		12/6/2013	1.179		12/6/2013	22.03	
114.815		12/7/2013	90.144		12/7/2013	1.284		12/7/2013	23.209	
108.061		12/8/2013	90.023		12/8/2013	1.295		12/8/2013	22.107	
109.526		12/9/2013	90.136		12/9/2013	1.323		12/9/2013	22.246	
109.83		12/10/2013	91.415		12/10/2013	1.347		12/10/2013	21.886	
109.946		12/11/2013	91.654		12/11/2013	1.257		12/11/2013	21.798	
108.053		12/12/2013	90.859		12/12/2013	1.248		12/12/2013	21.793	
108.484		12/13/2013	90.475		12/13/2013	1.201		12/13/2013	21.947	
106.416		12/14/2013	90.018		12/14/2013	1.156		12/14/2013	21.493	
103.902		12/15/2013	88.199		12/15/2013	1.288		12/15/2013	21.09	
105.795		12/16/2013	88.837		12/16/2013	1.232		12/16/2013	21.823	
106.2		12/17/2013	89.078		12/17/2013	1.207		12/17/2013	21.779	
104.758		12/18/2013	87.624		12/18/2013	1.282		12/18/2013	21.879	
105.549		12/19/2013	87.326		12/19/2013	1.251		12/19/2013	22.655	
104.756		12/20/2013	87.548		12/20/2013	1.226		12/20/2013	22.249	
102.183		12/21/2013	86.411		12/21/2013	1.142		12/21/2013	21.255	
99.882		12/22/2013	84.396		12/22/2013	1.246		12/22/2013	20.329	
100.942		12/23/2013	85.438		12/23/2013	1.248		12/23/2013	20.889	
105.248		12/24/2013	90.207		12/24/2013	1.204		12/24/2013	20.396	
88.767		12/25/2013	74.22		12/25/2013	1.245		12/25/2013	18.151	
95.463		12/26/2013	80.673		12/26/2013	1.232		12/26/2013	20.159	
100.48		12/27/2013	85.318		12/27/2013	1.266		12/27/2013	20.254	
98.688		12/28/2013	84.84		12/28/2013	1.226		12/28/2013	19.103	
95.82		12/29/2013	82.068		12/29/2013	1.344		12/29/2013	18.838	
100.094		12/30/2013	85.846		12/30/2013	1.252		12/30/2013	19.879	
106.921		12/31/2013	92.949		12/31/2013	1.154		12/31/2013	20.374	
91.279		1/1/2014	75.12		1/1/2014	2.296		1/1/2014	18.695	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
97.955		1/2/2014	80.535		1/2/2014	4.227		1/2/2014	20.153	
102.11		1/3/2014	84.001		1/3/2014	3.964		1/3/2014	20.502	
100.476		1/4/2014	83.64		1/4/2014	3.797		1/4/2014	20.31	
99.797		1/5/2014	81.303		1/5/2014	4.444		1/5/2014	20.401	
102.433	568	1/6/2014	83.327	512	1/6/2014	5.338	732	1/6/2014	18.856	2800
104.554		1/7/2014	83.782		1/7/2014	6.036		1/7/2014	14.802	
104.295		1/8/2014	83.119		1/8/2014	6.842		1/8/2014	14.732	
104.557		1/9/2014	82.248		1/9/2014	7.566		1/9/2014	14.766	
107.515		1/10/2014	83.52		1/10/2014	7.957		1/10/2014	15.049	
107.702		1/11/2014	82.119		1/11/2014	8.846		1/11/2014	14.421	
107.092		1/12/2014	79.558		1/12/2014	9.786		1/12/2014	14.02	
110.979		1/13/2014	80.349		1/13/2014	10.482		1/13/2014	14.765	
110.732		1/14/2014	81.128		1/14/2014	10.69		1/14/2014	14.594	
107.443		1/15/2014	79.388		1/15/2014	12.253		1/15/2014	14.986	
105.662		1/16/2014	77.47		1/16/2014	13.706		1/16/2014	14.611	
105.82		1/17/2014	76.202		1/17/2014	14.565		1/17/2014	14.661	
103.254		1/18/2014	76.198		1/18/2014	14.654		1/18/2014	13.783	
99.456		1/19/2014	70.884		1/19/2014	14.986		1/19/2014	13.039	
103.412		1/20/2014	75.155		1/20/2014	15.195		1/20/2014	14.737	
103.452		1/21/2014	78.538		1/21/2014	10.132		1/21/2014	16.818	
103.684		1/22/2014	86.93		1/22/2014	1.107		1/22/2014	21.707	
102.714		1/23/2014	86.796		1/23/2014	1.169		1/23/2014	21.968	
102.502		1/24/2014	86.483		1/24/2014	1.126		1/24/2014	21.932	
105.514		1/25/2014	87.466		1/25/2014	1.192		1/25/2014	21.583	
110.447		1/26/2014	85.175		1/26/2014	1.077		1/26/2014	12.397	
111.084		1/27/2014	85.581		1/27/2014	1.086		1/27/2014	2.822	
112.63		1/28/2014	87.626		1/28/2014	1.127		1/28/2014	2.645	
110.764		1/29/2014	86.976		1/29/2014	1.11		1/29/2014	2.643	
107.639		1/30/2014	85.686		1/30/2014	1.126		1/30/2014	2.891	
111.211		1/31/2014	84.79		1/31/2014	1.144		1/31/2014	3.365	
107.651		2/1/2014	85.584		2/1/2014	1.093		2/1/2014	2.97	
108.175		2/2/2014	84.215		2/2/2014	1.189		2/2/2014	3.623	
108.981		2/3/2014	84.501		2/3/2014	1.3		2/3/2014	3.074	
111.509		2/4/2014	88.607		2/4/2014	1.402		2/4/2014	2.825	
115.235		2/5/2014	87.018		2/5/2014	1		2/5/2014	13.956	
110.793		2/6/2014	84.848		2/6/2014	1		2/6/2014	23.357	
110.423		2/7/2014	84.605		2/7/2014	1		2/7/2014	23.023	
109.259		2/8/2014	87.099		2/8/2014	1		2/8/2014	21.87	
106.093		2/9/2014	86.416		2/9/2014	1		2/9/2014	21.242	
105.957		2/10/2014	89.57		2/10/2014	1		2/10/2014	21.902	
105.486		2/11/2014	92.115		2/11/2014	1		2/11/2014	21.836	
105.328		2/12/2014	92.333		2/12/2014	1		2/12/2014	21.974	
106.614		2/13/2014	86.729		2/13/2014	1.283		2/13/2014	21.9	
111.138		2/14/2014	83.555		2/14/2014	1.168		2/14/2014	21.686	
110.011		2/15/2014	82.243		2/15/2014	1.203		2/15/2014	20.997	
108.529		2/16/2014	79.158		2/16/2014	1.192		2/16/2014	20.369	
106.323		2/17/2014	84.706		2/17/2014	1.185		2/17/2014	21.606	
107.695		2/18/2014	84.454		2/18/2014	1.203		2/18/2014	21.713	
107.042		2/19/2014	84.819		2/19/2014	1.104		2/19/2014	21.801	
104.72		2/20/2014	86.288		2/20/2014	1		2/20/2014	21.875	
102.518		2/21/2014	86.819		2/21/2014	1		2/21/2014	21.734	
101.953		2/22/2014	86.912		2/22/2014	1		2/22/2014	21.394	
98.107		2/23/2014	84.803		2/23/2014	1		2/23/2014	21.193	
101.116		2/24/2014	85.52		2/24/2014	1		2/24/2014	21.785	
101.63		2/25/2014	85.815		2/25/2014	1		2/25/2014	19.133	
100.546		2/26/2014	84.13		2/26/2014	1		2/26/2014	18.806	
107.724		2/27/2014	94.083		2/27/2014	1		2/27/2014	26.159	
134.606		2/28/2014	116.4		2/28/2014	1		2/28/2014	30.326	
121.191	648	3/1/2014	101.781	640	3/1/2014	1	760	3/1/2014	22.262	3660
107.482		3/2/2014	90.978		3/2/2014	1		3/2/2014	21.075	
106.952		3/3/2014	88.44		3/3/2014	1		3/3/2014	33.939	
103.066		3/4/2014	87.92		3/4/2014	1		3/4/2014	49.731	
110.062		3/5/2014	87.827		3/5/2014	1		3/5/2014	24.385	
106.351		3/6/2014	83.218		3/6/2014	3.097		3/6/2014	25.43	
104.645		3/7/2014	82.44		3/7/2014	3.25		3/7/2014	22.856	
102.995		3/8/2014	81.493		3/8/2014	1.987		3/8/2014	22.749	
100.42		3/9/2014	79.712		3/9/2014	1.326		3/9/2014	22.878	
104.21		3/10/2014	81.995		3/10/2014	1.168		3/10/2014	24.953	
105.038		3/11/2014	83.341		3/11/2014	1.015		3/11/2014	24.396	
105.048		3/12/2014	83.476		3/12/2014	1.053		3/12/2014	23.054	
104.186		3/13/2014	78.441		3/13/2014	2.662		3/13/2014	22.033	
104.587		3/14/2014	79.888		3/14/2014	3.693		3/14/2014	21.983	
102.997		3/15/2014	80.899		3/15/2014	3.523		3/15/2014	21.56	
99.859		3/16/2014	78.386		3/16/2014	3.629		3/16/2014	21.241	
97.09		3/17/2014	76.34		3/17/2014	3.65		3/17/2014	20.907	
104.141		3/18/2014	81.084		3/18/2014	3.437		3/18/2014	21.822	
104.057		3/19/2014	82.405		3/19/2014	3.126		3/19/2014	21.86	
104.49		3/20/2014	83.837		3/20/2014	3.104		3/20/2014	21.63	
103.194		3/21/2014	82.358		3/21/2014	3.085		3/21/2014	21.811	
102.807		3/22/2014	81.284		3/22/2014	3.79		3/22/2014	21.312	
101.543		3/23/2014	78.345		3/23/2014	5.396		3/23/2014	21.291	
104.71		3/24/2014	77.739		3/24/2014	7.856		3/24/2014	21.757	
97.626		3/25/2014	72.866		3/25/2014	8.559		3/25/2014	20.448	
104.099		3/26/2014	77.573		3/26/2014	10.272		3/26/2014	22.253	
104.239		3/27/2014	73.749		3/27/2014	11.057		3/27/2014	21.493	
104.176		3/28/2014	75.271		3/28/2014	12.339		3/28/2014	21.706	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
101.605		3/29/2014	73.991		3/29/2014	12.763		3/29/2014	20.21	
98.497		3/30/2014	72.508		3/30/2014	13.502		3/30/2014	18.461	
102.144		3/31/2014	75.035		3/31/2014	13.492		3/31/2014	19.982	
103.287		4/1/2014	74.44		4/1/2014	14.335		4/1/2014	19.888	
103.27		4/2/2014	73.941		4/2/2014	14.317		4/2/2014	21.315	
105.523		4/3/2014	72.98		4/3/2014	15.28		4/3/2014	19.62	
102.284		4/4/2014	71.836		4/4/2014	15.425		4/4/2014	19.522	
101.702	820	4/5/2014	71.404	604	4/5/2014	15.666	808	4/5/2014	16.121	3000
99.62		4/6/2014	70.576		4/6/2014	16.435		4/6/2014	14.962	
102.902		4/7/2014	70.818		4/7/2014	16.418		4/7/2014	15.564	
104.162		4/8/2014	77.363		4/8/2014	8.757		4/8/2014	17.359	
103.816		4/9/2014	81.262		4/9/2014	4.892		4/9/2014	21.175	
103.75		4/10/2014	79.205		4/10/2014	6.467		4/10/2014	21.522	
102.791		4/11/2014	79.544		4/11/2014	6.318		4/11/2014	21.357	
100.717		4/12/2014	78.007		4/12/2014	7.19		4/12/2014	20.64	
97.192		4/13/2014	72.698		4/13/2014	7.534		4/13/2014	20.555	
100.618		4/14/2014	78.053		4/14/2014	7.635		4/14/2014	21.965	
101.48		4/15/2014	80.397		4/15/2014	7.976		4/15/2014	22.3	
103.978		4/16/2014	80.704		4/16/2014	8.798		4/16/2014	22.035	
101.444		4/17/2014	79.409		4/17/2014	9.116		4/17/2014	22.057	
99.892		4/18/2014	78.029		4/18/2014	9.849		4/18/2014	21.532	
99.326		4/19/2014	77.84		4/19/2014	9.802		4/19/2014	20.333	
96.415		4/20/2014	72.175		4/20/2014	11.356		4/20/2014	19.999	
99.59		4/21/2014	74.32		4/21/2014	12.111		4/21/2014	21.052	
101.907		4/22/2014	75.79		4/22/2014	13.37		4/22/2014	20.932	
101.225		4/23/2014	74.559		4/23/2014	14.043		4/23/2014	21.026	
101.544		4/24/2014	73.292		4/24/2014	15.212		4/24/2014	21.035	
100.718		4/25/2014	72.163		4/25/2014	16.303		4/25/2014	21.052	
98.475		4/26/2014	70.848		4/26/2014	16.551		4/26/2014	20.662	
98.606		4/27/2014	68.353		4/27/2014	16.657		4/27/2014	20.546	
107.235		4/28/2014	72.388		4/28/2014	17.757		4/28/2014	21.363	
110.382		4/29/2014	75.14		4/29/2014	18.471		4/29/2014	21	
111.783		4/30/2014	76.227		4/30/2014	17.964		4/30/2014	20.869	
110.79		5/1/2014	77.07		5/1/2014	16.898		5/1/2014	21.088	
104.73		5/2/2014	75.039		5/2/2014	16.681		5/2/2014	21.137	
102.616		5/3/2014	74.319		5/3/2014	16.033		5/3/2014	20.716	
99.606		5/4/2014	70.73		5/4/2014	15.596		5/4/2014	20.551	
102.324	772	5/5/2014	74.342	700	5/5/2014	14.999	972	5/5/2014	20.941	3010
103.714		5/6/2014	78.358		5/6/2014	14.184		5/6/2014	20.815	
101.119		5/7/2014	77.274		5/7/2014	13.989		5/7/2014	20.804	
97.954		5/8/2014	80.583		5/8/2014	9.2		5/8/2014	20.906	
100		5/9/2014	82.412		5/9/2014	6.603		5/9/2014	21.292	
99		5/10/2014	78.919		5/10/2014	6.503		5/10/2014	20.844	
91.748		5/11/2014	73.451		5/11/2014	6.044		5/11/2014	20.345	
96.264		5/12/2014	78.761		5/12/2014	5.619		5/12/2014	21.251	
98.833		5/13/2014	83.253		5/13/2014	5.365		5/13/2014	21.018	
104.278		5/14/2014	85.95		5/14/2014	5.281		5/14/2014	21.088	
100.001		5/15/2014	84.345		5/15/2014	4.932		5/15/2014	21.104	
99.329		5/16/2014	83.955		5/16/2014	5.464		5/16/2014	21.626	
98.443		5/17/2014	84.033		5/17/2014	5.032		5/17/2014	21.212	
93.727		5/18/2014	84		5/18/2014	5.812		5/18/2014	20.843	
97.51		5/19/2014	86		5/19/2014	6.227		5/19/2014	21.633	
97.504		5/20/2014	85		5/20/2014	7.582		5/20/2014	21.385	
97.011		5/21/2014	89		5/21/2014	8.278		5/21/2014	21.563	
94.999		5/22/2014	88		5/22/2014	6.973		5/22/2014	21.021	
97.064		5/23/2014	85		5/23/2014	8.999		5/23/2014	21.31	
93.49		5/24/2014	76		5/24/2014	10.803		5/24/2014	19.991	
88.207		5/25/2014	72		5/25/2014	10.854		5/25/2014	19.697	
92.404		5/26/2014	77		5/26/2014	11.178		5/26/2014	21.123	
97.594		5/27/2014	81		5/27/2014	11.779		5/27/2014	21.581	
97.051		5/28/2014	79		5/28/2014	12.298		5/28/2014	21.983	
93.146		5/29/2014	84		5/29/2014	12.497		5/29/2014	21.629	
84.88		5/30/2014	80		5/30/2014	12.431		5/30/2014	20.924	
81.066		5/31/2014	82		5/31/2014	13.74		5/31/2014	21.366	
85		6/1/2014	78		6/1/2014	14.034		6/1/2014	21.046	
88		6/2/2014	77		6/2/2014	14.36		6/2/2014	21.664	
89		6/3/2014	79		6/3/2014	13.293		6/3/2014	21.65	
89		6/4/2014	75		6/4/2014	16.549		6/4/2014	21.635	
80.921	808	6/5/2014	61.43	652	6/5/2014	23.711	932	6/5/2014	21.729	3030
81.862		6/6/2014	62.442		6/6/2014	23.903		6/6/2014	21.807	
78.378		6/7/2014	60.763		6/7/2014	24.588		6/7/2014	21.091	
75.228		6/8/2014	56.068		6/8/2014	25.78		6/8/2014	21.189	
83.832		6/9/2014	59.518		6/9/2014	26.407		6/9/2014	21.747	
83.533		6/10/2014	60.331		6/10/2014	26.135		6/10/2014	21.623	
83.036		6/11/2014	60.693		6/11/2014	26.191		6/11/2014	21.499	
96.372		6/12/2014	74.695		6/12/2014	10.687		6/12/2014	21.208	
97.587		6/13/2014	84.468		6/13/2014	3.483		6/13/2014	21.672	
94.942		6/14/2014	82.946		6/14/2014	3.391		6/14/2014	21.233	
92.198		6/15/2014	78.858		6/15/2014	3.328		6/15/2014	20.751	
94.815		6/16/2014	81.701		6/16/2014	3.431		6/16/2014	21.59	
96.985		6/17/2014	85.561		6/17/2014	3.297		6/17/2014	21.694	
96.883		6/18/2014	85.936		6/18/2014	3.46		6/18/2014	21.591	
96.458		6/19/2014	84.119		6/19/2014	3.474		6/19/2014	21.923	
97.351		6/20/2014	84.158		6/20/2014	3.511		6/20/2014	21.832	
95.299		6/21/2014	82.608		6/21/2014	3.463		6/21/2014	21.091	
91.485		6/22/2014	77.284		6/22/2014	3.472		6/22/2014	20.763	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
94.821		6/23/2014	79.255		6/23/2014	3.551		6/23/2014	21.715	
96.68		6/24/2014	81.427		6/24/2014	3.437		6/24/2014	21.448	
97.745		6/25/2014	81.711		6/25/2014	3.575		6/25/2014	21.645	
100.35		6/26/2014	83.095		6/26/2014	3.602		6/26/2014	21.524	
98.11		6/27/2014	78.279		6/27/2014	8.303		6/27/2014	22.029	
95.423		6/28/2014	76.834		6/28/2014	8.392		6/28/2014	21.356	
92.563		6/29/2014	72.075		6/29/2014	8.421		6/29/2014	21.018	
96.781		6/30/2014	74.947		6/30/2014	9.382		6/30/2014	21.812	
96.182		7/1/2014	80.191		7/1/2014	5.478		7/1/2014	21.678	
96.752	820	7/2/2014	82.625	904	7/2/2014	3.333	900	7/2/2014	22.124	4100
97.028		7/3/2014	86.076		7/3/2014	3.512		7/3/2014	22.103	
94.257		7/4/2014	79.87		7/4/2014	7.229		7/4/2014	21.374	
88.102		7/5/2014	71.022		7/5/2014	9.9		7/5/2014	21.316	
90.459		7/6/2014	71.116		7/6/2014	12.339		7/6/2014	21.187	
96.999		7/7/2014	74.87		7/7/2014	14.329		7/7/2014	22.043	
98.314		7/8/2014	74.271		7/8/2014	15.562		7/8/2014	22.025	
97.322		7/9/2014	72.827		7/9/2014	16.637		7/9/2014	21.783	
97.512		7/10/2014	71.146		7/10/2014	17.476		7/10/2014	22.539	
97.505		7/11/2014	71.083		7/11/2014	18.046		7/11/2014	21.897	
95.213		7/12/2014	68.554		7/12/2014	18.221		7/12/2014	21.389	
91.829		7/13/2014	64.239		7/13/2014	18.408		7/13/2014	21.034	
95.666		7/14/2014	67.242		7/14/2014	18.941		7/14/2014	21.757	
97.553		7/15/2014	69.449		7/15/2014	19.068		7/15/2014	21.693	
96.217		7/16/2014	66.455		7/16/2014	19.4		7/16/2014	21.729	
97.766		7/17/2014	68.069		7/17/2014	19.469		7/17/2014	21.522	
98.647		7/18/2014	69.303		7/18/2014	20.759		7/18/2014	21.633	
94.211		7/19/2014	64.723		7/19/2014	21.777		7/19/2014	21.041	
90.523		7/20/2014	59.923		7/20/2014	22.662		7/20/2014	20.796	
95.284		7/21/2014	63.598		7/21/2014	23.094		7/21/2014	21.622	
96.155		7/22/2014	64.585		7/22/2014	23.362		7/22/2014	21.907	
95.355		7/23/2014	64.385		7/23/2014	23.349		7/23/2014	21.553	
96.203		7/24/2014	64.447		7/24/2014	23.484		7/24/2014	21.628	
96.423		7/25/2014	64.691		7/25/2014	23.623		7/25/2014	21.662	
NR		7/26/2014	NR		7/26/2014	NR		7/26/2014	NR	
90.178		7/27/2014	59.064		7/27/2014	23.807		7/27/2014	21.056	
94.212		7/28/2014	63.044		7/28/2014	23.663		7/28/2014	21.884	
96.03		7/29/2014	65.222		7/29/2014	23.681		7/29/2014	21.799	
96.195		7/30/2014	65.497		7/30/2014	23.716		7/30/2014	21.985	
96.553		7/31/2014	65.507		7/31/2014	23.897		7/31/2014	21.845	
97.311	760	8/1/2014	67.497	828	8/1/2014	23.572	880	8/1/2014	21.907	3200
94.594		8/2/2014	65.278		8/2/2014	23.526		8/2/2014	21.248	
92.581		8/3/2014	62.413		8/3/2014	23.415		8/3/2014	20.995	
96.468		8/4/2014	64.723		8/4/2014	23.575		8/4/2014	22.281	
97.47		8/5/2014	65.374		8/5/2014	23.617		8/5/2014	21.755	
96.785		8/6/2014	64.918		8/6/2014	23.493		8/6/2014	21.652	
97.883		8/7/2014	65.528		8/7/2014	23.532		8/7/2014	21.598	
97.272		8/8/2014	79.611		8/8/2014	9.439		8/8/2014	21.605	
94.701		8/9/2014	83.762		8/9/2014	3.099		8/9/2014	21.176	
91.507		8/10/2014	79.907		8/10/2014	3.096		8/10/2014	20.898	
96.199		8/11/2014	84.661		8/11/2014	3.212		8/11/2014	21.765	
97.095		8/12/2014	85.846		8/12/2014	3.117		8/12/2014	21.987	
99.909		8/13/2014	85.816		8/13/2014	3.13		8/13/2014	21.669	
96.037		8/14/2014	84.066		8/14/2014	3.415		8/14/2014	21.718	
95.792		8/15/2014	83.94		8/15/2014	3.341		8/15/2014	21.888	
93.046		8/16/2014	82.998		8/16/2014	3.295		8/16/2014	21.232	
91.247		8/17/2014	81.212		8/17/2014	3.256		8/17/2014	21.105	
95.634		8/18/2014	82.981		8/18/2014	3.26		8/18/2014	21.974	
96.93		8/19/2014	84.305		8/19/2014	3.367		8/19/2014	21.607	
96.379		8/20/2014	83.56		8/20/2014	3.448		8/20/2014	21.692	
96.252		8/21/2014	83.711		8/21/2014	3.375		8/21/2014	21.837	
97.172		8/22/2014	83.807		8/22/2014	3.376		8/22/2014	21.591	
94.873		8/23/2014	82.919		8/23/2014	3.33		8/23/2014	21.154	
92.651		8/24/2014	79.381		8/24/2014	3.603		8/24/2014	20.852	
94.862		8/25/2014	81.703		8/25/2014	3.354		8/25/2014	21.497	
94.419		8/26/2014	82.361		8/26/2014	3.401		8/26/2014	21.168	
95.702		8/27/2014	82.875		8/27/2014	3.316		8/27/2014	21.136	
94.182		8/28/2014	82.884		8/28/2014	1.351		8/28/2014	21.192	
95.161		8/29/2014	84.364		8/29/2014	1.016		8/29/2014	21.428	
93.265		8/30/2014	83.417		8/30/2014	1.024		8/30/2014	20.916	
88.81		8/31/2014	77.361		8/31/2014	1.018		8/31/2014	20.49	
91.974		9/1/2014	81.903		9/1/2014	1.003		9/1/2014	21.387	
95.9		9/2/2014	85.209		9/2/2014	1.011		9/2/2014	21.777	
95.616	708	9/3/2014	87.103	660	9/3/2014	1.025	932	9/3/2014	21.328	3340
94.749		9/4/2014	88.682		9/4/2014	1.002		9/4/2014	21.309	
95.26		9/5/2014	88.316		9/5/2014	1.076		9/5/2014	21.319	
94.92		9/6/2014	89.037		9/6/2014	1.117		9/6/2014	21.008	
92.329		9/7/2014	86.584		9/7/2014	1.044		9/7/2014	20.809	
95.389		9/8/2014	87.303		9/8/2014	1.098		9/8/2014	21.648	
94.221		9/9/2014	88.215		9/9/2014	1.106		9/9/2014	21.292	
95.608		9/10/2014	88.748		9/10/2014	1.035		9/10/2014	21.316	
96.936		9/11/2014	90.282		9/11/2014	1.015		9/11/2014	21.608	
95.366		9/12/2014	90.938		9/12/2014	1.17		9/12/2014	21.977	
94.948		9/13/2014	91.872		9/13/2014	1.151		9/13/2014	21.684	
91.619		9/14/2014	89.745		9/14/2014	1.134		9/14/2014	21.506	
95.993		9/15/2014	91.976		9/15/2014	1.172		9/15/2014	21.06	
96.415		9/16/2014	92.547		9/16/2014	1.189		9/16/2014	19.106	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
95.819		9/17/2014	91.043		9/17/2014	1.79		9/17/2014	19.437	
96.414		9/18/2014	90.179		9/18/2014	2.902		9/18/2014	19.515	
94.817		9/19/2014	88.19		9/19/2014	4.026		9/19/2014	22.681	
92.635		9/20/2014	86.95		9/20/2014	4.606		9/20/2014	25.715	
90.679		9/21/2014	84.884		9/21/2014	4.795		9/21/2014	25.649	
94.157		9/22/2014	85.367		9/22/2014	6.074		9/22/2014	26.365	
94.41		9/23/2014	89.111		9/23/2014	2.645		9/23/2014	23.614	
93.892		9/24/2014	89.749		9/24/2014	1.092		9/24/2014	21.237	
95.846		9/25/2014	89.946		9/25/2014	1.069		9/25/2014	21.345	
95.994		9/26/2014	89.4		9/26/2014	1.096		9/26/2014	21.273	
92.903		9/27/2014	87.882		9/27/2014	1.084		9/27/2014	20.706	
90.589		9/28/2014	85.108		9/28/2014	1.084		9/28/2014	20.561	
93.67		9/29/2014	86.636		9/29/2014	1.144		9/29/2014	21.309	
94.714		9/30/2014	88.031		9/30/2014	1.07		9/30/2014	21.336	
93.835		10/1/2014	88.075		10/1/2014	1.023		10/1/2014	21.365	
93.498		10/2/2014	88.214		10/2/2014	1.052		10/2/2014	21.105	
93.7		10/3/2014	88.135		10/3/2014	1.154		10/3/2014	21.151	
92.224		10/4/2014	86.627		10/4/2014	1.17		10/4/2014	20.576	
90.781	836	10/5/2014	84.629	692	10/5/2014	1.103	1080	10/5/2014	20.702	3140
93.994		10/6/2014	70.838		10/6/2014	1.221		10/6/2014	21.276	
94.658		10/7/2014	67.373		10/7/2014	3.32		10/7/2014	21.166	
94.894		10/8/2014	62.363		10/8/2014	7.97		10/8/2014	21.335	
95.145		10/9/2014	61.809		10/9/2014	8.817		10/9/2014	21.265	
95.986		10/10/2014	61.292		10/10/2014	9.347		10/10/2014	21.37	
94.65		10/11/2014	60.982		10/11/2014	6.881		10/11/2014	20.902	
92.749		10/12/2014	57.994		10/12/2014	4.249		10/12/2014	20.853	
98.975		10/13/2014	63.197		10/13/2014	2.181		10/13/2014	21.635	
102.726		10/14/2014	63.638		10/14/2014	1.541		10/14/2014	21.269	
102.375		10/15/2014	62.413		10/15/2014	1.201		10/15/2014	21.025	
101.818		10/16/2014	62.366		10/16/2014	1.144		10/16/2014	21.146	
97.499		10/17/2014	68.123		10/17/2014	1.214		10/17/2014	21.073	
95.602		10/18/2014	72.581		10/18/2014	1.349		10/18/2014	20.483	
92.986		10/19/2014	71.612		10/19/2014	1.253		10/19/2014	20.455	
95.776		10/20/2014	74.299		10/20/2014	1.129		10/20/2014	21.367	
96.278		10/21/2014	73.884		10/21/2014	1.117		10/21/2014	21.357	
95.169		10/22/2014	73.861		10/22/2014	1.172		10/22/2014	20.911	
94.147		10/23/2014	72.315		10/23/2014	1.072		10/23/2014	21.082	
94.011		10/24/2014	72.933		10/24/2014	1.341		10/24/2014	20.808	
93.072		10/25/2014	71.717		10/25/2014	1.19		10/25/2014	19.923	
90.727		10/26/2014	71.418		10/26/2014	1.229		10/26/2014	19.249	
92.994		10/27/2014	71.413		10/27/2014	1.317		10/27/2014	20.161	
94.364		10/28/2014	72.219		10/28/2014	1.139		10/28/2014	19.889	
93.902		10/29/2014	72.079		10/29/2014	1.086		10/29/2014	19.846	
93.887		10/30/2014	72.234		10/30/2014	1.044		10/30/2014	19.916	
95.737		10/31/2014	71.39		10/31/2014	1.129		10/31/2014	19.551	
96.533		11/1/2014	72.136		11/1/2014	1.112		11/1/2014	21.364	
91.181	828	11/2/2014	97.257	944	11/2/2014	1.188	1100	11/2/2014	18.885	3850
93.284		11/3/2014	97.149		11/3/2014	1.082		11/3/2014	19.261	
94.455		11/4/2014	96.454		11/4/2014	1.083		11/4/2014	19.956	
95.218		11/5/2014	87.565		11/5/2014	1.063		11/5/2014	21.149	
95.718		11/6/2014	87.118		11/6/2014	1.139		11/6/2014	20.945	
95.872		11/7/2014	87.898		11/7/2014	1.084		11/7/2014	21.032	
94.555		11/8/2014	88.021		11/8/2014	1.076		11/8/2014	20.47	
92.677		11/9/2014	86.887		11/9/2014	1.056		11/9/2014	20.336	
94.066		11/10/2014	86.102		11/10/2014	1.101		11/10/2014	21.09	
95.179		11/11/2014	88.142		11/11/2014	1.196		11/11/2014	21.117	
95.208		11/12/2014	87.253		11/12/2014	1.08		11/12/2014	21.045	
95.91		11/13/2014	86.996		11/13/2014	1.082		11/13/2014	20.856	
96.379		11/14/2014	86.919		11/14/2014	1.103		11/14/2014	20.711	
94.548		11/15/2014	81.056		11/15/2014	6.749		11/15/2014	20.313	
92.438		11/16/2014	76.518		11/16/2014	10.454		11/16/2014	20.063	
94.355		11/17/2014	76.909		11/17/2014	9.664		11/17/2014	20.695	
96.367		11/18/2014	79.011		11/18/2014	9.179		11/18/2014	20.754	
97.679		11/19/2014	82.521		11/19/2014	5.603		11/19/2014	20.846	
96.743		11/20/2014	87.065		11/20/2014	1.13		11/20/2014	20.843	
97.151		11/21/2014	86.555		11/21/2014	1.074		11/21/2014	20.854	
95.24		11/22/2014	86.862		11/22/2014	1.317		11/22/2014	20.318	
92.013		11/23/2014	84.012		11/23/2014	1.17		11/23/2014	19.882	
94.671		11/24/2014	85.449		11/24/2014	1.078		11/24/2014	20.718	
98.97		11/25/2014	87.955		11/25/2014	1.084		11/25/2014	20.553	
97.134		11/26/2014	88.221		11/26/2014	1.092		11/26/2014	20.618	
97.129		11/27/2014	89.081		11/27/2014	1.103		11/27/2014	19.168	
84.123		11/28/2014	75.859		11/28/2014	1.08		11/28/2014	18.874	
90.634		11/29/2014	82.975		11/29/2014	1.156		11/29/2014	19.499	
93.911		11/30/2014	85.366		11/30/2014	1.097		11/30/2014	20.973	
95.849		12/1/2014	85.413		12/1/2014	1.044		12/1/2014	21.691	
109.327		12/2/2014	101.994		12/2/2014	1.131		12/2/2014	23.571	
100.295		12/3/2014	88.617		12/3/2014	1.092		12/3/2014	20.521	
98.378	872	12/4/2014	87.061	1030	12/4/2014	1.161	1050	12/4/2014	13.967	4020
97.45		12/5/2014	86.217		12/5/2014	1.311		12/5/2014	14.265	
95.282		12/6/2014	85.431		12/6/2014	2.392		12/6/2014	14.141	
92.462		12/7/2014	79.747		12/7/2014	5.043		12/7/2014	13.836	
95.052		12/8/2014	76.286		12/8/2014	8.741		12/8/2014	14.783	
96.33		12/9/2014	73.782		12/9/2014	12.149		12/9/2014	14.669	
95.433		12/10/2014	71.133		12/10/2014	14.506		12/10/2014	14.595	
96.561		12/11/2014	66.565		12/11/2014	15.847		12/11/2014	14.166	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
117.02		12/12/2014	88.542		12/12/2014	16.059		12/12/2014	18.633	
97.594		12/13/2014	67.008		12/13/2014	16.533		12/13/2014	13.044	
94.148		12/14/2014	63.946		12/14/2014	16.883		12/14/2014	12.336	
95.993		12/15/2014	64.076		12/15/2014	17.355		12/15/2014	13.533	
97.82		12/16/2014	67.073		12/16/2014	17.401		12/16/2014	15.426	
101.059		12/17/2014	68.95		12/17/2014	17.658		12/17/2014	14.914	
100.35		12/18/2014	77.316		12/18/2014	6.12		12/18/2014	16.648	
95.508		12/19/2014	81.069		12/19/2014	1.077		12/19/2014	20.946	
93.64		12/20/2014	80.71		12/20/2014	1.095		12/20/2014	20.999	
90.812		12/21/2014	77.924		12/21/2014	1.056		12/21/2014	20.466	
93.787		12/22/2014	80.206		12/22/2014	1.063		12/22/2014	21.377	
96.298		12/23/2014	82.17		12/23/2014	1.07		12/23/2014	20.978	
97.518		12/24/2014	85.039		12/24/2014	1.075		12/24/2014	19.969	
80.994		12/25/2014	68.491		12/25/2014	1.181		12/25/2014	17.905	
86.326		12/26/2014	73.142		12/26/2014	1.1		12/26/2014	19.501	
89.475		12/27/2014	77.162		12/27/2014	1.183		12/27/2014	19.533	
88.587		12/28/2014	73.516		12/28/2014	3.183		12/28/2014	19.116	
92.014		12/29/2014	77.384		12/29/2014	2.912		12/29/2014	20.782	
94.13		12/30/2014	78.95		12/30/2014	3.236		12/30/2014	21.232	
99.987		12/31/2014	79.663		12/31/2014	8.073		12/31/2014	21.307	
84.968		1/1/2015	58.437		1/1/2015	12.061		1/1/2015	19.272	
90.482		1/2/2015	62.452		1/2/2015	13.496		1/2/2015	20.923	
92.001		1/3/2015	62.67		1/3/2015	15.209		1/3/2015	20.637	
91.24		1/4/2015	60.941		1/4/2015	16.165		1/4/2015	20.498	
93.912	780	1/5/2015	64.264	800	1/5/2015	16.537	1000	1/5/2015	21.134	3750
95.247		1/6/2015	63.185		1/6/2015	17.728		1/6/2015	20.981	
95.699		1/7/2015	60.436		1/7/2015	18.839		1/7/2015	21.048	
95.685		1/8/2015	59.535		1/8/2015	19.064		1/8/2015	21.293	
95.552		1/9/2015	61.227		1/9/2015	18.637		1/9/2015	21.047	
94.595		1/10/2015	61.761		1/10/2015	19.379		1/10/2015	23.415	
101.742		1/11/2015	68.551		1/11/2015	20.132		1/11/2015	25.101	
97.08		1/12/2015	60.552		1/12/2015	20.994		1/12/2015	21.551	
97.663		1/13/2015	60.069		1/13/2015	21.622		1/13/2015	21.418	
98.964		1/14/2015	74.869		1/14/2015	7.434		1/14/2015	21.546	
96.689		1/15/2015	80.302		1/15/2015	1.025		1/15/2015	21.609	
96.51		1/16/2015	79.725		1/16/2015	1.067		1/16/2015	21.484	
94.961		1/17/2015	80.248		1/17/2015	1.038		1/17/2015	21.152	
91.348		1/18/2015	76.929		1/18/2015	1.118		1/18/2015	20.685	
95.431		1/19/2015	80.463		1/19/2015	1.036		1/19/2015	22.006	
96.343		1/20/2015	80.199		1/20/2015	1		1/20/2015	21.883	
97		1/21/2015	80.05		1/21/2015	1.068		1/21/2015	22.005	
96.595		1/22/2015	79.803		1/22/2015	1.023		1/22/2015	21.31	
96.093		1/23/2015	79.212		1/23/2015	1.011		1/23/2015	20.334	
95.338		1/24/2015	79.982		1/24/2015	1.022		1/24/2015	18.528	
92.705		1/25/2015	77.878		1/25/2015	1.02		1/25/2015	18.776	
94.895		1/26/2015	78.04		1/26/2015	1		1/26/2015	20.087	
96.412		1/27/2015	79.383		1/27/2015	1.05		1/27/2015	19.695	
96.592		1/28/2015	76.823		1/28/2015	3.804		1/28/2015	18.511	
95.968		1/29/2015	71.481		1/29/2015	8.492		1/29/2015	18.471	
97.01		1/30/2015	72.289		1/30/2015	7.761		1/30/2015	19.6	
95.733		1/31/2015	75.15		1/31/2015	6.233		1/31/2015	19.361	
93.641		2/1/2015	72.614		2/1/2015	6.96		2/1/2015	18.665	
94.183		2/2/2015	68.772		2/2/2015	9.426		2/2/2015	19.113	
97.15		2/3/2015	70.282		2/3/2015	10.328		2/3/2015	19.07	
95.508		2/4/2015	69.131		2/4/2015	11.481		2/4/2015	19.053	
96.855		2/5/2015	68.546		2/5/2015	12.477		2/5/2015	19.201	
96.904	1030	2/6/2015	67.992	620	2/6/2015	12.806	980	2/6/2015	19.233	3380
93.827		2/7/2015	67.004		2/7/2015	12.681		2/7/2015	18.866	
94		2/8/2015	66.726		2/8/2015	13.637		2/8/2015	18.714	
95.824		2/9/2015	66.638		2/9/2015	13.32		2/9/2015	19.292	
96.952		2/10/2015	67.72		2/10/2015	13.421		2/10/2015	19.029	
96.969		2/11/2015	75.183		2/11/2015	5.967		2/11/2015	19.477	
95.814		2/12/2015	79.119		2/12/2015	1.097		2/12/2015	20.633	
96.421		2/13/2015	79.425		2/13/2015	1.129		2/13/2015	20.835	
94.614		2/14/2015	79.434		2/14/2015	1.153		2/14/2015	20.556	
90.634		2/15/2015	74.477		2/15/2015	1.232		2/15/2015	20.104	
94.953		2/16/2015	80.012		2/16/2015	1.143		2/16/2015	21.2	
96.632		2/17/2015	77.596		2/17/2015	3.073		2/17/2015	20.942	
96.129		2/18/2015	75.798		2/18/2015	3.809		2/18/2015	20.867	
95.522		2/19/2015	75.912		2/19/2015	3.164		2/19/2015	20.611	
95.439		2/20/2015	76.701		2/20/2015	3.051		2/20/2015	21.023	
93.868		2/21/2015	74.697		2/21/2015	4.403		2/21/2015	20.512	
92.15		2/22/2015	73.344		2/22/2015	5.894		2/22/2015	21.689	
97.364		2/23/2015	74.814		2/23/2015	7.384		2/23/2015	21.424	
95.776		2/24/2015	71.014		2/24/2015	8.881		2/24/2015	20.088	
95.867		2/25/2015	70.638		2/25/2015	9.064		2/25/2015	20.427	
95.271		2/26/2015	68.501		2/26/2015	11.208		2/26/2015	20.965	
94.394		2/27/2015	69.608		2/27/2015	11.097		2/27/2015	20.478	
94.295		2/28/2015	70.47		2/28/2015	11.164		2/28/2015	19.856	
93.982	752	3/1/2015	69.354	700	3/1/2015	11.677	896	3/1/2015	22.759	
100.549		3/2/2015	76.984		3/2/2015	12.003		3/2/2015	19.523	
96.378		3/3/2015	69.423		3/3/2015	11.981		3/3/2015	16.866	
95.798		3/4/2015	69.631		3/4/2015	11.681		3/4/2015	17.29	
95.231		3/5/2015	69.184		3/5/2015	12.094		3/5/2015	17.636	
95.037		3/6/2015	69.506		3/6/2015	11.843		3/6/2015	17.323	
93.388		3/7/2015	69.286		3/7/2015	12.655		3/7/2015	16.938	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
91.567		3/8/2015	66.169		3/8/2015	13.351		3/8/2015	16.628	
94.797		3/9/2015	67.083		3/9/2015	13.717		3/9/2015	17.337	
96.615		3/10/2015	74.659		3/10/2015	7.276		3/10/2015	18.069	
96.766		3/11/2015	78.664		3/11/2015	2.108		3/11/2015	20.844	
96.679		3/12/2015	79.051		3/12/2015	1.685		3/12/2015	20.927	
97.007		3/13/2015	79.661		3/13/2015	1.63		3/13/2015	20.964	
95.769		3/14/2015	79.082		3/14/2015	2.085		3/14/2015	20.57	
93.543		3/15/2015	77.442		3/15/2015	1.897		3/15/2015	20.51	
96.143		3/16/2015	78.44		3/16/2015	1.85		3/16/2015	21.057	
96.551		3/17/2015	79.066		3/17/2015	1.896		3/17/2015	20.953	
97.529		3/18/2015	78.926		3/18/2015	1.958		3/18/2015	20.967	
101.152		3/19/2015	80.534		3/19/2015	1.781		3/19/2015	21.079	
98.165		3/20/2015	79.609		3/20/2015	1.751		3/20/2015	21.296	
96.125		3/21/2015	79.294		3/21/2015	1.97		3/21/2015	20.578	
93.422		3/22/2015	76.571		3/22/2015	2.038		3/22/2015	20.279	
97.296		3/23/2015	78.644		3/23/2015	2.056		3/23/2015	20.957	
97.67		3/24/2015	79.078		3/24/2015	1.914		3/24/2015	20.738	
98.248		3/25/2015	78.03		3/25/2015	1.76		3/25/2015	20.732	
97.141		3/26/2015	78.491		3/26/2015	1.825		3/26/2015	20.634	
96.996		3/27/2015	79.249		3/27/2015	1.817		3/27/2015	20.679	
95.454		3/28/2015	78.639		3/28/2015	1.934		3/28/2015	20.382	
92.451		3/29/2015	74.68		3/29/2015	1.987		3/29/2015	19.992	
95.504		3/30/2015	77.103		3/30/2015	2.009		3/30/2015	20.584	
96.814		3/31/2015	78.826		3/31/2015	1.928		3/31/2015	20.56	
97.376	707	4/1/2015	76.389	760	4/1/2015	3.591	1050	4/1/2015	19.859	3080
99.996		4/2/2015	80.167		4/2/2015	1		4/2/2015	18.947	
95.49		4/3/2015	78.297		4/3/2015	1		4/3/2015	19.027	
93.71		4/4/2015	77.7		4/4/2015	1		4/4/2015	18.509	
92.504		4/5/2015	74.636		4/5/2015	1		4/5/2015	17.716	
94.841		4/6/2015	77.128		4/6/2015	1		4/6/2015	18.902	
96.468		4/7/2015	79.466		4/7/2015	1		4/7/2015	20.053	
95.017		4/8/2015	77.476		4/8/2015	1.945		4/8/2015	19.632	
96.926		4/9/2015	77.97		4/9/2015	2.393		4/9/2015	20.126	
95.352		4/10/2015	77.005		4/10/2015	2.255		4/10/2015	20.191	
93.002		4/11/2015	75.729		4/11/2015	2.36		4/11/2015	19.706	
91.06		4/12/2015	74.661		4/12/2015	2.059		4/12/2015	19.607	
95.96		4/13/2015	76.18		4/13/2015	2.425		4/13/2015	19.874	
96.861		4/14/2015	77.228		4/14/2015	2.181		4/14/2015	20.046	
96.212		4/15/2015	76.58		4/15/2015	1.958		4/15/2015	19.969	
99.532		4/16/2015	77.937		4/16/2015	2.059		4/16/2015	20.143	
96.007		4/17/2015	76.299		4/17/2015	2.209		4/17/2015	19.99	
94.233		4/18/2015	75.799		4/18/2015	2.361		4/18/2015	19.657	
91.746		4/19/2015	73.113		4/19/2015	2.405		4/19/2015	19.517	
94.647		4/20/2015	75.244		4/20/2015	2.031		4/20/2015	20.064	
94.656		4/21/2015	75.689		4/21/2015	2.242		4/21/2015	20.098	
95.602		4/22/2015	74.757		4/22/2015	2.324		4/22/2015	20.039	
94.636		4/23/2015	75.109		4/23/2015	2.18		4/23/2015	20.135	
93.886		4/24/2015	75.299		4/24/2015	1.973		4/24/2015	20.04	
92.07		4/25/2015	74.817		4/25/2015	2.076		4/25/2015	19.4	
91.287		4/26/2015	73.277		4/26/2015	2.149		4/26/2015	19.429	
94.519		4/27/2015	75.437		4/27/2015	2.11		4/27/2015	20.189	
95.282		4/28/2015	76.948		4/28/2015	1.915		4/28/2015	19.829	
96.07		4/29/2015	76.839		4/29/2015	2.044		4/29/2015	19.957	
96.418		4/30/2015	76.738		4/30/2015	1.897		4/30/2015	19.955	
96.504	740	5/1/2015	79.486	688	5/1/2015	1.016	980	5/1/2015	20.012	2510
95.307		5/2/2015	80.488		5/2/2015	1		5/2/2015	19.482	
90.827		5/3/2015	76.28		5/3/2015	1		5/3/2015	19.48	
95.17		5/4/2015	78.225		5/4/2015	1		5/4/2015	20.707	
95.769		5/5/2015	78.312		5/5/2015	1		5/5/2015	20.115	
94.952		5/6/2015	70.505		5/6/2015	7.86		5/6/2015	20.171	
99.367		5/7/2015	67.346		5/7/2015	12.068		5/7/2015	20.667	
95.05		5/8/2015	67.097		5/8/2015	11.208		5/8/2015	20.867	
93.342		5/9/2015	65.726		5/9/2015	11.776		5/9/2015	19.734	
91.302		5/10/2015	62.518		5/10/2015	12.76		5/10/2015	19.206	
95.258		5/11/2015	71.466		5/11/2015	7.263		5/11/2015	19.901	
95.853		5/12/2015	78.175		5/12/2015	1		5/12/2015	19.816	
95.879		5/13/2015	76.919		5/13/2015	1		5/13/2015	20.121	
97.13		5/14/2015	77.79		5/14/2015	1		5/14/2015	21.393	
101.54		5/15/2015	78.565		5/15/2015	1		5/15/2015	20.85	
95.193		5/16/2015	76.134		5/16/2015	1		5/16/2015	19.333	
92.474		5/17/2015	75.141		5/17/2015	1		5/17/2015	18.867	
94.719		5/18/2015	78.085		5/18/2015	1		5/18/2015	20.349	
95.172		5/19/2015	78.584		5/19/2015	1		5/19/2015	20.307	
93.989		5/20/2015	79.404		5/20/2015	1		5/20/2015	20.005	
93.628		5/21/2015	79.066		5/21/2015	1		5/21/2015	20.033	
93.054		5/22/2015	78.745		5/22/2015	1		5/22/2015	19.845	
90.887		5/23/2015	77.08		5/23/2015	1		5/23/2015	19.224	
86.509		5/24/2015	71.552		5/24/2015	1		5/24/2015	18.683	
91.566		5/25/2015	76.696		5/25/2015	1		5/25/2015	19.497	
98.923		5/26/2015	80.057		5/26/2015	1		5/26/2015	20.147	
99.68		5/27/2015	80.669		5/27/2015	1		5/27/2015	20.224	
101.749		5/28/2015	81.787		5/28/2015	1		5/28/2015	19.955	
97.746		5/29/2015	79.582		5/29/2015	1		5/29/2015	19.978	
92.482		5/30/2015	77.439		5/30/2015	1		5/30/2015	19.538	
91.23		5/31/2015	75.112		5/31/2015	1		5/31/2015	19.412	
92.014		6/1/2015	75.776		6/1/2015	1		6/1/2015	20.052	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
94.61		6/2/2015	77.437		6/2/2015	1		6/2/2015	20	
93.396		6/3/2015	76.24		6/3/2015	1		6/3/2015	19.885	
94.661	700	6/4/2015	77.615	720	6/4/2015	1.06	820	6/4/2015	19.881	2950
96.439		6/5/2015	79.516		6/5/2015	1		6/5/2015	19.995	
93.587		6/6/2015	78.085		6/6/2015	1		6/6/2015	19.621	
91.834		6/7/2015	75.889		6/7/2015	1		6/7/2015	19.369	
95.726		6/8/2015	79.039		6/8/2015	1		6/8/2015	20.059	
95.606		6/9/2015	78.828		6/9/2015	1		6/9/2015	19.703	
95.588		6/10/2015	77.874		6/10/2015	2.495		6/10/2015	19.87	
94.663		6/11/2015	76.23		6/11/2015	2.727		6/11/2015	19.906	
95.94		6/12/2015	77.065		6/12/2015	2.467		6/12/2015	20.023	
93.381		6/13/2015	76.033		6/13/2015	2.43		6/13/2015	19.572	
91.32		6/14/2015	72.988		6/14/2015	2.322		6/14/2015	19.301	
95.035		6/15/2015	75.608		6/15/2015	2.529		6/15/2015	19.797	
95.858		6/16/2015	77.585		6/16/2015	2.714		6/16/2015	19.85	
95.749		6/17/2015	77.442		6/17/2015	2.449		6/17/2015	19.822	
95.639		6/18/2015	76.772		6/18/2015	2.636		6/18/2015	19.839	
98.178		6/19/2015	78.281		6/19/2015	2.416		6/19/2015	19.926	
93.167		6/20/2015	76.001		6/20/2015	2.62		6/20/2015	19.593	
90.322		6/21/2015	72.119		6/21/2015	2.338		6/21/2015	19.226	
94.23		6/22/2015	74.402		6/22/2015	2.296		6/22/2015	19.858	
96.277		6/23/2015	75.854		6/23/2015	2.39		6/23/2015	19.828	
96.458		6/24/2015	77.432		6/24/2015	2.281		6/24/2015	19.887	
95.286		6/25/2015	77.53		6/25/2015	2.418		6/25/2015	19.986	
95.523		6/26/2015	78.277		6/26/2015	2.66		6/26/2015	19.628	
93.07		6/27/2015	77.274		6/27/2015	2.597		6/27/2015	19.387	
90.093		6/28/2015	74.174		6/28/2015	2.85		6/28/2015	19.173	
93.977		6/29/2015	78.238		6/29/2015	2.367		6/29/2015	20.046	
95.097		6/30/2015	78.61		6/30/2015	2.653		6/30/2015	19.943	
94.903		7/1/2015	78.167		7/1/2015	2.807		7/1/2015	19.756	
95.211		7/2/2015	77.811		7/2/2015	2.793		7/2/2015	19.73	
94.065		7/3/2015	77.71		7/3/2015	2.559		7/3/2015	19.607	
90.031		7/4/2015	73.61		7/4/2015	2.323		7/4/2015	19.266	
86.237		7/5/2015	68.584		7/5/2015	2.31		7/5/2015	18.252	
92.571	708	7/6/2015	74.661	760	7/6/2015	2.095	1010	7/6/2015	19.12	3960
93.855		7/7/2015	72.033		7/7/2015	5.62		7/7/2015	18.824	
94.245		7/8/2015	67.123		7/8/2015	10.2		7/8/2015	18.627	
95.852		7/9/2015	71.893		7/9/2015	6.787		7/9/2015	20.451	
93.865		7/10/2015	75.759		7/10/2015	2.707		7/10/2015	20.872	
91.802		7/11/2015	73.947		7/11/2015	2.861		7/11/2015	15.206	
89.406		7/12/2015	71.182		7/12/2015	2.749		7/12/2015	11.702	
92.929		7/13/2015	75.668		7/13/2015	2.834		7/13/2015	10.052	
94.284		7/14/2015	72.951		7/14/2015	6.011		7/14/2015	10.158	
94.37		7/15/2015	68.074		7/15/2015	10.648		7/15/2015	8.843	
95.18		7/16/2015	80		7/16/2015	10.701		7/16/2015	8.655	
95.485		7/17/2015	78		7/17/2015	11.194		7/17/2015	8.886	
94.347		7/18/2015	79		7/18/2015	11.061		7/18/2015	16.755	
92.519		7/19/2015	72		7/19/2015	12.185		7/19/2015	19.736	
96.58		7/20/2015	78		7/20/2015	12.249		7/20/2015	19.705	
97.832		7/21/2015	74		7/21/2015	12.252		7/21/2015	19.934	
96.518		7/22/2015	71		7/22/2015	13.336		7/22/2015	20.358	
95.676		7/23/2015	71		7/23/2015	13.31		7/23/2015	20.333	
96.618		7/24/2015	71		7/24/2015	13.163		7/24/2015	20.278	
94.363		7/25/2015	69		7/25/2015	13.21		7/25/2015	19.701	
91.103		7/26/2015	68		7/26/2015	13.967		7/26/2015	19.419	
94.545		7/27/2015	68		7/27/2015	14.14		7/27/2015	20.15	
95.681		7/28/2015	71		7/28/2015	13.933		7/28/2015	20.089	
95.319		7/29/2015	71		7/29/2015	14.151		7/29/2015	20.064	
95.506		7/30/2015	73		7/30/2015	14.209		7/30/2015	20.184	
95.976		7/31/2015	74		7/31/2015	13.922		7/31/2015	20.413	
94.047	804	8/1/2015	70.458	824	8/1/2015	10.031	1230	8/1/2015	19.91	1100
91.594		8/2/2015	76.377		8/2/2015	1.025		8/2/2015	19.606	
95.203		8/3/2015	79.521		8/3/2015	1.065		8/3/2015	20.141	
96.398		8/4/2015	80.707		8/4/2015	1.372		8/4/2015	19.85	
94.817		8/5/2015	80.674		8/5/2015	1.159		8/5/2015	19.584	
96.287		8/6/2015	80.067		8/6/2015	1.224		8/6/2015	19.867	
95.711		8/7/2015	79.386		8/7/2015	1.133		8/7/2015	20.071	
93.028		8/8/2015	77.599		8/8/2015	1.308		8/8/2015	19.344	
90.365		8/9/2015	74.466		8/9/2015	1		8/9/2015	19.13	
93.716		8/10/2015	76.966		8/10/2015	1		8/10/2015	19.563	
95.196		8/11/2015	78.654		8/11/2015	1.004		8/11/2015	19.637	
96.136		8/12/2015	79.639		8/12/2015	1		8/12/2015	19.703	
95.386		8/13/2015	79.332		8/13/2015	1		8/13/2015	20.011	
96.156		8/14/2015	79.871		8/14/2015	1		8/14/2015	20.265	
94.282		8/15/2015	79.026		8/15/2015	1		8/15/2015	19.473	
91.52		8/16/2015	75.809		8/16/2015	1		8/16/2015	19.29	
96.2		8/17/2015	80		8/17/2015	1		8/17/2015	19.933	
97.88		8/18/2015	81.285		8/18/2015	1		8/18/2015	19.987	
97.534		8/19/2015	80.53		8/19/2015	1		8/19/2015	19.992	
96.886		8/20/2015	80.09		8/20/2015	1		8/20/2015	19.879	
91.705		8/21/2015	75.698		8/21/2015	0.958		8/21/2015	19.226	
96.262		8/22/2015	74.669		8/22/2015	1		8/22/2015	19.471	
92.978		8/23/2015	78.377		8/23/2015	1.004		8/23/2015	19.427	
96.398		8/24/2015	79.182		8/24/2015	1.588		8/24/2015	20.151	
97.255		8/25/2015	74.954		8/25/2015	6.827		8/25/2015	20.156	
97.508		8/26/2015	69.336		8/26/2015	12.385		8/26/2015	20.266	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
96.151		8/27/2015	76.318		8/27/2015	4.747		8/27/2015	20.332	
96.903	940	8/28/2015	80.632	908	8/28/2015	1.006	1040	8/28/2015	20.276	4020
95.434	880	8/29/2015	80.252	912	8/29/2015	1	1180	8/29/2015	19.975	4050
93.481	720	8/30/2015	77.706	736	8/30/2015	1	1000	8/30/2015	19.732	3600
95.526	732	8/31/2015	78.363	780	8/31/2015	1.003	852	8/31/2015	20.135	3570
95.003	560	9/1/2015	73.885	520	9/1/2015	5.555	680	9/1/2015	19.231	3560
93.794	904	9/2/2015	76.192	948	9/2/2015	3.272	1180	9/2/2015	15.064	3720
90.442	920	9/3/2015	87	976	9/3/2015	1.169	1160	9/3/2015	16.086	4160
89.991		9/4/2015	81		9/4/2015	3.266		9/4/2015	19.596	
87.472		9/5/2015	87		9/5/2015	8.52		9/5/2015	19.049	
82.989		9/6/2015	78		9/6/2015	11.361		9/6/2015	18.877	
86.225		9/7/2015	75		9/7/2015	12.684		9/7/2015	19.528	
90.565		9/8/2015	74		9/8/2015	13.6		9/8/2015	20.061	
92.131		9/9/2015	73		9/9/2015	14.291		9/9/2015	19.988	
92.86		9/10/2015	75		9/10/2015	14.808		9/10/2015	20.094	
91.923		9/11/2015	73		9/11/2015	15.27		9/11/2015	20.209	
89.675		9/12/2015	73		9/12/2015	16.22		9/12/2015	19.458	
87.372		9/13/2015	71		9/13/2015	16.714		9/13/2015	19.539	
91.612		9/14/2015	74		9/14/2015	17.115		9/14/2015	20.244	
111.643		9/15/2015	92.198		9/15/2015	17.339		9/15/2015	26.73	
88.675		9/16/2015	76		9/16/2015	17.1		9/16/2015	19.819	
90.245		9/17/2015	68		9/17/2015	17.796		9/17/2015	20.601	
90.735		9/18/2015	74		9/18/2015	18.003		9/18/2015	20.751	
89.806		9/19/2015	74		9/19/2015	18.022		9/19/2015	19.889	
87.971		9/20/2015	71		9/20/2015	18.37		9/20/2015	19.731	
91.591		9/21/2015	74		9/21/2015	18.333		9/21/2015	20.499	
92.616		9/22/2015	75		9/22/2015	18.339		9/22/2015	20.236	
91.744		9/23/2015	79		9/23/2015	18.35		9/23/2015	20.357	
92.839		9/24/2015	69.999		9/24/2015	11.386		9/24/2015	20.285	
92.485		9/25/2015	81.26		9/25/2015	1		9/25/2015	20.515	
91.3		9/26/2015	80.655		9/26/2015	1		9/26/2015	19.958	
88.586		9/27/2015	78.1		9/27/2015	1		9/27/2015	19.684	
90.425		9/28/2015	79.737		9/28/2015	1		9/28/2015	20.275	
90.577		9/29/2015	80.297		9/29/2015	1		9/29/2015	20.038	
90.717		9/30/2015	85		9/30/2015	1		9/30/2015	19.924	
90.822		10/1/2015	80.686		10/1/2015	1		10/1/2015	19.785	
93.406		10/2/2015	79.42		10/2/2015	1		10/2/2015	22.685	
91.98	864	10/3/2015	81.854	900	10/3/2015	1	1030	10/3/2015	26	4540
89.033		10/4/2015	78.703		10/4/2015	1		10/4/2015	23	
92.642		10/5/2015	81.459		10/5/2015	1		10/5/2015	26	
93.13		10/6/2015	82.198		10/6/2015	1		10/6/2015	25	
93.446		10/7/2015	82.685		10/7/2015	1		10/7/2015	23	
96.223		10/8/2015	83.751		10/8/2015	1		10/8/2015	24	
91.648		10/9/2015	83.009		10/9/2015	1		10/9/2015	27	
88.106		10/10/2015	82.372		10/10/2015	1		10/10/2015	30	
80.315		10/11/2015	79.587		10/11/2015	1		10/11/2015	31.917	
84.913		10/12/2015	83.943		10/12/2015	1		10/12/2015	33.274	
81.185		10/13/2015	85.427		10/13/2015	1		10/13/2015	33.971	
80.938		10/14/2015	84.096		10/14/2015	1		10/14/2015	35.183	
87.224		10/15/2015	82.267		10/15/2015	1		10/15/2015	31	
91.055		10/16/2015	80.982		10/16/2015	1		10/16/2015	29	
91.59		10/17/2015	81.138		10/17/2015	1		10/17/2015	24	
90.016		10/18/2015	78.398		10/18/2015	1		10/18/2015	21	
93.986		10/19/2015	80.195		10/19/2015	1		10/19/2015	30	
93.785		10/20/2015	80.509		10/20/2015	1		10/20/2015	27	
94.096		10/21/2015	80.73		10/21/2015	1		10/21/2015	27	
92.084		10/22/2015	80.068		10/22/2015	1.01		10/22/2015	25	
90.448		10/23/2015	80.128		10/23/2015	1.007		10/23/2015	20.385	
88.323		10/24/2015	78.23		10/24/2015	1.01		10/24/2015	19.945	
84.982		10/25/2015	75.278		10/25/2015	1.017		10/25/2015	19.705	
88.747		10/26/2015	77.725		10/26/2015	1.007		10/26/2015	20.423	
89.888		10/27/2015	79.368		10/27/2015	1.009		10/27/2015	20.114	
92.555		10/28/2015	80.698		10/28/2015	1.006		10/28/2015	20.425	
88.532		10/29/2015	78.505		10/29/2015	1.005		10/29/2015	20.409	
88.981		10/30/2015	78.99		10/30/2015	1		10/30/2015	20.568	
87.455		10/31/2015	79.202		10/31/2015	1.007		10/31/2015	20.272	
83.639		11/1/2015	81		11/1/2015	1		11/1/2015	20.179	
87.297		11/2/2015	84		11/2/2015	1.035		11/2/2015	20.624	
88.319		11/3/2015	84		11/3/2015	1.1		11/3/2015	20.834	
88.634		11/4/2015	88		11/4/2015	1.09		11/4/2015	20.585	
88.6		11/5/2015	86		11/5/2015	2.103		11/5/2015	20.541	
89.97		11/6/2015	90		11/6/2015	1.693		11/6/2015	20.392	
88.608		11/7/2015	90		11/7/2015	1.436		11/7/2015	19.828	
86.687	736	11/8/2015	89	780	11/8/2015	1.75	1000	11/8/2015	19.803	4570
88.281		11/9/2015	83		11/9/2015	5.029		11/9/2015	20.45	
88.168		11/10/2015	77		11/10/2015	10.634		11/10/2015	20.104	
88.967		11/11/2015	76		11/11/2015	13.416		11/11/2015	20.257	
89.272		11/12/2015	73		11/12/2015	14.916		11/12/2015	20.259	
89.297		11/13/2015	72		11/13/2015	15.87		11/13/2015	20.195	
88.326		11/14/2015	73		11/14/2015	16.199		11/14/2015	19.814	
85.833		11/15/2015	72		11/15/2015	16.208		11/15/2015	19.636	
88.064		11/16/2015	70		11/16/2015	16.345		11/16/2015	20.054	
88.722		11/17/2015	70		11/17/2015	16.488		11/17/2015	19.963	
89.444		11/18/2015	69		11/18/2015	17.72		11/18/2015	19.56	
89.56		11/19/2015	67		11/19/2015	19.258		11/19/2015	19.977	
89.51		11/20/2015	66		11/20/2015	20.528		11/20/2015	20.009	

FLOW MGD	HTP:PRI: PLANT INFLUENT (NORS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (NCOS) TDS (mg/L)	Date	FLOW MGD	HTP:PRI: PLANT INFLUENT (COS) TDS (mg/L)	Date	Flow MGD	HTP:PRI: PLANT INFLUENT (CWIS) TDS (mg/L)
88.47		11/21/2015	65		11/21/2015	21.436		11/21/2015	19.464	
85.044		11/22/2015	63		11/22/2015	21.844		11/22/2015	19.252	
86.604		11/23/2015	64		11/23/2015	21.932		11/23/2015	19.986	
87.643		11/24/2015	66		11/24/2015	22.103		11/24/2015	19.775	
89.241		11/25/2015	69		11/25/2015	22.202		11/25/2015	20.766	
88.614		11/26/2015	71		11/26/2015	22.228		11/26/2015	18.625	
78.253		11/27/2015	63		11/27/2015	22.314		11/27/2015	18.474	
84.294		11/28/2015	69		11/28/2015	22.281		11/28/2015	18.768	
85.311		11/29/2015	70		11/29/2015	22.404		11/29/2015	19.183	
87.918		11/30/2015	70		11/30/2015	22.483		11/30/2015	19.979	
89.327		12/1/2015	70		12/1/2015	22.422		12/1/2015	19.879	
89.199	824	12/2/2015	68	864	12/2/2015	22.39	980	12/2/2015	19.897	4460
89.305		12/3/2015	67		12/3/2015	22.432		12/3/2015	20.132	
89.341		12/4/2015	67		12/4/2015	22.463		12/4/2015	20.23	
88.42		12/5/2015	69		12/5/2015	22.398		12/5/2015	19.787	
86.718		12/6/2015	66		12/6/2015	22.405		12/6/2015	19.627	
88.816		12/7/2015	67		12/7/2015	22.427		12/7/2015	20.339	
88.949		12/8/2015	69		12/8/2015	22.459		12/8/2015	20.463	
88.391		12/9/2015	67		12/9/2015	22.551		12/9/2015	20.457	
88.172		12/10/2015	67		12/10/2015	22.472		12/10/2015	20.268	
87.839		12/11/2015	68		12/11/2015	22.47		12/11/2015	20.692	
86.619		12/12/2015	68		12/12/2015	22.509		12/12/2015	20.569	
86.064		12/13/2015	67		12/13/2015	22.549		12/13/2015	21.285	
92.225		12/14/2015	69		12/14/2015	22.474		12/14/2015	21.321	
94.426		12/15/2015	73		12/15/2015	19.478		12/15/2015	20.502	
93.919		12/16/2015	81.282		12/16/2015	10		12/16/2015	15.703	
96.067		12/17/2015	82.536		12/17/2015	10		12/17/2015	14.965	
93.844		12/18/2015	81.354		12/18/2015	12		12/18/2015	14.802	
92.464		12/19/2015	81.702		12/19/2015	10		12/19/2015	15.444	
88.04		12/20/2015	77.146		12/20/2015	10		12/20/2015	13.912	
88.64		12/21/2015	78.329		12/21/2015	10		12/21/2015	14.737	
90.743		12/22/2015	80.502		12/22/2015	6		12/22/2015	17.608	
91.322		12/23/2015	79.908		12/23/2015	6		12/23/2015	20	
88.378		12/24/2015	80		12/24/2015	11		12/24/2015	20	
77.309		12/25/2015	65.635		12/25/2015	13		12/25/2015	20	
80.279		12/26/2015	68.893		12/26/2015	10		12/26/2015	20	
82.638		12/27/2015	71.245		12/27/2015	1		12/27/2015	18	
86.954		12/28/2015	73.835		12/28/2015	3		12/28/2015	26	
89.022		12/29/2015	76.224		12/29/2015	1		12/29/2015	21	
90.292		12/30/2015	77.517		12/30/2015	1.001		12/30/2015	19	
93.256		12/31/2015	82.591		12/31/2015	3		12/31/2015	20	

APPENDIX B – NPDES PERMITS

Appendix B

NPDES Permits

NPDES Permits - DCTWRP

FINAL DONALD C. TILLMAN WATER RECLAMATION PLANT PERMIT

ORDER NO. R4 – 2011 – 0196
NPDES PERMIT NO. CA 0056227
ADOPTED: DECEMBER 8, 2011
EFFECTIVE: FEBRUARY 3, 2012
EXPIRING: NOVEMBER 10, 2016

CITY OF LOS ANGELES

REGULATORY AFFAIRS DIVISION

FINAL DONALD C. TILLMAN WATER RECLAMATION PLANT PERMIT

ORDER NO. R4 – 2011 – 0196

NPDES PERMIT NO. CA0056227

ADOPTED: December 8, 2011

EFFECTIVE: February 3, 2012

CONTACTS:

CITY OF LOS ANGELES
REGULATORY AFFAIRS DIVISION

H.R. (OMAR) MOGHADDAM, DIVISION MANAGER, REGULATORY AFFAIRS DIVISION, (310) 648-5423

HASSAN RAD, ASSISTANT DIVISION MANAGER, WATER QUALITY AND PERMITTING SECTION, (310) 648-5240

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Final Adopted Order

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

320 West 4th Street, Suite 200, Los Angeles, California 90013
(213) 576-6660 • Fax (213) 576-6640
http://www.waterboards.ca.gov

ORDER NO. R4-2011-0196
NPDES NO. CA0056227

WASTE DISCHARGE REQUIREMENTS FOR CITY OF LOS ANGELES DONALD C. TILLMAN WATER RECLAMATION PLANT DISCHARGE TO LOS ANGELES RIVER VIA DISCHARGE OUTFALLS

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger Information

Discharger	City of Los Angeles
Name of Facility	Donald C. Tillman Water Reclamation Plant
Facility Address	6100 Woodley Avenue
	Van Nuys, CA 91406
	Los Angeles County
The United States Environmental Protection Agency and the Regional Water Quality Control Board have classified this discharge as a major discharge.	

The discharge by the City of Los Angeles from the Discharge Point of the Donald C. Tillman Water Reclamation Plant identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001 (Inactive but available)	Tertiary treated wastewater	34° 10' 20.4" N	118° 28' 52.0" W	Los Angeles River
002	Tertiary treated wastewater	34° 11' 09.0" N	118° 29' 40.0" W	Los Angeles River via Lake Balboa, Hayvenhurst Channel, and Bull Creek
003	Tertiary treated wastewater	34° 10' 39.6" N	118° 28' 24.2" W	Los Angeles River via Wildlife Lake and Haskell Channel
008	Tertiary treated wastewater	34° 09' 53.3" N	118° 28' 18.5" W	Los Angeles River

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	December 8, 2011
This Order shall become effective on:	February 3, 2012
This Order shall expire on:	November 10, 2016
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	180 days prior to the Order expiration date

I, Samuel Unger, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on December 8, 2011.

Samuel Unger

Samuel Unger, Executive Officer

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I. FACILITY INFORMATION

The following Discharger is subject to waste discharge requirements (WDRs) as set forth in this Order:

Table 4. Facility Information

Discharger	City of Los Angeles
Name of Facility	Donald C. Tillman Water Reclamation Plant
Facility Address	6100 Woodley Avenue
	Van Nuys, CA 91406
	Los Angeles County
Facility Contact, Title, and Phone	Hiddo Netto, Plant Manager, (818) 778-4121
Mailing Address	1149 S. Broadway 9th Floor, Los Angeles, CA 90015
Type of Facility	Publicly-Owned Treatment Works
Facility Design Flow	80 Million Gallons per Day

II. FINDINGS

The California Regional Water Quality Control Board, Los Angeles Region (hereinafter Regional Water Board), finds:

A. Background. The City of Los Angeles (hereinafter City or Discharger) is currently discharging pursuant to Order Nos. R4-2006-0091[1] and R4-2010-0060[2] and National Pollutant Discharge Elimination System (hereinafter NPDES) Permit No. CA0056227. The Discharger submitted a Report of Waste Discharge (ROWD), dated April 18, 2011, and applied for an NPDES permit renewal to discharge up to 80 millions gallons per day (MGD) of tertiary treated wastewater from the Donald C. Tillman Water Reclamation Plant[3] (hereinafter Tillman WRP or Facility), a Publicly-Owned Treatment Works (POTW). The additional ROWD information requested by Regional Water Board staff was received on April 26, 2011. During site visit conducted on May 2, 2011, Regional Water Board staff observed operations and collected additional data in order to develop permit limitations and conditions. The

[1] Order No. R4-2006-0091, adopted by this Regional Water Board on December 14, 2006, regulates the tertiary-treated wastewater discharged from the Tillman WRP.

[2] On January 25, 2010, the Regional Water Board entered into a settlement agreement with the City in an effort to resolve lawsuits and petitions challenging the 1998 Permit (Order No. 98-046) and 2006 Permit (Order No. R4-2006-0091). The settlement agreement required that a variety of negotiated modifications to Order No. R4-2006-0091 be brought before the Regional Water Board for its consideration. The settlement agreement did not bind the Regional Water Board's judgment in consideration of those modifications, but the modifications did reflect staff recommendations. Order No. R4-2010-0060 adopted by this Regional Water Board on April 1, 2010, modifying Order No. R4-2006-0091, was the result of the public hearing on staff's proposals pursuant to the settlement agreement.

[3] The Tillman WRP consists of two identical treatment trains, each with a dry weather average design capacity of 40 MGD, for a total 80 MGD.

Regional Water Board issued a letter to the Discharger on July 25, 2011, indicating that the application for the NPDES permit renewal and ROWD were complete.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. Facility Description. The Discharger owns and operates the Tillman WRP, located in the Sepulveda Flood Control Basin. The treatment system consists of grit removal, screening, flow equalization, primary sedimentation, nitrification and denitrification (NDN[4]) activated sludge biological treatment with fine pore aeration, secondary clarification, coagulation, aqua diamond cloth filtration, disinfection by chlorination with the addition of ammonium hydroxide, and dechlorination. No facilities are provided for solids processing at the Tillman WRP. Solids from the Tillman WRP are returned to the collection system for processing at the Hyperion Treatment Plant. Solids returned to the sewer consist of grit, primary and secondary sludge and skimmings, and filter backwash (approximately 10 MGD). Attachment B depicts schematics of the Tillman WRP wastewater flows. The dechlorinated wastewater is discharged from Discharge Points[5] 001, 002, 003, and 008 (see Table 2 of Order and Fact Sheet II.B. (Attachment F) for more information) to the Los Angeles River, a water of the United States within the Los Angeles River Watershed. Attachment C provides a map of the area.

The Tillman WRP is one of the three upstream WRPs in the Hyperion Service Area. The other two upstream WRPs are the Los Angeles-Glendale WRP and the Burbank WRP. The City maintains and operates the Hyperion Treatment System which collects, treats, and processes municipal wastewater from domestic, commercial, and industrial sources from the entire City (except the Terminal Island Service Area surrounding the Los Angeles Harbor area) and from a number of other cities and agencies under contractual agreements, including the communities of Chatsworth, Granada Hills, Mission Hills, Northridge, Pacoima, Tarzana, Van Nuys, Sylmar, Woodland Hills, Canoga Park; the City of San Fernando; the Las Virgenes Municipal Water District; Veterans Memorial Park; and the Triunfo Canyon Sanitation District. Sewage enters the Tillman WRP via both the Additional Valley Outfall Relief Sewer (AVORS) and the East Valley Interceptor Sewer (EVIS). In case of the Tillman WRP operational problems or a need for the Tillman WRP shutdown, wastewater can be

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[4] In order to achieve compliance with the ammonia water quality objectives (WQOs) specified in the *Water Quality Control Plan for the Los Angeles Region* (Basin Plan), the City began to test different NDN treatments, including Modified Ludzack-Ettinger (MLE) Process, Enhanced Modified Ludzack-Ettinger (eMLE) Process, and Step-Feed Process. The City completed construction of the NDN treatment facility in September 2007, and took 90 days to optimize operation of the NDN facilities.
For the nitrification process, there are two steps for ammonia being oxidized into nitrate.
Step 1: Ammonia → Nitrite
Step 2: Nitrite → Nitrate
For the denitrification process, nitrate is through a redox reaction and becomes nitrogen.
Nitrate → Nitrogen

[5] The Discharge Points 001, 002, and 003 are located within Los Angeles River Reach 5 Sepulveda Basin. The Discharge Point 008 is located within Los Angeles River Reach 4. All these Discharge Points are within Hydraulic Unit 405.21.

diverted back to the AVORS for treatment at the Hyperion Treatment Plant. There are approximately 4 million people living in the Hyperion Service Area with approximately 1.1 million people in the San Fernando Valley, which is served by the Tillman WRP. For Fiscal Year 2010, industrial wastewater represented approximately 15% of the total flow to the Facility.

C. Legal Authorities. This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the United States Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (CWC) section 13370. It shall serve as a NPDES permit for point source discharges from this Facility to surface waters. This Order also serves as WDRs pursuant to article 4, chapter 4, division 7 of the CWC section 13260.

D. Background and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on the application, monitoring reports, and other available information. The Fact Sheet, which contains background information and rationale for requirements in this Order, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through P are also incorporated into this Order.

E. California Environmental Quality Act (CEQA). Under CWC section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.

F. Technology-based Effluent Limitations (TBELs). Section 301(b) of the CWA and implementing USEPA permit regulations at 122.44, title 40 of the Code of Federal Regulations (CFR), require that permits include conditions meeting applicable technology-based requirements, at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR part 133 and 40 CFR part 125.3. A detailed discussion of the TBELs development is included in the Fact Sheet (Attachment F).

G. Water Quality-Based Effluent Limitations (WQBELs). Section 301(b) of the CWA and 40 CFR part 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirements, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements or other provisions, is discussed in section IV.C.2. of the Fact Sheet.

40 CFR part 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the

pollutant, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR part 122.44(d)(1)(vi).

H. Water Quality Control Plan (Basin Plan). The Regional Water Board adopted a Basin Plan on June 13, 1994, that designates beneficial uses, establishes WQOs, and contains implementation programs and policies to achieve those WQOs for all waters addressed through the Basin Plan. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Beneficial uses applicable to the receiving waters are as follows:

Table 5A. Basin Plan Beneficial Uses – Surface Waters

Discharge Points	Receiving Water Name	Beneficial Use(s)
001 002 003 008	Los Angeles River Upstream to Figueroa Street (Hydro. Unit No. 405.21)	Existing: ground water recharge (GWR); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); wildlife habitat (WILD); and wetland habitat[6] (WET). Potential: Municipal and domestic water supply[7] (MUN), and industrial service supply (IND).
	Los Angeles River Figueroa Street to Carson Street (Hydro. Unit No. 405.15)	Existing: GWR; REC-1[8]; REC-2; and WARM. Potential: MUN [8]; IND; and WILD.
	Los Angeles River Carson Street to Estuary (Hydro. Unit No. 405.12)	Existing: GWR; REC-1[8]; REC-2; WARM; marine habitat (MAR); WILD; and rare, threatened, or endangered species (RARE). Potential: MUN[7]; IND; industrial process supply (PROC); migration of aquatic organisms (MIGR); spawning, reproduction, and/or early development (SPWN); and shellfish harvesting[8]. (SHELL).
	Los Angeles River Estuary (Hydro. Unit No. 405.12)	Existing: IND; navigation (NAV); REC-1; REC-2; commercial and sport fishing (COMM); estuarine habitat (EST); MAR; WILD; RARE [9]; MIGR [10]; SPWN [10]; and WET [6]. Potential: SHELL.

6 Waterbodies designated as WET may have wetlands habit associated with only a portion of the waterbody. Any regulatory action would require a detailed analysis of the area.

7 The potential municipal and domestic supply beneficial uses for the water body is consistent with State Water Board Order No. 88-63 and Regional Water Board Resolution No. 89-003; however, the Regional Water Board has only conditionally designated the MUN beneficial use and at this time cannot legally establish effluent limitations designed to protect the conditional designation.

8 Access prohibited by Los Angeles County Department of Public Works.

9 One or more rare species utilize estuaries and coastal wetlands for foraging and/or nesting.

10 Aquatic organisms utilize estuary and coastal wetland, to a certain extent, for spawning and early development. This may include migration into areas, which are heavily influenced by freshwater inputs.

Table 5B. Basin Plan Beneficial Uses – Ground Waters

Discharge Point	Receiving Water Name	Beneficial Use(s)
001 002 003 008	San Fernando Basins (East and West of Highway 405) – DWR Basin No.[11] 4-12	Existing: MUN; IND; PROC; and, agricultural supply (AGR).
	Los Angeles Coastal Plain (Central and West Basins) – DWR Basin No.[11] 4-11	Existing: MUN; IND; PROC; and AGR.

Requirements of this Order implement the Basin Plan and subsequent amendment.

1. **Ammonia WQOs –** Table 3-1 through Table 3-4 of the 1994 Basin Plan provide WQOs for ammonia to protect aquatic life. Those ammonia WQOs were revised on April 25, 2002, by the Regional Water Board with the adoption of Resolution No. 2002-011, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Update the Ammonia Objectives for Inland Surface Waters (Including Enclosed Bays, Estuaries and Wetlands) with Beneficial Use Designations for Protection of Aquatic Lif*e. The ammonia Basin Plan amendment was approved by the State Water Board, Office of Administrative Law (OAL), and USEPA on April 30, 2003, June 5, 2003, and June 19, 2003, respectively. On December 1, 2005, Resolution No. 2005-014, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Revise the Early Life Stage Implementation Provision of the Freshwater Ammonia Objectives for Inland Surface Waters (including enclosed bays, estuaries and wetlands) for Protection of Aquatic Life,* was adopted by the Regional Water Board. Resolution No. 2005-014 was approved by the State Water Board, OAL, and USEPA on July 19, 2006, August 31, 2006, and April 5, 2007, respectively. On June 7, 2007, the Regional Water Board adopted Resolution No. 2007-005, *Amendments to the Water Quality Control Plan-Los Angeles Region - To Incorporate Site-Specific Objectives for Select Inland Surface Waters in the San Gabriel River, Los Angeles River and Santa Clara River Watersheds.* This amendment to the Basin Plan incorporates site-specific 30-day average objectives for ammonia along with corresponding site-specific early life stage implementation provisions for select waterbody reaches and tributaries in the Santa Clara, Los Angeles, and San Gabriel River watersheds. The State Water Board, OAL, and USEPA approved this Basin Plan amendment on January 15, 2008, May 12, 2008, and March 30, 2009, respectively.

2. **Chloride WQOs –** Table 3-8 of the 1994 Basin Plan contains WQOs for chloride. However, the chloride WQOs for some waterbodies were revised by the Regional Water Board on January 27, 1997, with the adoption of Resolution No. 97-02, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate a Policy for Addressing Levels of Chloride in Discharges*

[11] Basins are numbered according to DWR (California Department of Water Resources) Bulletin No. 118-80 (DWR, 1980).

of Wastewaters. Resolution No. 97-02 was approved by the State Water Board, OAL, and USEPA on October 23, 1997, January 9, 1998, and February 5, 1998, respectively, and is now in effect. The chloride WQO was revised from 150 mg/L to 190 mg/L, for the Los Angeles River between Figueroa Street and Los Angeles River Estuary (Willow Street) and between Sepulveda Flood Control Basin and Figueroa Street (including Burbank Western Channel). The final effluent limitations for chloride prescribed in this Order are based on the revised chloride WQOs and apply at the end of pipe.

3. **Integrated Report –** The State Water Board proposed the California 2008-2010 Integrated Report from a compilation of the adopted Regional Water Boards' Integrated Reports containing 303(d) List of Impaired Waters and 305(b) Reports following recommendations from the Regional Water Boards and information solicited from the public and other interested parties. The Regional Water Boards' Integrated Reports were used to revise their 2006 303(d) List. On August 4, 2010, the State Water Board adopted the California 2008-2010 Integrated Report. On November 12, 2010, the USEPA approved California 2008-2010 Integrated Report Section 303(d) List of Impaired Waters requiring TMDLs for the Los Angeles Region.

   The Los Angeles River and its tributaries are in California 2008-2010 Integrated Report. The following pollutants were identified as impacting the receiving waters:

   a. **Los Angeles River Estuary (Queensway Bay) –** Calwater Watershed 40512000 (Hydro. Unit No. 405.12 in Basin Plan)

      Pollutants – Chlordane (sediment) [12], DDT (dichlorodiphenyl trichloroethane) (sediment)[12], PCBs (polychlorinated biphenyls) (sediment)[12], sediment toxicity[12], and trash[13]

   b. **Los Angeles River Reach 1 (Estuary to Carson Street) –** Calwater Watershed 40512000 (Hydro. Unit No. 405.12 in Basin Plan)

      Pollutants – Ammonia[13], cadmium[13], coliform bacteria[12], copper[13], cyanide[12], diazinon[12], lead[13], nutrients (algae)[13], trash[13], zinc[13], and pH[13]

   c. **Los Angeles River Reach 2 (Carson Street to Figueroa Street) –** Calwater Watershed 40515000 (Hydro. Unit No. 405.15 in Basin Plan)

      Pollutants – Ammonia[13], coliform bacteria[12], copper[13], lead[13], nutrients (algae)[13], oil[12], and trash[13]

   d. **Angeles River Reach 3 (Figueroa Street to Riverside Drive) –** Calwater Watershed 40521000 (Hydro. Unit No. 405.21 in Basin Plan)

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[12] This pollutant requires TMDL.
[13] A TMDL has been approved for this pollutant, which has being addressed by USEPA.

Pollutants – Ammonia[13], copper[13], lead[13], nutrients (algae)[13], and trash[13]

e. **Los Angeles River Reach 4 (Riverside Drive to Sepulveda Dam) –** Calwater Watershed 40521000 (Hydro. Unit No. 405.21 in Basin Plan)

Pollutants – Ammonia[13], coliform bacteria[12], copper[13], lead[13], nutrients (algae)[13], and trash[13]

f. **Los Angeles River Reach 5 (within Sepulveda Basin) –** Calwater Watershed 40521000 (Hydro. Unit No. 405.21 in Basin Plan)

Pollutants – Ammonia[13], copper[13], lead[13], nutrients (algae)[13], oil[12], and trash[13]

4. TMDLs – A TMDL is a determination of the amount of a pollutant from point, nonpoint, and natural background sources plus a margin of safety, which may be discharged to a water quality-limited water body. Section 303(d) of the CWA established the TMDL process. The statutory requirements are codified at 40 CFR part 130.7. TMDLs must be developed for the pollutants of concern which impact the water quality of water bodies on the 303(d) list. According to the TMDL schedule under an amended consent decree (Heal the Bay, Santa Monica Bay Keeper, et al. v. Browner, et al. (March 22, 1999)), all TMDLs for the Los Angles River have been approved by the Regional Water Board.

a. **Nitrogen Compounds TMDL –** On July 10, 2003, the Regional Water Board adopted Resolution No. 2003-009, *Amendment to the Basin Plan for the Los Angeles Region to Include a TMDL for Nitrogen Compounds and Related Effects in the Los Angeles River (LA River Nitrogen Compounds TMDL*). On November 19, 2003, the State Water Board approved the *LA River Nitrogen Compounds TMDL*. On December 4, 2003, the Regional Water Board revised the *LA River Nitrogen Compounds TMDL* by adopting Resolution No. 2003-016*, Revision of Interim Effluent Limitations for Ammonia in the Amendment to the Water Quality Control Plan for the Los Angeles Region to Include a TMDL for Nitrogen Compounds and Related Effects in the Los Angeles River*. Resolution No. 2003-016 only revised the portion of the *LA River Nitrogen Compounds TMDL* containing interim limitations for total ammonia as nitrogen for the Glendale and Tillman WRPs. All other portions of the TMDL remained unchanged. The *LA River Nitrogen Compounds TMDL* went into effect on March 23, 2004, when the Regional Water Board filed the Certificate of Fee Exemption with the California Department of Fish and Game.

On June 7, 2007, the Regional Water Board adopted Resolution No. 2007-005, *Amendments to the Water Quality Control Plan - Los Angeles Region-To Incorporate Site-Specific Objectives for Select Inland Surface Waters in the San Gabriel River, Los Angeles River and Santa Clara River Watersheds.* This amendment to the Basin Plan incorporates site-specific 30-day average objectives for ammonia along with corresponding site-specific early life stage implementation provisions for select waterbody reaches and tributaries in the Santa Clara, Los Angeles, and San Gabriel River watersheds. In accordance with Implementation Table, Task 8 of the *LA River Nitrogen Compounds TMDL*, "…If a site specific objective is adopted by the Regional Board, and approved by relevant approving agencies, this TMDL will need to be revised, readopted, and reapproved to reflect the revised water quality objectives."

b. **Trash TMDL –** On September 19, 2001, the Regional Water Board adopted Resolution No. 2001-013, *Amendment to the Basin Plan for the Los Angeles Region to Incorporate a TMDL for Trash in the Los Angeles River (LA River Trash TMDL)*.

The LA River Trash TMDL was subsequently approved by the State Water Board (Resolution No. 02-038) on February 19, 2002, and by OAL on July 16, 2002. However, the State Water Board and OAL failed to approve the *LA River Trash TMDL* in time to meet the relevant federal consent decree; therefore, USEPA promulgated its own Trash TMDL in order to meet the consent decree timeline of March 23, 2002. Then, upon approval of the Regional Water Board's *LA River Trash TMDL* by OAL, USEPA approved the Regional Water Board's *Los Angeles River Trash TMDL* on August 1, 2002, and deemed it to have superseded the Trash TMDL promulgated by USEPA.

The City and the County of Los Angeles both filed petitions and complaints in the Los Angeles Superior Court challenging the *LA* River *Trash TMDL*. Subsequent negotiations led to a settlement agreement, which became effective on September 23, 2003. Twenty-two other cities sued the Regional Water Board to set aside the TMDL, on several grounds. On January 26, 2006, the Court of Appeal rejected the claims litigated by the cities but found that the Regional Water Board did not adequately complete the environmental checklist. The Court therefore affirmed a writ of mandate issued by the trial court ordering the Regional Water Board to set aside and not implement the *LA River Trash TMDL* until it had been brought into compliance with CEQA.

On June 8, 2006, the Regional Water Board set aside the *LA River Trash TMDL* and Resolution No. 01-013 which established it, pursuant to the writ of mandate. On August 9, 2007, the Regional Water Board approved the *LA River Trash TMDL* based on a revised CEQA analysis as Resolution No. 2007-012. The *LA River Trash TMDL* was approved by the State Water Board on April 15, 2008, and USEPA on July 24, 2008. The *LA River Trash TMDL* became effective on September 23, 2008, when the Certificate of Fee Exemption was filed with the California Department of Fish and Game.

c. **Metals TMDL –** On June 2, 2005, the Regional Water Board adopted Resolution No. R05-006, *Amendment to the Water Quality Control Plan for* *the Los Angeles Region to Incorporate a Total Maximum Daily Load for Metals for the Los Angeles River and its Tributaries* (*LA River Metals TMDL*). The *LA River Metals TMDL* contains WLAs for cadmium, copper, lead, and zinc. On October 20, 2005, the State Water Board approved the *LA River Metals TMDL* by adopting Resolution No. 2005-0077. On December 9, 2005 and December 22, 2005, respectively, OAL and USEPA approved the *LA River Metals TMDL*. It went into effect on January 11, 2006, when the Certificate of Fee Exemption was filed with the California Department of Fish and Game.

On February 16, 2006, the cities of Bellflower, Carson, Cerritos, Downey, Paramount, Santa Fe Springs, Signal Hill, and Whittier (Cities) filed a petition for a writ of mandate challenging many aspects of the *LA River Metals TMDL* and the *Ballona Creek Metals TMDL*. (*Cities of Bellflower et al v. SWRCB et al,* Los Angeles Superior Court No. BS101732.) On May 24, 2007, the Los Angeles County Superior Court adopted the third of three rulings with respect to the writ petition. Collectively, all challenges to the *LA River Metals TMDL* were rejected, except for one CEQA claim. The Court ruled that the State and Regional Water Boards (Water Boards) should have adopted and circulated an alternatives analysis that analyzed alternatives to the project. The Court issued its writ of mandate, directing the Water Boards to adopt an alternative analysis and to reconsider the *LA River Metals TMDL* accordingly.

After considering the alternative analysis, the Regional Water Board found that the *LA River Metals TMDL* as originally proposed and adopted was appropriate. The Regional Water Board further found that nothing in the alternatives analysis nor any of the evidence generated presented basis for the Regional Water Board to conclude that it would have acted differently when it adopted the TMDLs had the alternative analysis been prepared and circulated at that time. Thus, on September 6, 2007, the Regional Water Board adopted Resolution No. R2007-014, which reestablished the *LA River Metals TMDL* in substantially its original form.

On May 7, 2009, the Regional Water Board adopted Resolution No. 09-003, which voided and set aside Resolution No. R05-006, as required by the writ of mandate in the matter of *Cities of Bellflower et al v. SWRCB*.

On May 6, 2010, the Regional Water Board adopted Resolution No. R10-003, an amendment to the Basin Plan to revise the *LA River Metals TMDL*. The amendment revises the TMDL to adjust the numeric targets for copper in Reaches 1-4 of the Los Angeles River and the Burbank Western Channel and the corresponding WLAs for the Tillman, Los Angeles-Glendale and Burbank WRPs based on a water effect ratio (WER). The revision includes language stating that regardless of the WER, the WRPs must perform at a level that can be attained by existing treatment technologies at the time of permit issuance, reissuance or modification. On April 19, 2011, the State Water Board adopted

Resolution No. 2011-0021, approving the revised *LA River Metals TMDL*. At this hearing, the State Water Board made it clear that should the performance of the facility's treatment technologies change for reasons beyond the facility's control, the permit may be reopened to revise the effluent limitations considering the applicability of the copper WER or other performance-based measure such that the effluent limitations ensure that effluent concentrations and mass discharges do not exceed the levels of water quality that can be attained by performance of this facility's treatment technologies existing at the time of permit issuance, reissuance, or modification. On July 27, 2011, *the LA River Metals TMDL* was approved by the OAL. The *LA River Metals TMDL* (Resolution No. R10-003) must still be approved by the USEPA before it becomes effective.

d. **Bacteria TMDL –** On July 8, 2010, the Regional Water Board adopted Resolution No. R10-007, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate a Total Maximum Daily Load for Indicator Bacteria in the Los Angeles River Watershed* (*LA River Bacteria TMDL*). The *LA River Bacteria TMDL* contains WLAs for Tillman, Los Angeles-Glendale, and Burbank WRPs, which are set equal to a 7-day median of 2.2 MPN/100 mL of E. coli and/or a daily max of 235 MPN/100mL to ensure zero days of allowable exceedances. No exceedances of the geometric mean TMDL numeric target of 126/100 mL E.coli are permitted. The *LA River Bacteria TMDL* must still be approved by the State Water Board, OAL, and USEPA before it becomes effective.

I. National Toxics Rule (NTR) and California Toxics Rule (CTR). USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995, and November 9, 1999. Approximately forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

J. State Implementation Plan (SIP). On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

K. Compliance Schedules and Interim Requirements. Section 2.1 of the SIP provides that, based on a Discharger’s request and demonstration that it is infeasible for an existing Discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised WQO. This Order does not include compliance schedules and interim effluent limitations.

L. Alaska Rule. On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards become effective for CWA purposes. (40 CFR part 131.21; 65 Fed. Reg. 24641 (April 27, 2000)) Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

M. Title 22 of the California Code of Regulations (Title 22). The California Department of Public Health established primary and secondary maximum contaminant levels (MCLs) for inorganic, organic, and radioactive contaminants in drinking water.

These MCLs are codified in Title 22. The Basin Plan (Chapter 3) incorporates Title 22 primary MCLs by reference. This incorporation by reference is prospective, including future changes to the incorporated provisions as the changes take effect. Title 22 primary MCLs have been used as the bases for effluent limitations in WDRs and NPDES permits to protect groundwater recharge beneficial use when that receiving groundwater is designated as MUN. Also, the Basin Plan specifies that "Groundwaters shall not contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses."

N. Stringency of Requirements for Individual Pollutants. This Order contains both TBELs and WQBELs for individual pollutants. The TBELs consist of restrictions on five-day biochemical oxygen demand at 20°C ($BOD_{5@20^{\circ}C}$), total suspended solids (TSS), pH, and percent removal of BOD and TSS. Restrictions on BOD, TSS, and pH are discussed in the Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

WQBELs have been scientifically derived to implement WQOs that protect beneficial uses. Both the beneficial uses and the WQOs have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR part 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR-SIP, which was approved by USEPA on May 18, 2000. All beneficial uses and WQOs contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any WQOs and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 CFR part 131.21(c)(1).

This Order contains pollutant restrictions that are more stringent than applicable federal requirements and standards. Specifically, this Order includes effluent limitations for $BOD_{5@20^{\circ}C}$ and TSS that are more stringent than applicable federal standards, but that are nonetheless necessary to meet numeric objectives or protect beneficial uses. The rationale for including these limitations is explained in Section IV.C.2.b. of the Fact Sheet.

O. Sources of Drinking Water Policy (SODW Policy). On May 19, 1988, the State Water Board adopted Resolution No. 88-63, *Sources of Drinking Water Policy*, which established a policy that all surface and ground waters, with limited exemptions, are suitable or potentially suitable for municipal and domestic supply. To be consistent with State Water Board's SODW policy, on March 27, 1989, the Regional Water Board adopted Resolution No. 89-03, *Incorporation of Sources of Drinking Water Policy into the Water Quality Control Plans (Basin Plans) – Santa Clara River Basin (4A)/ Los Angeles River Basin (4B).*

Consistent with Regional Water Board Resolution No. 89-03 and State Water Board Resolution No. 88-63, in 1994 the Regional Water Board conditionally designated all inland surface waters in Table 2-1 of the 1994 Basin Plan as existing, intermittent, or potential for Municipal and Domestic Supply (MUN). However, the conditional designation in the 1994 Basin Plan included the following implementation provision: "no new effluent limitations will be placed in WDRs as a result of these [potential MUN designations made pursuant to the SODW policy and the Regional Water Board's enabling resolution] until the Regional Water Board adopts [a special Basin Plan Amendment that incorporates a detailed review of the waters in the Region that should be exempted from the potential MUN designations arising from SODW policy and the Regional Water Board's enabling resolution]." On February 15, 2002, the USEPA clarified its partial approval (May 26, 2000) of the 1994 Basin Plan amendments and acknowledged that the conditional designations do not currently have a legal effect, do not reflect new water quality standards subject to USEPA review, and do not support new effluent limitations based on the conditional designations stemming from the SODW Policy until a subsequent review by the Regional Water Board finalizes the designations for these waters. This permit is designed to be consistent with the existing Basin Plan.

P. Antidegradation Policy. 40 CFR part 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet the permitted discharge is consistent with the antidegradation provision of 40 CFR part 131.12 and State Water Board Resolution No. 68-16.

Q. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and 40 CFR part 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. Some effluent limitations in this Order are less stringent than those in the previous Order. As discussed in detail in the Fact Sheet, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

R. **Endangered Species Act (ESA).** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California ESA (Fish and Game Code sections 2050 to 2097) or the Federal ESA (16 United States Code (USC) sections 1531 to 1544). This Order requires compliance with effluent limitations, receiving water limitations, and other requirements to protect the beneficial uses of waters of the State. The discharger is responsible for meeting all requirements of the applicable ESA.

S. **Monitoring and Reporting.** 40 CFR part 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement federal and state requirements. This MRP is provided in Attachment E.

T. **Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR part 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR part 122.42 are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR part 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet.

U. **Provisions and Requirements Implementing State Law.** The provisions/requirements in subsection VI.C. of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

V. Notification of Interested Parties. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.

W. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet of this Order.

THEREFORE, IT IS HEREBY ORDERED, that Order Nos. R4-2006-0091 and R4-2010-0060 are superseded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the CWC (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater at locations different from that described in this Order is prohibited.

B. The bypass or overflow of untreated wastewater or wastes to surface waters or surface water drainage courses is prohibited, except as allowed in Standard Provision I.G. of Attachment D, Standard Provisions.

C. The monthly average effluent dry weather discharge flow rate from the Facility shall not exceed the design capacity of 80 MGD. This prohibition is not applicable during wet weather storm events.

D. The Discharger shall not cause degradation of any water supply, except as consistent with State Water Board Resolution No. 68-16.

E. The treatment or disposal of wastes from the facility shall not cause pollution or nuisance as defined in section 13050, subdivision (l) and (m) of the CWC.

F. The discharge of any substance in concentrations toxic to animal or plant is prohibited.

G. The discharge of any radiological, chemical, or biological warfare agent or high level radiological waste is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations

1. Final Effluent Limitations – Effluent Transfer Station EFF-001A

a. The Discharger shall maintain compliance with the following effluent limitations with compliance measured at the Effluent Transfer Station EFF-001A as described in the attached MRP, CI-5695 (Attachment E):

Table 6. Effluent Limitations at Effluent Transfer Station EFF-001A

Parameter	Units	Effluent Limitations				
		Average Monthly	**Average Weekly**	**Maximum Daily**	**Instantaneous Minimum**	**Instantaneous Maximum**
$BOD_{5@20^{o}C}$	mg/L	20	30	45	--	--
	lbs/day[14]	13,340	20,020	30,020	--	--
TSS	mg/L	15	40	45	--	--
	lbs/day[14]	10,010	26,690	30,020	--	--
pH	standard units	--	--	--	6.5	8.5
Oil and Grease	mg/L	10	--	15	--	--
	lbs/day[14]	6,670	--	10,010	--	--
Settleable Solids	ml/L	0.1	--	0.3	--	--
Total Residual Chlorine	mg/L	--	--	0.1[15]	--	--
	lbs/day[14]	--	--	66.8	--	--
Chloride	mg/L	190[16]	--	--	--	--
	lbs/day[14]	126,770	--	--	--	--
Total Dissolved Solids	mg/L	950[17]	--	--	--	--
	lbs/day[14]	633,840	--	--	--	--
Sulfate	mg/L	300[17]	--	--	--	--
	lbs/day[14]	200,160	--	--	--	--
MBAS	mg/L	0.5[18]	--	--	--	--
	lbs/day[14]	330	--	--	--	--

[14] The mass emission rates are based on the combined plant design flow rate of 80 MGD, and are calculated as follows: Flow (MGD) x Concentration (mg/L) x 8.34 (conversion factor) = lbs/day. During wet-weather storm events in which the flow exceeds the design capacity, the mass discharge rate limitations shall not apply, and concentration limitations will provide the only applicable effluent limitations.

[15] Determination of compliance with the final effluent limitation 0.10 mg/L for total residual chlorine will be based solely on end of pipe grab samples.

[16] In accordance with the Resolution 97-02, adopted by the Regional Water Board on January 27, 1997, the chloride limitation has been increased from 150 to 190 mg/L.

[17] Based on Table 3-8 of the Basin Plan.

[18] Based on the secondary drinking water standard (CDPH 1992).

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Nitrate (as N)	mg/L	7.2[19]	--	--	--	--
Nitrite (as N)	mg/L	0.9[19]	--	--	--	--
Nitrate + Nitrite (as N)	mg/L	7.2[19]	--	--	--	--
Ammonia Nitrogen (as N)	mg/L	1.4[19]	--	4.2[19]	--	--
Cadmium[20] (wet[21] weather)	µg/L	3.4[22, 23]	--	8.4[22, 23]	--	--
	lbs/day[24]	2.3	--	5.6	--	--
Copper[20] (dry[25] and wet[21] weather)	µg/L	25[22, 23, 26]	--	31[22, 23, 26]	--	--
	lbs/day[24]	16	--	21	--	--
Lead[20] (dry[25] and wet[21] weather)	µg/L	9.0[22, 23]	--	14[22, 23]	--	--
	lbs/day[24]	6.0	--	9.3	--	--
Mercury[27]	µg/L	0.051[23]	--	0.15[23]	--	--
	lbs/day[24]	0.034	--	0.10	--	--
Selenium[27, 28]	µg/L	4.2[23]	--	7.8[23]	--	--
	lbs/day[24]	2.8	--	5.2	--	--
Zinc[20] (wet[21] weather)	µg/L	194[22, 23]	--	277[22, 23]	--	--
	lbs/day[24]	129	--	185	--	--
Cyanide[27]	µg/L	4.3	--	8.5	--	--
	lbs/day[24]	2.9	--	5.7	--	--

19 This is the WLA, according to the *Nitrogen Compounds TMDL* Resolution No. 2003-009, adopted by the Regional Water Board on July 10, 2003. The WLA serves as the effluent concentration limitation for the discharge. It became effective on March 23, 2004.
20 This constituent did not show numeric reasonable potential. The numeric limitations of this constituent is consistent with the SIP and the *LA River Metals TMDL* implementation procedure. Attachment J also shows the summary of calculation procedures. Calculating end of pipe effluent limitations will ensure that the in-stream concentrations of each metal meet water quality standards.
21 Wet weather effluent limitations apply when the maximum daily flow measured at the Los Angeles River Wardlow station is equal to or greater than 500 cubic feet per second.
22 Hardness value of 246 mg/L from the *LA River Metal TMDL* was used to assess compliance with CTR criteria.
23 Concentration expressed as total recoverable.
24 The mass emission rates are based on the combined plant design flow rate of 80 MGD, and are calculated as follows: Flow (MGD) x Concentration (µg/L) x 0.00834 (conversion factor) = lbs/day. During wet-weather storm events in which the flow exceeds the design capacity, the mass discharge rate limitations for cadmium, copper, lead, and zinc shall not apply, and concentration limitations will provide the only applicable effluent limitations.
25 Dry weather effluent limitations apply when the maximum daily flow in the River is less than 500 cfs at the LA River Wardlow gage station.
26 The Site-Specific Translator of 0.74 is used to convert copper chronic criterion.
27 This constituent shows reasonable potential.
28 Selenium concentrations in receiving water were greater than its WQO of 5 µg/L. Detailed discussions and calculations are found in the Fact Sheet, section IV.C.4.c.

2. Other Effluent Limitations Applicable to EFF-001A

a. The average monthly percent removal of $BOD_{5@20^{\circ}C}$ and TSS shall not be less than 85 percent.

b. The temperature of wastes discharged shall not exceed 86°F except as a result of external ambient temperature.

c. Radioactivity of the wastes discharged shall not exceed the limits specified in title 22, chapter 15, article 5, section 64443, California Code of Regulations, or subsequent revisions.

d. For the protection of the water contact recreation beneficial use, the wastes discharged to water courses shall have received adequate treatment, so that the turbidity of the wastewater does not exceed any of the following: (a) an average of 2 Nephelometric turbidity units (NTUs) within a 24-hour period; (b) 5 NTUs more than 5 percent of the time (72 minutes) within a 24-hour period; and (c) 10 NTU at any time.

e. To protect the underlying ground water basins, pollutants shall not be present in the wastes discharged at concentrations that pose a threat to ground water quality.

f. Acute Toxicity Limitation:

i. The acute toxicity of the effluent shall be such that:

(i) the average survival in the undiluted effluent for any three (3) consecutive 96-hour static renewal bioassay tests shall be at least 90%, and

(ii) no single test producing less than 70% survival.

ii. If either of the above requirements IV.A.2.f.i.(i) or IV.A.2.f.i.(ii) is not met, the Discharger shall conduct six additional tests, approximately every two weeks, over a 12-week period. The Discharger shall ensure that results of a failing acute toxicity test are received by the Discharger within 24 hours of completion of the test and the additional tests shall begin within 5 business days of receipt of the result. If the additional tests indicate compliance with acute toxicity limitation, the Discharger may resume regular testing. However, if the results of any two of the six accelerated tests are less than 90% survival, then the Discharger shall begin a Toxicity Identification Evaluation (TIE). The TIE shall include all reasonable steps to identify the sources of toxicity. Once the sources are identified, the Discharger shall take all reasonable steps to reduce toxicity to meet the objective.

iii. If the initial test and any of the additional six acute toxicity bioassay tests results are less than 70% survival, the Discharger shall immediately implement Initial Investigation Toxicity Reduction Evaluation (TRE) Workplan.

iv. The Discharger shall conduct acute toxicity monitoring as specified in Attachment E - MRP.

g. Chronic Toxicity Trigger and Requirements:

i. The chronic toxicity of the effluent shall be expressed and reported in toxic units, where:

$$TU_c = \frac{100}{NOEC}$$

The No Observable Effect Concentration (NOEC) is expressed as the maximum percent effluent concentration that causes no observable effect on test organisms, as determined by the results of a critical life stage toxicity test.

ii. There shall be no chronic toxicity in the effluent discharge.

iii. If the chronic toxicity of the effluent exceeds the monthly median of 1.0 TU_c trigger, the Discharger shall immediately implement accelerated chronic toxicity testing according to Attachment E - MRP, section V.B.3. If any three out of the initial test and the six accelerated tests results exceed 1.0 TU_c, the Discharger shall initiate a TIE and implement the Initial Investigation TRE Workplan, as specified in Attachment E – MRP, Section V.D.

iv. The Discharger shall conduct chronic toxicity monitoring as specified in Attachment E – MRP.

3. Final Effluent Limitations – Effluent Transfer Station EFF-001B

The wastes discharged to water courses shall at all times be adequately disinfected. For the purpose of this requirement, the wastes shall be considered adequately disinfected if the median number of total coliform bacteria in the disinfected effluent does not exceed an MPN or CFU of 2.2 per 100 milliliters, and the number of total coliform bacteria does not exceed an MPN or CFU of 23 per 100 milliliters in more than one sample within any 30-day period. No sample shall exceed an MPN or CFU of 240 total coliform bacteria per 100 milliliters. The median value shall be determined from the bacteriological results of the last seven (7) days for which an analysis has been completed. Samples shall be collected at a time when wastewater flow and characteristics are most demanding on treatment facilities and disinfection processes.

B. Reclamation Specifications

1. Current Reclaimed Project for Irrigation & Industrial Use – The production, distribution, and reuse of recycled water are presently regulated under WDRs Order No. R4-2007-0008 and Water Recycling Requirements Order No. R4-2007-0009, both adopted by this Regional Water Board on January 11, 2007.

2. Water Recycling Requirements for Groundwater Recharge – The City is currently developing a master plan for the use of recycled water with a goal of recharging up to 30,000 acre feet per year of recycled water, treated with advanced wastewater treatment facilities, into the San Fernando Groundwater Basin. The master plan is not yet completed and is considering the use of other spreading facilities and not just the Hansen Spreading Grounds. In addition, the final plan may change based on California Department of Public Health requirements or the outcome of the environmental review process.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on WQOs contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in Los Angeles River:

1. For waters designated with a warm freshwater habitat (WARM) beneficial use, the temperature of the receiving water at any time or place and within any given 24-hour period shall not be altered by more than 5^0F above the natural temperature and shall not be raised above 86^0F due to the discharge of effluent at the receiving water station located downstream of the discharge. Natural conditions shall be determined on a case-by-case basis.

   If the receiving water temperature, downstream of the discharge, exceeds 86^0F as a result of the following:

   a. High temperature in the ambient air; or,

   b. High temperature in the receiving water upstream of the discharge,

   then the exceedance shall not be considered a violation.

2. The pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of wastes discharged. Ambient pH levels shall not be changed more than 0.5 units from natural conditions as a result of wastes discharged. Natural conditions shall be determined on a case-by-case basis.

3. The dissolved oxygen in the receiving water shall not be depressed below 5 mg/L as a result of the wastes discharged.

4. The fecal coliform concentration in the receiving water shall not exceed the following, as a result of wastes discharged:

   a. Geometric Mean Limits

      i. E.coli density shall not exceed 126/100 mL.

      ii. Fecal coliform density shall not exceed 200/100 mL.

   b. Single Sample Limits

      i. E.coli density shall not exceed 235/100 mL.

      ii. Fecal coliform density shall not exceed 400/100 mL.

5. Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in natural turbidity attributable to controllable water quality factors shall not exceed the following limits, as a result of wastes discharged:

   a. Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20%; and,

   b. Where natural turbidity is greater than 50 NTU, increases shall not exceed 10%.

6. The wastes discharged shall not produce concentrations of toxic substances in the receiving water that are toxic to or cause detrimental physiological responses in human, animal, or aquatic life.

7. The wastes discharged shall not cause concentrations of contaminants to occur at levels that are harmful to human health in waters which are existing or potential sources of drinking water.

8. The concentrations of toxic pollutants in the water column, sediments, or biota shall not adversely affect beneficial uses as a result of the wastes discharged.

9. The wastes discharged shall not contain substances that result in increases in $BOD_{5@20^{\circ}C}$, which adversely affect the beneficial uses of the receiving waters.

10. Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.

11. The wastes discharged shall not cause the receiving waters to contain any substance in concentrations that adversely affect any designated beneficial use.

12. The wastes discharged shall not alter the natural taste, odor, and color of fish, shellfish, or other surface water resources used for human consumption.

13. The wastes discharged shall not result in problems due to breeding of mosquitoes, gnats, black flies, midges, or other pests.

14. The wastes discharged shall not result in visible floating particulates, foams, and oil and grease in the receiving waters.

15. The wastes discharged shall not alter the color of the receiving waters; create a visual contrast with the natural appearance of the water; nor cause aesthetically undesirable discoloration of the receiving waters.

16. The wastes discharged shall not contain any individual pesticide or combination of pesticides in concentrations that adversely affect beneficial uses of the receiving waters. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life as a result of the wastes discharged.

17. Acute Toxicity Receiving WQOs

    a. There shall be no acute toxicity in ambient waters as a result of wastes discharged.

    b. Receiving water and effluent toxicity testing shall be performed on the same day as close to concurrently as possible.

    c. The acute toxicity of the receiving water, at the Station RSW-LATT630 located downstream of the discharge, shall be such that: (i) the average survival in the undiluted receiving water for any three (3) consecutive 96-hour static, static-renewal, or continuous flow bioassay tests shall be at least 90%, and (ii) no single test producing less than 70% survival. Static-renewal bioassay tests may be used, as allowed by the most current USEPA test method for measuring acute toxicity.

    d. If the upstream acute toxicity of the receiving water is greater than the downstream acute toxicity but the effluent acute toxicity is in compliance, the acute toxicity accelerated monitoring in the receiving water specified in MRP Section V.A.2.d. does not apply.

18. Chronic Toxicity Receiving WQO

    a. There shall be no chronic toxicity in ambient waters as a result of wastes discharged.

    b. Receiving water and effluent toxicity testing shall be performed on the same day as close to concurrently as possible.

    c. If the chronic toxicity in the receiving water at the monitoring station(s) immediately downstream of the discharge, exceeds the monthly median of 1.0 TU_c trigger in a critical life stage test and the toxicity cannot be attributed to upstream toxicity, as assessed by the Discharger, then the Discharger shall immediately implement an accelerated chronic toxicity testing according to MRP CI 5695, section V.B.3. If two of the six tests exceed a 1.0 TU_c trigger, the Discharger shall initiate a TIE and implement the Initial Investigation TRE Workplan.

d. If the chronic toxicity of the receiving water upstream of the discharge is greater than the downstream and the TUc of the effluent chronic toxicity test is less than or equal to a 1.0 TU_c trigger, then accelerated monitoring need not be implemented.

B. Groundwater Limitations

The discharge shall not cause the underlying groundwater to be degraded, exceed water quality objectives, unreasonably affect beneficial uses, or cause a condition of pollution or nuisance.

VI. PROVISIONS

A. Standard Provisions

1. Standard Provisions

The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

2. Regional Water Board Standard Provisions

The Discharger shall comply with the Regional Water Board-specific Standard Provisions as follows:

a. Neither the treatment nor the discharge of pollutants shall create pollution, contamination, or nuisance as defined by Section 13050 of the CWC.

b. Odors, vectors, and other nuisances of sewage or sludge origin beyond the limits of the treatment plant site or the sewage collection system due to improper operation of facilities, as determined by the Regional Water Board, are prohibited.

c. All facilities used for collection, transport, treatment, or disposal of "wastes" shall be adequately protected against damage resulting from overflow, washout, or inundation from a storm or flood having a recurrence interval of once in 100 years.

d. Collection, treatment, and disposal systems shall be operated in a manner that precludes public contact with wastewater.

e. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer of the Regional Water Board.

f. The provisions of this order are severable. If any provision of this order is found invalid, the remainder of this Order shall not be affected.

g. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities or penalties established pursuant to any applicable State law or regulation under authority preserved by section 510 of the CWA.

h. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities or penalties to which the discharger is or may be subject to under section 311 of the CWA.

i. The Discharger must comply with the lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding discharges of storm water to storm drain systems or other water courses under their jurisdiction, including applicable requirements in municipal storm water management program developed to comply with NPDES permits issued by the Regional Water Board to local agencies.

j. Discharge of wastes to any point other than specifically described in this Order is prohibited, and constitutes a violation thereof.

k. The Discharger shall comply with all applicable effluent limitations, national standards of performance, toxic effluent standards, and all federal regulations established pursuant to sections 301, 302, 303(d), 304, 306, 307, 316, 403, and 405 of the CWA and amendments thereto.

l. These requirements do not exempt the operator of the waste disposal facility from compliance with any other laws, regulations, or ordinances which may be applicable; they do not legalize this waste disposal facility, and they leave unaffected any further restraints on the disposal of wastes at this site which may be contained in other statutes or required by other agencies.

m. Oil or oily material, chemicals, refuse, or other pollutionable materials shall not be stored or deposited in areas where they may be picked up by rainfall and carried off of the property and/or discharged to surface waters. Any such spill of such materials shall be contained and removed immediately.

n. A copy of these waste discharge specifications shall be maintained at the discharge facility so as to be available at all times to operating personnel.

o. If there is any storage of hazardous or toxic materials or hydrocarbons at this facility and if the facility is not manned at all times, a 24-hour emergency response telephone number shall be prominently posted where it can easily be read from the outside.

p. The Discharger shall file with the Regional Water Board a ROWD at least 120 days before making any material change or proposed change in the character, location or volume of the discharge.

q. In the event of any change in name, ownership, or control of these waste disposal facilities, the discharger shall notify the Regional Water Board of such change and shall notify the succeeding owner or operator of the existence of this Order by letter, copy of which shall be forwarded to the Regional Water Board.

r. The CWC provides that any person who violates a waste discharge requirement or a provision of the CWC is subject to civil penalties of up to $5,000 per day, $10,000 per day, or $25,000 per day of violation, or when the violation involves the discharge of pollutants, is subject to civil penalties of up to $10 per gallon per day or $25 per gallon per day of violation; or some combination thereof, depending on the violation, or upon the combination of violations. Violation of any of the provisions of the NPDES program or of any of the provisions of this Order may subject the violator to any of the penalties described herein, or any combination thereof, at the discretion of the prosecuting authority; except that only one kind of penalty may be applied for each kind of violation.

s. Under CWC section 13387, any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this order, including monitoring reports or reports of compliance or noncompliance, or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required to be maintained in this order and is subject to a fine of not more than $25,000 or imprisonment of not more than two years, or both. For a second conviction, such a person shall be punished by a fine of not more than $25,000 per day of violation, or by imprisonment of not more than four years, or by both.

t. The discharge of any waste resulting from the combustion of toxic or hazardous wastes to any waste stream that ultimately discharges to waters of the United States is prohibited, unless specifically authorized elsewhere in this permit.

u. The Discharger shall notify the Executive Officer in writing no later than 6 months prior to planned discharge of any chemical, other than the products previously reported to the Executive Officer, which may be toxic to aquatic life. Such notification shall include:

   i. Name and general composition of the chemical;

   ii. Frequency of use;

   iii. Quantities to be used;

iv. Proposed discharge concentrations; and,

v. USEPA registration number, if applicable.

v. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

w. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily or instaneous effluent limitation, or receiving water limitation of this Order, the Discharger shall notify the Watershed Regulatory Section Chief at the Regional Water Board by telephone at (213) 576-6616, or electronically at dhung@waterboards.ca.gov, within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing to the Regional Water Board within five days, unless the Regional Water Board waives confirmation.

The written notification shall state the nature, time, duration, and cause of non-compliance, and shall describe the measures being taken to remedy the current noncompliance, and the measures to prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal monitoring report.

x. Prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (CWC section 1211)

B. Monitoring and Reporting Program (MRP) Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

a. This Order may be modified, revoked and reissued, or terminated for cause, including, but not limited to:

i. Violation of any term or condition contained in this Order;

ii. Obtaining this Order by misrepresentation, or by failure to disclose fully all relevant facts; and,

iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

The filing of a request by the Discharger for an Order modification, revocation, and issuance or termination, or a notification of planned changes or anticipated noncompliances does not stay any condition of this Order.

b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

c. This Order may be modified, in accordance with the provisions set forth in 40 CFR parts 122 and 124 to include requirements for the implementation of the watershed protection management approach.

d. The Regional Water Board may modify, or revoke and reissue, this Order if present or future investigations demonstrate that the discharge(s) governed by this Order will cause, have the potential to cause, or will contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters.

e. This Order may also be modified, revoked and reissued, or terminated in accordance with the provisions of 40 CFR parts 122.44, 122.62 to 122.64, 125.62, and 125.64. Causes for taking such actions include, but are not limited to, failure to comply with any condition of this Order, endangerment to human health or the environment resulting from the permitted activity, or acquisition of newly obtained information which would have justified the application of different conditions if known at the time of Order adoption. The filing of a request by the District for an Order modification, revocation and issuance or termination, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

f. This Order may be modified, in accordance with the provisions set forth in 40 CFR parts 122 to 124, to include new Minimum Levels.

g. This Order may be reopened and modified, to revise effluent limitations as a result of future Basin Plan Amendments, such as an update of a WQO, the adoption of a site specific objective, or the adoption of a TMDL for the Los Angeles River Watershed.

h. This Order may be reopened and modified, to revise effluent limitations as a result of the delisting of a pollutant from the 303(d) list.

i. This Order may be reopened and modified to revise the chronic toxicity effluent limitation, to the extent necessary, to be consistent with State Water Board precedential decisions, new policies, new laws, or new regulations.

j. This Order may be reopened to modify final effluent limits, if at the conclusion of necessary studies conducted by the Discharger, the Regional Water Board determines that dilution credits, attenuation factors, water effects ratio, site specific objectives, or metal translators are warranted.

k. This Order may be reopened to modify copper effluent limitations consistent with the *LA River Metals TMDL* and its implementation plan.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Special Study – Constituents of Emerging Concern in the Effluent

i. The Discharger shall conduct a special study to investigate the CECs in the effluent discharge. Within six months of the effective date of this Order, the Discharger shall submit to the Executive Officer a CECs Special Study Work Plan (Work Plan) for approval. Upon approval, the Discharger shall implement the Work Plan.

ii. The Discharger shall follow the requirements of the Special Study Work Plan as discussed in the MRP and the Fact Sheet.

b. Toxicity Reduction Requirements

The Discharger shall prepare and submit a copy of the Discharger's initial investigation TRE workplan to the Executive Officer of the Regional Water Board for approval within 90 days of the effective date of this permit. If the Executive Officer does not disapprove the workplan within 60 days from the date in which it was received, the workplan shall become effective. The Discharger shall use USEPA manual EPA/833B-99/002 (municipal), or most current version as guidance. At a minimum, the initial investigation TRE workplan must contain the provisions in Attachment G. This workplan shall describe the steps the Discharger intends to follow if toxicity is detected, and should include, at a minimum:

i. A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency.

ii. A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in the operation of the facility; and,

iii. If a TIE is necessary, an indication of the person who would conduct the TIEs (i.e., an in-house expert or an outside contractor).

If the effluent toxicity test result exceeds the limitation, then the Discharger shall immediately implement accelerated toxicity testing that consists of six additional tests, approximately every two weeks, over a 12-week period. Effluent sampling for the first test of the six additional tests shall commence within 5 days of receipt of the test results exceeding the toxicity limitation.

If the results of any two of the six tests (any two tests in a 12-week period) exceed the limitation, the Discharger shall initiate a TRE.

If results of the implementation of the facility's initial investigation TRE workplan (as described above) indicate the need to continue the TRE/TIE, the Discharger shall expeditiously develop a more detailed TRE workplan for submittal to the Executive Officer within 15 days of completion of the initial investigation TRE.

Detailed toxicity testing and reporting requirements are contained in Section V of the MRP, (Attachment E).

c. Treatment Facility Capacity

The Discharger shall submit a written report to the Executive Officer of the Regional Water Board within 90 days after the "30-day (monthly) average" daily dry-weather flow equals or exceeds 75 percent of the design capacity of waste treatment and/or disposal facilities. The Discharger's senior administrative officer shall sign a letter, which transmits that report and certifies that the discharger's policy-making body is adequately informed of the report's contents. The report shall include the following:

i. The average daily flow for the month, the date on which the peak flow occurred, the rate of that peak flow, and the total flow for the day;

ii. The best estimate of when the monthly average daily dry-weather flow rate will equal or exceed the design capacity of the facilities; and,

iii. A schedule for studies, design, and other steps needed to provide additional capacity for waste treatment and/or disposal facilities before the waste flow rate equals the capacity of present units.

This requirement is applicable to those facilities which have not reached 75 percent of capacity as of the effective date of this Order. For those facilities that have reached 75 percent of capacity by that date but for which no such report has been previously submitted, such report shall be filed within 90 days of the issuance of this Order.

3. Best Management Practices and Pollution Prevention

a. Storm Water Pollution Prevention Plan (SWPPP) – Not Applicable

b. Spill Clean-Up Contingency Plan (SCCP)

Within ninety days of the effective date of this Order, the Discharger is required to submit a Spill Clean-up Contingency Plan, which describes the activities and protocols, to address clean-up of spills, overflows, and bypasses of untreated or partially treated wastewater from the Discharger's collection system or treatment facilities, that reach water bodies, including dry channels and beach sands. At a minimum, the Plan shall include sections on spill clean-up and containment measures, public notification, and monitoring. The Discharger shall review and amend the Plan as appropriate after each spill from the facility or in the service area of the facility. The Discharger shall include a discussion in the annual summary report of any modifications to the Plan and the application of the Plan to all spills during the year.

c. Pollutant Minimization Program

Reporting protocols in the MRP, Attachment E, section IX.B.4 describe sample results that are to be reported as Detected but Not Quantified (DNQ) or Not Detected (ND). Definitions for a Reported Minimum Level (RML) and Method Detection Limit (MDL) are provided in Attachment A. These reporting protocols and definitions are used in determining the need to conduct a Pollution Minimization Program (PMP) as follows:

The Discharger shall develop a PMP as further described below when there is evidence (e.g., sample results reported as DNQ when the effluent limitation is less than the MDL, sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a priority pollutant is present in the effluent above an effluent limitation and either:

i. The concentration of the pollutant is reported as DNQ and the effluent limitation is less than the reported ML; or,

ii. The concentration of the pollutant is reported as ND and the effluent limitation is less than the MDL.

The goal of the PMP shall be to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost-effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to CWC section 13263.3(d), shall be considered to fulfill the PMP requirements.

The PMP shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board:

i. An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling;

ii. Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system;

iii. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation;

iv. Implementation of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and,

v. An annual status report that shall be sent to the Regional Water Board including:

(i). All PMP monitoring results for the previous year;

(ii). A list of potential sources of the reportable priority pollutant(s);

(iii). A summary of all actions undertaken pursuant to the control strategy; and,

(iv). A description of actions to be taken in the following year.

4. Construction, Operation and Maintenance Specifications

a. Wastewater treatment facilities subject to this Order shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to chapter 3, subchapter 14, title 23 of the California Code of Regulations (section 13625 of the CWC).

b. The Discharger shall maintain in good working order a sufficient alternate power source for operating the wastewater treatment and disposal facilities. All equipment shall be located to minimize failure due to moisture, liquid spray, flooding, and other physical phenomena. The alternate power source shall be designed to permit inspection and maintenance and shall provide for periodic testing. If such alternate power source is not in existence, the discharger shall halt, reduce, or otherwise control all discharges upon the reduction, loss, or failure of the primary source of power.

c. The Discharger shall provide standby or emergency power facilities and/or storage capacity or other means so that in the event of plant upset or outage due to power failure or other cause, discharge of raw or inadequately treated sewage does not occur.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. Sludge (Biosolids) Disposal Requirements (Not Applicable)

The Tillman WRP returns the sludge generated by the treatment process back to the sewer for transport and treatment at the Hyperion Plant.

b. Pretreatment Program Requirements – Refer to Attachment P

i. This Order includes the Discharger's Pretreatment Program as previously submitted to this Regional Water Board. Any change to the Program shall be reported to the Regional Water Board in writing and shall not become effective until approved by the Executive Officer in accordance with procedures established in 40 CFR part 403.18.

ii. The Discharger shall enforce the requirements promulgated under sections 307(b), 307(c), 307(d), and 402(b) of the CWA with timely, appropriate, and effective enforcement actions. The Discharger shall require industrial users to comply with Federal Categorical Standards and shall initiate enforcement actions against those users who do not comply with the standards. The Discharger shall require industrial users subject to the Federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of a new industrial user, upon commencement of the discharge.

iii. The Discharger shall perform the pretreatment functions as required in 40 CFR part 403 including, but not limited to:

(i). Implement the necessary legal authorities as provided in 40 CFR part 403.8(f)(1);

(ii). Enforce the pretreatment requirements under 40 CFR parts 403.5 and 403.6;

(iii). Implement the programmatic functions as provided in 40 CFR part 403.8(f)(2); and,

(iv). Provide the requisite funding of personnel to implement the Pretreatment Program as provided in 40 CFR part 403.8(f)(3).

iv. The Discharger shall submit semiannual and annual reports to the Regional Water Board, with copies to the State Water Board, and USEPA Region 9, describing the Discharger's pretreatment activities over the period. The annual and semiannual reports shall contain, but not be limited to, the information required in the attached *Pretreatment Reporting Requirements* (Attachment P), or an approved revised version thereof. If the Discharger is not in compliance with any conditions or requirements of this Order, the Discharger shall include the reasons for noncompliance and shall state how and when the Discharger will comply with such conditions and requirements.

v. The Discharger shall be responsible and liable for the performance of all control authority pretreatment requirements contained in 40 CFR part 403, including subsequent regulatory revisions thereof. Where 40 CFR part 403 or subsequent revision places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within six months from the effective date of this Order or the effective date of 40 CFR part 403 revisions, whichever comes later. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies by the Regional Water Board, USEPA, or other appropriate parties, as provided in the CWA. The Regional Water Board or USEPA may initiate enforcement action against an industrial user for noncompliance with acceptable standards CWC.

The Discharger's collection system is part of the system that is subject to this Order. As such, the Discharger must properly operate and maintain its collection system (40 CFR part 122.41(e)). The Discharger must report any non-compliance (40 CFR part 122.41(l)(6) and (7)) and mitigate any discharge from the collection system in violation of this Order (40 CFR part 122.41(d)). See Attachment D, subsections I.D, V.E, V.H, and I.C., and the following section (Spill Reporting Requirements) of this Order.

c. Spill Reporting Requirements for POTWs

i. Initial Notification

Although State and Regional Water Board staff do not have duties as first responders, this requirement is an appropriate mechanism to ensure that the agencies that have first responder duties are notified in a timely manner in order to protect public health and beneficial uses. For spills, overflows, and bypasses from its POTW, the Discharger shall make notifications as required below:

(i). In accordance with the requirements of Health and Safety Code section 5411.5, the Discharger shall provide notification to the local health officer or the director of environmental health with jurisdiction over the affected water body of any unauthorized release of sewage or other waste that causes, or probably will cause, a discharge to any waters of the State as soon as possible, but not later than two (2) hours after becoming aware of the release.

(ii). In accordance with the requirements of CWC section 13271, the Discharger shall provide notification to the California Emergency Management Agency (Cal EMA) of the release of reportable amounts of hazardous substances or sewage that causes, or probably will cause, a discharge to any waters of the State as soon as possible, but not later than two (2) hours after becoming aware of the release. The California Code of Regulations, Title 23, section 2250, defines a reportable amount of sewage as being 1,000 gallons. The phone number for reporting releases to Cal EMA is (800) 852-7550.

(iii). The Discharger shall notify the Regional Water Board of any unauthorized release of sewage from its POTW that causes, or probably will cause, a discharge to any waters of the State as soon as possible, but not later than ***two (2)*** hours after becoming aware of the release. This initial notification does not need to be made if the Discharger has notified Cal EMA and the local health officer or the director of environmental health with jurisdiction over the affected water body. The phone number for reporting releases of sewage to the Regional Water Board is (213) 576-6657. The phone numbers for after hours and weekend reporting of releases of sewage to the Regional Water Board are (213) 305-2284 and (213) 305-2253.

At a minimum the following information shall be provided to the Regional Water Board:

- The location, date and time of the release.
- The waters of the State that received or will receive the discharge.
- An estimate of the amount of sewage or other waste released and the amount that reached waters of the State at the time of notification.
- If ongoing, the estimated flow rate of the release at the time of the notification.
- The name, organization, phone number, and email address of the reporting representative.

vi. Monitoring

For spills, overflows, and bypasses reported under section VI.C.5.c.iii, the Discharger shall monitor as required below:

(i). To define the geographical extent of spill's impact the Discharger shall obtain grab samples (if feasible, accessible, and safe) for spills, overflows or bypasses of any volume that reach receiving waters. The Discharger shall analyze the samples for total and fecal coliforms or E. coli, and enterococcus, and relevant pollutants of concern, upstream and downstream of the point of entry of the spill (if feasible, accessible and safe). This monitoring shall be done on a daily basis from time the spill is known until the results of two consecutive sets of bacteriological monitoring indicate the return to the background level or the County Department of Public Health authorizes cessation of monitoring.

(ii). The Discharger shall obtain a grab sample (if feasible, accessible, and safe) for spills, overflows or bypasses of any volume that flowed to receiving waters, entered a shallow ground water aquifer, or have the potential for public exposure; and for all spills, overflows or bypasses of 1,000 gallons or more. The Discharger shall characterize the sample for total and fecal coliforms or E. coli, and enterococcus, and analyze relevant pollutants of concern depending on the area and nature of spills or overflows if feasible, accessible and safe.

vii. Twenty-four (24) Hour Reporting

The Regional Water Board initial notification required under section VI.C.5.c.i, above shall be followed by:

(i). As soon as possible, but not later than **twenty-four (24) hours** after becoming aware of an unauthorized discharge of sewage or other waste from its POTW to any waters of the State or of 1,000 gallons or more, the Discharger shall submit a report to the Regional Water Board by email at aanijielo@waterboards.ca.gov and the USEPA by telephone at (415) 972-3577 or facsimile at (415) 947-3545. If the discharge is 1,000 gallons or more, this report shall certify that the Cal EMA has been notified of the discharge in accordance with CWC section 13271 and section VI.C.5.c.i. This report shall also certify that the local health officer or director of environmental health with jurisdiction over the affected water body has been notified of the discharge in accordance with Health and Safety Code section 5411.5 and section VI.C.5.c.i.

This report shall also include at a minimum the following information:

- Agency, NPDES No., Order No., and MRP CI No., if applicable.
- The location, date and time of the discharge.
- The waters of the State that received the discharge.
- A description of the level of treatment of the sewage or other waste discharged.
- An initial estimate of the amount of sewage or other waste released and the amount that reached waters of the State.
- The Cal EMA control number and the date and time that notification of the incident was provided to the Cal EMA.
- The name of the local health officer or director of environmental health notified (if contacted directly), the date and time of notification, and the method of notification (e.g., phone, fax, email).

(ii). A preliminary written report is due five (5) working days after disclosure of the incident reported under section VI.C.5.c.iii.(i). (submission to the Regional Water Board and USEPA of the log number of the SSO Database entry shall satisfy this requirement for a preliminary written report). Within 30 days after submitting this preliminary written report, the Discharger shall submit the final written report to the Regional Water Board and USEPA. The final written report shall document the information required in section VI.C.5.c.iv, below, and in the Standard Provisions of this Order including corrective measures implemented or proposed to be implemented to prevent/minimize future occurrences. The Executive Officer for just cause can grant an extension for submittal of the final written report to the Regional Water Board.

(iii). The Discharger shall include a certification in the annual summary report (due according to the schedule in the MRP) stating that the sewer system emergency equipment, including alarm systems, backup pumps, standby power generators, and other critical emergency pump station components are maintained and tested in accordance with the Discharger's Preventative Maintenance Plan. Any deviations from or modifications to the Preventative Maintenance Plan shall be discussed.

viii. Records

The Discharger shall develop and maintain a record of all spills, overflows, or bypasses of raw or partially treated sewage from its POTW. This record shall be made available to the Regional Water Board and USEPA upon request and a summary shall be included in the annual summary report. The records shall contain:

(i). The date and time of each spill, overflow, or bypass;

(ii). The location of each spill, overflow, or bypass (including latitude and longitude);

(iii). The estimated volume of each spill, overflow, or bypass including gross volume, amount recovered and not recovered, and monitoring results required by section VI.C.5.c.ii;

(iv). The cause of each spill, overflow, or bypass;

(v). Whether each spill, overflow, or bypass entered a waters of the State and, if so, the name of the water body and whether it entered via a storm drain or other man-made conveyance;

(vi). Mitigation measures implemented;

(vii). Corrective measures implemented or proposed to be implemented to prevent/minimize future occurrences; and,

(viii). The mandatory information included in SSO online reporting for finalizing and certifying the SSO report for each spill, overflow, or bypass under the SSO WDR.

ix. Activities Coordination

In addition, the Regional Water Board and USEPA expect that the POTW will coordinate its compliance activities for consistency and efficiency with other entities that have responsibilities under: this NPDES permit, including the Pretreatment Program; an MS4 NPDES permit that may contain spill prevention, sewer maintenance and reporting requirements; or the SSO WDR.

x. Consistency with Statewide General WDRs For Sanitary Sewer Systems (SSO WDR)

The CWA prohibits the discharge of pollutants from a point source to waters of the United States unless authorized under a NPDES permit. (33 USC sections 1311 and 1342). The State Water Board adopted Statewide General WDRs for Sanitary Sewer Systems, (Order No. 2006-0003-DWQ) on May 2, 2006, to provide a consistent, Statewide regulatory approach to address Sanitary Sewer Overflows (SSOs). The SSO WDR requires public agencies that own or operate sanitary sewer systems to develop and implement sewer system management plans and report all SSOs to the State Water Board's online SSO Database.

The requirements contained in this Order in sections VI.C.3.b. (Spill Clean-Up Contingency Plan), VI.C.4. (Construction, Operation and Maintenance Specifications), and VI.C.5.c. (Spill Reporting Requirements for POTWs) are intended to be consistent with the requirements of the SSO WDR and as outlined in the State Water Board letter dated September 9, 2008 (Modification to Monitoring and Reporting Program). The Regional Water Board recognizes that there may be some overlap between the provisions of this Order and SSO WDR requirements. The requirements of the SSO WDR are considered the minimum thresholds (see Finding 11 of Order No. 2006-0003-DWQ). To encourage efficiency, the Regional Water Board will accept the documentation prepared by the Discharger under the SSO WDR for compliance purposes as satisfying the requirements in sections VI.C.3.b., VI.C.4., and VI.C.5.c provided that any additional or more stringent provisions enumerated in this Order are addressed. Pursuant to the SSO WDR, State Board Order No. 2006-0003-DWQ, Section D., Provision 2.(iii) and (iv), the provisions of this NPDES permit supercede the SSO WDR, for all purposes, including enforcement, to the extent the requirements may be deemed duplicative.

Regardless of the coverage obtained under the SSO WDR, the Discharger's collection system is part of the Publicly Owned Treatment Works that is subject to this Order. As such, pursuant to federal regulations, the Discharger must properly operate and maintain its collection system (40 CFR part 122.41(e)), report any non-compliance (40 CFR parts 122.41(l)(6) and (7), and mitigate any discharge from the collection system in violation of this Order (40 CFR part 122.41(d)).

vii. The Discharger shall include a certification in the annual summary report (due according to the schedule in the Monitoring and Reporting Program) that states—the sewer system emergency equipment, including alarm systems, backup pumps, standby power generators, and other critical emergency pump station components were maintained and tested in accordance with the Discharger's Preventative Maintenance Plan. Any deviations from or modifications to the Plan shall be discussed.

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below:

A. General.

Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined in the MRP and Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional and State Water Boards, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

B. Multiple Sample Data.

When determining compliance with a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses and the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

C. Average Monthly Effluent Limitation (AMEL).

If the average (or when applicable, the median determined by subsection B above for multiple sample data) of daily discharges over a calendar month exceeds the AMEL for a given parameter, this will represent a single violation, though the Discharger may be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month). If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Discharger may be considered out of compliance for that calendar month. The Discharger will only be considered out of compliance for days when the discharge occurs. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month with respect to the AMEL.

If the analytical result of a single sample, monitored monthly, quarterly, semiannually, or annually, does not exceed the AMEL for a given parameter, the

Discharger will have demonstrated compliance with the AMEL for each day of that month for that parameter.

If the analytical result of any single sample, monitored monthly, quarterly, semiannually, or annually, exceeds the AMEL for any parameter, the Discharger may collect up to four additional samples within the same calendar month. All analytical results shall be reported in the monitoring report for that month. The concentration of pollutant (an arithmetic mean or a median) in these samples estimated from the “Multiple Sample Data Reduction” Section above, will be used for compliance determination.

In the event of noncompliance with an AMEL, the sampling frequency for that parameter shall be increased to weekly and shall continue at this level until compliance with the AMEL has been demonstrated.

D. Average Weekly Effluent Limitation (AWEL).

If the average of daily discharges over a calendar week exceeds the AWEL for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for each day of that week for that parameter, resulting in 7 days of non-compliance. The average of daily discharges over the calendar week that exceeds the AWEL for a parameter will be considered out of compliance for that week only. If only a single sample is taken during the calendar week and the analytical result for that sample exceeds the AWEL, the discharger will be considered out of compliance for that calendar week. For any one calendar week during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar week with respect to the AWEL.

A calendar week will begin on Sunday and end on Saturday. Partial calendar weeks at the end of the calendar month will be carried forward to the next month in order to calculate and report a consecutive seven-day average value on Saturday.

E. Maximum Daily Effluent Limitation (MDEL).

If a daily discharge exceeds the MDEL for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period. For any 1 day during which no sample is taken, no compliance determination can be made for that day with respect to the MDEL.

F. Instantaneous Minimum Effluent Limitation.

If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, a violation will be flagged and the discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

G. Instantaneous Maximum Effluent Limitation.

If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, a violation will be flagged and the discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

H. Six-month Median Effluent Limitation.

If the median of daily discharges over any 180-day period exceeds the six-month median effluent limitation for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for each day of that 180-day period for that parameter. The next assessment of compliance will occur after the next sample is taken. If only a single sample is taken during a given 180-day period and the analytical result for that sample exceeds the six-month median, the discharger will be considered out of compliance for the 180-day period. For any 180-period during which no sample is taken, no compliance determination can be made for the six-month median effluent limitation.

I. Percent Removal.

The average monthly percent removal is the removal efficiency expressed in percentage across a treatment facility for a given pollutant parameter, as determined from the 30-day average values of pollutant concentrations (C in mg/L) of influent and effluent samples collected at about the same time using the following equation:

Percent Removal (%) = $[1-(C_{Effluent}/C_{Influent})] \times 100$ %

When preferred, the Discharger may substitute mass loadings and mass emissions for the concentrations.

J. Mass and Concentration Limitations

Compliance with mass and concentration effluent limitations for the same parameter shall be determined separately with their respective limitations. When the concentration of a constituent in an effluent sample is determined to be ND or DNQ, the corresponding mass emission rate determined from that sample concentration shall also be reported as ND or DNQ.

K. Compliance with Single Constituent Effluent Limitations

Dischargers may be considered out of compliance with the effluent limitation if the concentration of the pollutant (see Section B “Multiple Sample Data Reduction” above)in the monitoring sample is greater than the effluent limitation and greater than or equal to the Reporting Level (RL).

L. Compliance with Effluent Limitations Expressed as a Sum of Several Constituents

Dischargers may be considered out of compliance with an effluent limitation which applies to the sum of a group of chemicals (e.g., PCB's) if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as ND or DNQ.

M. Mass Emission Rate.

The mass emission rate shall be obtained from the following calculation for any calendar day:

$$\text{Mass emission rate (lb/day)} = \frac{8.34}{N} \sum_{i=1}^{N} QiC\,i$$

$$\text{Mass emission rate (kg/day)} = \frac{3.79}{N} \sum_{i=1}^{N} QiC\,i$$

in which 'N' is the number of samples analyzed in any calendar day. 'Qi' and 'Ci' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' grab samples, which may be taken in any calendar day. If a composite sample is taken, 'Ci' is the concentration measured in the composite sample and 'Qi' is the average flow rate occurring during the period over which samples are composited.

The daily concentration of all constituents shall be determined from the flow-weighted average of the same constituents in the combined waste streams as follows:

$$\text{Daily concentration} = \frac{1}{Q_t} \sum_{i=1}^{N} QiC\,i$$

in which 'N' is the number of component waste streams. 'Qi' and 'Ci' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' waste streams. 'Qt' is the total flow rate of the combined waste streams.

N. Bacterial Standards and Analysis.

1. The geometric mean used for determining compliance with bacterial standards is calculated with the following equation:

   Geometric Mean = (C1 x C2 x … x Cn)1/n

where n is the number of days samples were collected during the period and C is the concentration of bacteria (MPN/100 mL or CFU/100 mL) found on each day of sampling.

2. For bacterial analyses, sample dilutions should be performed so the expected range of values is bracketed (for example, with multiple tube fermentation method or membrane filtration method, 2 to 16,000 per 100 ml for total and fecal coliform, at a minimum, and 1 to 1000 per 100 ml for enterococcus). The detection methods used for each analysis shall be reported with the results of the analyses.

3. Detection methods used for coliforms (total and fecal) shall be those presented in Table 1A of 40 , part 136 (revised March 12, 2007), unless alternate methods have been approved by USEPA pursuant to 40 CFR part 136, or improved methods have been determined by the Executive Officer and/or USEPA.

4. Detection methods used for enterococcus shall be those presented in the USEPA publication EPA 600/4-85/076, *Test Methods for Escherichia coli and Enterococci in Water By Membrane Filter Procedure* or any improved method determined by the Executive Officer and/or USEPA to be appropriate.

O. Single Operational Upset

A single operational upset (SOU) that leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation and limits the Discharger's liability in accordance with the following conditions:

1. A single operational upset is broadly defined as a single unusual event that temporarily disrupts the usually satisfactory operation of a system in such a way that it results in violation of multiple pollutant parameters.

2. A Discharger may assert SOU to limit liability only for those violations which the Discharger submitted notice of the upset as required in Provision V.E.2(b) of Attachment D – Standard Provisions.

3. For purpose outside of CWC sections 13385 (h) and (i), determination of compliance and civil liability (including any more specific definition of SOU, the requirements for Dischargers to assert the SOU limitation of liability, and the manner of counting violations) shall be in accordance with USEPA Memorandum "Issuance of Guidance Interpreting Single Operational Upset" (September 27, 1989).

4. For purpose of CWC sections 13385 (h) and (i), determination of compliance and civil liability (including any more specific definition of SOU, the requirements for Dischargers to assert the SOU limitation of liability, and the manner of counting violations) shall be in accordance with CWC section 13385 (f)(2).

Time Schedule Order

Matthew Rodriquez
Secretary for Environmental Protection

California Regional Water Quality Control Board
Los Angeles Region

320 W. 4th Street, Suite 200, Los Angeles, California 90013
(213) 576-6600 • FAX (213) 576-6640
http://www.waterboards.ca.gov/losangeles

Edmund G. Brown Jr.
Governor

February 2, 2012

Mr. Enrique C. Zaldivar, Director
Department of Public Works, Bureau of Sanitation
City of Los Angeles
1149 S. Broadway 9th Floor
Los Angeles, CA 90015-2213

Dear Mr. Zaldivar:

ADOPTED AMMONIA TIME SCHEDULE ORDER (TSO) – CITY OF LOS ANGELES, DONALD C. TILLMAN WATER RECLAMATION PLANT (NPDES NO. CA0056227, CI NO. 5695)

Our letter dated December 1, 2011, transmitted the tentative ammonia TSO directing Donald C. Tillman Water Reclamation Plant to comply with its National Pollutant Discharge Elimination System (NPDES) permit and Waste Discharge Requirements (Order No. R4-2006-0091), adopted by the Regional Board on December 14, 2006.

TSO No. R4-2012-0007 requires you to:

1. Comply with an interim ammonia effluent limitation,
2. Achieve long-term compliance with final effluent limitations according to a schedule, and
3. Submit quarterly progress reports.

The adopted TSO will be sent only to the City of Los Angeles. However, this adopted TSO is also available on the Regional Water Board's website at www.waterboards.ca.gov/losangeles.

If you have any questions, please contact Don Tsai at (213) 576-6665 or the undersigned at (213) 576-6664.

Sincerely,

Brandi Outwin-Beals, P.E., Chief
Municipal Permitting Unit (NPDES)

Enclosures

MAILING LIST

Environmental Protection Agency, Region 9, Permits Branch (WTR-5)
NOAA, National Marine Fisheries Service
Department of Interior, U.S. Fish and Wildlife Service
Jennifer Fordyce, State Water Resources Control Board, Office of Chief Counsel
Department of Fish and Game, Region 5
California State Parks and Recreation
State Coastal Conservancy
Los Angeles County, DPW, Watershed Division
Los Angeles County, Department of Health Services
Water Replenishment District of Southern California
Main San Gabriel Basin Watermaster
Tri-TAC
CASA
Heal the Bay
Environment Now
Santa Monica Baykeeper
Natural Resources Defense Council
Friends of the Los Angeles River
Los Angeles and San Gabriel Rivers Watershed Council
Sierra Club
Ms. Belinda Faustinos, San Gabriel and lower Los Angeles Rivers and Mountains Conservancy

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

TIME SCHEDULE ORDER NO. R4-2012-0007

REQUIRING CITY OF LOS ANGELES (DONALD C. TILLMAN WATER RECLAMATION PLANT) TO COMPLY WITH REQUIREMENTS PRESCRIBED IN ORDER NO. R4-2006-0091 (NPDES PERMIT NO. CA0056227)

The California Regional Water Quality Control Board, Los Angeles Region (Regional Water Board) finds:

1. The City of Los Angeles (City) owns and operates the Donald C. Tillman Water Reclamation Plant (Tillman WRP), a tertiary wastewater treatment plant located at 6100 Woodley Avenue, Van Nuys, California.

2. The Tillman WRP discharges tertiary-treated wastewater under waste discharge requirements contained in Order No. R4-2006-0091, adopted by this Regional Water Board on December 14, 2006. Order No. R4-2006-0091 serves as a permit under the National Pollutant Discharge Elimination System (NPDES No. CA0056227) and regulates the discharge of treated wastewater to Los Angeles River, a water of the United States and the State of California, within the Los Angeles River Watershed. Order No. R4-2006-0091 expired on November 10, 2011, but has been administratively extended.

3. On January 25, 2010, the Regional Water Board entered into a settlement agreement with the City in an effort to resolve lawsuits and petitions challenging the 1998 Permit (Order No. 98-046) and 2006 Permit (Order No. R4-2006-0091). The settlement agreement required that a variety of negotiated modifications to Order No. R4-2006-0091 be brought before the Regional Water Board for its consideration. The settlement agreement did not bind the Regional Water Board's judgment in consideration of those modifications, but the modifications did reflect staff recommendations. Order No. R4-2010-0060 adopted by this Regional Water Board on April 1, 2010, modifying Order No. R4-2006-0091, was the result of the public hearing on staff's proposals pursuant to the settlement agreement.

4. The Regional Water Board adopted a revised permit for the Tillman WRP at its December 8, 2011 hearing. Upon the effective date of the revised permit, Order Nos. R4-2006-0091 and R4-2010-0060 will expire.

5. The treatment system of the Tillman WRP consists of grit removal, screening, flow equalization, primary sedimentation, nitrification and denitrification (NDN[1]) activated sludge biological treatment with fine pore aeration, secondary clarification, coagulation, aqua diamond cloth filtration, disinfection by chlorination with the addition of ammonium hydroxide to form chloramine, and dechlorination.

6. Order Nos. R4-2006-0091 and R4-2010-0060 prescribe the following final effluent limitations in Table 1 for protection of aquatic life in the receiving water of the Los Angeles River:

Table 1. Ammonia Effluent Limitations

Constituent	Unit	Effluent Limitations	
		Monthly Average	Daily Maximum
Ammonia	mg/L	1.4	4.2

The ammonia effluent limitations for monthly average and daily maximum (1.4 mg/L and 4.2 mg/L, respectively) are based on the waste load allocations (WLAs) in the Los Angeles River Nitrogen Compounds Total Maximum Daily Loads (LA River Nitrogen Compounds TMDLs). These limitations have been effective since October 1, 2007, after the incorporation of the NDN process at Tillman WRP.

The previous Order No. 98-046 did not contain any ammonia effluent limitations.

7. The section 303(d) list of impaired waterbodies in California, as approved by the United States Environmental Protection Agency (USEPA), identifies ammonia as impacting the Los Angeles River, the receiving water for the Tillman WRP.

8. In 2003, the cities of Los Angeles and Burbank and the Sanitation Districts of Los Angeles County completed and submitted site-specific objective (SSO) study for ammonia in the Los Angeles River, the San Gabriel River, and the Santa Clara River watersheds. On June 7, 2007, the Regional Water Board adopted Resolution No. 2007-005, *Amendments to the Water Quality Control Plan-Los Angeles Region to Incorporate Site-Specific Objectives for Select Inland Surface Waters in the San Gabriel River, Los Angeles River and Santa Clara River Watersheds.* The Basin Plan amendment incorporated the results of the study as site-specific 30-day average objectives for ammonia along with corresponding site-specific early life stage implementation provisions. The State Water Resources Control Board, the California Office of Administrative Law

1 In order to achieve compliance with the ammonia water quality objectives (WQOs) specified in the Water Quality Control Plan for the Los Angeles Region (Basin Plan), the City began to test different NDN treatments, including Modified Ludzack-Ettinger Process, Enhanced Modified Ludzack-Ettinger Process, and Step-Feed Process. The City completed construction of the NDN treatment facility in September 2007, and took 90 days to optimize operation of the NDN facilities.

(OAL), and USEPA approved the amendment on January 15, 2008; May 12, 2008; and March 30, 2009, respectively.

To date, the LA River Nitrogen Compounds TMDLs has not been revised to incorporate the ammonia SSO. Until the TMDL is revised, the permit for the Tillman WRP cannot be revised to incorporate the ammonia SSOs

9. On November 10, 2011, the City submitted a letter to the Regional Water Board requesting a Time Schedule Order (TSO) for the average monthly ammonia effluent limitation. The City listed the following as their reasons to justify their request for City's unique conditions:

   A. Attainability of ammonia effluent limitations is challenging –

      Compliance with the ammonia limits has proven to be challenging because of the nature of, and the requirements for, the operation of the NDN process and the need to comply with other effluent limitations that are inversely impacted by ammonia concentrations in the effluent. For example, the nitrification processes have the capability to remove the majority of ammonia present in the influent to the Tillman WRP. However, ammonia must be added back into the effluent prior to the disinfection process to reduce the formation of trihalomethanes. As a result, compliance with the effluent limits becomes uncertain and is not sustainable on a long-term basis, and the probability of exceeding the ammonia effluent limitations is likely.

   B. Real-time ammonia analysis is infeasible –

      The City needs to pursue alternative control measures to ensure long-term, sustainable compliance with the ammonia effluent limitations. These alternatives could include modifications to the operations of the Tillman WRP, further evaluation of technology for real-time ammonia monitoring, or modifications to the disinfection process. In order to determine the best long-term solution to this complex issue, the City needs time to evaluate the available options.

   C. Ammonia SSOs in the Basin Plan amendment shall be applied –

      Until the LA River Nitrogen Compounds TMDL targets and WLAs have been revised to reflect the revised ammonia objectives now that the SSOs are in effect, the ammonia effluent limitations in the NPDES permit for the Tillman WRP must be set equal to the existing TMDL ammonia WLAs. Additionally, the City provided information demonstrating that when the new Basin Plan ammonia SSOs are applied, the Los Angeles River is no longer impaired for ammonia and could be delisted.

10. Section 13300 of the CWC states:

    "Whenever a regional board finds that a discharge of waste is taking place or threatening to take place that violates or will violate requirements prescribed by the regional board, or the state board, or that the waste collection, treatment, or disposal facilities of a discharger are approaching capacity, the board may require the discharger to submit for approval of the board, with such modifications as it may deem necessary, a detailed time schedule of specific actions the discharger shall take in order to correct or prevent a violation of requirements."

11. Based on a review of monitoring data, although the City has not yet violated the effluent limitation, they have been very close, and may not consistently achieve compliance with the final average monthly effluent limitation for ammonia in Order Nos. R4-2006-0091 and R4-2010-0060. Accordingly, pursuant to CWC section 13300, a discharge of waste is taking place and/or threatens to take place that violates requirements prescribed by the Regional Water Board.

12. Water Code section 13385, subdivisions (h) and (i), require the Regional Water Board to impose mandatory minimum penalties upon dischargers that violate certain effluent limitations. Section 13385(j)(3) exempts violations of an effluent limitation from mandatory minimum penalties "where the waste discharge is in compliance with either a cease and desist order issued pursuant to Section 13301 or a time schedule order issued pursuant to Section 13300, *if all of the [specified] requirements are met.*" (emphasis added).

13. In accordance with Water Code section 13385(j)(3)(B), to be exempt from mandatory minimum penalties, the TSO must determine that for any one of four reasons, the discharger is unable to consistently comply with one or more of the effluent limitations.

    A. Pursuant to Water Code section 13385(j)(3)(B)(i), the effluent limitation is a new, more stringent limitation that became applicable after adoption of the permit and requires new or modified control measures to comply.

       The effluent limitations for ammonia in the 2006 permit for the Tillman WRP (Order Nos. R4-2006-0091 and R4-2010-0060) incorporate the LA River Nitrogen Compounds TMDL's ammonia WLAs. The effluent limitations for ammonia became effective on October 1, 2007. The previous permit (Order No. 98-046) did not include effluent limitations for ammonia.

       It was necessary for the discharger to implement new or modified control measures to comply with the new effluent limitation in the 2006 permit.

       Municipal wastewater treatment plants are complex systems, involving multiple biological and chemical processes. The control of ammonia in particular can have impacts on concentrations of other constituents in the effluent. The NDN process installed at the Tillman WRP has the capability to remove the majority of ammonia present in the influent to the plant. However, ammonia must be added back into the effluent prior to the disinfection process to reduce the formation of trihalomethanes. Technology is not currently available to allow sufficient real-time monitoring of ammonia to optimize the ammonia add-back process. Additionally, the current operation of the NDN facilities requires more chemical and energy usage than would be necessary if the limits were less stringent.

NDN facilities were designed to treat the entire design capacity; however, due to disinfection requirements and to meet the Tillman WRP's concentration-time requirements, the Tillman WRP continues to treat less flow than the design capacity. These reduced treatment flows at the Tillman WRP have resulted in additional system and tank capacity that has allowed the Tillman WRP to operate at a higher efficiency. As the Tillman WRP increases flow, the impact on the NDN process and ammonia add-back requirements becomes more uncertain.

Analysis of Tillman WRP's ammonia effluent data indicates that there is only an 85 percent (see Finding No. 14) chance of long-term compliance with the ammonia effluent limits. Based on this analysis and the operational issues discussed above, the City would need to pursue alternative control measures to ensure long-term, sustainable compliance with the ammonia effluent limits. These alternatives could include modifications to the operations of the Tillman WRP, further evaluation of technology for real-time ammonia monitoring, or modifications to the disinfection process. In order to determine the best long-term solution to this complex issue, the City needs time to evaluate the available options and to implement alternative control measures to consistently comply with the effluent limitations for ammonia.

B. Pursuant to Water Code section 13385(j)(3)(B)(iii)(d), the Regional Water Board finds that new or modified measures to control the composition of the waste discharge cannot be designed, installed, and put into operation within 30 calendar days.

14. In order to issue a TSO, the Regional Board must determine that the discharge violates or threatens to violate ammonia effluent limitations.

The ammonia effluent concentrations in Table 2, collected between January 1, 2008 and March 31, 2011, consist of 39 data ranging from <0.05 mg/L to 1.4 mg/L.

Table 2. Ammonia Effluent Concentrations

Ammonia Concentration Ranges (mg/L)	Number of Data
1.3 - 1.4	10
1.2 - 1.3	4

1.1 - 1.2	12
1.0 - 1.1	5
0.9 - 1.0	4
0.8 - 0.9	2
0.0 - 0.8	2

Table 2 shows that the City is challenged to comply with the current ammonia monthly average effluent limitation (1.4 mg/L). Note the number of data points approaching the limits. In addition, based on the result of the normal distribution probability plot of 39 data using Minitab 14, it is anticipated that ammonia effluent concentrations may exceed the effluent limitation of 1.4 mg/L 15 percent of the time.

15. Regional Water Board staff considered four options for determining interim ammonia monthly effluent limitation (as summarized in Table 3), based on effluent and receiving water monitoring data collected between January 1, 2008 and March 31, 2011. An interim ammonia monthly effluent limitation of 1.6 mg/L or 1.1 mg/L, based on the 95 percentile of effluent performance and a recalculation of the ammonia water quality objectives (as proposed by the City), respectively, will not help the City to avoid potential effluent violations. In addition, Heal the Bay disagrees with increasing the interim ammonia effluent limitation as high as would be allowed by the Ammonia SSO procedure, ranging from 4.6 mg/L to 6.1 mg/L. Therefore, this TSO assigns the interim ammonia monthly effluent limitation to be 2.2 mg/L, equal to the final ammonia effluent limitation for the Los Angeles-Glendale Water Reclamation Plant. This limit is protective of aquatic life and attainable by the City.

Table 3. Options Considered for Determining Ammonia Interim Monthly Effluent Limitation

Calculation Option	Interim Monthly Effluent Limitation (mg/L)
1. 95th Percentile (Performance-based)	1.6[2]
2. Ammonia SSO (Effluent Data-based)	
Discharge Points 001, 002, and 003	
April 1 – September 30	4.6[3]
October 1 – March 31	6.1[3]
Discharge Point 008	

[2] Based on the result of 95 percentile, using Minitab.
[3] See calculation in Attachment A.

Year Round	5.2^{3}
3. Ammonia SSO (Receiving Water Data-based)	
Discharge Point 008	
Year Round	1.1^{3}
4. Los Angeles–Glendale Water Reclamation Plant	2.2

16. Pursuant to CWC section 13385(j)(3), full compliance with the requirements of this TSO exempts the City from mandatory minimum penalties only for violations of the final effluent limitation for ammonia in Order Nos. R4-2006-0091 and R4-2010-0060 that occur after the effective date of this TSO.

17. This TSO includes interim requirements and the dates for their achievement. The interim requirements include both an interim effluent limitation for ammonia and actions and milestones leading to compliance with the final effluent limitation for this pollutant.

18. Consistent with Water Code section 13385(j)(3)(C), the TSO extends the time for compliance until September 30, 2012, five years after the effective date of the ammonia effluent limitations contained in the 2006 permit. The TSO includes an interim effluent limitation and actions and milestones to achieve compliance with the limitation.

19. This TSO concerns an existing facility and does not significantly alter the status with respect to the facility. This TSO is also being taken for the protection of the environment. Therefore, issuance of this TSO is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21100, *et.seq.*) in accordance with sections 15301 and 15321(a)(2) of Title 14 of the California Code of Regulations (CCR).

20. The Regional Water Board has notified the City and interested agencies and persons of its intent to issue this TSO concerning compliance with waste discharge requirements. The Regional Water Board, during a public comment period, received and considered all comments to this matter.

21. To provide the City with interim ammonia effluent, Regional Water Board staff prepared a tentative TSO, circulated it for public comment, received comments, responded to those comments, subsequently distributed a revised tentative TSO, and noticed consideration of the TSO for the Executive Officer to issue on February 2, 2012.

22. Any person aggrieved by this action of the Regional Water Board may petition the State Water Board to review the action in accordance with CWC section 13320 and CCR, title 23, sections 2050 and following. The State Water Board must *receive* the

petition by 5:00 p.m., 30 days after the Regional Water Board action, except that if the thirtieth day following the action falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

IT IS HEREBY ORDERED that, pursuant to CWC section 13300 and 13385(j)(3), the City of Los Angeles, as owner and operator of the Tillman WRP, shall comply with the requirements listed below to ensure compliance with the final effluent limitation for ammonia contained in Order Nos. R4-2006-0091 and R4-2010-0060:

1. Comply immediately with the interim effluent limit in Table 4, which shall be deemed effective from the date of this Order until September 30, 2012:

   Table 4. Interim Ammonia Effluent Limitation

Constituent	Units	Monthly Average
Ammonia (year round)	mg/L	2.2

2. Achieve full compliance with the final effluent limitation as soon as possible, but no later than September 30, 2012.

3. Submit quarterly progress reports of efforts taken by the City towards achieving compliance with the final effluent limits for ammonia. The reports shall summarize the progress to date, activities conducted during that quarter, and the activities planned for the upcoming quarters. The reports shall also state whether or not the Tillman WRP was in compliance with the interim effluent limitations for ammonia during the reporting period. Each quarterly report shall be received by the Regional Water Board by the 15^{th} day of the first month following the reporting period (April 15, July 15, and October 15). The first progress report shall be received by the Regional Water Board by April 15, 2012, and will cover the months of February 2012 through March 2012.

   The progress reports shall detail any actions taken to support incorporation of the current Basin Plan ammonia and/or revisions to the 303(d) list, studies, facility modifications, and recommendations for additional measures, if necessary, to achieve full compliance with applicable final effluent limits.

4. All technical and monitoring reports required under this TSO are required pursuant to CWC sections 13267 and 13383. The Regional Water Board needs the required information in order to determine compliance with this TSO and Order No. R4-2006-0091. The Regional Water Board believes that the

burdens, including costs, of these reports bear a reasonable relationship to the needs for the reports and the benefits to be obtained from the reports.

5. Any person signing a document submitted under this TSO shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

6. If the City fails to comply with any provision of this TSO, the Regional Water Board may take any further action authorized by law. The Executive Officer, or his/her delegee, is authorized to take appropriate enforcement action pursuant, but not limited to, CWC sections 13350 and 13385. The Regional Water Board may also refer any violations to the Attorney General for judicial enforcement, including injunction and civil monetary remedies.

7. All other provisions of NPDES Order Nos. R4-2006-0091 and R4-2010-0060, and R4-2012-0007 not in conflict with this TSO are in full force and effect.

8. The Regional Water Board may reopen this TSO at its discretion or at the request of the City, if warranted. Lack of progress towards compliance with this TSO may be cause for the Regional Water Board to modify the conditions of this TSO.

9. This TSO becomes effective immediately upon adoption by the Regional Water Board. This TSO expires on October 1, 2012.

I, Samuel Unger, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an order adopted by the Executive Officer pursuant to delegated authority by the California Regional Water Quality Control Board, Los Angeles Region, on February 2, 2012.

Samuel Unger

Samuel Unger, P.E.
Executive Officer

Attachment A
Calculation Summary of Interim Ammonia Limitations Using Los Angeles River Reaches 4 & 5 Site-Specific Objectives

I. Ammonia Site-Specific Objectives

A. For Discharge Points 001, 002, and 003 Located at Los Angeles River Reach 5 (Sepulveda Basin)

One-hour Average Objective = $\frac{0.411}{1+10^{7.204-pH}}+\frac{58.4}{1+10^{pH-7.204}}$ .... Eq. 1

30-day Average Objective (from April 1 to September 30) =

$\left(\frac{0.0676}{1+10^{7.688-pH}}+\frac{2.912}{1+10^{pH-7.688}}\right)\times 0.854\times \mathrm{MIN}(2.85, 2.85\times 10^{0.028\times(25-T)})$ .... Eq. 2

30-day Average Objective (from October 1 to March 31) =

$\left(\frac{0.0676}{1+10^{7.688-pH}}+\frac{2.912}{1+10^{pH-7.688}}\right)\times 0.854\times 2.85\times 10^{0.028\times(25-\mathrm{MAX}(T,7))}$ .... Eq. 3

Where T = temperature expressed in °C.

B. For Discharge Point 008 Located at Los Angeles River Reach 4 (Sepulveda Dam to Riverside Drive)

One-hour Average Objective = Eq. 1

30-day Average Objective (year round) =

$\left(\frac{0.0676}{1+10^{7.688-pH}}+\frac{2.912}{1+10^{pH-7.688}}\right)\times 0.854\times 2.85\times 10^{0.028\times(25-\mathrm{MAX}(T,7))}$ .... Eq. 4

Where T = temperature expressed in °C.

II. Calculation of Interim Ammonia Effluent Limitations at Eff-001A, Based on Effluent Data collected Between January 1, 2008 and March 31, 2011

A. For Los Angeles River Reach 5 –

Only Eq. 1, Eq. 2, and Eq.3 are used to conduct the interim ammonia effluent limitations, because the Donald C. Tillman Water Reclamation Plant's Effluent

Transfer Station Eff-001A via Discharge Points 001, 002, and 003 is located within Los Angeles River Reach 5.

1. Interim Ammonia Effluent Limitations from April 1 to September 30 for Early Life Stage (ELS) Present

Step 1 – Identify applicable ammonia water quality Objectives (WQOs).

From the Discharger's effluent between April 1 and September 30, the following data are summarized below:

pH = 7.3 at 90th percentile (for One-hour Average Objective)
pH = 7.25 at 50th percentile (for 30-day Average Objective)
Temperature = 26.39 °C at 50th percentile (for 30-day Average Objective)

When pH is equal to 7.3;
One-hour Average Objective (Eq. 1) = 26.21 mg/L

When pH = 7.25 and temperature = 26.39 °C;
30-day Average Objective (Eq. 2) = 4.79 mg/L

From Basin Plan amendment;

4-day Average Objective = 2.5 times the 30-day average objective = 2.5 X 4.79 mg/L = 11.97 mg/L

Ammonia WQO Summary:

One-hour Average = 26.21 mg/L
Four-day Average = 11.97 mg/L
30-day Average = 4.79 mg/L

Step 2 – For each water quality objective, calculate the effluent concentration allowance (ECA) using the steady-state mass balance model. Since mixing has not been allowed by the Regional Water Board, this equation applies:
ECA = WQO

Step 3 – Determine the Long-Term Average discharge condition (LTA) by multiplying each ECA with a factor (multiplier) that adjust for variability.

ECA multiplier when CV = 0.2796

ECA $\text{multiplier}_{\text{1-hour99}}$ = 0.5486
ECA $\text{multiplier}_{\text{4-day99}}$ = 0.7306

ECA $multiplier_{30\text{-}day99}$ = 0.8893

Using the LTA equations:

$LTA_{1\text{-}hour/99} = ECA_{1\text{-}hour} \times$ ECA $multiplier_{1\text{-}hour99}$ = 26.21 mg/L x 0.5486
= 14.38 mg/L

$LTA_{4\text{-}day/99} = ECA_{4\text{-}day} \times$ ECA $multiplier_{4\text{-}day99}$ = 11.97 mg/L x 0.7306
= 8.75 mg/L

$LTA_{30\text{-}day/99} = ECA_{30\text{-}day} \times$ ECA $multiplier_{30\text{-}day99}$ = 4.79 mg/L x 0.8893
= 4.26 mg/L

Step 4 – Select the (most limiting) of the LTAs derived in Step 3 (LTA_{min})

LTA_{min} = 4.26 mg/L

Step 5 – Calculate water quality based effluent limitations for monthly average (AMEL) and daily maximum (MDEL) by multiplying LTA_{min} as selected in Step 4 with a factor (multiplier).

Monthly sampling frequency (n) is 30 times per month or less, and the minimum LTA is the $LTA_{30\text{-}day/99}$, therefore n = 30, CV = 0.2796.

AMEL $multiplier_{95}$ = 1.0861
MDEL $multiplier_{99}$ = 1.8230

AMEL = LTA_{min} x AMEL $multiplier_{95}$ = 4.26 mg/L x 1.0861 = 4.63 mg/L
≅ 4.6 mg/L

MDEL = LTA_{min} x MDEL $multiplier_{99}$ = 4.26 mg/L x 1.8230 = 7.77 mg/L
≅ 7.8 mg/L

2. **Interim Ammonia Effluent Limitations from October 1 to March 31 for ELS Absent**

Step 1 – Identify applicable ammonia WQOs.

From the Discharger's effluent between October 1 and March 31, the following data are summarized below:

pH = 7.3 at 90th percentile (for One-hour Average Objective)
pH = 7.2 at 50th percentile (for 30-day Average Objective)
Temperature = 22.78 °C at 50th percentile (for 30-day Average Objective)

When pH is equal to 7.3;
One-hour Average Objective (Eq. 1) = 26.21 mg/L

When pH = 7.2 and temperature = 22.78 °C;
30-day Average Objective (Eq. 3) = 6.22 mg/L

From Basin Plan amendment;

4-day Average Objective = 2.5 times the 30-day average objective = 2.5 X 6.22 mg/L = 15.55 mg/L

Ammonia WQO Summary:

One-hour Average = 26.21 mg/L
Four-day Average = 15.55 mg/L
30-day Average = 6.22 mg/L

Step 2 – For each water quality objective, calculate the effluent concentration allowance (ECA) using the steady-state mass balance model. Since mixing has not been allowed by the Regional Water Board, this equation applies:

ECA = WQO

Step 3 – Determine the Long-Term Average discharge condition (LTA) by multiplying each ECA with a factor (multiplier) that adjust for variability.

ECA multiplier when CV = 0.2066

$\text{ECA multiplier}_{\text{1-hour99}} = 0.6347$
$\text{ECA multiplier}_{\text{4-day99}} = 0.7911$
$\text{ECA multiplier}_{\text{30-day99}} = 0.9167$

Using the LTA equations:

$\text{LTA}_{\text{1-hour/99}} = \text{ECA}_{\text{1-hour}} \times \text{ECA multiplier}_{\text{1-hour99}} = 26.21 \text{ mg/L} \times 0.6347 = 16.64 \text{ mg/L}$
$\text{LTA}_{\text{4-day/99}} = \text{ECA}_{\text{4-day}} \times \text{ECA multiplier}_{\text{4-day99}} = 15.55 \text{ mg/L} \times 0.7911 = 12.30 \text{ mg/L}$
$\text{LTA}_{\text{30-day/99}} = \text{ECA}_{\text{30-day}} \times \text{ECA multiplier}_{\text{30-day99}} = 6.22 \text{ mg/L} \times 0.9167 = 5.70 \text{ mg/L}$

Step 4 – Select the (most limiting) of the LTAs derived in Step 3 (LTA_{min})
$\text{LTA}_{\text{min}} = 5.70$ mg/L

Step 5 – Calculate water quality based effluent limitations for AMEL and MDEL by multiplying LTA_{min} as selected in Step 4 with a factor (multiplier).

Monthly sampling frequency (n) is 30 times per month or less, and the minimum LTA is the $LTA_{30\text{-}day/99}$, therefore n = 30, CV = 0. 2066.

AMEL $multiplier_{95}$ = 1.0632
MDEL $multiplier_{99}$ = 1.5756

AMEL = LTA_{min} x AMEL $multiplier_{95}$ = 5.70 mg/L x 1.0632 = 6.06 mg/L ≅ 6.1 mg/L
MDEL = LTA_{min} x MDEL $multiplier_{99}$ = 5.70 mg/L x 1.5756 = 8.98 mg/L ≅ 9.0 mg/L

B. For Los Angeles River Reach 4 –

Only Eq. 1 and Eq.4 are used to conduct the interim ammonia effluent limitations, because the Donald C. Tillman Water Reclamation Plant's Effluent Transfer Station Eff-001A via Discharge Point 008 is located within Los Angeles River Reach 4.

1. Year Round Interim Ammonia Effluent Limitations for ELS Absent

Step 1 – Identify applicable ammonia WQOs.

From the Discharger's effluent, the following data are summarized below:

pH = 7.3 at 90th percentile (for One-hour Average Objective)
pH = 7.2 at 50th percentile (for 30-day Average Objective)
Temperature = 25.00 °C at 50th percentile (for 30-day Average Objective)

When pH is equal to 7.3;
One-hour Average Objective (Eq. 1) = 26.21 mg/L

When pH = 7.2 and temperature = 25.00 °C;
30-day Average Objective (Eq. 3) = 5.39 mg/L

From Basin Plan amendment;

4-day Average Objective = 2.5 times the 30-day average objective = 2.5 X 5.39 mg/L = 13.47 mg/L

Ammonia WQO Summary:

One-hour Average = 26.21 mg/L
Four-day Average = 13.47 mg/L
30-day Average = 5.39 mg/L

Step 2 – For each water quality objective, calculate the effluent concentration allowance (ECA) using the steady-state mass balance model. Since mixing has not been allowed by the Regional Water Board, this equation applies:

ECA = WQO

Step 3 – Determine the Long-Term Average discharge condition (LTA) by multiplying each ECA with a factor (multiplier) that adjust for variability.

ECA multiplier when CV = 0.2409

$\text{ECA multiplier}_{\text{1-hour99}}$ = 0.5919
$\text{ECA multiplier}_{\text{4-day99}}$ = 0.7618
$\text{ECA multiplier}_{\text{30-day99}}$ = 0.9037

Using the LTA equations:

$\text{LTA}_{\text{1-hour/99}} = \text{ECA}_{\text{1-hour}} \times \text{ECA multiplier}_{\text{1-hour99}}$ = 26.21 mg/L x 0.5919
= 15.52 mg/L
$\text{LTA}_{\text{4-day/99}} = \text{ECA}_{\text{4-day}} \times \text{ECA multiplier}_{\text{4-day99}}$ = 13.47 mg/L x 0.7618
= 10.26 mg/L
$\text{LTA}_{\text{30-day/99}} = \text{ECA}_{\text{30-day}} \times \text{ECA multiplier}_{\text{30-day99}}$ = 5.39 mg/L x 0.9037
= 4.87 mg/L

Step 4 – Select the (most limiting) of the LTAs derived in Step 3 (LTA_{min})
LTA_{min} = 4.87 mg/L

Step 5 – Calculate water quality based effluent limitations for AMEL and MDEL by multiplying LTA_{min} as selected in Step 4 with a factor (multiplier).

Monthly sampling frequency (n) is 30 times per month or less, and the minimum LTA is the $\text{LTA}_{\text{30-day/99}}$, therefore n = 30, CV = 0. 2409.

$\text{AMEL multiplier}_{95}$ = 1.0740
$\text{MDEL multiplier}_{99}$ = 1.6893

AMEL = $\text{LTA}_{\text{min}} \times \text{AMEL multiplier}_{95}$ = 4.87 mg/L x 1.0740 = 5.23 mg/L
≅ 5.2 mg/L
MDEL = $\text{LTA}_{\text{min}} \times \text{MDEL multiplier}_{99}$ = 4.87 mg/L x 1.6893 = 8.23 mg/L
≅ 8.2 mg/L

III. Calculation of Interim Ammonia Effluent Limitations at Eff-001A, Based on Receiving Water Data Collected Between January 1, 2008 and March 31, 2011

The receiving water data collected between January 1, 2008 and March 31, 2011 at Receiving Water Monitoring Station RSW-LATT630 (R-7) were used to conduct ammonia monthly effluent limitation. RSW-LATT630 (R-7) is located within Los Angeles River Reach 4, therefore, Eq. 1 and Eq.4 are used to conduct the interim ammonia effluent limitations.

A. For Los Angeles River Reach 4 –

1. Year Round Interim Ammonia Effluent Limitations for ELS Absent

Step 1 – Identify applicable ammonia WQOs.

From the Discharger's effluent, the following data are summarized below:

pH = 8.47 at 90th percentile (for One-hour Average Objective)
pH = 8.20 at 50th percentile (for 30-day Average Objective)
Temperature = 19.63 °C at 50th percentile (for 30-day Average Objective)

When pH is equal to 8.47;
One-hour Average Objective (Eq. 1) = 3.37 mg/L

When pH = 8.20 and temperature = 19.63 °C;
30-day Average Objective (Eq. 3) = 2.54 mg/L

From Basin Plan amendment;

4-day Average Objective = 2.5 times the 30-day average objective = 2.5 X 2.54 mg/L = 6.34 mg/L

Ammonia WQO Summary:

One-hour Average = 3.37 mg/L
Four-day Average = 6.34 mg/L
30-day Average = 2.54 mg/L

Step 2 – For each water quality objective, calculate the effluent concentration allowance (ECA) using the steady-state mass balance model. Since mixing has not been allowed by the Regional Water Board, this equation applies:

ECA = WQO

Step 3 – Determine the Long-Term Average discharge condition (LTA) by multiplying each ECA with a factor (multiplier) that adjust for variability.

ECA multiplier when CV = 0.7165

ECA $multiplier_{1\text{-}hour99}$ = 0.2753
ECA $multiplier_{4\text{-}day99}$ = 0.4734
ECA $multiplier_{30\text{-}day99}$ = 0.7449

Using the LTA equations:

$LTA_{1\text{-}hour/99} = ECA_{1\text{-}hour} \times ECA\ multiplier_{1\text{-}hour99} = 3.37\ mg/L \times 0.2753 = 0.93\ mg/L$

$LTA_{4\text{-}day/99} = ECA_{4\text{-}day} \times ECA\ multiplier_{4\text{-}day99} = 6.34\ mg/L \times 0.4734 = 3.00\ mg/L$

$LTA_{30\text{-}day/99} = ECA_{30\text{-}day} \times ECA\ multiplier_{30\text{-}day99} = 2.54\ mg/L \times 0.7449 = 1.89\ mg/L$

Step 4 – Select the (most limiting) of the LTAs derived in Step 3 (LTA_{min})
LTA_{min} = 4.87 mg/L

Step 5 – Calculate water quality based effluent limitations for AMEL and MDEL by multiplying LTA_{min} as selected in Step 4 with a factor (multiplier).

Monthly sampling frequency (n) is 30 times per month or less, and the minimum LTA is the $LTA_{30\text{-}day/99}$, therefore n = 30, CV = 0. 7165.

AMEL $multiplier_{95}$ = 1.2285
MDEL $multiplier_{99}$ = 3.6330

$AMEL = LTA_{min} \times AMEL\ multiplier_{95} = 0.93\ mg/L \times 1.2285 = 1.14\ mg/L \cong 1.1\ mg/L$

$MDEL = LTA_{min} \times MDEL\ multiplier_{99} = 0.93\ mg/L \times 3.6330 = 3.37\ mg/L \cong 3.3\ mg/L$

Attachment A, B, C, D

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ), also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL) is the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL) is the highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative pollutants are those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (CV) is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ) are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA) is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration is the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in California Water Code (CWC) section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters are all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation is the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation is the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL) means the highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median is the middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (*n*) is odd, then the median = $X_{(n+1)/2}$. If *n* is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the *n*/2 and *n*/2+1).

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND) are those sample results less than the laboratory's MDL.

Ocean Waters are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Resources Control Board's (State Water Board's) California Ocean Plan.

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP) means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Quality Control Board (Regional Water Board) may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to CWC section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in CWC section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL) is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Satellite Collection System is the portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Source of Drinking Water is any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

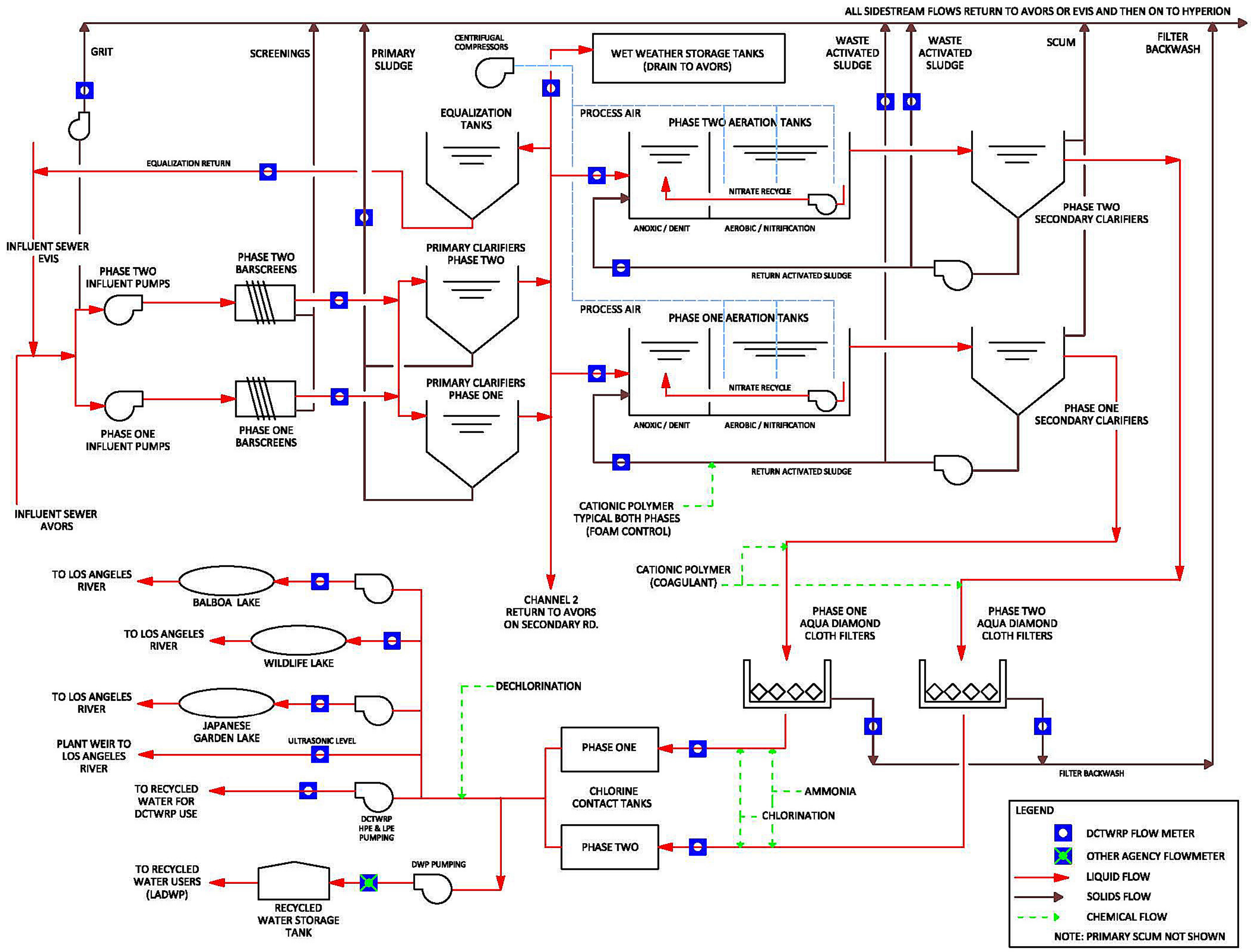
Standard Deviation (σ) is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

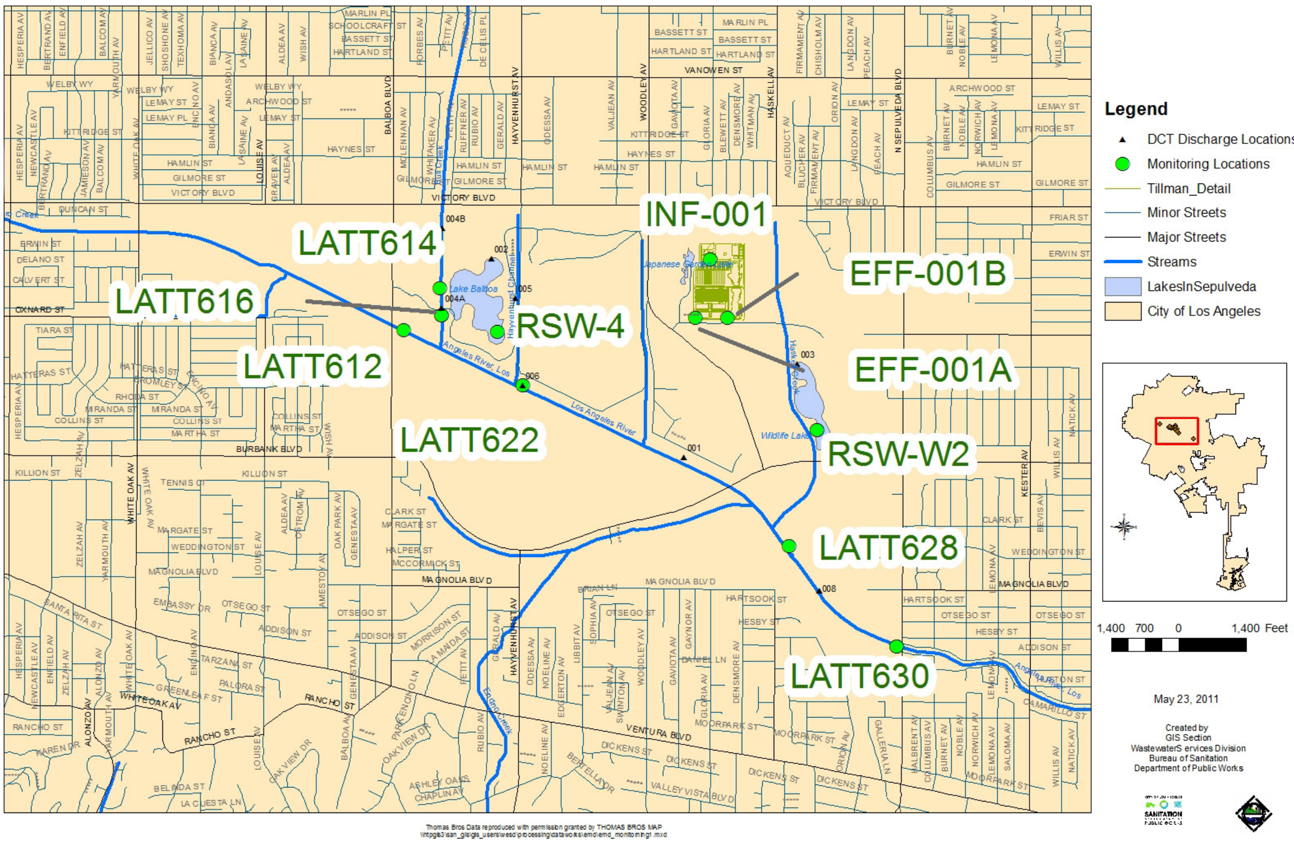
where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B – FLOW SCHEMATIC OF FACILITY



ATTACHMENT C – MAP



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR part 122.41(a).)

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR part 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 CFR part 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR part 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 CFR part 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR part 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 CFR part 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Quality Control Board (Regional Water Board), State Water Resources Control Board (State Water Board), United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to the following (40 CFR part 122.41(i) and CWC section 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 CFR part 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR part 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR part 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location. (40 CFR part 122.41(i)(4).)

G. Bypass

1. Definitions

   a. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR part 122.41(m)(1)(i).)

   b. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR part 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations – The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 CFR part 122.41(m)(2).)

3. Prohibition of bypass – Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless the following (40 CFR part 122.41(m)(4)(i)):

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR part 122.41(m)(4)(i)(A));

   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR part 122.41(m)(4)(i)(B)); and,

   c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR part 122.41(m)(4)(i)(C).)

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR part 122.41(m)(4)(ii).)

5. Notice

   a. Anticipated bypass – If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 CFR part 122.41(m)(3)(i).)

   b. Unanticipated bypass – The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 CFR part 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 CFR part 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for

noncompliance, is final administrative action subject to judicial review. (40 CFR part 122.41(n)(2).).

2. Conditions necessary for a demonstration of upset – A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence of the following that (40 CFR part 122.41(n)(3)):

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR part 122.41(n)(3)(i));

   b. The permitted facility was, at the time, being properly operated (40 CFR part 122.41(n)(3)(ii));

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR part 122.41(n)(3)(iii)); and,

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR part 122.41(n)(3)(iv).)

3. Burden of proof – In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR part 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 CFR part 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 CFR part 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the CWC (40 CFR parts 122.41(l)(3) and 122.61).

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR part 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 CFR parts 122.41(j)(4) and 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 CFR part 122.41(j)(2).)

B. Records of monitoring information shall include the following items:

1. The date, exact place, and time of sampling or measurements (40 CFR part 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 CFR part 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 CFR part 122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 CFR part 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 CFR part 122.41(j)(3)(v)); and,
6. The results of such analyses. (40 CFR part 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 CFR part 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 CFR part 122.7(b)(1)); and,
2. Permit applications and attachments, permits and effluent data. (40 CFR part 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR part 122.41(h); CWC section 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 CFR part 122.41(k).)

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR part 122.22(a)(3).).

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR part 122.22(b)(1));

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR part 122.22(b)(2)); and,

   c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 CFR part 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for

the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR part 122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 CFR part 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR part 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR part 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 CFR part 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR part 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 CFR part 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR part 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR part 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR part 122.41(l)(6)(ii)(A).)

   b. Any upset that exceeds any effluent limitation in this Order. (40 CFR part 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR part 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. The following notices are required under this provision only when (40 CFR part 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 CFR part 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR part 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR part 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 CFR part 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 CFR part 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 CFR part 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTW)

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 CFR part 122.42(b)):

1. Any new introduction of pollutants into the POTWs from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 CFR part 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTWs by a source introducing pollutants into the POTWs at the time of adoption of the Order. (40 CFR part 122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTWs as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTWs. (40 CFR part 122.42(b)(3).)

Attachment E – MRP

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP), CI-5695

Title 40, Code of Federal Regulations (CFR), part 122.48 requires that all National Pollutant Discharge Elimination System (NPDES) permits specify monitoring and reporting requirements. California Water Code (CWC) sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. All samples shall be representative of the waste discharge under conditions of peak load. Quarterly effluent analyses shall be performed during the months of February, May, August, and November. Semiannual analyses shall be performed during the months of February and August. Annual analyses shall be performed during the month of August with the exception of bioassessments. Should there be instances when monitoring could not be done during these specified months, the Discharger must notify the Regional Water Board, state the reason why monitoring could not be conducted, and obtain approval from the Executive Officer for an alternate schedule. Results of quarterly, semiannual, and annual analyses shall be reported in the monthly monitoring report following the analysis.

B. Pollutants shall be analyzed using the analytical methods described in 40 CFR parts 136.3, 136.4, and 136.5 (revised March 12, 2007); or where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Resources Control Board (State Water Board). Laboratories analyzing effluent samples and receiving water samples shall be certified by the California Department of Public Health Environmental Laboratory Accreditation Program (ELAP) or approved by the Executive Officer and must include quality assurance/quality control (QA/QC) data in their reports. A copy of the laboratory certification shall be provided each time a new certification and/or renewal of the certification is obtained from ELAP.

C. Water/wastewater samples must be analyzed within allowable holding time limits as specified in 40 CFR part 136.3 (revised March 12, 2007). All QA/QC analyses must be run on the same dates that samples are actually analyzed. The Discharger shall retain the QA/QC documentation in its files and make available for inspection and/or submit them when requested by the Regional Water Board. Proper chain of custody procedures must be followed and a copy of that documentation shall be submitted with the monthly report.

D. The Discharger shall calibrate and perform maintenance procedures on all monitoring instruments and to ensure accuracy of measurements, or shall ensure that both equipment activities will be conducted.

E. For any analyses performed for which no procedure is specified in the United States Environmental Protection Agency (USEPA) guidelines, or in the MRP, the constituent or parameter analyzed and the method or procedure used must be specified in the monitoring report.

F. Each monitoring report must affirm in writing that "all analyses were conducted at a laboratory certified for such analyses by the California Department of Public Health or approved by the Executive Officer and in accordance with current USEPA guideline procedures or as specified in this MRP."

G. The monitoring report shall specify the USEPA analytical method used, the Method Detection Limit (MDL), and the Reporting Level (RL) [the applicable minimum level (ML) or reported Minimum Level (RML)] for each pollutant. The MLs are those published by the State Water Board in the *Policy for the Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP),* February 9, 2005, Appendix 4. The ML represents the lowest quantifiable concentration in a sample based on the proper application of all method-based analytical procedures and the absence of any matrix interference. When all specific analytical steps are followed and after appropriate application of method specific factors, the ML also represents the lowest standard in the calibration curve for that specific analytical technique. When there is deviation from the method analytical procedures, such as dilution or concentration of samples, other factors may be applied to the ML depending on the sample preparation. The resulting value is the reported minimum level.

H. The Discharger shall select the analytical method that provides a ML lower than the permit limit established for a given parameter, unless the Discharger can demonstrate that a particular ML is not attainable and obtains approval for a higher ML from the Executive Officer, as provided for in section J, below. If the effluent limitation is lower than all the MLs in Appendix 4 of the SIP, the Discharge must select the method with the lowest ML for compliance purposes. The Discharger shall include in the Annual Summary Report a list of the analytical methods employed for each test.

I. The Discharger shall instruct its laboratories to establish calibration standards so that the ML (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve. In accordance with section J, below, the Discharger's laboratory may employ a calibration standard lower than the ML in Appendix 4 of the SIP.

J. In accordance with section 2.4.3 of the SIP, the Regional Water Board Executive Officer, in consultation with the State Water Board's Quality Assurance Program Manager, may establish an ML that is not contained in Appendix 4 of the SIP to be included in the discharger's permit in any of the following situations:

1. When the pollutant under consideration is not included in Appendix 4 of the SIP;

2. When the discharger and the Regional Water Board agree to include in the permit a test method that is more sensitive than those specified in 40 CFR part 136 (revised as of March 12, 2007);

3. When a discharger agrees to use an ML that is lower than those listed in Appendix 4;

4. When a discharger demonstrates that the calibration standard matrix is sufficiently different from that used to establish the ML in Appendix 4 and proposes an appropriate ML for the matrix; or,

5. When the discharger uses a method, which quantification practices are not consistent with the definition of the ML. Examples of such methods are USEPA-approved method 1613 for dioxins, and furans, method 1624 for volatile organic substances, and method 1625 for semi-volatile organic substances. In such cases, the discharger, the Regional Water Board, and the State Water Board shall agree on a lowest quantifiable limit and that limit will substitute for the ML for reporting and compliance determination purposes.

If there is any conflict between foregoing provisions and the SIP, the provisions stated in the SIP (section 2.4) shall prevail.

K. If the Discharger samples and performs analyses (other than for process/operational control, startup, research, or equipment testing) on any influent, effluent, or receiving water constituent more frequently than required by this Program using approved analytical methods, the results of those analyses shall be included in the report. These results shall be reflected in the calculation of the average used in demonstrating compliance with average effluent, receiving water, etc., limitations.

L. The Discharger shall develop and maintain a record of all spills or bypasses of raw or partially treated sewage from its collection system or treatment facility according to the requirements in the WDR section of this Order. This record shall be made available to the Regional Water Board upon request and a spill summary shall be included in the annual summary report.

M. For all bacteriological analyses, sample dilutions should be performed so the expected range of values is bracketed (for example, with multiple tube fermentation method or membrane filtration method, 2 to 16,000 per 100 ml for total and fecal coliform, at a minimum, and 1 to 1000 per 100 ml for enterococcus). The detection methods used for each analysis shall be reported with the results of the analyses.

1. Detection methods used for coliforms (total and fecal) shall be those presented in Table 1A of 40 CFR part 136 (revised March 12, 2007), unless alternate methods have been approved in advance by the USEPA pursuant to 40 CFR part 136.

2. Detection methods used for enterococcus shall be those presented in Table 1A of 40 CFR part 136 (revised March 12, 2007) or in the USEPA publication EPA 600/4-85/076, *Test Methods for Escherichia coli and Enterococci in Water By Membrane Filter Procedure*, or any improved method determined by the Regional Water Board to be appropriate.

II. MONITORING LOCATIONS

The Discharger shall conduct the monitoring program at the following monitoring locations (see Attachment C) to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table 1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name[1]	Monitoring Location Description
Influent Monitoring Station		
INF-001	Influent Pump Station	Sampling station (34° 11' 01.0'' N, 118° 28' 45.8'' W) is established at point of inflow to the sewage treatment plant and located upstream of any in-plant return flows, where representative samples of the influent can be obtained.
Effluent Monitoring Station		
EFF-001A	Effluent Transfer Station Used for Point of Compliance for all Constituents but Bacteria	The effluent sampling stations (34° 10' 49.0'' N, 118° 28' 49.4'' W for composite samples) (34° 10' 48.9'' N, 118° 28' 48.4'' W for grab samples) are located downstream of any in-plant return flows and after the final dechlorination process, where representative samples of the effluent can be obtained from Donald C. Tillman WRP.
EFF-001B	Effluent Transfer Station Used for Point of Compliance for Bacteria	The effluent sampling station (34° 10' 49.0'' N, 118° 28' 41.5'' W) is located downstream of any in-plant return flows and after the final disinfection process, where representative samples of the effluent can be obtained from Donald C. Tillman WRP.
Receiving Water Monitoring Stations[2]		
---	RSW-LATT630 (R-7)	This sampling location (34° 09' 41.9'' N, 118° 27' 59.5'' W) is located in Los Angeles River, 1800 feet downstream of Discharge Point 008.
---	RSW-003D	TMDL Wet-Weather Flow Monitoring Station (34° 49' 8.4'' N, 118° 12' 20.0'' W) is located at the County of Los Angeles Department of Public Works' Wardlow Gage Station No. F319-R, in the Los Angeles River, just below Wardlow River Road.
---	RSW-LATT622 (D)	This sampling location (34° 10' 35.0'' N, 118° 28' 31.7'' W) is located at 100 yards downstream of the confluence of the Los Angeles River and Hayvenhurst Channel.
---	RSW-LATT612 (I)	This sampling location (34° 10' 46.1'' N, 118° 30' 01.1'' W) is located in Los Angeles River, upstream of Bull Creek.

[1] The new names of the receiving water monitoring stations replace those in parentheses used in the MRPs of Order Nos. R4-2006-0091 and R4-2010-0060.

[2] The receiving water monitoring stations with the exception of RSW-003D are based on the City of Los Angeles *Los Angeles River Regional Monitoring Program* (LARRMP) approved by this Regional Water Board on January 12, 2009. The LARRMP improves coordination and efficiency of receiving water monitoring by the Donald C. Tillman and Los Angeles – Glendale Water Reclamation Plants. The LARRMP streamlines monitoring efforts, reduces redundancies throughout the watershed, and provides more useful water quality data on both watershed and site-specific scales. Therefore, the receiving water monitoring stations of F, H, 1, 5, 7, W-D/R-2, W-C, W-1, and W-3 specified in the MRP of Order No. R4-2006-0091 has been deleted in the MRP of Order No. R4-2011-0196. See Section VIII.A of this MRP for detailed information.

Discharge Point Name	Monitoring Location Name[1]	Monitoring Location Description
Receiving Water Monitoring Stations[2]		
---	RSW-LATT616 (J)	This sampling location (34° 10' 49.3'' N, 118° 29' 51.8'' W) is located in Bull Creek, 100 ft. downstream of Lake Balboa weir outlet (Lake Balboa Storm Drain Nos. 1 and 2 outlets) (Discharge Serial No. 004).
---	RSW-LATT614 (K)	This sampling location (34° 10' 54.8'' N, 118° 29' 52.4'' W) is located in Bull Creek, upstream of Lake Balboa discharge (250 feet upstream of Lake Balboa upper discharge, near the corner of Victory Blvd. and Petit Ave).
---	RSW-LATT628 (W-E)	This sampling location (34° 10' 2.3'' N, 118° 28' 26.0'' W) is located in Los Angeles River, 300 ft downstream of the Haskell Flood Control Channel.
---	RSW-4 (4)	This sampling location (34° 10' 45.9" N, 118° 29' 38.1" W) is located in Lake Balboa, 400 feet from the outlet spillway
---	RSW-W2 (W-2)	This sampling location (34° 10' 26.1" N, 118° 28' 19.3" W) is located in the Wildlife Lake, south of the island, near the westerly lake shoreline at a 2 foot water depth

III. INFLUENT MONITORING REQUIREMENTS

Influent monitoring is required to:

- Determine compliance with NPDES permit conditions;
- Assess treatment plant performance; and,
- Assess effectiveness of the Pretreatment Program.

A. Monitoring Location

1. The Discharger shall monitor influent to the facility at INF-001 as follows:

Table 2. Influent Monitoring at INF-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	recorder	continuous[3]	--
pH	pH units	grab	weekly	[4]
Total suspended solids	mg/L	24-hour composite	weekly	[4]

[3] Total daily flow and instantaneous peak daily flow (24-hr basis). Actual monitored flow shall be reported (not the maximum flow, i.e., design capacity).

[4] Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136; where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or State Water Resources Control Board. For any pollutant whose effluent limitation is lower than all the MLs specified in Attachment 4 of the SIP, the analytical method with the lowest ML must be selected.

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
$BOD_{5@20^{o}C}$	mg/L	24-hour composite	weekly	[4]
Cadmium	μg/L	24-hour composite	quarterly	[4]
Copper	μg/L	24-hour composite	quarterly	[4]
Lead	μg/L	24-hour composite	quarterly	[4]
Mercury	μg/L	24-hour composite	quarterly	[4]
Selenium	μg/L	24-hour composite	quarterly	[4]
Zinc	μg/L	24-hour composite	quarterly	[4]
Cyanide	μg/L	grab	quarterly	[4]
2,4-D	μg/L	24-hour comp.	semiannually	[4]
2,4,5-TP (Silvex)	μg/L	24-hour comp.	semiannually	[4]
Pesticide[5]	μg/L	24-hour composite	semiannually	[4]
Remaining USEPA priority pollutants[6] excluding asbestos	μg/L	24-hour composite/ grab for VOCs & chromium	semiannually	[4]

IV. EFFLUENT MONITORING REQUIREMENTS

Effluent monitoring is required to:

- Determine compliance with NPDES permit conditions and water quality standards;
- Assess Facility performance, identify operational problems and improve Facility performance;
- Provide information on wastewater characteristics and flows for use in interpreting water quality and biological data;
- Determine reasonable potential analysis for toxic pollutants; and,
- Determine TMDL effectiveness in waste load allocation compliance.

A. Monitoring Location EFF-001A

The Discharger shall monitor flow at EFF-001A as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding ML:

[5] Pesticides are, for purposes of this order, those six constituents referred to in 40 CFR part 125.58 (p) (demeton, guthion, malathion, methoxychlor, mirex, and parathion). Where 40 CFR part 136-approved methods are not available for these compounds, USEPA Method 8141A shall be used.

[6] Priority pollutants are those constituents referred to in 40 CFR part 401.15; a list of these pollutants is provided as Appendix A to 40 CFR part 423.

Table 3A. Effluent Monitoring at EFF-001A (Effluent Transfer Station)

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total waste flow	MGD	recorder	continuous[7]	[4]
Turbidity	NTU	recorder	Continuous[7]	[4]
Total residual chlorine	mg/L	recorder	Continuous[7,8,9]	[4]
Total residual chlorine	mg/L	grab	daily[10,11]	[4]
Temperature[12]	°F	grab	daily[11]	[4]
pH	pH units	grab	daily[11]	[4]
Settleable solids	ml/L	grab	daily[11]	[4]
Total suspended solids	mg/L	24-hour comp.	daily[11]	[4]
$BOD_{5@20^{o}C}$[13]	mg/L	24-hour comp.	weekly	[4]
Oil and grease	mg/L	grab	weekly	[4]
Dissolved oxygen	mg/L	grab	monthly	[4]
Total dissolved solids	mg/L	24-hour comp.	monthly	[4]
Chloride	mg/L	24-hour comp.	monthly	[4]
Sulfates	mg/L	24-hour comp.	monthly	[4]
Boron	mg/L	24-hour comp.	quarterly	[4]
Fluoride	mg/L	24-hour comp.	quarterly	[4]
Ammonia nitrogen	mg/L	24-hour comp.	monthly	[4]

[7] Where continuous monitoring of a constituent is required, the following shall be reported:
Total waste flow – Total daily and peak daily flow (24-hr basis);
Turbidity – Maximum daily value, total amount of time each day the turbidity exceeded five turbidity units, flow-proportioned average daily value. A grab sample can be used to determine compliance with the 10 NTU limit.

[8] Total residual chlorine (TRC) shall be continuously recorded. The recorded charts shall be maintained by the Permittee for at least five years. The maximum daily peak, minimum daily peak, and daily average total residual chlorine shall be reported on the monthly monitoring reports.

[9] Continuous monitoring of TRC at the current location shall serve as an internal trigger for increased TRC end of pipe grab sampling if either of the following occur, except as noted in footnote 10c:

a. TRC concentration excursions of up to 0.3 mg/L lasting greater than 15 minutes; or
b. TRC concentration peaks in excess of 0.3 mg/L lasting greater than 1 minute.
c. Additional end of pipe grab samples need not be taken if it can be demonstrated that a stoichiometrically appropriate amount of dechlorination chemical has been added to effectively dechlorinate the effluent to 0.1 mg/L or less for peaks in excess of 0.3 mg/L lasting more than 1 minute, but not for more than five minutes.

[10] Grab samples shall be collected at end-of-pipe during peak flow.

[11] Daily samples shall be collected Monday through Friday only, except for holiday; and not on weekends.

[12] The Discharger has the option of collecting grab temperature samples on a daily basis or using a recorder to take continuous temperature readings.

[13] If any result of a weekly BOD analysis yields a value greater than the 30-day average limitation, the frequency of analysis shall be increased to daily within one week of knowledge of the test result for at least 30 days and until compliance with the 7-day and 30-day average BOD limitations is demonstrated; after which the frequency shall revert to weekly.

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Nitrate nitrogen	mg/L	24-hour comp.	monthly	[4]
Nitrite nitrogen	mg/L	24-hour comp.	monthly	[4]
Organic nitrogen	mg/L	24-hour comp.	monthly	[4]
Total nitrogen	mg/L	24-hour comp.	monthly	[4]
Surfactants (MBAS)[14]	mg/L	24-hour comp.	monthly	[4]
Surfactants (CTAS)[14]	mg/L	24-hour comp.	monthly	[4]
Total hardness ($CaCO_3$)	mg/L	24-hour comp.	monthly	[4]
Acute toxicity[15]	% Survival	24-hour comp.	monthly	[4]
Chronic toxicity[16]	TUc	24-hour comp.	monthly	[4]
Chronic toxicity (narrative effluent limit reporting)[17]	Passed/Triggered	24-hour comp.	monthly	[4]
Perchlorate[18]	µg/L	grab	semiannually	[4]
1,4-Dioxane[19]	µg/L	grab	semiannually	[4]
1,2,3-Trichloropropane[20]	µg/L	grab	semiannually	[4]
MTBE[21]	µg/L	grab	semiannually	[4]
Antimony	µg/L	24-hour comp.	quarterly	[4]
Arsenic	µg/L	24-hour comp.	quarterly	[4]
Beryllium	µg/L	24-hour comp.	quarterly	[4]
Cadmium	µg/L	24-hour comp.	monthly	[4]
Total Chromium	µg/L	grab	quarterly	[4]
Chromium III	µg/L	calculation	quarterly	[4]
Chromium VI	µg/L	grab	quarterly	[4]
Copper	µg/L	24-hour comp.	monthly	[4]

14 MBAS is Methylene blue active substances and CTAS is cobalt thiocyanate active substances. Reaches of the Los Angeles River are unlined in several reaches downstream of the points of wastewater discharge and are designated with the beneficial use of groundwater recharge (GWR) in the Basin Plan. Monitoring is required to assess compliance with the Title 22-based limitation prescribed to protect underlying groundwater quality with the MUN beneficial use.

15 See Section V.A.

16 See Section V.B.

17 For narrative chronic toxicity effluent limit reporting, "Passed" is reported when chronic toxicity effluent results do not trigger accelerated testing by exceeding the monthly median trigger of 1.0 TU_c = 100/NOEC. "Triggered" is reported when chronic toxicity effluent results trigger accelerated testing by exceeding the monthly median trigger of 1.0 TU_c = 100/NOEC.

18 Perchlorate shall be analyzed using the USEPA 314 test method.

19 1,4-Dioxane shall be analyzed using the USEPA 8270M test method.

20 1,2,3-Trichloropropane shall be analyzed using the USEPA 504.1 or 8260B test method.

21 Methyl tert-butyl ether (MTBE) shall be analyzed using USEPA test method 8260B.

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Lead	µg/L	24-hour comp.	monthly	[4]
Mercury	µg/L	24-hour comp.	monthly	[4]
Nickel	µg/L	24-hour comp.	quarterly	[4]
Selenium	µg/L	24-hour comp.	monthly	[4]
Silver	µg/L	24-hour comp.	quarterly	[4]
Thallium	µg/L	24-hour comp.	quarterly	[4]
Zinc	µg/L	24-hour comp.	monthly	[4]
Cyanide	µg/L	grab	monthly	[4]
2,3,7,8-TCDD (Dioxin)[22]	pg/L	24-hour comp.	semiannually	[4]
Diazinon[23]	µg/L	24-hour comp.	quarterly	[4]
2,4-D	µg/L	24-hour comp.	semiannually	[4]
2,4,5-TP (Silvex)	µg/L	24-hour comp.	semiannually	[4]
Pesticide[5]	µg/L	24-hour comp.	semiannually	[4]
Remaining USEPA priority pollutants[7] excluding asbestos	µg/L	24-hour composite/ grab for VOCs	semiannually	[4]
Radioactivity[24]	PCi/L	24-hour comp.	semiannually	[4]

B. Monitoring Location EFF-001B

The Discharger shall monitor flow at EFF-001B as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

[22] In accordance with the SIP, the Discharger shall conduct monitoring for the seventeen 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD or dioxin) congeners in the effluent and in receiving water station R-9, located upstream of the Discharge Point. The Discharger shall use the appropriate Toxicity Equivalence Factor (TEF) to determine Toxic Equivalence (TEQ). Where TEQ equals the product between each of the 17 individual congeners' (i) concentration analytical result (C_i) and their corresponding Toxicity Equivalence Factor (TEF_i)., (i.e., $TEQ_i = C_i \times TEF_i$). Compliance with the Dioxin limitation shall be determined by the summation of the seventeen individual TEQs, or the following equation:

$$\text{Dioxin concentration in effluent} = \sum_{1}^{17}(TEQ_i) = \sum_{1}^{17}(C_i)(TEF_i)$$

[23] Diazinon is on the California 2008-2010 Integrated Report Section 303(d) List of Impaired Waters requiring TMDLs for the Los Angeles Region.

[24] Analyze these radiochemicals by the following USEPA methods: method 900.0 for gross alpha and gross beta, method 903.0 or 903.1 for radium-226, method 904.0 for radium-228, method 906.0 for tritium, method 905.0 for strontium-90, and method 908.0 for uranium. Analysis for Radium-226 & 228 shall be conducted only if gross alpha results for the same sample exceed 15 pCi/L or beta greater than 50 pCi/L. If Radium-226 & 228 exceeds the stipulated criteria, analyze for Tritium, Strontium-90 and uranium.

Table 3B. Effluent Monitoring at EFF-001B (Effluent Transfer Station)

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total coliform[25]	MPN[26]/100 ml	grab	daily[11]	[4]
Fecal coliform[25]	MPN[26]/100 ml	grab	daily[11]	[4]
E.coli[25]	MPN[26]/100 ml	grab	weekly[27]	[4]

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Acute Toxicity Testing

1. Definition of Acute Toxicity

   Acute toxicity is a measure of primarily lethal effects that occur over a 96-hour period. Acute toxicity shall be measured in percent survival measured in undiluted (100%) effluent.

   a. The average survival in the undiluted effluent for any three (3) consecutive 96-hour static renewal bioassay tests shall be at least 90%, and

   b. No single test shall produce less than 70% survival.

2. Acute Toxicity Effluent Monitoring Program

   a. **Method –** The Discharger shall conduct acute toxicity tests on 24-hr composite 100% effluent and receiving water grab samples by methods specified in 40 CFR part 136, which cites USEPA's *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, October, 2002 (EPA-821-R-02-012) or a more recent edition to ensure compliance.

   b. **Test Species –** The fathead minnow, *Pimephales promelas*, shall be used as the test species for fresh water discharges and the topsmelt, *Atherinops affinis*, shall be used as the test species for brackish discharges. However, if the salinity of the receiving water is between 1 to 32 parts per thousand (ppt), the Discharger may have the option of using the inland silverslide, *Menidia beryllina*, instead of the topsmelt. The method for topsmelt is found in USEPA's *Methods for Measuring the*

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[25] Coliform, E.coli, and turbidity samples shall be obtained at some point in the treatment process at a time when wastewater flow and characteristics are most demanding on the treatment facilities, filtration, and disinfection procedures.

[26] Units specified for bacteria tests are either CFU or MPN for the bacteria tests through the entire permit testing cycle.

[27] E. coli testing shall be conducted only if fecal coliform testing is positive. If the fecal coliform analysis results in no detection, a result of less than (<) the reporting limit for fecal coliform will be reported for E. coli.

Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, October, 2002 (EPA-821-R-02-012).

c. **Alternate Reporting –** In lieu of conducting the standard acute toxicity testing with the fathead minnow, the Discharger may elect to report the results or endpoint from the first 96 hours of the chronic toxicity test as the results of the acute toxicity test, but only if the Discharger uses USEPA's October 2002 protocol (EPA-821-R-02-013) and fathead minnow is used to conduct the chronic toxicity test.

d. **Acute Toxicity Accelerated Monitoring –** If either of the effluent or receiving water acute toxicity requirements in Section IV.A.4.f.a.(i) and (ii), and Section V.A.17.c., respectively, of this Order is not met, the Discharger shall conduct six additional tests, approximately every two weeks, over a 12-week period. The Discharger shall ensure that results of a failing acute toxicity test are received by the Discharger within 24 hours of completion of the test and the additional tests shall begin within 5 business days of receipt of the result. If the additional tests indicate compliance with acute toxicity limitation, the Discharger may resume regular testing.

However, if the extent of the acute toxicity of the receiving water upstream of the discharge is greater than the downstream and the results of the effluent acute toxicity test comply with acute toxicity limitation, the accelerated monitoring need not be implemented for the receiving water.

e. **Toxicity Identification Evaluation (TIE)**

i. If the results of any two of the six accelerated tests are less than 90% survival, then the Discharger shall begin a TIE. The TIE shall include all reasonable steps to identify the sources of toxicity. Once the sources are identified, the Discharger shall take all reasonable steps to reduce toxicity to meet the objective.

ii. If the initial test and any of the additional six acute toxicity bioassay tests results are less than 70% survival, the Discharger shall immediately implement Initial Investigation Toxicity Reduction Evaluation (TRE) Workplan. Once the sources are identified the Discharger shall take all reasonable steps to reduce toxicity to meet the requirements.

B. Chronic Toxicity Testing

1. Definition of Chronic Toxicity

Chronic toxicity is a measure of adverse sub-lethal effects in plants, animals, or invertebrates in a long-term test. The effects measured may include lethality or decreases in fertilization, growth, and reproduction.

2. Chronic Toxicity Effluent Monitoring Program

a. **Test Methods –** The Discharger shall conduct critical life stage chronic toxicity tests on 24-hour composite 100 % effluent samples and receiving water grab samples in accordance with USEPA's *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, October 2002 (EPA-821-R-02-013) or USEPA's *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*, October 2002 (EPA-821-R-02-014), or current version. The Discharger shall conduct static renewal tests in accordance with the 2002 freshwater chronic methods manual for water flea and fathead minnow. For Selenastrum, use a static non-renewal test protocol.

b. **Frequency**

i. **Screening and Monitoring –** The Discharger shall conduct the first chronic toxicity test screening for three consecutive months starting in 2012. The Discharger shall conduct short-term tests with the cladoceran, water flea (*Ceriodaphnia dubia* - survival and reproduction test), the fathead minnow (*Pimephales promelas* - larval survival and growth test), and the green algae (*Selenastrum capricornutum* - growth test) as an initial screening process for a minimum of three, but not to exceed, five suites of tests to account for potential variability of the effluent/receiving water. After this screening period, monitoring shall be conducted using the most sensitive species.

ii. **Re-screening –** Re-screening is required every 24 months. The Discharger shall re-screen with the three species listed above and continue to monitor with the most sensitive species. If the first suite of re-screening tests demonstrates that the same species is the most sensitive then the re-screening does not need to include more than one suite of tests. If a different species is the most sensitive or if there is ambiguity, then the Discharger shall proceed with suites of screening tests for a minimum of three, but not to exceed five suites

iii. **Regular toxicity tests –** After the screening period, monitoring shall be conducted monthly using the most sensitive species.

c. **Toxicity Units –** The chronic toxicity of the effluent shall be expressed and reported in Chronic Toxic Unit (TUc), where,

$$TU_c = \frac{100}{NOEC}$$

The No Observable Effect Concentration (NOEC) is expressed as the maximum percent effluent concentration that causes no observable effect on test organisms, as determined by the results of a critical life stage toxicity test.

3. Accelerated Monitoring

If the chronic toxicity of the effluent or the receiving water downstream the discharge exceeds the monthly trigger median of 1.0 TU_c, the Discharger shall conduct six additional tests, approximately every two weeks, over a 12-week period. The Discharger shall ensure that they receive results of a failing chronic toxicity test within 24 hours of the completion of the test and the additional tests shall begin within 5 business days of the receipt of the result. However, if the chronic toxicity of the receiving water upstream of the discharge is greater than the downstream and the TUc of the effluent chronic toxicity test is less than or equal to a monthly median of 1.0 TU_c trigger, then accelerated monitoring need not be implemented for the receiving water.

a. If any three out of the initial test and the six additional tests results exceed 1.0 TU_c the Discharger shall immediately implement the Initial Investigation TRE workplan.

b. If implementation of the initial investigation TRE workplan indicates the source of toxicity (e.g., a temporary Facility upset, etc.), then the Discharger shall return to the normal sampling frequency required in Table 3B of this MRP.

c. If all of the six additional tests required above do not exceed 1.0 TUc, then the Discharger may return to the normal sampling frequency.

d. If a TRE/TIE is initiated prior to completion of the accelerated testing schedule required, then the accelerated testing schedule may be terminated, or used as necessary in performing the TRE/TIE, as determined by the Executive Officer.

C. Quality Assurance

1. Concurrent testing with a reference toxicant shall be conducted. Reference toxicant tests shall be conducted using the same test conditions as the effluent toxicity tests (e.g., same test duration, etc).

2. If either the reference toxicant test or effluent test does not meet all test acceptability criteria (TAC) as specified in the test methods manual (EPA-821-R-02-012 and/or EPA-821-R-02-013), then the Discharger must re-sample and re-test within 14 days.

3. Control and dilution water should be receiving water or laboratory water, as appropriate, as described in the manual. If the dilution water used is different from the culture water, a second control using culture water shall be used.

D. Preparation of an Initial Investigation TRE Workplan

The Discharger shall prepare and submit a copy of the Discharger's initial investigation TRE workplan to the Executive Officer of the Regional Water Board for approval within 90 days of the effective date of this permit. If the Executive Officer does not disapprove the workplan within 60 days, the workplan shall become effective. The Discharger shall use USEPA manual EPA/833B-99/002 (municipal) as guidance, or most current version. At a minimum, the TRE Workplan must contain the provisions in Attachment G. This workplan shall describe the steps the Discharger intends to follow if toxicity is detected, and should include, at a minimum:

1. A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency.

2. A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in the operation of the facility; and,

3. If a TIE is necessary, an indication of the person who would conduct the TIEs (i.e., an in-house expert or an outside contractor). See MRP Section V.E.3. for guidance manuals.

E. Steps in TRE and TIE

1. If results of the implementation of the facility's initial investigation TRE workplan indicate the need to continue the TRE/TIE, the Discharger shall expeditiously develop a more detailed TRE workplan for submittal to the Executive Officer within 15 days of completion of the initial investigation TRE. The detailed workplan shall include, but not be limited to:

   a. Further actions to investigate and identify the cause of toxicity;

   b. Actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and

   c. A schedule for these actions.

2. The following section summarizes the stepwise approach used in conducting the TRE:

   a. Step 1 includes basic data collection.

   b. Step 2 evaluates optimization of the treatment system operation, facility housekeeping, and selection and use of in-facility process chemicals.

   c. If Steps 1 and 2 are unsuccessful, Step 3 implements a TIE and employment of all reasonable efforts using currently available TIE methodologies. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity.

   d. Assuming successful identification or characterization of the toxicant(s), Step 4 evaluates final effluent treatment options.

e. Step 5 evaluates in-facility treatment options.

f. Step 6 consists of confirmation once a toxicity control method has been implemented.

Many recommended TRE elements parallel source control, pollution prevention, and storm water control program best management practices (BMPs). To prevent duplication of efforts, evidence of compliance with those requirements may be sufficient to comply with TRE requirements. By requiring the first steps of a TRE to be accelerated testing and review of the facility's TRE workplan, a TRE may be ended in its early stages. All reasonable steps shall be taken to reduce toxicity to the required level. The TRE may be ended at any stage if monitoring indicates there are no longer toxicity violations.

3. The Discharger shall initiate a TIE as part of the TRE process to identify the cause(s) of toxicity. The Discharger shall use the USEPA acute manual, chronic manual, EPA/600/6-91/005F (Phase I), EPA/600/R-92/080 (Phase II), and EPA-600/R-92/081 (Phase III), as guidance.

4. If a TRE/TIE is initiated prior to completion of the accelerated testing required in Section V.B.3. of this program, then the accelerated testing schedule may be terminated, or used as necessary in performing the TRE/TIE, as determined by the Executive Officer .

5. Toxicity tests conducted as part of a TRE/TIE may also be used for compliance, if appropriate.

6. The Regional Water Board recognizes that toxicity may be episodic and identification of causes of and reduction of sources of toxicity may not be successful in all cases. Consideration of enforcement action by the Regional Water Board will be based, in part, on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

   a. If all the results of the six additional tests are in compliance with the chronic toxicity limitation, the Discharger may resume regular monthly testing.

   b. If the results of any of the six accelerated tests exceed the acute toxicity limitation, or the chronic toxicity trigger, then the Discharger shall conduct six additional tests, approximately every two weeks, over a 12-week period. At that time, the Discharger may resume regular monthly testing.

   c. If the results of two of the six tests exceed the 1.0 TUc trigger, the Discharger shall initiate a TRE.

   d. If implementation of the initial investigation TRE workplan (see item V.B.3.b. above) indicates the source of toxicity (e.g., a temporary facility upset, etc.), then the Discharger shall return to the regular testing frequency.

F. Ammonia Removal

1. Except with prior approval from the Executive Officer of the Regional Water Board, ammonia shall not be removed from bioassay samples. The Discharger must demonstrate the effluent toxicity is caused by ammonia because of increasing test pH when conducting the toxicity test. It is important to distinguish the potential toxic effects of ammonia from other pH sensitive chemicals, such as certain heavy metals, sulfide, and cyanide. The following may be steps to demonstrate that the toxicity is caused by ammonia and not other toxicants before the Executive Officer would allow for control of pH in the test.

   a. There is consistent toxicity in the effluent and the maximum pH in the toxicity test is in the range to cause toxicity due to increased pH.

   b. Chronic ammonia concentrations in the effluent are greater than 4 mg/L total ammonia.

   c. Conduct graduated pH tests as specified in the toxicity identification evaluation methods. For example, mortality should be higher at pH 8 and lower at pH 6.

   d. Treat the effluent with a zeolite column to remove ammonia. Mortality in the zeolite treated effluent should be lower than the non-zeolite treated effluent. Then add ammonia back to the zeolite-treated samples to confirm toxicity due to ammonia.

2. When it has been demonstrated that toxicity is due to ammonia because of increasing test pH, pH may be controlled using appropriate procedures which do not significantly alter the nature of the effluent, after submitting a written request to the Regional Water Board, and receiving written permission expressing approval from the Executive Officer of the Regional Water Board.

G. Reporting

The Discharger shall submit a full report of the toxicity test results, including any accelerated testing conducted during the month, as required by this permit. Test results shall be reported in percent survival (% survival) for Acute Toxicity or TUc for Chronic Toxicity, as required, with the self-monitoring report (SMR) for the month in which the test is conducted. If an initial investigation indicates the source of toxicity and accelerated testing is unnecessary, pursuant to Section V.A.2.d. and V.B.3., then those results also shall be submitted with the SMR for the period in which the Investigation occurred.

1. The full report shall be received by the Regional Water Board by the 15th day of the third month following sampling.

2. The full report shall consist of (1) the results; (2) the dates of sample collection and initiation of each toxicity test; (3) the toxicity limit; and, (4) printout of the toxicity program (ToxCalc or CETIS).

3. Test results for toxicity tests also shall be reported according to the appropriate manual chapter on Report Preparation and shall be attached to the SMR. Routine reporting shall include, at a minimum, as applicable, for each test, as appropriate:

   a. sample date(s)

   b. test initiation date

   c. test species

   d. end point value(s) for each dilution (e.g. number of young, growth rate, percent survival)

   e. NOEC values in percent effluent

   f. TUc value(s), where $TU_c = \frac{100}{NOEC}$

   g. Mean percent mortality (+standard deviation) after 96 hours in 100% effluent (if applicable)

   h. NOEC and LOEC (Lowest Observable Effect Concentration) values for reference toxicant test(s)

   i. Available water quality measurements for each test (e.g., pH, D.O., temperature, conductivity, hardness, salinity, ammonia).

4. The Discharger shall provide a compliance summary that includes a summary table of toxicity data from at least eleven of the most recent samples.

5. The Discharger shall notify this Regional Water Board immediately of any toxicity exceedance and in writing 14 days after the receipt of the results of an effluent limit. The notification will describe actions the Discharger has taken or will take to investigate and correct the cause(s) of toxicity. It may also include a status report on any actions required by the permit, with a schedule for actions not yet completed. If no actions have been taken, the reasons shall be given.

VI. RECLAMATION MONITORING REQUIREMENTS

Current Reclaimed Project for Irrigation & Industrial Use – The production, distribution, and reuse of recycled water are presently regulated under Waste Discharge Requirements Order No. R4-2007-0008 and Water Recycling Requirements Order No. R4-2007-0009, both adopted by this Regional Water Board on January 11, 2007.

VII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

A. Surface Water

1. Monitoring Locations – RSW-LATT630

The following analyses, which constitute the receiving water monitoring program, shall be conducted on grab samples obtained at Station RSW-LATT630. Samples shall be taken at one-foot depth.

Table 4. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
pH	pH units	grab	weekly	4
Temperature	°F	grab	weekly	4
Dissolved oxygen	mg/L	grab	weekly	4
Total residual chlorine	mg/L	grab	weekly	4
Total coliform	MPN[26]/100 ml	grab	weekly	4
Fecal coliform	MPN[26]/100 ml	grab	weekly	4
E.coli	MPN[26]/100 ml	grab	Weekly[27]	4
Turbidity	NTU	grab	quarterly	4
Total dissolved solids	mg/L	grab	quarterly	4
Conductivity	μmhos/cm	grab	quarterly	4
Chloride	mg/L	grab	quarterly	4
Sulfates	mg/L	grab	quarterly	4
Ammonia nitrogen	mg/L	grab	weekly[28]	4
Nitrate nitrogen	mg/L	grab	weekly[28]	4
Nitrite nitrogen	mg/L	grab	weekly[28]	4
Organic nitrogen	mg/L	grab	weekly[28]	4
Total nitrogen	mg/L	grab	weekly[28]	4
Total phosphorus	mg/L	grab	quarterly	4
Orthophosphate-P	mg/L	grab	quarterly	4
Surfactants (MBAS)	mg/L	grab	quarterly	4
Surfactants (CTAS)	mg/L	grab	quarterly	4
$BOD_{5@20^{\circ}C}$	mg/L	grab	quarterly	4

28 Regional Water Board Resolution No. 2003-009, Amendment to the Basin Plan for the Los Angeles Region to Include a TMDL for Nitrogen Compounds and Related Effects in the Los Angeles River (Nitrogen Compounds TMDL), requires weekly receiving water monitoring to ensure compliance with the water quality objective (WQO).

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total organic carbon	mg/L	grab	quarterly	4
Oil and grease	mg/L	grab	monthly	4
Chronic toxicity	TU_c	grab	quarterly	4
Acute toxicity	%survival	grab	quarterly	4
Boron	mg/L	grab	semiannually	4
Fluoride	mg/L	grab	semiannually	4
Chemical oxygen demand	mg/L	grab	quarterly	4
Settleable solids	ml/L	grab	quarterly	4
Total suspended solids	mg/L	grab	quarterly	4
Total hardness ($CaCO_3$)	mg/L	grab	quarterly	4
MTBE	µg/L	grab	semiannually	4
Perchlorate	µg/L	grab	semiannually	4
1,4-Dioxane	µg/L	grab	semiannually	4
1,2,3-Trichloropropane	µg/L	grab	semiannually	4
Cadmium	µg/L	grab	quarterly	4
Copper	µg/L	grab	quarterly	4
Lead	µg/L	grab	quarterly	4
Mercury	µg/L	grab	monthly	4
Selenium	µg/L	grab	monthly	4
Zinc	µg/L	grab	quarterly	4
Cyanide	µg/L	grab	monthly	4
Diazinon[23]	µg/L	grab	quarterly	4
2,4-D	µg/L	grab	semiannually	4
2,4,5-TP	µg/L	grab	semiannually	4
Pesticide[5]	µg/L	grab	semiannually	4
Remaining USEPA priority pollutants[6] excluding asbestos	µg/L	grab	semiannually	4

2. Monitoring Locations – RSW-LATT622, RSW-LATT612, RSW-LATT616, RSW-LATT614, and RSW-LATT628

The receiving water monitoring program for the Recreation Lake (Lake Balboa) and the Wildlife Lake shall be conducted during the discharge through Discharge Points 002 and 003, respectively. The following analyses shall be conducted on grab samples obtained at Stations RSW-LATT622, RSW-

LATT612, RSW- LATT616, RSW-LATT614, and RSW-LATT628. Samples shall be taken at one-foot depth.

Table 5. Downstream of Lake Balboa and Wildlife Lake Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total flow	cfs		weekly	
pH	pH units	grab	weekly	4
Temperature	°F	grab	weekly	4
Dissolved oxygen	mg/L	grab	weekly	4
Total residual chlorine	mg/L	grab	weekly	4
Total coliform	MPN[25]/100 ml	grab	weekly	4
Fecal coliform	MPN[25]/100 ml	grab	weekly	4
E.coli	MPN[25]/100 ml	grab	Weekly[26]	4
Turbidity	NTU	grab	quarterly	4
$BOD_{5@20^{\circ}C}$	mg/L	grab	quarterly	4
Total dissolved solids	mg/L	grab	quarterly	4
Conductivity	μmhos/cm	grab	quarterly	4
Chloride	mg/L	grab	quarterly	4
Sulfates	mg/L	grab	quarterly	4
Boron	mg/L	grab	semiannually	4
Fluoride	mg/L	grab	semiannually	4
Ammonia nitrogen	mg/L	grab	weekly[27]	4
Nitrate nitrogen	mg/L	grab	weekly[27]	4
Nitrite nitrogen	mg/L	grab	weekly[27]	4
Organic nitrogen	mg/L	grab	weekly[27]	4
Total nitrogen	mg/L	grab	weekly[27]	4
Total phosphorus	mg/L	grab	quarterly	4
Orthophosphate-P	mg/L	grab	quarterly	4
Surfactants (MBAS)	mg/L	grab	quarterly	4
Surfactants (CTAS)	mg/L	grab	semiannually	4
Chemical oxygen demand	mg/L	grab	semiannually	4
Oil and grease	mg/L	grab	monthly	4
Settleable solids	ml/L	grab	quarterly	4
Total suspended solids	mg/L	grab	quarterly	4
Total hardness ($CaCO_3$)	mg/L	grab	quarterly	4

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Chronic toxicity	TU_c	grab	quarterly	[4]
Acute toxicity	%survival	grab	quarterly	[4]
Perchlorate[18]	µg/L	grab	semiannually	[4]
1,4-Dioxane[19]	µg/L	grab	semiannually	[4]
1,2,3-Trichloropropane[20]	µg/L	grab	semiannually	[4]
MTBE[21]	µg/L	grab	semiannually	[4]
Cadmium	µg/L	grab	quarterly	[4]
Copper	µg/L	grab	quarterly	[4]
Lead	µg/L	grab	quarterly	[4]
Mercury	µg/L	grab	monthly	[4]
Selenium	µg/L	grab	monthly	[4]
Zinc	µg/L	grab	quarterly	[4]
Cyanide	µg/L	grab	monthly	[4]
Diazinon[23]	µg/L	grab	quarterly	[4]
2,4-D	µg/L	grab	semiannually	[4]
2,4,5-TP (Silvex)	µg/L	grab	semiannually	[4]
Pesticide[5]	µg/L	grab	semiannually	[4]
Remaining USEPA priority pollutants[6] excluding asbestos	µg/L	grab	semiannually	[4]

3. Monitoring Locations – RSW-4 and RSW-W2

The following analyses, which constitute the receiving water monitoring program for the Lake Balboa (Recreation Lake), shall be conducted on grab samples obtained at Station RSW-4. In addition, the monitoring program for the Wildlife Lake shall be conducted, during the discharge through Discharge Point 003, on grab samples obtained at the Stations No. RSW-W2. Samples shall be taken from one-foot depth:

Table 6. Lake Balboa and Wildlife Lake Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
pH	pH units	grab	weekly	[4]
Temperature	°F	grab	weekly	[4]
Dissolved oxygen	mg/L	grab	weekly	[4]
Total nitrogen	mg/L	grab	weekly[28]	[4]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Ammonia nitrogen	mg/L	grab	weekly[28]	[4]
Organic nitrogen	mg/L	grab	weekly[28]	[4]
Nitrate nitrogen	mg/L	grab	weekly[28]	[4]
Nitrite nitrogen	mg/L	grab	weekly[28]	[4]
Total phosphorus	mg/L	grab	seasonally[29]	[4]
Organic phosphorus	mg/L	grab	Seasonally[29]	[4]
Condensed phosphorus	mg/L	grab	Seasonally[29]	[4]
Orthophosphorus	mg/L	grab	Seasonally[29]	[4]

4. Monitoring Location – RSW-4

The following analyses, which constitute the receiving water monitoring program for the Lake Balboa (Recreation Lake), shall be conducted on grab samples obtained at Stations No. RSW-4. Sample shall be taken at one-foot depth.

Table 7. Lake Balboa Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total coliform	MPN[26]/100 ml	grab	monthly	[4]
Fecal coliform	MPN[26]/100 ml	grab	monthly	[4]
E.coli	MPN[26]/100 ml	grab	Monthly[27]	[4]
Suspended solid	mg/L	grab	monthly	[4]
Conductivity	µmhos/cm	grab	monthly	[4]

B. Sediment

1. Monitoring Location – RSW-4 and RSW-W2

Representative sediment/bottom samples shall be collected at Lake Balboa (Recreation Lake) Station No. RSW-4 and Wildlife Lake Station No. RSW-W2.

Table 8. Sediment Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total organic nitrogen	mg/Kg	grab	quarterly	[4]

[29] This chemical shall be analyzed monthly during the quiescent months of December to May and weekly during the biologically productive months of June to November.

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total organic carbon	mg/Kg	grab	quarterly	4
Sediment grain size distribution	weight % vs. grain size in phi units	grab	quarterly	4
Cadmium	mg /Kg	grab	quarterly	4
Copper	mg /Kg	grab	quarterly	4
Lead	mg /Kg	grab	quarterly	4
Mercury	mg /Kg	grab	quarterly	4
Selenium	mg /Kg	grab	quarterly	4
Zinc	mg /Kg	grab	quarterly	4
Cyanide	mg /Kg	grab	quarterly	4
Diazinon[23]	µg/Kg	grab	quarterly	4
Pesticide[5]	µg/Kg	grab	semiannually	4
Remaining USEPA priority pollutants[6] excluding asbestos	mg/Kg for metals, BNAs, and VOCs; µg/Kg for pesticides and PCBs	grab	semiannually	4

C. Bioassessment Requirements

1. The Bioassessment Monitoring Program shall be conducted annually in the spring/summer period and include an analysis of the community structure of the instream macroinvertebrate assemblages, the community structure of the instream algal assemblages (benthic diatoms and soft-bodied algae), chlorophyll a and biomass for instream algae, and physical habitat assessment at the ten random monitoring stations designated by the Los Angeles River Regional Monitoring Program.

   This program shall be implemented by appropriately trained staff. Alternatively, a professional subcontractor qualified to conduct bioassessments may be selected to perform the bioassessment work for the Discharger. Analyses of the results of the bioassessment monitoring program, along with photographs of the monitoring site locations taken during sample collection, shall be submitted in the corresponding annual report. If another stakeholder, or interested party in the watershed subcontracts a qualified professional to conduct bioassessment monitoring during the same season and at the same location as specified in the MRP, then the Discharger may, in lieu of duplicative sampling, submit the data, a report interpreting the data, photographs of the site, and related QA/QC documentation in the corresponding annual report.

2. The Discharger must provide a copy of their Standard Operation Procedures (SOPs) for the Bioassessment Monitoring Program to the Regional Board upon request. The document must contain step-by-step field, laboratory and data

entry procedures, as well as, related QA/QC procedures. The SOP must also include specific information about each bioassessment program including: assessment program description, its organization and the responsibilities of all its personnel; assessment project description and objectives; qualifications of all personnel; and the type of training each member has received.

3. Field sampling must conform to the SOP established for the California Stream Bioassessment Procedure (CSBP) or more recently established sampling protocols, such as used by the Surface Water Ambient Monitoring Program (SWAMP). Field crews shall be trained on aspects of the protocol and appropriate safety issues. All field data and sample Chain of Custody (COC) forms must be examined for completion and gross errors. Field inspections shall be planned with random visits and shall be performed by the Discharger or an independent auditor. These visits shall report on all aspects of the field procedure with corrective action occurring immediately.

4. A taxonomic identification laboratory shall process the biological samples that usually consist of subsampling organisms, enumerating and identifying taxonomic groups and entering the information into an electronic format. The Regional Board may require QA/QC documents from the taxonomic laboratories and examine their records regularly. Intra-laboratory QA/QC for subsampling, taxonomic validation and corrective actions shall be conducted and documented. Biological laboratories shall also maintain reference collections, vouchered specimens (the Discharger may request the return of their sample voucher collections) and remnant collections. The laboratory should participate in an (external) laboratory taxonomic validation program at a recommended level of 10% or 20%. External QA/QC be arranged through the California Department of Fish and Game's Aquatic Bioassessment Laboratory located in Rancho Cordova, California.

D. Other Requirements

1. In the event of a spill or bypass of raw or partially treated sewage from the Tillman WRP into the Los Angeles River, total and fecal coliform analyses shall be made on grab samples collected at all potentially affected downstream receiving water stations and at least one unaffected upstream receiving water station.

   Coliform samples shall be collected at each station on the date of the spill or bypass, and daily on each of the following four days or until coliform levels in the receiving water are within normal range and the bypass or spill has ceased. Monitoring Provisions for SSOs are outlined in the Order under section VI.C.5.c.

2. At the same time the receiving waters are sampled, observations shall be made in the reach bounded by the receiving monitoring stations RSW-LATT614, RSW-LATT622, and RSW-LATT628, and a log shall be maintained thereof.

   a. Attention shall be given to the presence and extent, or absence of:

i. oil, grease, scum, or solids of waste origin;

ii. sludge deposits;

iii. discoloration of surface waters;

iv. algal blooms;

v. odors;

vi. foam; and,

vii. other significant observations in immediate vicinity (i.e. storm drain flows, etc.).

b. The following shall also be noted in the log:

i. date and time of observation;

ii. weather days conditions (including air temperature);

iii. flow measurement (estimate);

iv. exact sampling location;

v. users of water in the River (i.e. people washing, swimming and playing in the river, etc.);

vi. non-contact users (i.e. bikers, joggers, etc.); and,

vii. wildlife (i.e. birds, mammals, reptiles, estimated amount of vegetation).

c. A summary of these observations noted in the log shall be submitted with the monitoring reports.

3. The Discharger shall monitor the receiving water downstream of the discharge, during any day that the filters are bypassed, for $BOD_{5@20^{o}C}$, total suspended solids, settleable solids, and oil and grease, until it is demonstrated that the filter “bypass” has not caused an adverse impact on the receiving water. The Discharger shall submit a written report to the Regional Water Board, according to the corresponding monthly self- monitoring report schedule. The report shall include, the results from the daily receiving water monitoring. However, if the results are not available in time to be submitted with the corresponding monthly report, then, the results shall be submitted to the Regional Water Board as soon as the results become available.

4. Receiving water samples shall not be taken during or within 72 hours following the flow of rainwater runoff into the Los Angeles River system.

5. Sampling may be rescheduled at receiving water stations, if weather and flow conditions would endanger personnel collecting receiving water samples. The monthly monitoring report shall note such occasions.

6. The Discharger shall report the maximum daily flow in the Los Angeles River, downstream of the discharge, at the LA County Department of Public Works' Gage Station No. F319-R Los Angeles River below Wardlow. For the purposes of this permit, this station is also known as RSW-003D. This information is necessary to determine the wet-weather condition of the river, as defined in the Los Angeles River Metals TMDL. If the gauging station is not operational, an estimated maximum daily flow may be submitted.

Table 9. Los Angeles River Daily Flow Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	cfs	recorder	daily	N/A

VIII. OTHER MONITORING REQUIREMENTS

A. Special Study – Constituents of Emerging Concern in Effluent

1. CEC Special Study Requirements

The Discharger shall conduct a special study to investigate the CECs in the effluent discharge. Within six months of the effective date of this Order, the Discharger shall submit to the Executive Officer a CECs Special Study Work Plan (Work Plan) for approval. Upon approval, the Discharger shall implement the Work Plan.

This Special Study Work Plan shall include, but not limited to, the following:

a. Identification of CECs to be monitored in the effluent, sample type (e.g. 24-hour composite), sampling frequency, proposed sampling month, and sampling methodology. Table 10 identifies the minimum parameters to be monitored.

Table 10. CECs in the Effluent

Parameter	Unit	Sample Type	Minimum Sampling Frequency	Analytical Test Method and (Minimum Level, units)
17α-Ethinyl Estradiol	ng/L	To be proposed	Annually	To be proposed
17β-Estradiol	ng/L	To be proposed	Annually	To be proposed
Estrone	ng/L	To be proposed	Annually	To be proposed
Bisphenol A	ng/L	To be proposed	Annually	To be proposed

Parameter	Unit	Sample Type	Minimum Sampling Frequency	Analytical Test Method and (Minimum Level, units)
Nonylphenol & Nonylphenol polyethoxylates	ng/L	To be proposed	Annually	To be proposed
Octylphenol & octylphenol polyethoxylates	ng/L	To be proposed	Annually	To be proposed
Polybrominated diphenyl ethers	ng/L	To be proposed	Annually	To be proposed
Acetaminophen	ng/L	To be proposed	Annually	To be proposed
Amoxicillin	ng/L	To be proposed	Annually	To be proposed
Azithromycin	ng/L	To be proposed	Annually	To be proposed
Carbamazepine	ng/L	To be proposed	Annually	To be proposed
Caffeine	ng/L	To be proposed	Annually	To be proposed
Ciprofloxacin	ng/L	To be proposed	Annually	To be proposed
DEET	ng/L	To be proposed	Annually	To be proposed
Dilantin	ng/L	To be proposed	Annually	To be proposed
Gemfibrozil	ng/L	To be proposed	Annually	To be proposed
Ibuprofen	ng/L	To be proposed	Annually	To be proposed
Lipitor (Atorvastain)	ng/L	To be proposed	Annually	To be proposed
Iodinated contrast media (i.e. iopromide)	ng/L	To be proposed	Annually	To be proposed
Sulfamethoxazole	ng/L	To be proposed	Annually	To be proposed
Trimethoprim	ng/L	To be proposed	Annually	To be proposed
Salicylic acid	ng/L	To be proposed	Annually	To be proposed
TCEP	ng/L	To be proposed	Annually	To be proposed
Triclosan	ng/L	To be proposed	Annually	To be proposed

i. Once the SCCWRP's recommended list of CECs monitoring in ambient waters, including ocean waters, is finalized, the above list of minimum parameters to be monitored by the Discharger and the sampling frequency may be re-evaluated and modified by the Executive Officer. At such time, upon request by the Executive Officer, the Discharger shall monitor the requested CECs parameters at the specified frequency. In the Special Study Work Plan, the Discharger may also propose, for consideration and approval by the Executive Officer, surrogate or indicator CECs that may contribute towards a better understanding of CECs in its effluent.

ii. Sample Type – The Discharger shall propose in the Work Plan the appropriate sample type (e.g. grab or composite) for each constituent.

iii. Sampling Period – At minimum, the Discharger shall monitor the specified CECs once per year. The Work Plan shall propose the appropriate sampling month or quarter for each year, consistent with the goals of the analyses. The rationale for selecting the particular sampling month or quarter shall be explained in the Work Plan.

iv. Proposed Sampling Month – The Discharger may choose a fixed month for sampling or vary the sampling month over the duration of the special study in order to examine possible temporal associations.

v. Analytical Test Methodology – The Discharger shall review and consider all available analytical test methodologies, including but not limited to those listed in USEPA Methods 1694 and 1698, and methodologies approved or utilized by U.S. Geologic Survey, California Department of Public Health, and other federal or State agencies. Based on its review, the Discharger shall propose the most appropriate analytical methodology, considering sensitivity, accuracy, availability, and cost.

b. Characterization of existing CEC data (data collected previous to Special Study). The Discharger shall propose a characterization of all existing CEC data (associated with its effluent or receiving water) that have been collected for various purposes in the past. At minimum, the characterization shall include:

i. An identification of all CECs monitored to date (outside of this Special Study);

ii. Monitoring duration, frequency, and date(s) (for example, from 2000-present, annually);

iii. Analytical methodologies employed;

iv. RL, MLs and MDLs achieved for each methodology used; and,

v. If detected, temporal/seasonal trend analyses (using both statistical and graphical demonstration) of CECs.

c. Evaluation of CEC data collected as part of this Special Study. The Discharger shall propose an evaluation of CEC data (associated with its effluent) to be collected as part of this special study. At minimum, the characterization shall include:

i. An identification of CECs that have been monitored;

ii. Monitoring duration, frequency, and date(s);

iii. RL, MLs and MDLs achieved for each methodology used;

iv. A brief update on any improvements (or change) in the analytical methodologies and associated RL, MLs and MDLs achieved for each methodology used; and,

v. If detected, temporal/seasonal trend analyses (using both statistical and graphical demonstration) of cumulative CEC data collected as part of this special study.

d. Reporting – By April 15th of each year (starting April 15, 2013), the Discharger shall submit to the Executive Officer of this Regional Water Board, an annual report summarizing the monitoring results from the previous year. For example, the annual report due April 15, 2013, shall include CECs monitoring data from January to December 2012. Each annual report shall include a compilation of effluent monitoring data of CECs listed in the approved Work Plan, MLs, sample type, analytical methodology used, sampling date/time, QA/QC information, and an evaluation of cumulative CECs data collected to date as part of this special study (see above for further details on CECs data evaluation). In addition, the first annual report due April 15, 2013, shall include a characterization of existing CECs data, i.e., all data collected outside of this special study (see above for further details on existing CECs data characterization).

B. Los Angeles River Watershed Monitoring Program[30] (LARWMP)

1. Pursuant to 40 CFR parts 122.41(j) and 122.48(b), the monitoring program for a discharger receiving an NPDES permit must be designed to determine compliance with NPDES permit terms and conditions, and demonstrate that State water quality standards are met.

   Since compliance monitoring focuses on the effects of a point source discharge, it is not designed to assess impacts from other sources of pollution (e.g., non-point source run-off, aerial fallout) or to evaluate the current status of important ecological resources on a regional basis.

   The Los Angeles River Watershed Monitoring Program (LARWMP) was developed for the Los Angeles River Watershed by the City of Los Angeles in cooperation with Los Angeles Regional Board and USEPA staff, as well as several other local stakeholders. The LARRMP was approved by the Executive Officer on August 8, 2008.

   The goals of the comprehensive watershed-wide monitoring program include evaluating or assessing: compliance with receiving water objectives, trends in surface water quality, impacts to beneficial uses, the health of the biological community, data needs for modeling contaminants of concern, and attaining the goals of the TMDLs under implementation in the Los Angeles River.

[30] Formerly, Los Angeles River Regional Monitoring Program (LARRMP)

2. The Discharger shall participate in the implementation of the LARWMP as indicated in that plan. In coordination with interested stakeholders in the Los Angeles River Watershed, LARWMP shall conduct instream bioassessment monitoring once a year, during the spring/summer period (unless an alternate sampling period is approved by the Executive Officer). Over time, bioassessment monitoring will provide a measurement of the physical condition of the waterbody and the integrity of its biological communities.

3. Changes to the compliance monitoring program may be required over time to fulfill the goals of the watershed-wide monitoring program, while retaining the compliance monitoring component required to evaluate compliance with the NPDES permit. Revisions to the Discharger's program will be made under the direction of the Regional Board's Executive Officer, as necessary, to accomplish the goal, and- may include a reduction or increase in the number of parameters .to be monitored, the frequency of monitoring, and/or the number of samples collected.

B. Tertiary Filter Treatment Bypasses

1. During any day that filters are bypassed, the Tillman WRP shall monitor the effluent for $BOD_{5@20^{\circ}C}$, total suspended solids, settleable solids, and oil and grease, on daily basis, until it is demonstrated that the filter “bypass” has not caused an adverse impact on the receiving water.

2. The Tillman WRP shall maintain chronological log of tertiary filter treatment process bypasses, to include the following:

   a. Date and time of bypass start and end;

   b. Total duration time; and,

   c. Estimated total volume bypassed

3. The Tillman WRP shall notify Regional Water Board staff by telephone within 24 hours of the filter bypass event.

4. The Tillman WRP shall submit a written report to the Regional Water Board, according to the corresponding monthly self monitoring report schedule. The report shall include, at a minimum, the information from the chronological log. Results from the daily effluent monitoring, required by VIII.B.1. above, shall be submitted to the Regional Water Board as the results become available.

IX. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

2. If there is no discharge during any reporting period, the report shall so state.

3. Each monitoring report shall contain a separate section titled "Summary of Non-Compliance" which discusses the compliance record and the corrective actions taken or planned that may be needed to bring the discharge into full compliance with waste discharge requirements. This section shall clearly list all non-compliance with discharge requirements, as well as all excursions of effluent limitations.

4. The Discharger shall inform the Regional Water Board well in advance of any proposed construction activity that could potentially affect compliance with applicable requirements.

5. Each monthly monitoring report shall include a determination of compliance with receiving water ammonia WQOs at RSW-LATT630. Any exceedances of an ammonia WQO shall be noted in the "Summary of Non-Compliance" section of the monitoring report.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through VIII. The Discharger shall submit monthly, quarterly, semiannual, annual SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order (other than for process/operational control, startup, research, or equipment testing), the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table 11. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
Daily	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	Submit with monthly SMR
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1st day of calendar month through last day of calendar month	By the 15th day of the third month after the month of sampling
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 ~ March 31 April 1 ~ June 30 July 1 ~ September 30 October 1 ~ December 31	June 15 September 15 December 15 March 15
Semiannually	Closest of January 1 or July 1 following (or on) permit effective date	January 1 ~ June 30 July 1 ~ December 31	September 15 March 15
Annually	January 1 following (or on) permit effective date	January 1 ~ December 31	April 15
Annually (CECs)	July 1, 2011	2nd half of calendar year	June 30

4. Reporting Protocols. The Discharger shall report with each sample result the applicable reported Minimum Level (ML), for those constituents where the SIP specifies MLs, and the applicable reported Reporting Limit (RL), for all other constituents as appropriate, and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.

   The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

      For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. The Discharger shall submit SMRs in accordance with the following requirements:

a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

c. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below: (Reference the reports to Compliance File No. 5695 to facilitate routing to the appropriate staff and file.)

California Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013
Attention: Information Technology Unit

C. Discharge Monitoring Reports (DMRs)

1. As described in Section IX.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge

Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to the address listed below:

STANDARD MAIL	FEDEX/UPS/OTHER PRIVATE CARRIERS
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format of EPA Form 3320-1.

D. Other Reports

1. Annual Summary Report

By April 15 of each year, the Discharger shall submit an annual report containing a discussion of the previous year's influent/effluent analytical results and receiving water bacterial monitoring data. The annual report shall also contain an overview of any plans for upgrades to the treatment facility's collection system, the treatment processes, or the outfall system. The Discharger shall submit a hard copy annual report to the Regional Water Board in accordance with the requirements described in subsection IX.B.5 above.

Each annual monitoring report shall contain a separate section titled "Reasonable Potential Analysis" which discusses whether or not reasonable potential was triggered for pollutants which do not have a final effluent limitation in the NPDES permit. This section shall contain the following statement: "The analytical results for this sampling period did/ did not trigger reasonable potential." If reasonable potential was triggered, then the following information should also be provided:

a. A list of the pollutant(s) that triggered reasonable potential;

b. The Basin Plan or CTR criteria that was exceeded for each given pollutant;

c. The concentration of the pollutant(s);

d. The test method used to analyze the sample; and,

e. The date and time of sample collection.

2. The Discharger shall submit to the Regional Water Board, together with the first monitoring report required by this permit, a list of all chemicals and proprietary additives which could affect this waste discharge, including quantities of each. Any subsequent changes in types and/or quantities shall be reported promptly.

3. The Regional Water Board requires the Discharger to file with the Regional Water Board, within 90 days after the effective date of this Order, a technical report on his preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. The technical report should:

   a. Identify the possible sources of accidental loss, untreated waste bypass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks, and pipes should be considered.

   b. Evaluate the effectiveness of present facilities and procedures and state when they become operational.

   c. Describe facilities and procedures needed for effective preventive and contingency plans.

   d. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule contingent interim and final dates when they will be constructed, implemented, or operational.

Attachment F – Fact Sheet

ATTACHMENT F – FACT SHEET

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Attachment F – FACT SHEET

As described in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to the City of Los Angeles (City or Discharger). Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Donald C. Tillman Water Reclamation Plant (Tillman WRP or Facility).

Table 1. Facility Information

WDID	4B190106004
Discharger	City of Los Angeles
Name of Facility	Donald C. Tillman Water Reclamation Plant
Facility Address	6100 Woodley Avenue, Van Nuys, CA 91406
Facility Contact, Title and Phone	Hiddo Netto, Plant Manager, (818) 778-4121
Authorized Person to Sign and Submit Reports	Enrique C. Zaldivar, Director, (213) 473-7999
Mailing Address	1149 S. Broadway 9th Floor, Los Angeles, CA 90015
Billing Address	SAME
Type of Facility	Publicly-Owned Treatment Work
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Y
Reclamation Requirements	Producer
Facility Permitted Flow	80 Million Gallons per Day
Facility Design Flow	80 Million Gallons per Day
Watershed	Los Angeles River Watershed
Receiving Water	Los Angeles River
Receiving Water Type	Inland surface water

A. The City's Department of Public Works, Bureau of Sanitation is the owner and operator of the Tillman WRP, a Publicly-Owned Treatment Works (POTW).

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Facility discharges wastewater to Los Angeles River, water of the United States, and is currently regulated by Order Nos. R4-2006-0091[1] and R4-2010-0060[2], which expire on November 10, 2011. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit are adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge (ROWD) and submitted an application for renewal of its WDRs and NPDES permit on April 18, 2011. The revised ROWD was received on April 26, 2011. A site visit was conducted on May 2, 2011, to observe operations and collect additional data to develop permit limitations and conditions. The Regional Water Quality Control Board (Regional Water Board) issued a letter to the Discharger on July18, 2011, indicating that the application for the NPDES permit renewal and ROWD were complete.

II. FACILITY DESCRIPTION

The Tillman WRP is located at 6100 Woodley Avenue, Van Nuys, California. Attachment B is the vicinity map for the Tillman WRP. The Tillman WRP consists of two identical treatment trains, each with a dry weather average design capacity of 40 million gallons per day (MGD), for a total 80 MGD. In 2010, the average treated tertiary-treated municipal wastewater was approximately 47 MGD. The influent wastewater is a mixture of domestic and industrial wastewater that is pre-treated pursuant to title 40, Code of Federal Regulations (CFR), part 403.

The Tillman WRP is part of the City's integrated network of facilities, known as the Hyperion Service area (HAS), which includes four treatment plants. The upstream treatment plants (Tillman WRP, Los Angeles-Glendale WRP, and Burbank WRP) discharge solids to the Hyperion Treatment Plant. This system also allows biosolids, solids, and excess flows to be diverted from the upstream plants to the Hyperion Wastewater Treatment Plant for treatment and disposal. All solids removed from the

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1 Order No. R4-2006-0091 adopted by this Regional Water Board on December 14, 2006, regulates the tertiary-treated wastewater discharged from the Tillman WRP.

2 On January 25, 2010, the Regional Water Board entered into a settlement agreement with the City in an effort to resolve lawsuits and petitions challenging the 1998 Permit (Order No. 98-046) and 2006 Permit (Order No. R4-2006-0091). The settlement agreement required that a variety of negotiated modifications to Order No. R4-2006-0091 be brought before the Regional Water Board for its consideration. The settlement agreement did not bind the Regional Water Board's judgment in consideration of those modifications, but the modifications did reflect staff recommendations. Order No. R4-2010-0060 adopted by this Regional Water Board on April 1, 2010, modifying Order No. R4-2006-0091, was the result of the public hearing on staff's proposals pursuant to the settlement agreement.

Tillman WRP treatment process are returned untreated to the Additional Valley Outfall sewer (AVORS) for downstream treatment at the Hyperion Wastewater Treatment Plant.

The City maintains and operates the Hyperion Treatment System, which collects, treats, and processes municipal wastewater from domestic, commercial, and industrial sources from the entire City (except the Terminal Island Service Area surrounding the Los Angeles Harbor area) and from a number of other cities and agencies under contractual agreements, including the communities of Chatsworth, Granada Hills, Mission Hills, Northridge, Pacoima, Tarzana, Van Nuys, Sylmar, Woodland Hills, Canoga Park; the City of San Fernando; the Las Virgenes Municipal Water District; Veterans Memorial Park; and the Triunfo Canyon Sanitation District. Sewage enters the Tillman WRP via both the Additional Valley Outfall Relief Sewer (AVORS) and the East Valley Interceptor Sewer (EVIS). There are approximately 4 million people living in the Hyperion Service Area with approximately 1.1 million people in the San Fernando Valley, which is served by the Tillman WRP.

In case of the Tillman WRP operational problems or a need for the Tillman WRP shutdown, wastewater can be diverted back to the AVORS for treatment at the Hyperion Treatment Plant.

A. Description of Wastewater and Biosolids Treatment or Controls

1. The treatment system at the Tillman WRP currently consists of grit removal, screening, flow equalization, primary sedimentation, nitrification and denitrification (NDN) activated sludge biological treatment with fine pore aeration, secondary clarification, coagulation, aqua diamond cloth filtration, disinfection by chlorination with the addition of ammonium hydroxide, and dechlorination. No facilities are provided for solids processing at the Tillman WRP. Solids from the Facility are returned to the collection system for processing at the Hyperion Treatment Plant. Solids returned to the sewer consist of grit, primary and secondary sludge and skimmings, and filter backwash (approximately 10 MGD). Attachment B is the schematic of wastewater flow.

   In order to achieve compliance with the ammonia water quality objectives (WQOs) specified in the *Water Quality Control Plan for the Los Angeles Region* (Basin Plan), the City tested different NDN treatments, including Modified Ludzack-Ettinger (MLE) Process, Enhanced Modified Ludzack-Ettinger (eMLE) Process, and Step-Feed Process. The City completed construction of the NDN treatment facility with the MLE Process in September 2007, and took 90 days to optimize operation of the NDN facilities.

   a. **Grit removal –** Grit removal is used to remove as much sand and silt as possible to prevent wear on pumps; accumulations in aeration tanks, clarifiers, and digesters; and clogging of sludge piping.

   b. **Screen –** Screens are used in the wastewater treatment plant to remove coarse solids, such as wood, plastic materials, and rags.

c. **Flow equalization –** Flow equalization basins provide a relatively constant flow rate to the subsequent treatment operations and processes, enhancing the degree of treatment. Not only does equalization dampen the daily variation in the flow rate, but it also dampens the variation in the concentration of effluent five-day biochemical oxygen demand at 20°C ($BOD_{5@20^{\circ}C}$), total suspended solids (TSS), and so on, through the day.

d. **Primary sedimentation –** The main objective of primary sedimentation is to remove solids from the wastewater by gravity. The heavier solids (settleable solids) precipitate and are scraped out of the primary sedimentation basin. The lighter solids float to the top and are skimmed off. However, some solids remain in suspension.

e. **NDN activated sludge biological treatment –** Air generated from six compressors and delivered via pipe ducts to the aeration basin provides oxygen for the nitrification process. Activated sludge converts non-settleable and dissolved organic contaminants into biological floc, which can then be removed from the wastewater with further treatment.

f. **Secondary sedimentation with coagulation –** The main objective of secondary sedimentation is to remove biological floc from the wastewater. Chemicals, such as aluminum sulfate (alum) and polymer, may be added as part of the treatment process to enhance solids removal. Alum causes the biological floc to combine into larger clumps (coagulate), thus making them easier to remove.

g. **Aqua diamond cloth filtration –** The filtration process is used to remove or reduce suspended or colloidal matter from a liquid stream by passing the water through cloth media. Cloth media is completely submerged during filtration. Solids are deposited on the outside of the cloth as the influent wastewater flows through. The filtered effluent is collected inside the diamond lateral to discharge. Cloth media remove the solids that the secondary sedimentation process did not remove, thus, improving the efficiency and reliability of the following disinfection process.

h. **Chlorination with ammonium hydroxide added –** Sodium hypochlorite and ammonium hydroxide are used as disinfectants at the Tillman WRP. Ammonium hydroxide reacts with sodium hypochlorite to form chloramine. This disinfection process reduces the formation of trihalomethanes and cyanide. Disinfectant is added into the effluent of aqua diamond cloth filtration (prior to the chlorine contact basin) in order to destroy bacteria, pathogens and viruses.

i. **Dechlorination –** Sodium bisulfate is added to neutralize the chlorine prior to the discharge of treated water to the Los Angeles River.

B. Discharge Points and Receiving Waters

1. The Tillman WRP is located within the Sepulveda Dam Basin. The 100-year flood water surface elevation under the "*U.S. Corps of Engineers Modified Spillway Gate Operating Plan*" for the Sepulveda Dam Basin is 714.4 feet. The City's Department of Public Works completed construction of a berm surrounding the Tillman WRP in 1994 to a finished elevation of 715 feet. The berm and new outfall (Discharge Point 008, see below for more information) were measured necessary to protect the Tillman WRP from flood conditions within the Sepulveda Flood Control Basin. The Tillman WRP discharges tertiary-treated wastewater via Wildlife Lake, Lake Balboa, Bull Creek, Hayvenhurst Channel, and Haskell Channel, to the Los Angeles River, above the Estuary. The receiving water is located within the Los Angeles River Watershed. Existing points of discharge (see Attachment B) are located within Los Angeles River Reach 5 Sepulveda Basin and are as follows:

   a. **Discharge Point 001 (Discharge to Los Angeles River) –** Discharge Point 001 was formerly used as an outfall for the Tillman WRP and, though inactive, is still in place.

   b. **Discharge Point 002 (Discharge to Los Angeles River via Lake Balboa, Bull Creek, and Hayvenhurst Channel) –** The City of Los Angeles Department of Recreation and Parks has used up to 17 MGD of treated effluent as recycled water in the 27.5-acre Lake Balboa. The treated effluent is discharged from the Tillman WRP to the Lake at the southeast corner of Victory and Balboa Boulevards, Los Angeles (Discharge Point 002). The treated effluent flows through the Lake and eventually discharges through weirs, spillways and a bottom drain to three Outfalls: at Bull Creek (Discharge Points 004A and 004B), Hayvenhurst Channel (Discharge Point 005), and the Los Angeles River (Discharge Point 006). Bull Creek and Hayvenhurst Channel are tributaries to the Los Angeles River above the Estuary.

   c. **Discharge Point 003 (Discharge to Los Angeles River via Wildlife Lake, Haskell Channel) –** The Department of Recreation and Parks uses approximately 5 MGD of treated effluent as recycled water for Wildlife Lake and approximately 2 MGD in Haskell Flood Control Channel between September and May. The treated effluent flows by gravity to Wildlife Lake located northeast of Burbank Boulevard and Woodley Avenue (Discharge Point 003). The treated effluent flows through the 10-acre Wildlife Lake and is discharged to the Haskell Flood Control Channel (Discharge Point 007), thence to the Los Angeles River, above the Estuary.

      During the summer months, Wildlife Lake may be drained (for maintenance and to minimize nuisance resulting from mosquito breeding), resulting in as increased discharge of treated effluent to Haskell Flood Control Channel.

d. **Discharge Point 008 (Discharge to Los Angeles River) –** The Tillman WRP discharges tertiary-treated effluent to the upper Los Angeles River, at Discharge Point 008, which was completed construction in 1993 and replaced Discharge Point 001. Discharge Point 008 is located 878 feet downstream of the Sepulveda Dam Spillway,

2. The City is currently using treated effluent to maintain the Japanese Garden, Lake Balboa, and Wildlife Lake. The Wildlife Lake and Lake Balboa are operated and maintained by the City's Department of Recreation and Parks. The Department of Recreation and Parks has developed management plans for these lakes, which include measures to be implemented in the operation, maintenance, and monitoring of the lakes.

3. During dry weather (May 1 – October 31), the primary sources of water flow in Los Angeles River downstream of the Discharge Points are the Tillman WRP, the Burbank WRP, and other NPDES-permitted discharges, including urban runoff conveyed through the municipal separate storm sewer systems (MS4). Storm water and dry weather urban runoff from MS4 are regulated under an NPDES permit, *Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles*, NPDES Permit No. CAS004001.

4. The Los Angeles County Flood Control District channelized portions of the Los Angeles River to convey and control floodwater, and to prevent damage to homes located adjacent to the river. Although not its main purpose, the Los Angeles River conveys treated wastewater along with floodwater, and urban runoff. The Los Angeles River is unlined further downstream of its confluence with the Burbank Western Channel, in what is known as the Glendale Narrows. Groundwater recharge occurs incidentally, in these unlined areas of the Los Angeles River. At times when the groundwater table is high, groundwater rises and contributes flow to the Los Angeles River. Natural springs feed the river and support willows, sycamores, and cottonwood trees. South of the Glendale Narrows, the Los Angeles River is concrete-lined down to Willow Street, in Long Beach.

5. As described in the State of the Watershed Report, the Los Angeles River Watershed is one of the largest in the Los Angeles Region. It is also one of the most diverse in terms of land use patterns. Approximately 324 square miles of the watershed are covered by forest or open space land including the area near the headwaters which originate in the Santa Monica, Santa Susana, and San Gabriel Mountains. The rest of the watershed is highly developed. The river flows through the San Fernando Valley past heavily developed residential and commercial areas. From the Arroyo Seco, north of downtown Los Angeles, to the confluence with the Rio Hondo, the river flows through industrial and commercial areas and is bordered by railyards, freeways, and major commercial and government buildings. From the Rio Hondo to the Pacific Ocean, the river flows through industrial, residential, and commercial areas, including major refineries and petroleum products storage facilities, major

freeways, rail lines, and railyards serving the Ports of Los Angeles and Long Beach.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

1. Effluent limitations contained in the existing Order for discharges from Effluent Transfer Stations EFF-001A and EFF-001B and representative monitoring data from the term of the previous Order are as follows:

Table 2. Historic Effluent Limitations and Monitoring Data at EFF-001A and EFF-001B

Parameter	Units	Effluent Limitation			Monitoring Data[3] (From 01/01/2008 To 03/31/2011)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge[4, 5]	Highest Daily Discharge
$BOD_{5@20^{o}C}$	mg/L	20	30	45	3	4	7
TSS	mg/L	15	40	45	1.2	1.3	2.1
Oil and Grease	mg/L	10	--	15	<3	--	3
Settleable Solids	ml/L	0.1	--	0.3	<0.1	--	<0.1
Residual Chlorine	mg/L	--	--	0.1	--	--	<0.1
Total Dissolved Solids	mg/L	950	--	--	734	--	734
MBAS	mg/L	0.5	--	--	0.25	--	0.25
Chloride	mg/L	190	--	--	156	--	156
Sulfate	mg/L	300	--	--	162	--	162
Fluoride	mg/L	2.0	--	--	1.03	--	1.03
Boron	mg/L	--	--	--	0.81	--	0.81
Nitrate-N	mg/L	7.2	--	--	7.19	--	7.19
Nitrite-N	mg/L	0.9	--	--	0.32	--	0.32
Nitrate + Nitrite as N	mg/L	7.2	--	--	7.46	--	7.46
Total Ammonia	mg/L	1.4	--	4.2	1.42	--	1.42
Antimony	µg/L	--	--	--	1.44	--	1.44
Arsenic	µg/L	--	--	--	4.1	--	4.1
Beryllium	µg/L	--	--	--	0.1	--	0.1
Cadmium	µg/L	4.1	--	8.2	0.85	--	0.85
Chromium III	µg/L	--	--	--	1.80	--	1.80

[3] These monitoring data include estimated concentrations, which are less than the reporting level, but greater than or equal to the respective laboratory's MDLs.
[4] The highest average weekly discharge concentration is reported for constituents that are monitored at weekly or more frequent intervals.
[5] Weekly averages are calculated as a calendar week average.

Parameter	Units	Effluent Limitation			Monitoring Data[3] (From 01/01/2008 To 03/31/2011)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge[4, 5]	Highest Daily Discharge
Chromium VI	µg/L	--	--	--	<2	--	<2
Copper	µg/L	23	--	34	26.1	--	26.1
Lead	µg/L	7.3	--	18	1.5	--	1.5
Mercury	µg/L	0.051	--	0.12	0.055	--	0.055
Nickel	µg/L	--	--	--	20	--	20
Selenium	µg/L	3.6	--	9.2	1.8	--	1.8
Silver	µg/L	--	--	--	0.2	--	0.2
Thallium	µg/L	--	--	--	0.16	--	0.16
Zinc	µg/L	193	--	257	135	--	135
Cyanide[6]	µg/L	3.8	--	9.4	6	--	6
Asbestos	µg/L	--	--	--	NA	--	NA
2,3,7,8-TCDD (Dioxin)	µg/L	--	--	--	0	--	0
Acrolein	µg/L	--	--	--	< 1.96	--	< 1.96
Acrylonitrile	µg/L	--	--	--	< 0.29	--	< 0.29
Benzene	µg/L	--	--	--	< 0.15	--	< 0.15
Bromoform	µg/L	--	--	--	3.37	--	3.37
Carbon Tetrachloride	µg/L	--	--	--	<0.45	--	<0.45
Chlorobenzene	µg/L	--	--	--	0.15	--	0.15
Dibromochloromethane	µg/L	--	--	--	21.8	--	21.8
Chloroethane	µg/L	--	--	--	0.21	--	0.21
2-chloroethyl vinyl ether	µg/L	--	--	--	< 1	--	< 1
Chloroform	µg/L	--	--	--	56.1	--	56.1
Dichlorobromomethane	µg/L	--	--	--	45	--	45
1,1-Dichloroethane	µg/L	--	--	--	< 0.36	--	< 0.36
1,2-Dichloroethane	µg/L	--	--	--	< 0.23	--	< 0.23
1,1-Dichloroethylene	µg/L	--	--	--	< 0.41	--	< 0.41
1,2-Dichloropropane	µg/L	--	--	--	< 0.51	--	< 0.51
1,3-Dichloropropylene	µg/L	--	--	--	< 0.39	--	< 0.39
Ethylbenzene	µg/L	--	--	--	< 0.39	--	< 0.39
Methyl bromide	µg/L	--	--	--	1.27	--	1.27

6 Limitations were adopted in Order R4-2006-0091 and removed in Order No. R4-2010-0060. There were no limitations after April 1, 2010.

Parameter	Units	Effluent Limitation			Monitoring Data[3] (From 01/01/2008 To 03/31/2011)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge[4, 5]	Highest Daily Discharge
Methyl chloride	µg/L	--	--	--	<0.33	--	<0.33
Methylene chloride	µg/L	--	--	--	0.34	--	0.34
1,1,2,2-Tetrachloroethane	µg/L	--	--	--	< 0.29	--	< 0.29
Tetrachloroethylene[7]	µg/L	5	--	--	1.92	--	1.92
Toluene	µg/L	--	--	--	<0.37	--	<0.37
Trans 1,2-Dichloroethylene	µg/L	--	--	--	< 0.57	--	< 0.57
1,1,1-Trichloroethane	µg/L	--	--	--	< 0.29	--	< 0.29
1,1,2-Trichloroethane	µg/L	--	--	--	< 0.31	--	< 0.31
Trichloroethylene	µg/L	--	--	--	< 0.48	--	< 0.48
Vinyl Chloride	µg/L	--	--	--	< 0.37	--	< 0.37
2-chlorophenol	µg/L	--	--	--	< 0.26	--	< 0.26
2,4-dichlorophenol	µg/L	--	--	--	< 0.27	--	< 0.27
2,4-dimethylphenol	µg/L	--	--	--	< 0.24	--	< 0.24
4,6-Dinitro-o-Resol (2-Methyl-4,6-Dinitrophenol)	µg/L	--	--	--	< 1.16	--	< 1.16
2,4-Dinitrophenol	µg/L	--	--	--	< 1.09	--	< 1.09
2-Nitrophenol	µg/L	--	--	--	< 0.45	--	< 0.45
4-Nitrophenol	µg/L	--	--	--	1.08	--	1.08
3-Methyl-4-Chlorophe	µg/L	--	--	--	0.49	--	0.49
Pentachlorophenol	µg/L	--	--	--	1.06	--	1.06
Phenol	µg/L	--	--	--	< 0.4	--	< 0.4
2,4,6-Trichlorophenol	µg/L	--	--	--	0.29	--	0.29
Acenaphthene	µg/L	--	--	--	< 0.13	--	< 0.13
Acenaphthylene	µg/L	--	--	--	< 0.13	--	< 0.13
Anthracene	µg/L	--	--	--	< 0.11	--	< 0.11
Benzidine	µg/L	--	--	--	< 5	--	< 5
Benzo(a)Anthracene	µg/L	--	--	--	< 0.14	--	< 0.14
Benzo(a)Pyrene	µg/L	--	--	--	<0.03	--	<0.03
Benzo(b)Fluoranthene	µg/L	--	--	--	<0.14	--	<0.14
Benzo(ghi)Perylene	µg/L	--	--	--	< 0.03	--	< 0.03
Benzo(k)Fluoranthene	µg/L	--	--	--	<0.11	--	<0.11

Parameter	Units	Effluent Limitation			Monitoring Data[3] (From 01/01/2008 To 03/31/2011)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge[4, 5]	Highest Daily Discharge
Bis(2-Chloroethoxy) Methane	µg/L	--	--	--	< 0.35	--	< 0.35
Bis(2-Chloroethyl)Ether	µg/L	--	--	--	< 0.18	--	< 0.18
Bis(2-Chloroisopropyl) Ether	µg/L	--	--	--	< 0.35	--	< 0.35
Bis(2-Ethylhexyl) Phthalate[6]	µg/L	4	--	16	1	--	1
4-Bromophenyl Phenyl Ether	µg/L	--	--	--	< 0.15	--	< 0.15
Butylbenzyl Phthalate	µg/L	--	--	--	< 0.26	--	< 0.26
2-Chloronaphthalene	µg/L	--	--	--	< 0.3	--	< 0.3
4-Chlorophenyl Phenyl Ether	µg/L	--	--	--	< 0.28	--	< 0.28
Chrysene	µg/L	--	--	--	< 0.12	--	< 0.12
Dibenzo(a,h)Anthracene	µg/L	--	--	--	< 0.02	--	< 0.02
1,2-Dichlorobenzene	µg/L	--	--	--	14	--	14
1,3-Dichlorobenzene	µg/L	--	--	--	< 0.23	--	< 0.23
1,4-Dichlorobenzene	µg/L	--	--	--	<0.24	--	<0.24
3-3'-Dichlorobenzidine	µg/L	--	--	--	< 2.78	--	< 2.78
Diethyl Phthalate	µg/L	--	--	--	<0.62	--	<0.62
Dimethyl Phthalate	µg/L	--	--	--	0.29	--	0.29
Di-n-Butyl Phthalate	µg/L	--	--	--	0.12	--	0.12
2-4-Dinitrotoluene	µg/L	--	--	--	< 0.21	--	< 0.21
2-6-Dinitrotoluene	µg/L	--	--	--	< 0.21	--	< 0.21
Di-n-Octyl Phthalate	µg/L	--	--	--	< 0.82	--	< 0.82
1,2-Diphenylhydrazine	µg/L	--	--	--	< 0.21	--	< 0.21
Fluoranthene	µg/L	--	--	--	< 0.02	--	< 0.02
Fluorene	µg/L	--	--	--	< 0.02	--	< 0.02
Hexachlorobenzene	µg/L	--	--	--	< 0.18	--	< 0.18
Hexachlorobutadiene	µg/L	--	--	--	< 0.23	--	< 0.23
Hexachlorocyclopentadiene	µg/L	--	--	--	< 3.83	--	< 3.83
Hexachloroethane	µg/L	--	--	--	< 0.25	--	< 0.25
Indeno(1,2,3-cd)Pyrene	µg/L	--	--	--	< 0.02	--	< 0.02

Parameter	Units	Effluent Limitation			Monitoring Data[3] (From 01/01/2008 To 03/31/2011)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge[4, 5]	Highest Daily Discharge
Isophorone	µg/L	--	--	--	0.14	--	0.14
Naphthalene	µg/L	--	--	--	< 0.13	--	< 0.13
Nitrobenzene	µg/L	--	--	--	< 0.33	--	< 0.33
N-Nitrosodimethylamine	µg/L	--	--	--	< 0.5	--	< 0.5
N-Nitrosodi-n-Propylamine	µg/L	--	--	--	< 0.36	--	< 0.36
N-Nitrosodiphenylamine	µg/L	--	--	--	< 0.86	--	< 0.86
Phenanthrene	µg/L	--	--	--	< 0.01	--	< 0.01
Pyrene	µg/L	--	--	--	< 0.02	--	< 0.02
1,2,4-Trichlorobenzene	µg/L	--	--	--	< 0.42	--	< 0.42
Aldrin	µg/L	--	--	--	< 0.004	--	< 0.004
Alpha-BHC	µg/L	--	--	--	< 0.004	--	< 0.004
Beta-BHC	µg/L	--	--	--	< 0.003	--	< 0.003
Gamma-BHC[6] (Lindane)	µg/L	0.063	--	0.17	0.006	--	0.006
delta-BHC	µg/L	--	--	--	< 0.004	--	< 0.004
Chlordane	µg/L	--	--	--	< 0.056	--	< 0.056
4,4'-DDT	µg/L	--	--	--	< 0.007	--	< 0.007
4,4'-DDE	µg/L	--	--	--	< 0.004	--	< 0.004
4,4'-DDD	µg/L	--	--	--	< 0.004	--	< 0.004
Dieldrin	µg/L	--	--	--	< 0.005	--	< 0.005
Alpha-Endosulfan	µg/L	--	--	--	< 0.008	--	< 0.008
Beta-Endosulfan	µg/L	--	--	--	< 0.007	--	< 0.007
Endosulfan Sulfate	µg/L	--	--	--	< 0.008	--	< 0.008
Endrin	µg/L	--	--	--	< 0.005	--	< 0.005
Endrin Aldehyde	µg/L	--	--	--	< 0.004	--	< 0.004
Heptachlor	µg/L	--	--	--	< 0.003	--	< 0.003
Heptachlor Epoxide	µg/L	--	--	--	< 0.003	--	< 0.003
PCB 1016	µg/L	--	--	--	< 0.039	--	< 0.039
PCB 1221	µg/L	--	--	--	< 0.49	--	< 0.49
PCB 1232	µg/L	--	--	--	< 0.1	--	< 0.1
PCB 1242	µg/L	--	--	--	< 0.2	--	< 0.2
PCB 1248	µg/L	--	--	--	< 0.1	--	< 0.1

Parameter	Units	Effluent Limitation			Monitoring Data[3] (From 01/01/2008 To 03/31/2011)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge[4, 5]	Highest Daily Discharge
PCB 1254	µg/L	--	--	--	< 0.04	--	< 0.04
PCB 1260	µg/L	--	--	--	< 0.07	--	< 0.07
Toxaphene	µg/L	--	--	--	< 0.1	--	< 0.1
Methoxychlor	µg/L	--	--	--	< 0.01	--	< 0.01
2,4-D	µg/L	--	--	--	< 1	--	< 1
2,4,5-TP (Sylvex)	µg/L	--	--	--	< 1	--	< 1

D. Compliance Summary

Table 3 lists the Tillman WRP's violations of subdivisions (h) and (i) of CWC section 13385, from January 1, 2008 through February 28, 2011. None of these violations were subject to the mandatory minimum penalty violations.

Table 3. List of Violations

Violation ID	Occurred Date	Violation Type	Violation Description
785577	05/11/2008	Water quality effluent	Total Coliform (68/>23 MPN >2x in 30 days)
785578	06/02/2008	Water quality effluent	NO2 + NO3 as N, monthly average (7.46/7.2 mg/L)
785580	05/30/2008	Water quality effluent	Total Coliform (26/>23 MPN >2x in 30 days)
894603	08/18/2009	Order conditions	The Facility has not been collecting oil and grease samples directly into a glass container.

E. Planned Changes

The Tillman WRP's treatment system has been upgraded with respect to nitrogen removal since September of 2007, in order to comply with the Basin Plan WQOs for ammonia nitrogen.

To better maintain storm flows and avoid sewer overflows, the City plans to construct an in-plant storage system consisting of lined concrete basins, associated structures and auxiliary piping to provide 15.2 million gallons (MG) of wet weather storage capacity. Additionally, piping and valve modifications to the existing Phase II primary sedimentation and aeration tanks will provide equalization capacity for diurnal flow and up to 4.8 MG additional wet weather storage capacity. The basins will be used only as temporary relief storage and will not provided additional treatment. Temporary relief storage will be used to relieve the sewer system during significant storm events by diverting Tillman WRP primary effluent to open, lined basins for up to 12 hours, than discharge back into AVORS. The in-plant storage system is expected to be completed in May 2013.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the United States Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (CWC) (commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as WDRs pursuant to article 4, chapter 4, division 7 of the CWC (commencing with section 13260).

B. California Environmental Quality Act (CEQA)

Under CWC section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100 through 21177.

C. State and Federal Regulations, Policies, and Plans

1. **Basin Plan.** The Basin Plan, adopted on June 13, 1994, designates beneficial uses, establishes WQOs, and contains implementation programs and policies to achieve those WQOs for all waters addressed through the plan. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Beneficial uses applicable to the receiving waters as follows:

Table 4A. Basin Plan Beneficial Uses – Surface Waters

Discharge Points	Receiving Water Name	Beneficial Use(s)
001 002 003 008	Los Angeles River Upstream to Figueroa Street (Hydro. Unit No. 405.21)	Existing: ground water recharge (GWR); contact water recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); wildlife habitat (WILD); and wetland habitat[7] (WET). Potential: municipal and domestic water supply[8] (MUN), and industrial service supply (IND).
	Los Angeles River Figueroa Street to Carson Street (Hydro. Unit No. 405.15)	Existing: GWR; REC-1[9]; REC-2; and WARM. Potential: MUN [8]; IND; and WILD.
	Los Angeles River Carson Street to Estuary (Hydro. Unit No. 405.12)	Existing: GWR; REC-1[9]; REC-2; WARM; marine habitat (MAR); WILD; and rare, threatened, or endangered species (RARE). Potential: MUN[8]; IND; industrial process supply (PROC); migration of aquatic organisms (MIGR); spawning, reproduction, and/or early development (SPWN); and shellfish harvesting[9] (SHELL).
	Los Angeles River Estuary (Hydro. Unit No. 405.12)	Existing: IND; navigation (NAV); REC-1; REC-2; commercial and sport fishing (COMM); estuarine habitat (EST); MAR; WILD; RARE [10]; MIGR [11]; SPWN [11]; and WET[7]. Potential: SHELL.

[7] Waterbodies designated as WET may have wetlands habit associated with only a portion of the waterbody. Any regulatory action would require a detailed analysis of the area.

[8] The potential municipal and domestic supply beneficial uses for the water body is consistent with the State Water Board Order No. 88-63 and Regional Water Board Resolution No. 89-003; however, the Regional Water Board has only conditionally designated the MUN beneficial use and at this time cannot legally establish effluent limitations designed to protect the conditional designation.

[9] Access prohibited by Los Angeles County Department of Public Works.

[10] One or more rare species utilize estuaries and coastal wetlands for foraging and/or nesting.

[11] Aquatic organisms utilize estuary and coastal wetland, to a certain extent, for spawning and early development. This may include migration into areas, which are heavily influenced by freshwater inputs.

Table 4B. Basin Plan Beneficial Uses – Ground Waters

Discharge Point	Receiving Water Name	Beneficial Use(s)
001 002 003 008	San Fernando Basins (East and West of Highway 405) – DWR Basin No.[12] 4-12	Existing: MUN; IND; PROC; and, agricultural supply (AGR).
	Los Angeles Coastal Plain (Central and West Basins) – DWR Basin No. 4-11	Existing: MUN; IND; PROC; and AGR.

Requirements of this Order implement the Basin Plan and subsequent amendments.

a. **Ammonia WQOs –** Table 3-1 through Table 3-4 of the 1994 Basin Plan provided WQOs for ammonia to protect aquatic life. However, those ammonia WQOs were revised on April 25, 2002, by the Regional Water Board with the adoption of Resolution No. 2002-011, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Update the Ammonia Objectives for Inland Surface Waters (Including Enclosed Bays, Estuaries and Wetlands) with Beneficial Use Designations for Protection of Aquatic Lif*e. The ammonia Basin Plan amendment was approved by the State Water Board, Office of Administrative Law (OAL), and USEPA on April 30, 2003, June 5, 2003, and June 19, 2003, respectively. On December 1, 2005, Resolution No. 2005-014, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Revise the Early Life Stage Implementation Provision of the Freshwater Ammonia Objectives for Inland Surface Waters (including enclosed bays, estuaries and wetlands) for Protection of Aquatic Life,* was adopted by the Regional Water Board. Resolution No. 2005-014 was approved by the State Water Board, OAL, and USEPA on July 19, 2006, August 31, 2006, and April 5, 2007, respectively. On June 7, 2007, the Regional Water Board adopted Resolution No. 2007-005, *Amendments to the Water Quality Control Plan-Los Angeles Region-To Incorporate Site-Specific Objectives for Select Inland Surface Waters in the San Gabriel River, Los Angeles River and Santa Clara River Watersheds.* This amendment to the Basin Plan incorporates site-specific 30-day average objectives for ammonia along with corresponding site-specific early life stage implementation provisions for select waterbody reaches and tributaries in the Santa Clara, Los Angeles, and San Gabriel River watersheds. The State Water Board, OAL, and USEPA approved this Basin Plan amendment on January 15, 2008, May 12, 2008, and March 30, 2009, respectively.

[12] Basins are numbered according to DWR (California Department of Water Resources) Bulletin No. 118-80 (DWR, 1980).

b. **Chloride WQOs** – Table 3-8 of the 1994 Basin Plan contained WQOs for chloride. However, the chloride WQOs for some waterbodies were revised by the Regional Water Board on January 27, 1997, with the adoption of Resolution No. 97-02, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate a Policy for Addressing Levels of Chloride in Discharges of Wastewaters*. Resolution No. 97-02 was approved by the State Water Board, OAL, and USEPA on October 23, 1997, January 9, 1998, and February 5, 1998, respectively, and is now in effect. The chloride WQO was revised from 150 mg/L to 190 mg/L, for the Los Angeles River between Figueroa Street and Los Angeles River Estuary (Willow Street) and between Sepulveda Flood Control Basin and Figueroa Street (including Burbank Western Channel). The final effluent limitation for chloride prescribed in this Order is based on the revised chloride WQO and is applied at the end of pipe.

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995, and November 9, 1999. Approximately forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

3. **State Implementation Policy (SIP).** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

4. **Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards become effective for CWA purposes (40 CFR part 131.21, 65 Fed. Reg. 24641 (April 27, 2000)). Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

5. **Antidegradation Policy.** 40 CFR part 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 CFR part 131.12 and State Water Board Resolution No. 68-16.

6. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR part 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Some effluent limitations in this Order are less stringent that those in the previous Order. As discussed in detail in the Fact Sheet this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

D. Impaired Water Bodies on Integrated Report

The State Water Board proposed the California 2008-2010 Integrated Report from a compilation of the adopted Regional Water Boards' Integrated Reports containing 303(d) List of Impaired Waters and 305(b) Reports following recommendations from the Regional Water Boards and information solicited from the public and other interested parties. The Regional Water Boards' Integrated Reports were used to revise their 2006 303 (d) List. On August 4, 2010, the State Water Board adopted the California 2008-2010 Integrated Report. On November 12, 2010, the USEPA approved California 2008-2010 Integrated Report Section 303(d) List of Impaired Waters requiring TMDLs for the Los Angeles Region.

Los Angeles River and their tributaries are on California 2010 Integrated Report. The following pollutants were identified as impacting the receiving waters:

1. **Los Angeles River Estuary (Queensway Bay) –** Calwater Watershed 40512000 (Hydro. Unit No. 405.12 in Basin Plan)

   Pollutants – Chlordane (sediment)[13], DDT (sediment)[13], PCBs (polychlorinated biphenyls) (sediment)[13], sediment toxicity[13], and trash[14]

2. **Los Angeles River Reach 1 (Estuary to Carson Street) –** Calwater Watershed 40512000 (Hydro. Unit No. 405.12 in Basin Plan)

[13] This pollutant requires TMDL.
[14] TMDL has been approved for this pollutant, which has being addressed by USEPA.

Pollutants – Ammonia[14], cadmium[14], coliform bacteria[13], copper[14], cyanide[13], diazinon[13], lead[14], nutrients (algae)[14], trash[14], zinc[14], and pH[14]

3. **Los Angeles River Reach 2 (Carson Street to Figueroa Street) –** Calwater Watershed 40515000 (Hydro. Unit No. 405.15 in Basin Plan)

   Pollutants – Ammonia[14], coliform bacteria[13], copper[14], lead[14], nutrients (algae)[14], oil[13], and trash[14]

4. **Angeles River Reach 3 (Figueroa Street to Riverside Drive) –** Calwater Watershed 40521000 (Hydro. Unit No. 405.21 in Basin Plan)

   Pollutants – Ammonia[14], copper[14], lead[14], nutrients (algae)[14], and trash[14]

5. **Los Angeles River Reach 4 (Riverside Drive to Sepulveda Dam) –** Calwater Watershed 40521000 (Hydro. Unit No. 405.21 in Basin Plan)

   Pollutants – Ammonia[14], coliform bacteria[13], copper[14], lead[14], nutrients (algae)[14], and trash[14]

6. **Los Angeles River Reach 5 (within Sepulveda Basin) –** Calwater Watershed 40521000 (Hydro. Unit No. 405.21 in Basin Plan)

   Pollutants – Ammonia[14], copper[14], lead[14], nutrients (algae)[14], oil[13], and trash[14]

E. Other Plans, Polices and Regulations

1. **Sources of Drinking Water Policy (SODW Policy)**. On May 19, 1988, the State Water Board adopted Resolution No. 88-63, *Sources of Drinking Water Policy*, which established a policy that all surface and ground waters, with limited exemptions, are suitable or potentially suitable for municipal and domestic supply. To be consistent with State Water Board's SODW policy, on March 27, 1989, the Regional Water Board adopted Resolution No. 89-03, *Incorporation of Sources of Drinking Water Policy into the Water Quality Control Plans (Basin Plans) – Santa Clara River Basin (4A)/ Los Angeles River Basin (4B).*

   Consistent with Regional Water Board Resolution No. 89-03 and State Water Board Resolution No. 88-63, in 1994 the Regional Water Board conditionally designated all inland surface waters in Table 2-1 of the 1994 Basin Plan as existing, intermittent, or potential for Municipal and Domestic Supply (MUN). However, the conditional designation in the 1994 Basin Plan included the following implementation provision: "no new effluent limitations will be placed in WDRs as a result of these [potential MUN designations made pursuant to the SODW policy and the Regional Water Board's enabling resolution] until the Regional Water Board adopts [a special Basin Plan Amendment that incorporates a detailed review of the waters in the Region that should be exempted from the potential MUN designations arising from SODW policy and the Regional Water Board's enabling resolution]." On February 15, 2002, the USEPA clarified its partial approval (May 26, 2000) of the 1994 Basin Plan amendments and acknowledged that the conditional designations do not currently have a legal effect, do not reflect new water quality standards subject to USEPA review, and do not support new effluent limitations based on the conditional designations stemming from the SODW Policy until a subsequent review by the Regional Water Board finalizes the designations for these waters. This permit is designed to be consistent with the existing Basin Plan.

2. **Secondary Treatment Regulations**. 40 CFR part 133 establishes the minimum levels of effluent quality to be achieved by secondary treatment. These limitations, established by USEPA, are incorporated into this Order, except where more stringent limitations are required by other applicable plans, policies, or regulations or to prevent backsliding.

3. **Storm Water**. CWA section 402(p), as amended by the Water Quality Act of 1987, requires NPDES permits for storm water discharges. Pursuant to this requirement, in 1990, USEPA promulgated 40 CFR part 122.26 that established requirements for storm water discharges under an NPDES program. To facilitate compliance with federal regulations, on November 1991, the State Water Board issued a statewide general permit, *General NPDES Permit No. CAS000001 and Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities.* This permit was amended in September 1992 and reissued on April 17, 1997 in State Water Board Order No. 97-03-DWQ to regulate storm water discharges associated with industrial activity.

   General NPDES permit No. CAS000001 (Order No. 97-03-DWQ) is applicable to storm water discharges from the Tillman WRP's premises. The City developed and currently implements a Storm Water Pollution Prevention Plan (SWPPP).

4. **Sanitary Sewer Overflows (SSOs).** The CWA prohibits the discharge of pollutants from point sources to surface waters of the United States unless authorized under an NPDES permit. (33 USC section 1311, 1342). The State Water Board adopted Statewide General WDRs for Sanitary Sewer Systems, Water Quality Order No. 2006-0003 on May 2, 2006, to provide a consistent, statewide regulatory framework to address SSOs. The WDR requires public agencies that own or operate sanitary sewer systems to develop and implement sewer system management plans and report all SSOs to the State Water Board's online SSO database.

   The requirements contained in this Order in Sections VI.C.3.b. (Spill Clean-Up Contingency Plan), VI.C.4. (Construction, Operation and Maintenance Specifications), and VI.C.5.c. (Spill Reporting Requirements for POTWs) are intended to be consistent with the requirements of the SSOs WDR. The Regional Water Board recognizes that there may be some overlap between the NPDES permit provisions and SSOs WDR requirements, at least as related to the collection systems. The requirements of the SSOs WDR are considered the minimum thresholds (see Finding 11 of State Board Order No. 2006-0003-

DWQ). To encourage efficiency, the Regional Water Board will accept the documentation prepared by the Discharger under the SSOs WDR for compliance purposes, as satisfying the requirements in Sections VI.C.3.b., VI.C.4., and VI.C.5.c. provided the monitoring requirements contained in this Order in sections IV.9.B.d. and IV.9.B.e. are also addressed. Pursuant to the SSO WDR, State Board Order No. 2006-0003-DWQ, Section D., Provision 2.(iii) and (iv), the provisions of this NPDES permit supercede the SSO WDR, for all purposes, including enforcement, to the extent the requirements may be deemed duplicative.

5. **Watershed Management.** This Regional Water Board has been implementing a Watershed Management Approach (WMA) to address water quality protection in the Los Angeles Region following the USEPA guidance in *Watershed Protection: A Project Focus* (EPA841-R-95-003, August 1995). The objective of the WMA is to provide a more comprehensive and integrated strategy resulting in water resource protection, enhancement, and restoration while balancing economic and environmental impacts within a hydrologically-defined drainage basin or watershed. The WMA emphasizes cooperative relationships between regulatory agencies, the regulated community, environmental groups, and other stakeholders in the watershed to achieve the greatest environmental improvements with the resources available. The accompanying Order fosters the implementation of this approach by protecting beneficial uses in the watershed and requiring the Discharger to participate with stakeholders, in implementation of a watershed-wide monitoring program. The Monitoring and Reporting Program (MRP) (see section VIII.A. of the accompanying MRP) requires the Discharger to participate in the implementation of the Watershed-wide Monitoring Program for the Los Angeles River, which was approved by the Regional Water Board on January 12, 2009.

6. **Relevant TMDLs.** Section 303(d) of the CWA requires states to identify water bodies that do not meet water quality standards and then to establish TMDLs for each waterbody for each pollutant of concern. TMDLs identify the maximum amount of pollutants that can be discharged to waterbodies without causing violations of water quality standards.

   a. **Nitrogen Compounds TMDL –** On July 10, 2003, the Regional Water Board adopted Resolution No. 2003-009, *Amendment to the Basin Plan for the Los Angeles Region to Include a TMDL for Nitrogen Compounds and Related Effects in the Los Angeles River (Nitrogen Compounds TMDL*). On November 19, 2003, the State Water Board approved the *Nitrogen Compounds TMDL*. However, on December 4, 2003, the Regional Water Board revised the Nitrogen Compound TMDL by adopting Resolution No. 2003-016*, Revision of Interim Effluent Limitations for Ammonia in the Amendment to the Water Quality Control Plan for the Los Angeles Region to Include a TMDL for Nitrogen Compounds and Related Effects in the Los Angeles River*. Resolution No. 2003-016 only revised the portion of the Nitrogen Compounds TMDL containing interim limitations for total ammonia as nitrogen for the Glendale and Tillman

WRPs. All other portions of the TMDL remained unchanged. The *Nitrogen Compounds TMDL* went into effect on March 23, 2004, when the Regional Water Board filed the Certificate of Fee Exemption with the California Department of fish and Game.

On June 7, 2007, the Regional Water Board adopted Resolution No. 2007-005, *Amendments to the Water Quality Control Plan-Los Angeles Region-To Incorporate Site-Specific Objectives for Select Inland Surface Waters in the San Gabriel River, Los Angeles River and Santa Clara River Watersheds.* This amendment to the Basin Plan incorporates site-specific 30-day average objectives for ammonia along with corresponding site-specific early life stage implementation provisions for select waterbody reaches and tributaries in the Santa Clara, Los Angeles, and San Gabriel River watersheds. In accordance with Implementation Table, Task 8 of the *LA River Nitrogen Compounds TMDL*, "…If a site specific objective is adopted by the Regional Board, and approved by relevant approving agencies, this TMDL will need to be revised, readopted, and reapproved to reflect the revised water quality objectives."

b. **Trash TMDL –** On September 19, 2001, the Regional Water Board adopted Resolution No. 2001-013, *Amendment to the Basin Plan for the Los Angeles Region to Incorporate a TMDL for Trash in the Los Angeles River (LA River Trash TMDL)*.

The TMDL was subsequently approved by the State Water Board on February 19, 2002, and by OAL on July 16, 2002. Since the State Water Board and OAL failed to approve the TMDL in time to meet the relevant federal consent decree; therefore, USEPA promulgated its own Trash TMDL in order to meet the consent decree timeline of March 23, 2002. Then, upon approval of the Regional Water Board's TMDL by OAL, USEPA approved the Regional Water Board's *LA River Trash TMDL* on August 1, 2002, and deemed it to have superceeded the TMDL promulgated by USEPA.

The City and the County of Los Angeles both filed petitions and complaints in the Los Angeles Superior Court challenging the *LA* River *Trash TMDL*. Subsequent negotiations led to a settlement agreement, which became effective on September 23, 2003. Twenty-two other cities sued the Regional Water Board to set aside the TMDL, on several grounds. On January 26, 2006, the Court of Appeal rejected the claims litigated by the cities but found that the Regional Water Board did not adequately complete the environmental checklist. The Court therefore affirmed a writ of mandate issued by the trial court ordering the Regional Water Board to set aside and not implement the *LA River Trash TMDL* until it has been brought into compliance with CEQA.

On June 8, 2006, the Regional Water Board set aside the *LA River Trash TMDL* and Resolution No. 01-013 which established it, pursuant to the writ of mandate. On August 9, 2007, the Regional Water Board approved the *LA River Trash TMDL* based on a revised CEQA analysis as Resolution No. 2007-012. The *LA River Trash TMDL* was approved by the State Water Board on April 15, 2008, and USEPA on July 24, 2008. The *LA River Trash TMDL* became effective on September 23, 2008, when the Certificate of Fee Exemption was filed with the California Department of Fish and Game.

c. **Metals TMDL –** On June 2, 2005, the Regional Water Board adopted Resolution No. R05-006, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate a Total Maximum Daily Load for Metals for the Los Angeles River and its Tributaries* (*LA River Metals TMDL*). The *LA River Metals TMDL* contains WLAs for cadmium, copper, lead, and zinc. On October 20, 2005, the State Water Board approved the *LA River Metals TMDL* by adopting Resolution No. 2005-0077. On December 9, 2005 and December 22, 2005, respectively, OAL and USEPA approved the *LA River Metals TMDL*. It went into effect on January 11, 2006, when the Certificate of Fee Exemption was filed with the California Department of Fish and Game.

On February 16, 2006, the cities of Bellflower, Carson, Cerritos, Downey, Paramount, Santa Fe Springs, Signal Hill, and Whittier (Cities) filed a petition for a writ of mandate challenging many aspects of the *LA River Metals TMDL* and the *Ballona Creek Metals TMDL*. (*Cities of Bellflower et al v. SWRCB et al,* Los Angeles Superior Court No. BS101732.) On May 24, 2007, the Los Angeles County Superior Court adopted the third of three rulings with respect to the writ petition. Collectively, all challenges to the *LA River Metals TMDL* were rejected, except for one CEQA claim. The Court ruled that the State and Regional Water Boards (Water Boards) should have adopted and circulated an alternatives analysis that analyzed alternatives to the project. The Court issued its writ of mandate, directing the Water Boards to adopt an alternative analysis and to reconsider the *LA River Metals TMDL* accordingly.

After considering the alternative analysis, the Regional Water Board found that the *LA River Metals TMDL* as originally proposed and adopted was appropriate. The Regional Water Board further found that nothing in the alternatives analysis nor any of the evidence generated presented basis for the Regional Water Board to conclude that it would have acted differently when it adopted the TMDLs had the alternative analysis been prepared and circulated at that time. Thus, on September 6, 2007, the Regional Water Board adopted Resolution No. R2007-014, which reestablished the *LA River Metals TMDL* in substantially its original form.

On May 7, 2009, the Regional Water Board adopted Resolution No. 09-003, which voided and set aside Resolution No. R05-006 as required by the writ of mandate in the matter of *Cities of Bellflower et al v. SWRCB*.

On May 6, 2010 the Regional Water Board adopted Resolution No. R10-003, an amendment to the Basin Plan to revise the *LA River Metals TMDL*. The amendment revises the TMDL to adjust the numeric targets for copper in Reaches 1-4 of the Los Angeles River and the Burbank Western Channel and the corresponding WLAs for the Tillman, Los Angeles-Glendale and Burbank WRPs based on a water effect ratio (WER). The revision includes language stating that regardless of the WER, the WRPs must perform at a level that can be attained by existing treatment technologies at the time of permit issuance, reissuance or modification. On April 19, 2011, the State Water Board adopted Resolution No. 2011-0021, approving the revised *LA River Metals TMDL*. At this hearing, the State Water Board made it clear that should the performance of the facility's treatment technologies change for reasons beyond the facility's control, the permit may be reopened to revise the effluent limitations considering the applicability of the copper WER or other performance-based measure such that the effluent limitations ensure that effluent concentrations and mass discharges do not exceed the levels of water quality that can be attained by performance of this facility's treatment technologies existing at the time of permit issuance, reissuance, or modification. On July 27, 2011, the *LA River Metals TMDL* was approved by the OAL. The *LA River Metals TMDL* (Resolution No. R10-003) must still be approved by the USEPA before it becomes effective.

d. **Bacteria TMDL –** On July 8, 2010, the Regional Water Board adopted Resolution No. R10-007, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate a Total Maximum Daily Load for Indicator Bacteria in the Los Angeles River Watershed* (*LA River Bacteria TMDL*). The *LA River Bacteria TMDL* contains WLAs for Tillman, Los Angeles-Glendale, and Burbank WRPs, which are set equal to a 7-day median of 2.2 MPN/100 mL of E. coli and/or a daily max of 235 MPN/100mL to ensure zero days of allowable exceedances. No exceedances of the geometric mean TMDL numeric target of 126/100 mL E.coli are permitted. The *LA River Bacteria TMDL* must still be approved by the State Water Board, OAL, and USEPA before it becomes effective.

7. **Title 22 of the California Code of Regulations (Title 22).** The California Department of Public Health (CDPH) established primary and secondary maximum contaminant levels (MCLs) for inorganic, organic, and radioactive contaminants in drinking water. These MCLs are codified in Title 22. The Basin Plan (Chapter 3) incorporates Title 22 primary MCLs by reference. This incorporation by reference is prospective, including future changes to the incorporated provisions as the changes take effect. Title 22 primary MCLs have been used as bases for effluent limitations in WDRs and NPDES permits to protect groundwater recharge beneficial use when that receiving groundwater is designated as MUN. Also, the Basin Plan specifies that “Ground waters shall not contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.”

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in 40 CFR, part 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR, part 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

Effluent and receiving water limitations in this Regional Water Board Order are based on the Federal CWA, Basin Plan, State Water Board's plans and policies, USEPA's guidance and regulations, and best practicable waste treatment technology. This order authorizes the discharge of tertiary-treated wastewater from Discharge Points 001, 002, 003, and 008 only. It does not authorize any other types of discharges.

B. Technology-Based Effluent Limitations (TBELs)

1. Scope and Authority

TBELs require a minimum level of treatment for industrial/municipal point sources based on currently available treatment technologies while allowing the discharger to use any available control techniques to meet the effluent limits. The 1972 CWA required POTWs to meet performance requirements based on available wastewater treatment technology. Section 301 of the CWA established a required performance level--referred to as "secondary treatment" --that all POTWs were required to meet by July 1, 1977. More specifically, Section 301(b)(1)(B) of the CWA required that USEPA develop secondary treatment standards for POTWs as defined in Section 304(d)(1). Based on this statutory requirement, USEPA developed national secondary treatment regulations which are specified in 40 CFR part 133. These technology-based regulations apply to all POTWs and identify the minimum level of effluent quality to be attained by secondary treatment in terms of $BOD_{5@20^{\circ}C}$, TSS, and pH.

2. Applicable TBELs

This Facility is subject to the technology-based regulations for the minimum level of effluent quality attainable by secondary treatment in terms of $BOD_{5@20^{\circ}C}$, TSS, and pH. However, all TBELs from the previous Order Nos. R4-2006-0091 and R4-2010-0060 are based on tertiary-treated wastewater treatment standards. These effluent limitations have been carried over from the previous Order to avoid backsliding. Further, mass-based effluent limitations are based on a design flow rate of 80 MGD. The following Table summarizes the TBELs applicable to the Facility:

Summary of Technology-based Effluent Limitations
Effluent Transfer Station EFF-001A

Table 5. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
$BOD_{5@20^{o}C}$	mg/L	20	30	45	--	--
	lbs/day[15]	13,340	20,020	30,020	--	--
TSS	mg/L	15	40	45	--	--
	lbs/day[15]	10,010	26,690	30,020	--	--
pH	standard units	--	--	--	6.5	8.5
Removal Efficiency for $BOD_{5@20^{o}C}$ and TSS	%	85	--	--	--	--

However, this Facility is also subject to TBELs contained in similar NPDES permits, for similar facilities, based on the treatment level achievable by tertiary-treated wastewater treatment systems. These effluent limitations are consistent with the State Water Board precedential decision, State Water Board Order No. WQ 2004-0010 for the City of Woodland.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

Section 301(b) of the CWA and 40 CFR part 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements or other provisions, is discussed starting from the following Section IV.C.2.

40 CFR part 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established

[15] The mass emission rates are based on the combined plant design flow rate of 80 MGD, and are calculated as follows: Flow (MGD) x Concentration (mg/L) x 8.34 (conversion factor) = lbs/day. During wet-weather storm events in which the flow exceeds the design capacity, the mass discharge rate limitations shall not apply, and concentration limitations will provide the only applicable effluent limitations.

using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR part 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable WQOs and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

a. The Basin Plan establishes the beneficial uses for surface water bodies in the Los Angeles region. The beneficial uses of the Los Angeles River affected by the discharge have been described previously in this Fact Sheet.

b. The Basin Plan also specifies narrative and numeric WQOs applicable to surface water as shown in the following discussions.

i. **$BOD_{5@20^{\circ}C}$ and TSS**

$BOD_{5@20^{\circ}C}$ is a measure of the quantity of the organic matter in the water and, therefore, the water's potential for becoming depleted in dissolved oxygen. As organic degradation takes place, bacteria and other decomposers use the oxygen in the water for respiration. Unless there is a steady resupply of oxygen to the system, the water will quickly become depleted of oxygen. Adequate dissolved oxygen levels are required to support aquatic life. Depressions of dissolved oxygen can lead to anaerobic conditions resulting in odors, or, in extreme cases, in fish kills.

40 CFR part 133 describes the minimum level of effluent quality attainable by secondary treatment, for $BOD_{5@20^{\circ}C}$ and TSS, as:

(i). The 30-day average shall not exceed 30 mg/L; and,

(ii). The 7-day average shall not exceed 45 mg/L.

The Tillman WRP permit provides tertiary treatment requirements, such as the $BOD_{5@20^{\circ}C}$ and TSS limits, which are more stringent than secondary treatment requirements, based on Best Professional Judgment. The Facility achieves solids removal that are better than secondary-treated wastewater by adding a polymer (Alum) to enhance the precipitation of solids, and by filtering the effluent.

The monthly average, the 7-day average, and the daily maximum limits cannot be removed because none of the antibacksliding exceptions apply. Those limits were all included in the previous permits (Order Nos. R4-2006-0091 and R4-2010-0060) and the Tillman WRP has been able to meet all three limits (monthly average, the 7-day average, and the daily maximum) for both $BOD_{5@20^{\circ}C}$ and TSS.

In addition to having mass-based and concentration-based effluent limitations for $BOD_{5@20^{\circ}C}$ and TSS, the Order also contains a percent removal requirements for these two constituents. In accordance with 40 CFR parts 133.102(a)(3) and 133.102(b)(3), the 30-day average percent removal shall not be less than 85 percent. Percent removal is defined as a percentage expression of the removal efficiency across a treatment facility for a given pollutant parameter, as determined from the 30-day average values of the raw wastewater influent pollutant concentrations to the Facility and the 30-day average values of the effluent pollutant concentrations for a given time period.

ii. **pH**

The hydrogen ion activity of water (pH) is measured on a logarithmic scale, ranging from 0 to 14. Minor changes from natural conditions can harm aquatic life. In accordance with 40 CFR part 133.102(c), the effluent values for pH shall be maintained within the limits of 6.0 to 9.0 unless the POTWs demonstrates that: (1) Inorganic chemicals are not added to the waste stream as part of the treatment process; and (2) contributions from industrial sources do not cause the pH of the effluent to be less than 6.0 or greater than 9.0. The effluent limitation for pH in this permit requiring that the wastes discharged shall at all times be within the range of 6.5 to 8.5 is taken from the Basin Plan (page 3-15) which reads “the pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharge.”

iii. **Settleable Solids**

Excessive deposition of sediments can destroy spawning habitat, blanket benthic (bottom dwelling) organisms, and abrade the gills of larval fish. The limits for settleable solids are based on the Basin Plan (page 3-16) narrative, “Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.” The numeric limits are empirically based on results obtained from the settleable solids 1-hour test, using an Imhoff cone.

It is impracticable to use a 7-day average limitation because short-term spikes of settleable solid levels that would be permissible under a 7-

day average scheme would not be adequately protective of all beneficial uses. The monthly average and the daily maximum limits cannot be removed because none of the antibacksliding exceptions apply. The monthly average and daily maximum limits were both included in the previous permits (Order Nos. R4-2006-0091 and R4-2010-0060) and the Tillman WRP has been able to meet both limits.

iv. **Oil and Grease**

Oil and grease are not readily soluble in water and form a film on the water surface. Oily films can coat birds and aquatic organisms, impacting respiration and thermal regulation, and causing death. Oil and grease can also cause nuisance conditions (odors and taste), are aesthetically unpleasant, and can restrict a wide variety of beneficial uses. The limits for oil and grease are based on the Basin Plan (page 3-11) narrative, "Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses."

The numeric limits are empirically based on concentrations at which an oily sheen becomes visible in water. It is impracticable to use a 7-day average limitation because spikes that occur under a 7-day average scheme could cause a visible oil sheen. A 7-day average scheme would not be sufficiently protective of beneficial uses. The monthly average and the daily maximum limits cannot be removed because none of the antibacksliding exceptions apply. Both limits were included in the previous permits (Order Nos. R4-2006-0091 and R4-2010-0060) and the Tillman WRP has been able to meet both limits.

v. **Residual Chlorine**

Disinfection of wastewaters with chlorine produces a chlorine residual. Chlorine and its reaction products are toxic to aquatic life. The limit for residual chlorine is based on the Basin Plan (page 3-9) narrative, "Chlorine residual shall not be present in surface water discharges at concentrations that exceed 0.1 mg/L and shall not persist in receiving waters at any concentration that causes impairment of beneficial uses."

It is impracticable to use a 7-day average or a 30-day average limitation, because it is not as protective as of beneficial uses as a daily maximum limitation is. Chlorine is very toxic to aquatic life and short term exposures of chlorine may cause fish kills.

vi. **Fluoride**

The existing permit effluent limitation of 2.0 mg/l for fluoride was developed based on the Basin Plan chemical constituent incorporation of Title 22, Drinking Water Standards. Fluoride is not a priority pollutant. The discharge from the Tillman WRP does not exhibit reasonable potential to exceed the USEPA Quality Criteria for Water 1976 (EPA 440/9-76-023) limit of 2,000 µg/L. Therefore, the accompanying Order will not contain a limit for fluoride.

vii. **Total Dissolved Solids, Chloride, Sulfate, and Boron**

The limitations for total dissolved solids, chloride, and sulfate are 950 mg/L, 150 mg/L, and 300 mg/L, respectively, based on Basin Plan Table 3-8 (page 3-13), for the Los Angeles River watershed (between Ramona Boulevard and Firestone Boulevard). Limitations for boron were determined not to be applicable. The chloride limitation is no longer 150 mg/L, but 190 mg/L, which resulted from Regional Water Board Resolution No. 97-02, *Amendment to the Water Quality Control Plan to incorporate a Policy for Addressing Levels of Chloride in Discharges of Wastewaters*. Resolution 97-02 was adopted by Regional Water Board on January 27, 1997; approved by State Water Board (Resolution 97-94); and, approved by OAL on January 8, 1998; and served to revise the chloride WQO in the Los Angeles River and other surface waters. It is practicable to express these limitations as monthly averages, since they are not expected to cause acute effects on beneficial uses.

Limitations based upon the Basin Plan WQOs have been included in this Order because, based upon Best Professional Judgment, these constituents are always present in potable water which is the supply source of the wastewater entering the Facility. They may be present in concentrations which meet California drinking water standards but exceed the Basin Plan WQOs. Therefore, limitations are warranted to protect the beneficial uses of the receiving water.

viii. **Methylene Blue Activated Substances (MBAS)**

The existing permit effluent limitation of 0.5 mg/l for MBAS was developed based on the Basin Plan incorporation of Title 22, Drinking Water Standards, by reference, to protect the surface water MUN beneficial use. Given the nature of the Facility which accepts domestic wastewater into the sewer system and treatment Facility, and the narrative WQO for the prohibition of floating material such as foams and scums, therefore an effluent limitation is required.

ix. **Nitrogen Compounds/Nutrient Compounds**

(i). **Nitrate Nitrogen (NO_3-N), Nitrite Nitrogen (NO_2-N), and Total Inorganic Nitrogen (NO_2-N + NO_3-N)** – Total inorganic nitrogen is the sum of Nitrate-nitrogen and Nitrite-nitrogen. High nitrate levels in drinking water can cause health problems in humans. Infants are particularly sensitive and can develop methemoglobinemia (blue-baby syndrome). Nitrogen is also considered a nutrient. Excessive amounts of nutrients can lead to other water quality impairments, ex. algae.

(ii). **Algae** – Excessive growth of algae and/or other aquatic plants can degrade water quality. Algal blooms sometimes occur naturally, but they are often the result of excess nutrients (i.e., nitrogen, phosphorus) from waste discharges or nonpoint sources. These algal blooms can lead to problems with tastes, odors, color, and increased turbidity and can depress the dissolved oxygen content of the water, leading to fish kills. Floating algal scum and algal mats are also an aesthetically unpleasant nuisance.

The WQO for biostimulatory substances are based on Basin Plan (page 3-8) narrative, "Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses," and other relevant information to arrive at a mass based-limit intended to be protective of the beneficial uses, pursuant to 40 CFR part 122.44(d). Total inorganic nitrogen will be the indicator parameter intended to control algae, pursuant to 40 CFR part 122.44(d)(1)(vi)(C).

Nutrients are among 303(d) List in the *California 2008-2010 Integrated Report for the Los Angeles River*. Since nutrients have WLAs in the *LA River Nutrient TMDL*, TMDL-based effluent limitations for nutrients are required in order to implement the provisions of the TMDL and to try and restore the water quality in that section of the receiving water.

(iii). **Concentration-Based Limit** – The proposed effluent limitations of 7.2 mg/L, 0.9 mg/L, and 7.2 mg/L for nitrate nitrogen, nitrite nitrogen, and total inorganic nitrogen, respectively, are based on the *LA River Nutrient TMDL* WLA. However, if the Los Angeles River becomes de-listed for nutrient, then the Basin Plan-based effluent limitation would apply, and the permit reopened.

Watershed-wide monitoring will track concentration levels of phosphorus and all nitrogen series pollutants present in the effluent and receiving waters, pursuant to 40 CFR part 122.44(d)(1)(vi)(C)(3).

(iv). **Mass-Based Limit** – There are no mass emission rates for nitrogen compounds because the *LA River Nutrient TMDL* did not specify a mass-based WLA.

x. **Total Ammonia**

(i). Ammonia is a pollutant routinely found in the wastewater effluent of POTWs, in landfill-leachate, as well as in run-off from agricultural fields where commercial fertilizers and animal manure are applied. Ammonia exists in two forms – un-ionized ammonia (NH_3) and the ammonium ion (NH_4^+). They are both toxic, but the neutral, un-ionized ammonia species (NH_3) is much more toxic, because it is able to diffuse across the epithelial membranes of aquatic organisms much more readily than the charged ammonium ion. The form of ammonia is primarily a function of pH, but it is also affected by temperature and other factors. Additional impacts can also occur as the oxidation of ammonia lowers the dissolved oxygen content of the water, further stressing aquatic organisms. Oxidation of ammonia to nitrate may lead to groundwater impacts in areas of recharge. There is groundwater recharge in these reaches. Ammonia also combines with chlorine (often both are present in POTWs treated effluent discharges) to form chloramines – persistent toxic compounds that extend the effects of ammonia and chlorine downstream.

(ii). Tables 3-1 through Tables 3-4 of the 1994 Basin Plan contain WQOs for ammonia to protect aquatic life. However, those ammonia objectives were revised on April 25, 2002, by the Regional Board, with the adoption of Resolution No. 2002-011, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Update the Ammonia Objectives for Inland Surface Waters (including enclosed bays, estuaries and wetlands) with Beneficial Use designations for protection of Aquatic Life*. Resolution No. 2002-011 was approved by the State Water Board, the OAL, and USEPA on April 30, 2003, June 5, 2003, and June 19, 2003, respectively, and is now in effect. On December 1, 2005, Resolution No. 2005-014, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Revise the Early Life Stage Implementation Provision of the Freshwater Ammonia Objectives for Inland Surface Waters (including enclosed bays, estuaries and wetlands) for Protection of Aquatic Life,* was adopted by the Regional Water Board. Resolution No. 2005-014 was approved by the State Water Board, the Office of Administrative Law, and USEPA on July 19, 2006, August 31, 2006, and April 5, 2007, respectively. On June 7, 2007, Resolution No. 2007-005, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate Site-Specific Objectives in Select Waterbodies in the Santa Clara, Los Angeles and San Gabriel River Watersheds,* was adopted by the Regional Water Board. Resolution No. 2007-005 was approved by the State Water

Board, OAL, and USEPA on January 15, 2008, May 12, 2008, and March 30, 2009, respectively.

Ammonia is among 303(d) List in the California 2008-2010 Integrated Report for the Los Angeles River. Since ammonia has a WLA in the *LA River Nutrient TMDL*, a TMDL-based effluent limitation for total ammonia as nitrogen is required in order to implement the provisions of the TMDL and to try and restore the water quality in that section of the receiving water.

(iii). **Concentration-Based Limit** – The proposed ammonia effluent limitations of 1.4 mg/L for monthly average and 4.2 mg/L for daily maximum are based on the *LA River Nutrient TMDL* WLA. However, if the Los Angeles River is eventually restored and the Los Angeles River becomes de-listed for ammonia, then the permit would be re-opened to include Basin Plan-based effluent limitations for ammonia. (The revised Ammonia Tables would then apply.)

(iv). **Mass-Based Limit** – There is no mass emission rate for total ammonia because the *LA River Nutrient TMDL* did not specify a mass-based WLA.

xi. **Coliform**

Total and fecal coliform bacteria are used to indicate the likelihood of pathogenic bacteria in surface waters. Given the nature of the facility, a wastewater treatment facility, pathogens are likely to be present in the effluent in cases where the disinfection process is not operating adequately. As such, the permit contains the following filtration and disinfection TBELs for coliform:

(i). Effluent Limitations

- The 7-day median number of total coliform bacteria at some point in the disinfected effluent must not exceed an MPN or CFU of 2.2 per 100 milliliters;
- The number of total coliform bacteria must not exceed an MPN or CFU of 23 per 100 milliliters in more than one sample within any 30-day period; and,
- No sample shall exceed an MPN of CFU of 240 total coliform bacteria per 100 milliliters.

These limits for coliform must be met at the point of the treatment train immediately following disinfection. Coliform is 303(d) listed in the Los Angeles River. The disinfection and filtration processes reduce the likelihood of having pathogens in the discharger's effluent. Most of the time the coliform analyses results are reported as less than 1 MPN/100 mL. It is not likely that the 303(d) listing of coliform is due to the discharge of treated effluent from the Discharger. Therefore, the TBEL is also protective of water quality.

(ii). Receiving Water Limitations

- Geometric Mean Limitations

  - ∗ E.coli density shall not exceed 126/100 mL.
  - ∗ Fecal coliform density shall not exceed 200/100 mL.

- Single Sample Limitations

  - ∗ E.coli density shall not exceed 235/100 mL.
  - ∗ Fecal coliform density shall not exceed 400/100 mL.

These receiving water limitations are based on Resolution No. 01-018, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Update the Bacteria Objectives for Water Bodies Designated for Water Contact Recreation*, adopted by the Regional Board on October 25, 2001. The Resolution was approved by State Water Board, OAL, and USEPA, on July 18, 2002, September 19, 2002, and September 25, 2002, respectively.

xii. **Turbidity**

Turbidity is an expression of the optical property that causes light to be scattered in water due to particulate matter such as clay, silt, organic matter, and microscopic organisms. Turbidity can result in a variety of water quality impairments. The effluent limitation for turbidity which reads, "For the protection of the water contact recreation beneficial use, the wastes discharged to water courses shall have received adequate treatment, so that the turbidity of the wastewater does not exceed: (a) a daily average of 2 Nephelometric turbidity units (NTU); (b) 5 NTU more than 5 percent of the time (72 minutes) during any 24 hour period; and (c) 10 NTU at any time" is based on the Basin Plan (page 3-17) and Section 60301.320 of Title 22, Chapter 3, "Filtered Wastewater" of the California Code of Regulations.

xiii. **Radioactivity**

Radioactive substances are generally present in natural waters in extremely low concentrations. Mining or industrial activities increase the amount of radioactive substances in waters to levels that are harmful to aquatic life, wildlife, or humans. Section 301(f) of the CWA contains the following statement with respect to effluent limitations for radioactive substances: "Notwithstanding any other provisions of this Act it shall be unlawful to discharge any radiological, chemical, or biological warfare agent, any high-level radioactive waste, or any medical waste, into the navigable waters." Chapter 5.5 of the CWC contains a similar prohibition under Section 13375, which reads as follows: "The discharge of any radiological, chemical, or biological warfare agent into the waters of the state is hereby prohibited." However, rather than give a hard and fast absolute prohibition on radioactive substances, Regional Water Board staff have set the following effluent limit for radioactivity: The existing effluent limitation for radioactivity which reads, "Radioactivity of the wastes discharged shall not exceed the limits specified in Title 22, Chapter 15, Article 5, Section 64443, of the California Code of Regulations, or subsequent revisions." The limit is based on the Basin Plan incorporation of Title 22, *Drinking Water Standards,* by reference, to protect the surface water MUN beneficial use. However, the Regional Water Board has new information about the appropriate designated uses for the water body, and based on the current designated uses, a limit for Radioactivity is unnecessary and inappropriate unless discharge is to a reach used for groundwater recharge, where Title 22-based limits apply. Therefore, the accompanying Order will contain a limit for radioactivity to protect the GWR beneficial use.

xiv. **Temperature**

USEPA document, *Quality Criteria for Water 1986* [EPA 440/5-86-001, May 1, 1986], also referred to as the *Gold Book*, discusses temperature and its effects on beneficial uses, such as recreation and aquatic life.

(i). The Federal Water Pollution Control Administration in 1967 called temperature "a catalyst, a depressant, an activator, a restrictor, a stimulator, a controller, a killer, and one of the most important water quality characteristics to life in water." The suitability of water for total body immersion is greatly affected by temperature. Depending on the amount of activity by the swimmer, comfortable temperatures range from 20°C to 30°C (68 °F to 86 °F).

(ii). Temperature also affects the self-purification phenomenon in water bodies and therefore the aesthetic and sanitary qualities that exist. Increased temperatures accelerate the biodegradation of organic material both in the overlying water and in bottom deposits which makes increased demands on the dissolved oxygen resources of a given system. The typical situation is exacerbated by the fact that oxygen becomes less soluble as water temperature increases. Thus, greater demands are exerted on an increasingly scarce resource which may lead to total oxygen depletion and obnoxious septic conditions. Increased temperature may increase the odor of water because of the increased volatility of odor-causing compounds. Odor problems associated with plankton may also be aggravated.

(iii). Temperature changes in water bodies can alter the existing aquatic community. Coutant (1972) has reviewed the effects of temperature on aquatic life reproduction and development. Reproductive elements are noted as perhaps the most thermally restricted of all life phases, assuming other factors are at or near optimum levels. Natural short-term temperature fluctuations appear to cause reduced reproduction of fish and invertebrates.

The Basin Plan lists temperature requirements for the receiving waters. Based on the requirements of the Basin Plan and a white paper developed by Regional Board staff entitled *Temperature and Dissolved Oxygen Impacts on Biota in Tidal Estuaries and Enclosed Bays in the Los Angeles Region*, a maximum effluent temperature limitation of 86 °F is included in the Order. The white paper evaluated the optimum temperatures for steelhead, topsmelt, ghost shrimp, brown rock crab, jackknife clam, and blue mussel. The new temperature effluent limitation is reflective of new information available that indicates that the 100°F temperature is not protective of aquatic organisms. A survey was completed for several kinds of fish and the 86°F temperature was found to be protective. It is impracticable to use a 7-day average or a 30-day average limitation for temperature, because it is not as protective as of beneficial uses as a daily maximum limitation is. A daily maximum limitation is necessary to protect aquatic life and is consistent with the fishable/swimmable goals of the CWA.

Section IV.A.2.b. of the Order contains the following effluent limitation for temperature:

> "The temperature of wastes discharged shall not exceed 86ºF as a result of external ambient temperature."

The above effluent limitation for temperature has been quoted in all recent NPDES permits adopted by this Regional Water Board.

Section V.A.1. of the WDR explains how compliance with the receiving water temperature limitation will be determined.

c. **CTR and SIP**

The CTR and SIP specify numeric objectives for toxic substances and the procedures whereby these objectives are to be implemented. The procedures include those used to conduct a reasonable potential analysis (RPA) to determine the need for effluent limitations for priority and non-priority pollutants.

3. Determining the Need for WQBELs

The Regional Water Board developed WQBELs for cadmium, copper, lead, and zinc that have available WLAs under the Metals TMDL approved by USEPA on December 22, 2005. The effluent limitations for these pollutants were established regardless of whether or not there is reasonable potential for the pollutants to be present in the discharge at levels that would cause or contribute to a violation of water quality standards. The Regional Water Board developed WQBELs for these four metals in this Order pursuant to the "Implementation" section specified in Page 12 of Resolution No. R2007-014, *Amendment to the Water Quality Control Plan for the Los Angeles River Metals TMDL*. The "Implementation" states:

> "Permit writers may translate applicable WLAs into effluent limits for the major, minor and general NPDES permits by applying the effluent limitation procedures in Section 1.4 of the State Water Resources Control Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000)..."

Therefore, the Regional Water Board calculated final WQBELs for these four metals, based on Section 1.4 of SIP.

In accordance with Section 1.3 of the SIP, the Regional Water Board conducted a RPA for each priority pollutant with an applicable criterion or objective to determine if a WQBEL is required in the permit. The Regional Water Board analyzed effluent data to determine if a pollutant in a discharge has a reasonable potential to cause or contribute to an excursion above a state water quality standard. For all parameters that demonstrate reasonable potential, numeric WQBELs are required. The RPA considers water quality criteria from the CTR and NTR, and when applicable, WQOs specified in the Basin Plan. To conduct the RPA, the Regional Water Board staff identified the maximum effluent concentration (MEC) and maximum background concentration in the receiving water for each constituent, based on data provided by the Discharger. The monitoring data covered the period from January 2008 to March 2011, when the NDN was completed and its treatment was optimal in January 2008.

Section 1.3 of the SIP provides the procedures for determining reasonable potential to exceed applicable water quality criteria and objectives. The SIP specifies three triggers to complete a RPA:

<u>Trigger 1</u> – If the MEC is greater than or equal to the CTR water quality criteria or applicable objective (C), a limitation is needed.

Trigger 2 – If background water quality (B) > C and the pollutant is detected in the effluent, a limitation is needed.

Trigger 3 – If other related information such as CWA 303(d) listing for a pollutant, discharge type, compliance history, then best professional judgment is used to determine that a limit is needed.

Sufficient effluent and ambient data are needed to conduct a complete RPA. If data are not sufficient, the Discharger will be required to gather the appropriate data for the Regional Water Board to conduct the RPA. Upon review of the data, and if the Regional Water Board determines that WQBELs are needed to protect the beneficial uses, the permit will be reopened for appropriate modification.

In addition, RPA was performed for the priority pollutants regulated in the CTR for which data are available. Based on the RPA, pollutants that demonstrate reasonable potential are cadmium, copper, lead, and zinc because TMDLs are adopted for these metals. RPA showed that the concentrations of mercury and cyanide in the effluent exceed their WQOs in the CTR. RPA also showed that selenium concentration in the receiving water exceeds its WQO in the CTR. Therefore, a CTR-based effluent limitations for mercury, selenium, and cyanide have been prescribed in this permit. The following Table summarizes results from RPA.

Table 6. Summary of Reasonable Potential Analysis at EFF-001A

CTR No.	Constituent	Applicable Water Quality Criteria (C) (µg/L)	Max Effluent Conc. (MEC) (µg/L)	Maximum Detected Receiving Water Conc. (B) (µg/L)	RPA Result - Need Limitation ?	Reason
1	Antimony	4300	1.44	1.63	No	C>B, C>MEC
2	Arsenic	150	4.1	6	No	C>B, C>MEC
3	Beryllium	Narrative	0.1	0.04	No	C>B, C>MEC
4	Cadmium	3.5	0.85	2.26	Yes	Metal TMDL
5a	Chromium III	432.6	1.1	Total Cr	No	C>B, C>MEC
5b	Chromium VI	11	<2	Total Cr	No	C>B, C>MEC
6	Copper	26.1	18	72	Yes	Metal TMDL
7	Lead	10	1.5	<3	Yes	Metal TMDL
8	Mercury	0.051	0.055	<0.0036	Yes	MEC>C
9	Nickel	111.7	20	31	No	C>B, C>MEC
10	Selenium	5	1.8	6	Yes	B>C
11	Silver	19.1	0.2	0.52	No	C>B, C>MEC
12	Thallium	6.3	0.16	0.35	No	C>B, C>MEC

CTR No.	Constituent	Applicable Water Quality Criteria (C) (µg/L)	Max Effluent Conc. (MEC) (µg/L)	Maximum Detected Receiving Water Conc. (B) (µg/L)	RPA Result - Need Limitation ?	Reason
13	Zinc	257	135	242	Yes	Metal TMDL
14	Cyanide	5.2	6	<4	Yes	MEC>C
15	Asbestos	no data available	N/A	no data available	No	N/A
16	2,3,7,8-TCDD (Dioxin)	0.000000014	<0.0054	<0.0054	No	All ND
17	Acrolein	780	< 1.96	< 1.96	No	C>B, C>MEC
18	Acrylonitrile	0.66	< 27	< 0.27	No	C>B, C>MEC
19	Benzene	71	< 0.11	< 0.11	No	C>B, C>MEC
20	Bromoform	360	3.37	0.26	No	C>B, C>MEC
21	Carbon Tetrachloride	4.4	<0.27	< 0.27	No	C>B, C>MEC
22	Chlorobenzene	21,000	< 0.34	< 0.15	No	C>B, C>MEC
23	Dibromochloromethane	34	21.8	0.81	No	C>B, C>MEC
24	Chloroethane	No criteria	0.21	< 0.2	No	No criteria
25	2-chloroethyl vinyl ether	No criteria	< 1	< 0.48	No	No criteria
26	Chloroform	No criteria	56.1	3.16	No	No criteria
27	Dichlorobromomethane	46	45	1.38	No	C>B, C>MEC
28	1,1-dichloroethane	No criteria	< 0.36	< 0.15	No	No criteria
29	1,2-dichloroethane	99	< 0.23	< 0.1	No	C>B, C>MEC
30	1,1-dichloroethylene	3.2	< 0.41	< 0.2	No	C>B, C>MEC
31	1,2-dichloropropane	39	< 0.51	< 0.12	No	C>B, C>MEC
32	1,3-dichloropropylene	1,700	< 0.39	< 0.15	No	C>B, C>MEC
33	Ethylbenzene	29,000	< 0.39	< 0.17	No	C>B, C>MEC
34	Methyl bromide	4,000	1.27	< 1.02	No	C>B, C>MEC
35	Methyl chloride	No criteria	<0.33	< 0.16	No	No criteria
36	Methylene chloride	1,600	0.34	0.12	No	C>B, C>MEC
37	1,1,2,2-tetrachloroethane	11	< 0.29	< 0.14	No	C>B, C>MEC
38	Tetrachloroethylene	8.85	1.92	< 0.22	No	C>B, C>MEC
39	Toluene	200,000	<0.37	0.94	No	C>B, C>MEC
40	Trans 1,2-Dichloroethylene	140,000	< 0.57	< 0.2	No	C>B, C>MEC
41	1,1,1-Trichloroethane	No criteria	< 0.29	< 0.23	No	No criteria
42	1,1,2-Trichloroethane	42	< 0.31	< 0.1	No	C>B, C>MEC
43	Trichloroethylene	81	< 0.48	< 0.17	No	C>B, C>MEC

CTR No.	Constituent	Applicable Water Quality Criteria (C) (µg/L)	Max Effluent Conc. (MEC) (µg/L)	Maximum Detected Receiving Water Conc. (B) (µg/L)	RPA Result - Need Limitation ?	Reason
44	Vinyl Chloride	525	< 0.37	< 0.22	No	C>B, C>MEC
45	2-chlorophenol	400	< 0.26	< 0.26	No	C>B, C>MEC
46	2,4-dichlorophenol	790	< 0.27	< 0.27	No	C>B, C>MEC
47	2,4-dimethylphenol	2,300	< 0.24	< 0.24	No	C>B, C>MEC
48	4,6-dinitro-o-cresol (2-methyl-4,6-Dinitrophenol)	765	< 1.16	< 1.16	No	C>B, C>MEC
49	2,4-dinitrophenol	14,000	< 1.09	< 1.09	No	C>B, C>MEC
50	2-nitrophenol	No criteria	< 0.45	< 0.45	No	No criteria
51	4-nitrophenol	No criteria	1.08	< 0.56	No	No criteria
52	3-Methyl-4-Chlorophenol (P-chloro-m-cresol)	No criteria	0.49	< 0.45	No	No criteria
53	Pentachlorophenol	8.2	1.06	< 0.62	No	C>B, C>MEC
54	Phenol	4,600,000	< 0.4	<0.4	No	C>B, C>MEC
55	2,4,6-trichlorophenol	6.5	0.29	0.16	No	C>B, C>MEC
56	Acenaphthene	2,700	< 0.13	< 0.13	No	C>B, C>MEC
57	Acenaphthylene	No criteria	< 0.13	< 0.13	No	No criteria
58	Anthracene	110,000	< 0.11	< 0.11	No	C>B, C>MEC
59	Benzidine	0.00054	< 5	< 5	No	All ND
60	Benzo(a)Anthracene	0.049	< 0.14	< 0.14	No	All ND
61	Benzo(a)Pyrene	0.049	<0.13	< 0.13	No	All ND
62	Benzo(b)Fluoranthene	0.049	<0.14	<0.14	No	All ND
63	Benzo(ghi)Perylene	No criteria	< 0.03	< 0.03	No	No criteria
64	Benzo(k)Fluoranthene	0.049	<0.11	< 0.11	No	All ND
65	Bis(2-Chloroethoxy) methane	No criteria	< 0.35	< 0.16	No	No criteria
66	Bis(2-Chloroethyl)Ether	1.4	< 0.18	< 0.32	No	C>B, C>MEC
67	Bis(2-Chloroisopropyl) Ether	170,000	< 0.35	< 0.35	No	C>B, C>MEC
68	Bis(2-Ethylhexyl)Phthalate	5.9	1	<1	No	C>B, C>MEC
69	4-Bromophenyl Phenyl Ether	No criteria	< 0.22	< 0.15	No	No criteria
70	Butylbenzyl Phthalate	5,200	0.11	< 0.26	No	C>B, C>MEC
71	2-Chloronaphthalene	4,300	< 0.3	< 0.3	No	C>B, C>MEC
72	4-Chlorophenyl Phenyl Ether	No criteria	< 0.28	< 0.28	No	No criteria
73	Chrysene	0.049	< 0.12	<0.12	No	All ND

CTR No.	Constituent	Applicable Water Quality Criteria (C) (µg/L)	Max Effluent Conc. (MEC) (µg/L)	Maximum Detected Receiving Water Conc. (B) (µg/L)	RPA Result - Need Limitation ?	Reason
74	Dibenzo(a,h)Anthracene	0.049	< 0.02	< 0.02	No	All ND
75	1,2-Dichlorobenzene	17,000	14	< 0.27	No	C>B, C>MEC
76	1,3-Dichlorobenzene	2,600	< 0.23	< 0.23	No	C>B, C>MEC
77	1,4-Dichlorobenzene	2,600	<0.24	< 0.24	No	C>B, C>MEC
78	3-3'-Dichlorobenzidine	0.077	< 2.78	< 2.78	No	All ND
79	Diethyl Phthalate	120,000	<0.62	< 0.62	No	C>B, C>MEC
80	Dimethyl Phthalate	2,900,000	0.29	< 0.64	No	C>B, C>MEC
81	Di-n-Butyl Phthalate	12,000	0.12	< 0.5	No	C>B, C>MEC
82	2-4-Dinitrotoluene	9.1	< 0.21	< 0.21	No	C>B, C>MEC
83	2-6-Dinitrotoluene	No criteria	< 0.21	< 0.21	No	No criteria
84	Di-n-Octyl Phthalate	No criteria	< 0.82	< 0.82	No	No criteria
85	1,2-Diphenylhydrazine	0.54	< 0.21	< 0.21	No	C>B, C>MEC
86	Fluoranthene	370	< 0.02	< 0.02	No	C>B, C>MEC
87	Fluorene	14,000	< 0.02	< 0.02	No	C>B, C>MEC
88	Hexachlorobenzene	0.00077	< 0.18	< 0.18	No	C>B, C>MEC
89	Hexachlorobutadiene	50	< 0.23	< 0.23	No	C>B, C>MEC
90	Hexachlorocyclopentadiene	17,000	< 3.83	< 3.83	No	C>B, C>MEC
91	Hexachloroethane	8.9	< 0.25	< 0.25	No	All ND
92	Indeno(1,2,3-cd)Pyrene	0.049	< 0.02	<0.02	No	C>B, C>MEC
93	Isophorone	600	< 0.3	< 0.3	No	C>B, C>MEC
94	Naphthalene	No criteria	< 0.13	< 0.13	No	No criteria
95	Nitrobenzene	1,900	< 0.33	< 0.33	No	C>B, C>MEC
96	N-Nitrosodimethylamine	8.1	<0.5	<0.5	No	C>B, Effluent ND
97	N-Nitrosodi-n-Propylamine	1.4	< 0.36	< 0.36	No	C>B, C>MEC
98	N-Nitrosodiphenylamine	16	< 0.86	< 0.89	No	C>B, C>MEC
99	Phenanthrene	No criteria	< 0.01	<0.01	No	No criteria
100	Pyrene	11,000	< 0.02	< 0.02	No	C>B, C>MEC
101	1,2,4-Trichlorobenzene	No criteria	< 0.42	< 0.42	No	No criteria
102	Aldrin	0.00014	<0.004	<0.004	No	All ND
103	Alpha-BHC	0.013	<0.004	<0.004	No	C>B, C>MEC
104	Beta-BHC	0.046	<0.003	<0.003	No	C>B, C>MEC

CTR No.	Constituent	Applicable Water Quality Criteria (C) (μg/L)	Max Effluent Conc. (MEC) (μg/L)	Maximum Detected Receiving Water Conc. (B) (μg/L)	RPA Result - Need Limitation ?	Reason
105	Gamma-BHC (Lindane)	0.063	0.006	<0.005	No	C>B, C>MEC
106	delta-BHC	No criteria	<0.004	<0.004	No	No criteria
107	Chlordane	0.00059	<0.056	<0.056	No	All ND
108	4,4'-DDT	0.00059	<0.007	<0.007	No	All ND
109	4,4'-DDE	0.00059	<0.004	<0.004	No	All ND
110	4,4'-DDD	0.00084	<0.004	<0.004	No	All ND
111	Dieldrin	0.00014	<0.005	<0.005	No	All ND
112	Alpha-Endosulfan	0.056	<0.008	<0.008	No	C>B, C>MEC
113	Beta-Endosulfan	0.056	<0.007	<0.007	No	C>B, C>MEC
114	Endosulfan Sulfate	240	<0.008	<0.008	No	C>B, C>MEC
115	Endrin	0.036	<0.005	<0.005	No	C>B, C>MEC
116	Endrin Aldehyde	0.81	<0.004	<0.004	No	C>B, C>MEC
117	Heptachlor	0.00021	<0.003	<0.003	No	All ND
118	Heptachlor Epoxide	0.00011	<0.003	<0.003	No	All ND
119	PCB 1016	0.00017	<0.039	< 0.081	No	All ND
120	PCB 1221	0.00017	<0.048	< 0.49	No	All ND
121	PCB 1232	0.00017	<0.1	< 0.1	No	All ND
122	PCB 1242	0.00017	<0.2	< 0.23	No	All ND
123	PCB 1248	0.00017	<0.1	< 0.1	No	All ND
124	PCB 1254	0.00017	<0.028	< 0.04	No	All ND
125	PCB 1260	0.00017	<0.07	< 0.07	No	All ND
126	Toxaphene	0.0002	<0.1	<0.1	No	All ND

4. WQBEL Calculations

a. **Calculation Options** – Once RPA has been conducted using either the TSD or the SIP methodologies, WQBELs are calculated. Alternative procedures for calculating WQBELs include:

i. Use WLA from applicable TMDL;

ii. Use a steady-state model to derive Maximum Daily Effluent Limits and Average Monthly Effluent Limits; and,

iii. Where sufficient data exist, use a dynamic model which has been approved by the State Water Board.

b. ***LA River Metals TMDL* Calculation Procedure** –

The tertiary-treated wastewater produced at the Tillman WRP is discharged, via the Discharge Points 001, 002, 003, and 008, into the Los Angeles River Reach 4, as described by the *LA River Metals TMDL*. Reach 4 has wet-weather WLAs for cadmium, copper, lead, and zinc (4.7 µg/L, 26 µg/L, 10 µg/L, and 212 µg/L, respectively). Reach 3 has a dry-weather waste load allocation only for copper and lead (26 µg/L and 10 µg/L, respectively). Wet-weather allocations are based on dry-weather in-stream numeric targets because the POTWs exert the greatest influence over in-stream water quality during dry weather, and collectively they contribute minimally to the total wet-weather loading. During dry-weather, the concentration-based and mass-based WLAs apply. In wet weather, the mass-based waste load allocations do not apply when the influent flows exceed the design capacity of the treatment plants.

According to the *LA River Metals TMDL* implementation section, permit writers may translate applicable WLAs into effluent limits by applying the effluent limitation procedures in Section 1.4 of the SIP or other applicable engineering practices authorized under federal regulations.

i. Copper: Tier 1 and Tier 2 of the SIP RPA procedures were not triggered for copper. However, Tier 3 of the SIP RPA procedures was triggered because this constituent has established WLAs described in *LA River Metals TMDL*. Therefore, a water quality-based effluent limitation derived using CTR/SIP has been prescribed for copper. In this permit, the TMDL-established WLAs for copper (26 µg/L, see Table F-7), the TMDL hardness of 246 mg/L, and a 0.3 coefficient of variation were used to calculate the water quality-based effluent limitations based on SIP/CTR procedures. The TMDL copper criteria were derived by using the site-specific chronic copper conversion factor of 0.74 developed by Larry Walker Associates under contract with the City of Los Angeles.. This was explained on page 26-27 of the *LA River Metals TMDL* staff report. The final effluent limitations for copper apply to both wet and dry weather conditions. Therefore, the effluent limitations for copper apply all-year round. In the future, consistent with the *LA River Metals TMDL*, should the performance of the facility's treatment technologies change for reasons beyond the facility's control, the permit may be reopened to revise the effluent limitations considering the applicability of the copper WER or other performance-based measure such that the effluent limitations ensure that effluent concentrations and mass discharges do not exceed the levels of water quality that can be attained by performance of this facility's treatment technologies existing at the time of permit issuance, reissuance, or modification.

ii. Lead: Tier 1 and Tier 2 of the SIP RPA procedures were not triggered for lead. However, Tier 3 was triggered because this constituent has established WLAs described in *LA River Metals TMDL*. In this permit, the TMDL-established WLAs for lead (10 µg/L, see Table F-7), the USEPA default conversion factors, the TMDL hardness of 246 mg/L, and a 0.6 coefficient of variation were used to calculate the water quality-based effluent limitations based on SIP/CTR procedures. The final effluent limitations for lead apply to both wet and dry weather conditions and shall apply all-year round.

iii. Cadmium: Tier 1 and Tier 2 of the SIP RPA procedures were not triggered for cadmium. However, Tier 3 was triggered because this constituent has established waste load allocations described in *LA River Metals TMDL*. In this permit, the TMDL-established WLA for cadmium (4.6 µg/L, see Table F-7), the USEPA default conversion factors, the TMDL hardness of 246 mg/L, and a 0.6 coefficient of variation were used to calculate the water quality-based effluent limitations based on SIP/CTR procedures. The final effluent limitations for cadmium apply to wet weather conditions only.

iv. Zinc: Tier 1 and Tier 2 of the SIP RPA procedures were not triggered for zinc. However, Tier 3 was triggered because this constituent has established waste load allocations described in *LA River Metals TMDL*. In this permit, the TMDL-established WLA for zinc (212 µg/L, see Table F-7), the USEPA default conversion factors, the TMDL hardness of 246 mg/L, and a 0.2 coefficient of variation were used to calculate the water quality-based effluent limitations based on SIP/CTR procedures. The final effluent limitations for zinc apply to wet weather conditions only.

The metals effluent limitations prescribed in this Order are consistent with the SIP Procedures and TMDL WLAs.

Table 7. *LA River Metals TMDL*-Established Acute and Chronic Criteria

Metal	Acute (µg/L)	Chronic (µg/L)
Cadmium	--	4.6
Copper	--	26
Lead	--	10
Zinc	--	212

c. **SIP Calculation Procedure** – Section 1.4 of the SIP 92005) requires the step-by-step procedure to "adjust" or convert CTR numeric criteria into Average Monthly Effluent Limitations (AMELs) and Maximum Daily Effluent Limitations (MDELs), for toxics.

Step 3 of Section 1.4 of the SIP (page 8) lists the statistical equations that adjust CTR criteria for effluent variability.

Step 5 of Section 1.4 of the SIP (page 10) lists the statistical equations that adjust CTR criteria for averaging periods and exceedance frequencies of the criteria/objectives. This section also reads, "For this method only, maximum daily effluent limitations shall be used for POTWs in place of average weekly limitations."

Sample calculation for Mercury

Step 1: Identify applicable water quality criteria.

From CTR, we can obtain the dissolved Criterion Maximum Concentration ($CMC_{Dissolved}$) and the dissolved Criterion Continuous Concentration ($CCC_{Dissolved}$).

Freshwater Aquatic Life Criteria:

CMC = NA µg/L (CTR page 31712, column B1) and
CCC = NA µg/L (CTR page 31712, column B1); and
Human Health Criteria for Organisms only = 0.051 µg/L (CTR page 31712, column D2).

Step 2: Calculate effluent concentration allowance (ECA)

ECA = Criteria in CTR, since no dilution is allowed.

Step 3: Determine long-term average (LTA) discharge condition

Calculate CV:

CV = Standard Deviation/Mean = 0.0102/0.0054 = 1.7698

ECA Multiplier acute = 0.1273 and,
ECA Multiplier chronic = 0.2277
LTA acute = ECA acute x ECA Multiplier acute
= NA µg/L x 0.6836 = NA µg/L
LTA chronic = ECA chronic x ECA Multiplier chronic
= NA µg/L x 0.8230 = NA µg/L

Step 4: Select the lowest LTA

In this case, the lowest LTA is not applicable.

Step 5: Calculate the Average Monthly Effluent Limitation (AMEL) & Maximum Daily Effluent Limitation (MDEL) for AQUATIC LIFE

Find the multipliers.

AMEL Multiplier = 2.6165
MDEL Multiplier = 7.8553

AMEL aquatic life = lowest LTA (from Step 4) x AMEL Multiplier
= NA µg/L x 2.6165 = NA µg/L
MDEL aquatic life = lowest LTA (from Step 4) x MDEL Multiplier
= NA µg/L x 7.8553 = NA µg/L

Step 6: Find the Average Monthly Effluent Limitation (AMEL) & Maximum Daily Effluent Limitation (MDEL) for HUMAN HEALTH

Find factors. Given CV = 1.7698 and n = 4.

For AMEL human health limit, there is no factor.
The MDEL/AMEL human health factor = 3.0022

i. AMEL human health = ECA = 0.051 µg/L

ii. MDEL human health = ECA x MDEL/AMEL factor
= 0.051 µg/L x 3.0022 = 0.1531 µg/L

Step 7: Compare the AMELs for Aquatic life and Human health and select the lowest. Compare the MDELs for Aquatic life and Human health and select the lowest

Lowest AMEL = 0.051 µg/L (Based on Human Health protection)
Lowest MDEL = 0.15 µg/L (Based on Human Health protection)

d. **Impracticability Analysis** – Federal NPDES regulations contained in 40 CFR part 122.45 for continuous dischargers states that all permit limitations, standards, and prohibitions, including those to achieve water quality standards, shall, unless impracticable, be stated as maximum daily and average monthly discharge limitations for all dischargers other than POTWs.

As stated by USEPA in its long-standing guidance for developing WQBELs, average alone limitations are not practical for limiting acute, chronic, or human health toxic effects.

For example, a POTW sampling for a toxicant to evaluate compliance with a 7-day average limitation could fully comply with this average limit but still be discharging toxic effluent on one, two, three, or up to four of these seven days and not be meeting 1-hour average acute criteria or 4-day average chronic criteria. For these reason, USEPA recommends daily maximum and 30-day average limits for regulating toxics in all NPDES discharges. For the purposes of protecting the acute effects of discharges containing toxicants (CTR human health for the ingestion of fish), daily maximum limitations can be established in NPDES permits for substances such as mercury, because they are considered to be carcinogens, endocrine disruptors, and bioaccumulative.

A 7-day average alone would not protect one, two, three, or fours days of discharging pollutants in excess of the acute and chronic criteria. Fish exposed to these endocrine disrupting chemicals will be passed on to the human consumer. Endocrine disrupters alter hormonal functions by several means. These substances can:

i. Mimic or partly mimic the sex steroid hormones estrogens and androgens (the male sex hormone) by binding to hormone receptors or influencing cell signaling pathways.

ii. Block, prevent and alter hormonal binding to hormone receptors or influencing cell signaling pathways.

iii. Alter production and breakdown of natural hormones.

iv. Modify the making and function of hormone receptors.

e. **Mass Based Limits** – 40 CFR part 122.45(f)(1) requires that except under certain conditions, all permit limits, standards, or prohibitions be expressed in terms of mass units. 40 CFR part 122.45(f)(2) allows the permit writer, at its discretion, to express limits in additional units (e.g., concentration units). The regulations mandate that, where limits are expressed in more than one unit, the permittee must comply with both.

Generally, mass-based limits ensure that proper treatment, and not dilution, is employed to comply with the final effluent concentration limits. Concentration-based effluent limits, on the other hand, discourage the reduction in treatment efficiency during low-flow periods and require proper operation of the treatment units at all times. In the absence of concentration-based effluent limits, a permittee would be able to increase its effluent concentration (i.e., reduce its level of treatment) during low-flow periods and still meet its mass-based limits. To account for this, this permit includes mass and concentration limits for some constituents.

Summary of Water Quality-based Effluent Limitations
Effluent Transfer Station EFF-001A

Table 8. Summary of Water Quality-Based Effluent Limitations at EFF-001A

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Cadmium[16] (wet[17] weather)	µg/L	3.4[18, 19]	--	8.4[18, 19]	--	--
	lbs/day[20]	2.3	--	5.6	--	--
Copper[16] (dry[21] and wet[17] weather)	µg/L	25[18, 19, 22]	--	31[18, 19, 22]	--	--
	lbs/day[20]	16	--	21	--	--
Lead[16] (dry[21] and wet[17] weather)	µg/L	9.0[18, 19]	--	14[18, 19]	--	--
	lbs/day[20]	6.0	--	9.3	--	--
Mercury[23]	µg/L	0.051[19]	--	0.15[19]	--	--
	lbs/day[20]	0.034	--	0.10	--	--
Selenium[23, 24]	µg/L	4.2[19]	--	7.8[19]	--	--
	lbs/day[20]	2.8	--	5.2	--	--
Zinc[16] (wet[17] weather)	µg/L	194[18, 19]	--	277[18, 19]	--	--
	lbs/day[20]	129	--	185	--	--
Cyanide[23]	µg/L	4.3	--	8.5	--	--
	lbs/day[20]	2.9	--	5.7	--	--

5. Whole Effluent Toxicity (WET)

Because of the nature of industrial discharges into the POTWs sewershed, it is possible that other toxic constituents could be present in the Tillman WRP effluent

[16] This constituent did not show numeric reasonable potential. The numeric limitations of this constituent is consistent with the SIP and the *LA River Metals TMDL* implementation procedure. Attachment J also shows the summary of calculation procedures. Calculating end of pipe effluent limitations will ensure that the in-stream concentrations of each metal meet water quality standards.

[17] Wet weather effluent limitations apply when the maximum daily flow measured at the Los Angeles River Wardlow station is equal to or greater than 500 cubic feet per second.

[18] Hardness value of 246 mg/L from the Los Angeles River Metal TMDL was used to assess compliance with CTR criteria.

[19] Concentration expressed as total recoverable.

[20] The mass emission rates for cadmium, copper, lead, and zinc are based on the combined plant design flow rate of 80 MGD, and are calculated as follows: Flow (MGD) x Concentration (µg/L) x 0.00834 (conversion factor) = lbs/day. During wet-weather storm events in which the flow exceeds the design capacity, the mass discharge rate limitations shall not apply, and concentration limitations will provide the only applicable effluent limitations.

[21] Dry weather effluent limitations apply when the maximum daily flow in the River is less than 500 cfs at the LA River Wardlow gage station."

[22] The Site-Specific Translator of 0.74 is used to convert copper chronic criterion.

[23] This constituent shows reasonable potential.

[24] Selenium concentrations in receiving water were greater than its WQO of 5 µg/L.

or could have synergistic or additive effects. Also, because numeric limits for certain toxic constituents that did not show RP have been removed, the acute toxicity limit may provide a backstop to preventing the discharge of toxic pollutants in toxic amounts.

The toxicity numeric effluent limitations are based on:

i. 40 CFR part 122.44(d)(v) – limits on whole effluent toxicity are necessary when chemical-specific limits are not sufficient to attain and maintain applicable numeric or narrative water quality standards;

ii. 40 CFR part 122.44(d)(vi)(A) – where a State has not developed a water quality criterion for a specific pollutant that is present in the effluent and has reasonable potential, the permitting authority can establish effluent limits using numeric water quality criterion;

iii. Basin Plan objectives and implementation provisions for toxicity;

iv. Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Programs Final May 31, 1996;

v. Whole Effluent Toxicity (WET) Control Policy July 1994; and,

vi. Technical Support Document (several chapters and Appendix B).

The circumstances warranting a numeric chronic toxicity effluent limitation when there is reasonable potential were under review by the State Water Board in SWRCB/OCC Files A-1496 & A-1496(a) [Los Coyotes/Long Beach Petitions]. On September 16, 2003, at a public hearing, the State Water Board adopted Order No. 2003-0012 deferring the issue of numeric chronic toxicity effluent limitations until a subsequent Phase of the SIP is adopted. In the meantime, the State Water Board replaced the numeric chronic toxicity limit with a narrative effluent limitation and a 1.0 TUc trigger, in the Long Beach and Los Coyotes WRP NPDES permits. This permit contains a similar narrative chronic toxicity effluent limitation, with a numeric trigger for accelerated monitoring.

Phase II of the SIP has been adopted; however, the toxicity control provisions were not revised.

On January 17, 2006, the State Water Board Division of Water Quality held a CEQA scoping meeting to seek input on the scope and content of the environmental information that should be considered in the planned revisions of the Toxicity Control Provisions of the SIP. However, the Toxicity Control Provisions of the SIP continue unchanged.

This Order contains a reopener to allow the Regional Water Board to modify the permit, if necessary, consistent with any new policy, law, or regulation. Until such time, this Order will have toxicity limitations that are consistent with the State Water Board's precedential decision.

a. Acute Toxicity Limitation

The Dischargers may test for acute toxicity by using USEPA's *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, October 2002 (EPA-821-R-02-012). Acute toxicity provisions in the accompanying Order are derived from the Basin Plan's toxicity standards (Basin Plan 3-16 and 3-17). The provisions require the Discharger to accelerate acute toxicity monitoring and take further actions to identify the source of toxicity and to reduce acute toxicity.

b. Chronic Toxicity Limitation and Requirements

Chronic toxicity provisions in the accompanying Order are derived from the Basin Plan's toxicity standards (Basin Plan 3-16 and 3-17). The provisions require the Discharger to accelerate chronic toxicity monitoring and take further actions to identify the source of toxicity and to reduce chronic toxicity. The monthly median trigger of 1.0 TU_c for chronic toxicity is based on *USEPA Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity (WET) Programs* Final May 31, 1996 (Chapter 2 – Developing WET Permitting Conditions, page 2-8). In cases where effluent receives no dilution or where mixing zones are not allowed, the 1.0 TU_c chronic criterion should be expressed as a monthly median. The "median" is defined as the middle value in a distribution, above which and below which lie an equal number of values. For example, if the results of the WET testing for a month were 1.5, 1.0, and 1.0 TU_c, the median would be 1.0 TU_c.

The *USEPA Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity (WET) Programs* Final May 31, 1996 (Chapter 2 – Developing WET Permitting Conditions, page 2-8) recommends two alternatives for setting up maximum daily limit: using 2.0 TUc as the maximum daily limit; or using a statistical approach outlined in the TSD to develop a maximum daily effluent limitation. In this permit, a maximum daily limitation is not prescribed, a trigger for chronic toxicity is prescribed.

D. Final Effluent Limitations

1. Satisfaction of Anti-Backsliding Requirements

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of effluent limitations for fluoride, mercury, and zinc. The effluent limitations for these pollutants were deleted because they did not show reasonable potential to be in the effluent water. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

2. Satisfaction of Antidegradation Policy

On October 28, 1968, the State Water Board adopted Resolution No. 68-16, *Maintaining High Quality Water*, which established an antidegradation policy for State and Regional Water Boards. The State Water Board has, in State Water Board Order No. 86-17 and an October 7, 1987 guidance memorandum, interpreted Resolution No. 68-16 to be fully consistent with the federal antidegradation policy. Similarly, the CWA (section 304(d)(4)(B)) and USEPA regulations (40 CFR part 131.12) require that all permitting actions be consistent with the federal antidegradation policy. Together, the state and federal policies are designed to ensure that a water body will not be degraded resulting from the permitted discharge. Discharges in conformance with the provisions of this Order will not result in a lowering of water quality and therefore conform to the antidegradation policies.

3. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The TBELs consist of restrictions on $BOD_{5@20^{\circ}C}$, TSS, pH, and percent removal of $BOD_{5@20^{\circ}C}$ and TSS. Restrictions on $BOD_{5@20^{\circ}C}$, TSS and pH are discussed in Section IV.B. of the Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards.

WQBELs have been scientifically derived to implement WQOs that protect beneficial uses. Both the beneficial uses and the WQOs have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to section 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR-SIP, which was approved by USEPA on May 18, 2000. All beneficial uses and WQOs contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any WQOs and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to section 131.21©(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA and the applicable water quality standards for purposes of the CWA.

Summary of Final Effluent Limitations
Effluent Transfer Station EFF-001

Table 9. Summary of Final Effluent Limitations at EFF-001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
$BOD_{5@20^{o}C}$	mg/L	20	30	45	--	--
	lbs/day[15]	13,340	20,020	30,020	--	--
Total Suspended Solids (TSS)	mg/L	15	40	45	--	--
	lbs/day[15]	10,010	26,690	30,020	--	--
pH	standard units	--	--	--	6.5	8.5
Oil and Grease	mg/L	10	--	15	--	--
	lbs/day[15]	6,670	--	10,010	--	--
Settleable Solids	mg/L	0.1	--	0.3	--	--
Total Residual Chlorine	mg/L	--	--	0.1[25]	--	--
	lbs/day[15]	--	--	66.8	--	--
Chloride	mg/L	190[26]	--	--	--	--
	lbs/day[15]	126,770	--	--	--	--
Total Dissolved Solids	mg/L	950[27]	--	--	--	--
	lbs/day[15]	633,840	--	--	--	--
Sulfate	mg/L	300[27]	--	--	--	--
	lbs/day[15]	200,160	--	--	--	--
MBAS	mg/L	0.5[28]	--	--	--	--
	lbs/day[15]	330	--	--	--	--
Nitrate (as N)	mg/L	7.2[29]	--	--	--	--
Nitrite (as N)	mg/L	0.9[29]	--	--	--	--
Nitrate + Nitrite (as N)	mg/L	7.2[29]	--	--	--	--
Ammonia Nitrogen (as N)	mg/L	1.4[29]	--	4.2[29]	--	--

[25] Determination of compliance with the final effluent limitation 0.10 mg/L for total residual chlorine will be based solely on end of pipe grab samples.

[26] In accordance with the Resolution 97-02, adopted by the Regional Water Board on January 27, 1997, the chloride limitation has been increased from 150 to 190 mg/L.

[27] Based on Table 3-8 of the Basin Plan.

[28] Based on the secondary drinking water standard (CDPH 1992).

[29] This is the WLA, according to the *Nitrogen Compounds TMDL* Resolution No. 2003-009, adopted by the Regional Water Board on July 10, 2003. The WLA serves as the effluent concentration limitation for the discharge. It became effective on March 23, 2004, after the USEPA approves the *Nitrogen Compounds TMDL,* and after the Regional Water Board filed the Notice of Decision with the California Resources Agency.

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Cadmium[16] (wet[17] weather)	µg/L	3.4[18, 19]	--	8.4[18, 19]	--	--
	lbs/day[20]	2.3	--	5.6	--	--
Copper[16] (dry[21] and wet[17] weather)	µg/L	25[18, 19, 22]	--	31[18, 19, 22]	--	--
	lbs/day[20]	16	--	21	--	--
Lead[16] (dry[21] and wet[17] weather)	µg/L	9.0[18, 19]	--	14[18, 19]	--	--
	lbs/day[20]	6.0	--	9.3	--	--
Mercury[23]	µg/L	0.051[19]	--	0.15[19]	--	--
	lbs/day[20]	0.034	--	0.10	--	--
Selenium[23, 24]	µg/L	4.2[19]	--	7.8[19]	--	--
	lbs/day[20]	2.8	--	5.2	--	--
Zinc[16](wet[17] weather)	µg/L	194[18, 19]	--	277[18, 19]	--	--
	lbs/day[20]	129	--	185	--	--
Cyanide[23]	µg/L	4.3	--	8.5	--	--
	lbs/day[20]	2.9	--	5.7	--	--

E. Reclamation Specifications

1. **Current Reclaimed Project for Irrigation & Industrial Use –** The production, distribution, and reuse of recycled water are presently regulated under WDRs Order No. R4-2007-0008 and Water Recycling Requirements Order No. R4-2007-0009, both adopted by this Regional Water Board on January 11, 2007.

2. **Water Recycling Requirements for Groundwater Recharge –** The Los Angeles of Los Angeles is currently developing a master plan for the use of recycled water with a goal of recharging up to 30,000 acre feet per year of recycled water, treated with advanced wastewater treatment facilities, into the San Fernando Groundwater Basin. The master plan is not yet completed and is considering the use of other spreading facilities and not just the Hansen Spreading Grounds. In addition, the final plan may change based on California Department of Public Health requirements or the outcome of the environmental review process.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

Receiving water limitations are based on WQOs contained in the Basin Plan and are a required part of this Order.

B. Groundwater

Limitations in this Order must protect not only surface receiving water beneficial uses, but also, the beneficial uses of underlying groundwater where there is a recharge beneficial use of the surface water. In addition to a discharge to surface water, there is discharge that can impact groundwater. Sections of the Los Angeles River between Willow Street and Sepulveda Flood Control Basin are designated as GWR beneficial use. Surface water from the Los Angeles River percolates into the San Fernando Valley and the Central Los Angeles Coastal Plain Groundwater Basins. Since groundwater from these Basins is used to provide drinking water to the community, the groundwater aquifers should be protected.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

40 CFR part 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The MRP, Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring

This Order carries forward the Facility’s influent monitoring requirements.

B. Effluent Monitoring

The Discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are given in the proposed MRP (Attachment E). This provision requires compliance with the MRP, and is based on 40 CFR parts 122.44(i), 122.62, 122.63, and 124.5. The MRP is a standard requirement in almost all NPDES permits (including the proposed Order) issued by the Regional Water Board. In addition to containing definition of terms, it specifies general sampling/analytical protocols and the requirements of reporting spills, violation, and routine monitoring data in accordance with NPDES regulations, the CWC, and Regional Water Board policies. The MRP also contains sampling program specific for the Discharger’s wastewater treatment facility. It defines the sampling stations and frequency, pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all pollutants for which effluent limitations are specified. Further, in accordance with Section 1.3 of the SIP, a periodic monitoring is required for all priority pollutants defined by the CTR, for which criteria apply and for which no effluent limitations have been established, to evaluate reasonable potential to cause or contribute to an excursion above a water quality standard.

Monitoring for those pollutants expected to be present in the discharge from the Facility, will be required as shown on the proposed MRP (Attachment E) and as required in the SIP. Monitoring requirements are largely unchanged from the previous Order.

The changes in the effluent monitoring at EFF-001A and EFF011B are summarized in the following table.

Table 10. Effluent Monitoring Program Comparison Table

Parameter	Monitoring Frequency (2006 Permit)	Monitoring Frequency (2010 Permit)	Monitoring Frequency (2011 Permit)
Total waste flow	continuous	continuous	continuous
Turbidity	continuous	continuous	continuous
Total residual chlorine	continuous	continuous	continuous
Total residual chlorine	daily	daily	daily
Total coliform	daily	daily	daily
Fecal coliform	daily	daily	daily
E.coli	weekly	weekly	weekly
Temperature	daily	daily	daily
pH	daily	daily	daily
Settleable solids	daily	daily	daily
TSS	daily	daily	daily
$BOD_{5@20^{o}C}$	weekly	weekly	weekly
Oil and grease	weekly	weekly	weekly
Dissolved oxygen	monthly	monthly	monthly
Total dissolved solids	monthly	monthly	monthly
Chloride	monthly	monthly	monthly
Sulfates	monthly	monthly	monthly
Boron	monthly	monthly	quarterly[30]
Fluoride	monthly	monthly	quarterly[30]
Ammonia nitrogen	monthly	monthly	monthly
Nitrate nitrogen	monthly	monthly	monthly
Nitrite nitrogen	monthly	monthly	monthly
Organic nitrogen	monthly	monthly	monthly
Total nitrogen	monthly	monthly	monthly
Surfactants (MBAS)	monthly	monthly	monthly
Surfactants (CTAS)	monthly	monthly	monthly
Total hardness ($CaCO_3$)	monthly	monthly	monthly

30 There is no RP.

Parameter	Monitoring Frequency (2006 Permit)	Monitoring Frequency (2010 Permit)	Monitoring Frequency (2011 Permit)
Chronic toxicity	monthly	monthly	monthly
Acute toxicity	monthly	monthly	monthly
Perchlorate	semiannually	semiannually	semiannually
1,4-Dioxane	semiannually	semiannually	semiannually
1,2,3-Trichloropropane	semiannually	semiannually	semiannually
MTBE	semiannually	semiannually	semiannually
Antimony	quarterly	quarterly	quarterly
Arsenic	quarterly	quarterly	quarterly
Beryllium	quarterly	quarterly	quarterly
Cadmium	quarterly	quarterly	monthly[31]
Total Chromium	quarterly	quarterly	quarterly
Chromium III	quarterly	quarterly	quarterly
Chromium VI	quarterly	quarterly	quarterly
Copper	monthly	monthly	monthly
Lead	monthly	monthly	monthly
Mercury	monthly	monthly	monthly
Nickel	quarterly	quarterly	quarterly
Selenium	monthly	monthly	monthly
Silver	quarterly	quarterly	quarterly
Thallium	quarterly	quarterly	quarterly
Zinc	quarterly	quarterly	monthly[31]
Cyanide	monthly	quarterly	monthly[32]
Tetrachloroethylene	monthly	quarterly	semiannually
Bis(2-ethylhexyl)phthalate	monthly	quarterly	semiannually
Gamma-BHC	monthly	quarterly	semiannually
Diazinon[33]	N.A.	N.A.	quarterly
2,4-D	semiannually	semiannually	semiannually
2,4,5-TP (Silvex)	semiannually	semiannually	semiannually
Pesticide[34]	semiannually	semiannually	semiannually

31 *Los Angeles River Metals TMDL.*
32 There is RP.
33 Diazinon is on the *California 2008-2010 Integrated Report Section 303(d) List of Impaired Waters* requiring TMDLs for the Los Angeles Region.
34 Pesticides are, for purposes of this order, those six constituents referred to in 40 CFR part 125.58(p) (demeton, guthion, malathion, methoxychlor, mirex, and parathion).

Parameter	Monitoring Frequency (2006 Permit)	Monitoring Frequency (2010 Permit)	Monitoring Frequency (2011 Permit)
Remaining USEPA priority pollutants[35] excluding asbestos	semiannually	semiannually	semiannually
Radioactivity[36]	semiannually	semiannually	semiannually

The reduction of monitoring frequencies for pollutants listed in the above Table is warranted because the previous monitoring data for these pollutants indicate that the discharge did not demonstrate reasonable potential to exceed water quality standards.

C. Whole Effluent Toxicity Testing Requirements

Whole effluent toxicity (WET) protects the receiving water quality from the aggregate toxic effect of a mixture of pollutants in the effluent. An acute toxicity test is conducted over a short time period and measures mortality. A chronic toxicity test is conducted over a longer period of time and may measure mortality, reproduction, and growth.

This requirement establishes conditions and protocol by which compliance with the Basin Plan narrative WQO for toxicity will be demonstrated and in accordance with Section 4.0 of the SIP. Conditions include required monitoring and evaluation of the effluent for acute and chronic toxicity and numerical values for chronic toxicity evaluation to be used as ‘triggers’ for initiating accelerated monitoring and toxicity reduction evaluation(s).

D. Receiving Water Monitoring

1. Surface Water

Receiving water monitoring is required to determine compliance with receiving water limitations and to characterize the water quality of the receiving water. Requirements are based on the Basin Plan. Flow monitoring is required at the County of Los Angeles Department of Public Works’ Wardlow Gage Station No. F319-R (RSW-003D) in the Los Angeles River to determine the wet-weather condition of the receiving water.

The receiving water monitoring program in this Order includes the following modifications to the existing receiving water monitoring program:

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35 Priority pollutants are those constituents referred to in 40 CFR part 401.15; a list of these pollutants is provided as Appendix A to 40 CFR part 423.

36 Analyze these radiochemicals by the following USEPA methods: method 900.0 for gross alpha and gross beta, method 903.0 or 903.1 for radium-226, method 904.0 for radium-228, method 906.0 for tritium, method 905.0 for strontium-90, and method 908.0 for uranium. Analysis for Radium-226 & 228 shall be conducted only if gross alpha results for the same sample exceed 15 pCi/L or beta greater than 50 pCi/L. If Radium-226 & 228 exceeds the stipulated criteria, analyze for Tritium, Strontium-90 and uranium.

a. **RSW-LATT630**

i. For constituents (boron, fluoride, tetrachloroethylene, bis(2-ethylhexyl)phthalate, gamma-BHC, and heptachlor epoxide) currently monitored on a quarterly basis, shifting from quarterly to semiannually monitoring.

ii. Increasing quarterly monitoring frequency of cyanide to monthly.

iii. Adding quarterly monitoring frequency for diazinon.

b. **RSW-LATT612, RSW-LATT614, RSW-LATT616, RSW-LATT622, and RSW-LATT628**

i. Increasing semiannually monitoring frequency of cadmium, zinc, and cyanide to quarterly.

ii. Decreasing quarterly monitoring frequency of boron, fluoride, and heptachlor epoxide to semiannually.

iii. Adding quarterly monitoring frequency for diazinon.

c. **RSW-4 and RSW-W2 (Sediment)**

i. Increasing semiannually monitoring frequency of cadmium, zinc, and cyanide to quarterly.

ii. Decreasing quarterly monitoring frequency of heptachlor epoxide to semiannually.

iii. Adding quarterly monitoring frequency for diazinon.

d. Conducting bioassessment monitoring according to the LARRMP.

The proposed receiving water monitoring program will improve coordination and efficiency of receiving water monitoring for existing discharges in the Los Angeles River Watershed by streamlining monitoring efforts and reducing redundancies throughout the watershed and will provide more useful water quality data on both watershed and site-specific scales.

2. Groundwater

Not applicable.

E. Other Monitoring Requirements

1. Los Angeles River Regional Monitoring Program (LARRMP)

The goals of the LARRMP are to:

b. Determine compliance with receiving water limits;

c. Monitor trends in surface water quality;

d. Ensure protection of beneficial uses;

e. Provide data for modeling contaminants of concern;

f. Characterize water quality including seasonal variation of surface waters within the watershed;

g. Assess the health of the biological community; and,

h. Determine mixing dynamics of effluent and receiving waters in the estuary.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR part 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR part 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR part 122.42.

40 CFR parts 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. 40 CFR part 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR parts 122.41(j)(5) and (k)(2) because the enforcement authority under the CWC is more stringent. In lieu of these conditions, this Order incorporates by reference CWC section 13387(e).

B. Special Provisions

1. Reopener Provisions

This provision is based on 40 CFR part 123.25. The Regional Water Board may reopen the permit to modify permit conditions and requirements. Causes for modifications include the promulgation of new regulations, modification in sludge use or disposal practices, or adoption of new regulations by the State Water Board or Regional Water Board, including revisions to the Basin Plan.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Constituents of Emerging Concern in the Effluent**

i. Background

Advancements in analytical technology over the last decade have dramatically increased the number of chemicals that can be detected and greatly decreased the concentrations at which chemicals can be detected. This new ability to detect trace levels of chemical concentrations has expanded the existing understanding of the kinds of contaminants present in the water and wastewater. Many man-made chemicals, particularly pesticides, pharmaceuticals and personal care products, have been found in waters across the United States.

Collectively, these compounds are referred to as Emerging Constituents (ECs) or Constituents of Emerging Concern (CECs) because their presence is starting to be revealed by rapid advances in analytical technology. Despite recent improvements in analytical science, there is still scarcity of data and lack of robust methodologies for measuring most CECs. CECs are part of the unregulated chemicals, for which no water quality standards have been established.

Recent publications and media reports on CECs have increased public awareness of the issue, providing an impetus for CEC investigations around the country, including local efforts by the City of Los Angeles and Southern California Coastal Water Research Project (SCCWRP). For instance, starting 2005, the City of Los Angeles has been conducting a special study as part of the Order No. 2005-0020, whose results suggest that the presence of natural and synthetic estrogen hormones has caused feminization of male fish (hornyhead turbot) in Santa Monica Bay, especially near the Hyperion Treatment Plant outfall. In January 2010, SCCWRP convened a workshop where 50 scientists, water quality managers, and stakeholders discussed and collaborated on developing an effective CEC monitoring and management strategy that is protective of water quality. Anticipated outcomes of this workshop include recommended lists of CECs for monitoring in recycled water (for groundwater concerns) by end of 2010, and for monitoring in ambient waters, including ocean waters, by summer 2011. The final report of *Monitoring Strategies for Chemicals of Emerging Concern (CECs) in Recycled Water* was published on June 25, 2010.

In recent years, this Regional Water Board has incorporated monitoring of a select group of CECs into the NPDES permits issued to POTWs.

ii. CEC Special Study Requirements

The Discharger shall initiate an investigation of CECs in the Discharger's effluent by conducting a special study. Specifically, within 6 months of the effective date of this Order, the Discharger shall develop a CEC Special Study Work Plan (Work Plan) and submit for approval by the Executive Officer of this Regional Water Board. Immediately upon approval of the Work Plan, the Discharger shall fully implement the Special Study.

This Special Study Work Plan shall include, but not limited to, the following:

(i). Identification of CECs to be monitored in the effluent, sample type (e.g. 24-hour composite), sampling frequency, proposed sampling month, and sampling methodology. Table 5 identifies the minimum parameters to be monitored.

Table 11. CECs in the Effluent

Parameter	Unit	Sample Type	Minimum Sampling Frequency	Analytical Test Method and (Minimum Level, units)
17α-Ethinyl estradiol	ng/L	To be proposed	Annually	To be proposed
17β-Estradiol	ng/L	To be proposed	Annually	To be proposed
Estrone	ng/L	To be proposed	Annually	To be proposed
Bisphenol A	ng/L	To be proposed	Annually	To be proposed
Nonylphenol & nonylphenol polyethoxylates	ng/L	To be proposed	Annually	To be proposed
Octylphenol & octylphenol polyethoxylates	ng/L	To be proposed	Annually	To be proposed
Polybrominated diphenyl ethers	ng/L	To be proposed	Annually	To be proposed
Acetaminophen	ng/L	To be proposed	Annually	To be proposed
Amoxicillin	ng/L	To be proposed	Annually	To be proposed
Azithromycin	ng/L	To be proposed	Annually	To be proposed
Carbamazepine	ng/L	To be proposed	Annually	To be proposed
Caffeine	ng/L	To be proposed	Annually	To be proposed
Ciprofloxacin	ng/L	To be proposed	Annually	To be proposed
DEET	ng/L	To be proposed	Annually	To be proposed
Dilantin	ng/L	To be proposed	Annually	To be proposed
Gemfibrozil	ng/L	To be proposed	Annually	To be proposed
Ibuprofen	ng/L	To be proposed	Annually	To be proposed
Lipitor (Atorvastain)	ng/L	To be proposed	Annually	To be proposed
Iodinated contrast media (i.e. iopromide)	ng/L	To be proposed	Annually	To be proposed
Sulfamethoxazole	ng/L	To be proposed	Annually	To be proposed

Parameter	Unit	Sample Type	Minimum Sampling Frequency	Analytical Test Method and (Minimum Level, units)
Trimethoprim	ng/L	To be proposed	Annually	To be proposed
Salicylic acid	ng/L	To be proposed	Annually	To be proposed
TCEP	ng/L	To be proposed	Annually	To be proposed
Triclosan	ng/L	To be proposed	Annually	To be proposed

- Once the SCCWRP's recommended list of CEC monitoring in ambient waters, including ocean waters, is finalized, the above list of minimum parameters to be monitored by the Discharger and the sampling frequency may be re-evaluated and modified by the Executive Officer. At such time, upon request by the Executive Officer, the Discharger shall monitor the requested CEC parameters at the specified frequency. In the Special Study Work Plan, the Discharger may also propose, for consideration and approval by the Executive Officer, surrogate or indicator CECs that may contribute towards a better understanding of CECs in its effluent.

- Sample Type – The Discharger shall propose in the Work Plan the appropriate sample type (e.g. grab or composite) for each constituent.

- Sampling Period – At minimum, the Discharger shall monitor the specified CECs once per year. The Work Plan shall propose the appropriate sampling month or quarter for each year, consistent with the goals of the analyses. The rationale for selecting the particular sampling month or quarter shall be explained in the Work Plan.

- Proposed Sampling Month – The Discharger may choose a fixed month for sampling or vary the sampling month over the duration of the special study in order to examine possible temporal associations.

- Analytical Test Methodology – The Discharger shall review and consider all available analytical test methodologies, including but not limited to those listed in USEPA Methods 1694 and 1698, and methodologies approved or utilized by U.S. Geologic Survey, California Department of Public Health, and other federal or State agencies. Based on its review, the Discharger shall propose the most appropriate analytical methodology, considering sensitivity, accuracy, availability, and cost.

(ii). Characterization of existing CEC data (data collected previous to Special Study). The Discharger shall propose a characterization of all existing CEC data (associated with its effluent or receiving water) that have been collected for various

purposes in the past. At minimum, the characterization shall include:

- An identification of all CECs monitored to date (outside of this Special Study);
- Monitoring duration, frequency, and date(s) (for example, from 2000- present, annually);
- Analytical methodologies employed;
- RL, MLs and MDLs achieved for each methodology used; and,
- If detected, temporal/seasonal trend analyses (using both statistical and graphical demonstration) of CECs.

(iii). Evaluation of CEC data collected as part of this Special Study. The Discharger shall propose an evaluation of CEC data (associated with its effluent) to be collected as part of this special study. At minimum, the characterization shall include:

- An identification of CECs that have been monitored;
- Monitoring duration, frequency, and date(s);
- RL, MLs and MDLs achieved for each methodology used;
- A brief update on any improvements (or change) in the analytical methodologies and associated RL, MLs and MDLs achieved for each methodology used; and,
- If detected, temporal/seasonal trend analyses (using both statistical and graphical demonstration) of cumulative CEC data collected as part of this special study.

(iv). Reporting – By April 15th of each year (starting April 15, 2013), the Discharger shall submit to the Executive Officer of this Regional Water Board, an annual report summarizing the monitoring results from the previous year. For example, the annual report due April 15, 2013 shall include CEC monitoring data from January to December 2012. Each annual report shall include a compilation of effluent monitoring data of CECs listed in the approved Work Plan, MLs, sample type, analytical methodology used, sampling date/time, QA/QC information, and an evaluation of cumulative CEC data collected to date as part of this special study (see above for further details on CEC data evaluation). In addition, the first annual report (due April 15, 2013) shall include a characterization of existing CEC data, i.e., all data collected outside of this special study (see above for further details on existing CEC data characterization.

b. **Toxicity Reduction Requirements –** The Discharger shall prepare and submit a copy of the Discharger's initial investigation Toxicity Reduction Evaluation (TRE) workplan to the Executive Officer of the Regional Water Board for approval within 90 days of the effective date of this permit. See Section VI.C.1.b. in the accompanying Order for detail.

c. **Antidegradation Analysis and Engineering Report for Proposed Plant Expansion –** This provision is based on the State Water Board Resolution No. 68-16, which requires the Regional Water Board in regulation the discharge of waste to maintain high quality waters of the State, the Discharger must demonstrate that it has implemented adequate controls (e.g., adequate treatment capacity) to ensure that high quality waters will be maintained. This provision requires the Discharger to clarify it has increased plant capacity through the addition of new treatment system(s) to obtain alternative effluent limitations for the discharge from the treatment system(s). This provision requires the Discharger to report specific time schedules for the plants projects. This provision requires the Discharger to submit report to the Regional Water Board for approval.

d. **Operations Plan for Proposed Expansion –** This provision is based on section 13385(j)(1)(D) of the CWC and allows a time period not to exceed 90 days in which the Discharger may adjust and test the treatment system(s). This provision requires the Discharger to submit an Operations Plan describing the actions the Discharger will take during the period of adjusting and testing to prevent violations.

e. **Treatment Plant Capacity –** The treatment plant capacity study required by this Order shall serve as an indicator for the Regional Water Board regarding Facility's increasing hydraulic capacity and growth in the service area.

3. Best Management Practices and Pollution Prevention

a. **Pollutant Minimization Program –** This provision is based on the requirements of Section 2.4.5 of the SIP.

4. Construction, Operation, and Maintenance Specifications

This provision is based on the requirements of 40 CFR part 122.41(e) and the previous Order.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. **Biosolids Requirements –** (Not applicable)

The Tillman WRP returns the biosolids generated by the treatment process back to the sewer for transport and treatment at the Hyperion Plant.

b. **Pretreatment Requirements –** This permit contains pretreatment requirements consistent with applicable effluent limitations, national standards of performance, and toxic and performance effluent standards established pursuant to Sections 208(b), 301, 302, 303(d), 304, 306, 307, 403, 404, 405, and 501 of the CWA, and amendments thereto. This permit contains requirements for the implementation of an effective pretreatment program pursuant to Section 307 of the CWA; 40 CFR parts 35 and 403; and/or Section 2233, Title 23, California Code of Regulations.

c. **Spill Reporting Requirements –** This Order established a reporting protocol for how different types of spills, overflow or bypasses of raw or partially treated sewage from its collection system or treatment facility covered by this Order shall be reported to regulatory agencies.

The State Water Board issued General WDRs for Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ (General Order) on May 2, 2006. The General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMPs) and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions.

Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. The Discharger must comply with both the General Order and this Order.

VIII. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of WDRs that will serve as a NPDES permit for the Tillman WRP. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations.

Notification was provided by posting notices at the Tillman WRP, and at the City's Bureau of Sanitation office.

B. Written Comments

The Regional Water Board staff determinations are tentative. Interested persons are invited to submit written comments only on the changes contained within this revised tentative WDRs. The added text is underlined and the deleted text is in strikethrough. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by Regional Water Board staff and considered by the Regional Water Board, written comments on the tentative Order must be received at the Regional Water Board offices by **12:00 p.m. (noon) on November 4, 2011**.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Regional Water Board meeting on the following date and time and at the following location:

Date: December 8, 2011
Time: 9:00 AM
Location: Metropolitan Water District of Southern California
700 North Alameda Street
Los angles, California.

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Web address is http://www.waterboards.ca.gov/losangeles/ where you can access the current agenda for changes in dates and locations.

D. Nature Hearing

This will be a formal adjudicative hearing pursuant to section 648 et seq. of title 23 of the California Code of Regulations. Chapter 5 of the California Administrative Procedure Act (commencing with section 11500 of the Government Code) will not apply to this proceeding.

Ex Parte Communications Prohibited: As a quasi-adjudicative proceeding, no Regional Water Board member may discuss the subject of this hearing with any person, except during the public hearing itself. Any communications to the Regional Water Board must be directed to Regional Water Board staff.

E. Parties to the Hearing

The following are the parties to this proceeding:

1. The applicant/permittee
2. Regional Water Board staff

Any other persons requesting party status must submit a written or electronic request to staff not later than [20] business days before the hearing. All parties will be notified if other persons are so designated.

F. Public Comments and Submittal of Evidence

Persons wishing to comment upon or object to the tentative waste discharge requirements, or submit evidence for the Board to consider, are invited to submit them in writing to the above address. To be evaluated and responded to by staff, included in the Board's agenda folder, and fully considered by the Board, written comments regarding the Tentative Order dated October 6, 2011, must be received no later than **12:00 p.m. (noon) on November 4, 2011**.

Comments or evidence received after that date will be submitted, ex agenda, to the Board for consideration, but only included in administrative record with express approval of the Chair during the hearing. Additionally, if the Board receives only supportive comments, the permit may be placed on the Board's consent calendar, and approved without an oral testimony.

G. Hearing Procedure

The Board meeting, of which this hearing is a part, will start at 9:00 a.m. Interested persons are invited to attend. When the agenda item is called, staff will present the matter under consideration, after which oral statements from parties or interested persons will be heard. For accuracy of the record, all important testimony should be in writing. The Board will include in the administrative record written transcriptions of oral testimony that is actually presented at the hearing. Oral testimony may be limited to three minutes or less for each interested person, depending on the number of interested persons wishing to be heard.

Parties or interested persons with similar concerns or opinions are encouraged to choose one representative to speak and are encouraged to coordinate their presentations with each other. Parties will be advised after the receipt of public comments, but prior to the date of the hearing, of the amount of time each is allocated for presentations. That decision will be based upon the complexity and number of issues under consideration, the extent to which the parties have coordinated, the number of parties and interested persons anticipated, and the time available for the hearing. The parties are invited to contact staff not later than November 23, 2011, (two weeks prior to the hearing) to discuss how much time they believe is necessary for their presentations, and staff will endeavor to accommodate reasonable requests.

At the conclusion of testimony, the Board will deliberate in open or close session, and render a decision.

The Board does not generally require the prior identification of witnesses, the cross examination of witnesses, or other procedures not specified in this notice. Parties or persons with special procedural requests or requests for alternative hearing procedures should contact staff, who will endeavor to accommodate reasonable requests. Objections to any procedure to be used during this hearing must be submitted in writing no later than close of business 15 business days prior to the date of the hearing. (Any objections related to the amount of time allocated for parties' presentations must be submitted within two business days of notice thereof, if that date is less than 15 business days before the hearing.) Absent such objections, any procedure not specified in this hearing notice will be waived pursuant to section 648(d) of title 23 of the CCR. Procedural objections will not be entertained at the hearing

If there should not be a quorum on the scheduled date of this meeting, this matter will be automatically continued to the next scheduled meeting in February 2012. A continuance will not extend any time set forth herein.

H. WDRs Petitions

Any aggrieved person may petition the State Water Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

I. Information and Copying

The ROWD, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (213) 576-6600.

J. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

K. Additional Information

Requests for additional information or questions regarding this order should be directed to Dr. Don Tsai at (213) 576-6665.

Attachment G, J, P

ATTACHMENT G – GENERIC TOXICITY REDUCTION EVALUATION (TRE) WORKPLAN (POTW)

I. Information and Data Acquisition

A. Operations and performance review

1. NPDES permit requirements
   a. Effluent limitations
   b. Special conditions
   c. Monitoring data and compliance history
2. POTW design criteria
   a. Hydraulic loading capacities
   b. Pollutant loading capacities
   c. Biodegradation kinetics calculations/assumptions
3. Influent and effluent conventional pollutant data
   a. Biochemical oxygen demand (BOD_5)
   b. Chemical oxygen demand (COD)
   c. Suspended solids (SS)
   d. Ammonia
   e. Residual chlorine
   f. pH
4. Process control data
   a. Primary sedimentation - hydraulic loading capacity and BOD and SS removal
   b. Activated sludge - Food-to-microorganism (F/M) ratio, mean cell residence time (MCRT), mixed liquor suspended solids (MLSS), sludge yield, and BOD and COD removal
   c. Secondary clarification - hydraulic and solids loading capacity, sludge volume index and sludge blanket depth
5. Operations information
   a. Operating logs
   b. Standard operating procedures
   c. Operations and maintenance practices
6. Process sidestream characterization data
   a. Sludge processing sidestreams
   b. Tertiary filter backwash
   c. Cooling water
7. Combined sewer overflow (CSO) bypass data
   a. Frequency
   b. Volume
8. Chemical coagulant usage for wastewater treatment and sludge processing
   a. Polymer
   b. Ferric chloride
   c. Alum

B. POTW influent and effluent characterization data

1. Toxicity
2. Priority pollutants
3. Hazardous pollutants
4. SARA 313 pollutants
5. Other chemical-specific monitoring results

C. Sewage residuals (raw, digested, thickened and dewatered sludge and incinerator ash) characterization data

1. EP toxicity
2. Toxicity Characteristic Leaching Procedure (TCLP)
3. Chemical analysis

D. Industrial waste survey (IWS)

1. Information on IUs with categorical standards or local limits and other significant non-categorical IUs
2. Number of IUs
3. Discharge flow
4. Standard Industrial Classification (SIC) code
5. Wastewater flow
   a. Types and concentrations of pollutants in the discharge
   b. Products manufactured
6. Description of pretreatment facilities and operating practices
7. Annual pretreatment report
8. Schematic of sewer collection system
9. POTW monitoring data
   a. Discharge characterization data
   b. Spill prevention and control procedures
   c. Hazardous waste generation
10. IU self-monitoring data
    a. Description of operations
    b. Flow measurements
    c. Discharge characterization data
    d. Notice of sludge loading
    e. Compliance schedule (if out of compliance)
11. Technically based local limits compliance reports
12. Waste hauler monitoring data manifests
13. Evidence of POTW treatment interferences (i.e., biological process inhibition)

Attachment J
Reasonable Potential Analyses and Limitation Derivations
(CA0056227, CI-5695)

CTR#	Pollutant	MEC	B	CTR WQC=C	Basin Plan WQC Title 22 GWR=C	Lowest C	MEC>C	B>C	MEC>Title 22 GWR
4	Cadmium (Cd)	0.85		4.9917489	5	4.991748864	NO	NA	NO
6	Copper (Cu)	18		26.117064	NA	26.11706405	NO	NA	NA
7	Lead (Pb)	1		10.01	NA	10.00702199	NO	NA	NA
8	Mercury (Hg)	0.055		0.051	2	0.051	YES	NA	NO
10	Selenium (Se)	1.8	6	5	50	5	NO	YES	NO
13	Zinc (Zn)	135		256.89499	NA	256.8949921	NO	NA	NA
14	Cyanide (CN)	6		5.2	200	5.2	YES	NA	NO

Attachment J
Reasonable Potential Analyses and Limitation Derivations
(CA0056227, CI-5695)

						Water Quality-Based Effluent Limitation	
CTR#	Pollutant	RPA	CV	ECA multiplier acute	ECA multiplier chronic	ECAacute	ECAchronicle
4	Cadmium (Cd)	NO, but need limit	0.9736613	0.20888494	0.380460796		4.6
6	Copper (Cu)	NO, but need limit	0.1709425	0.683621203	0.822995093		26
7	Lead (Pb)	NO, but need limit	0.335785	0.49319401	0.688040034		10
8	Mercury (Hg)	YES (MEC > C)	1.7698162	0.127302656	0.227702778	NA	NA
10	Selenium (Se)	YES (B > C)	0.4963072	0.374794132	0.583491982	NA	5
13	Zinc (Zn)	NO, but need limit	0.2579722	0.572243732	0.747863629		212
14	Cyanide (CN)	YES (MEC > C)	0.6	0.321083214	0.527433444	22	5.2

Attachment J
Reasonable Potential Analyses and Limitation Derivations
(CA0056227, CI-5695)

CTR#	Pollutant	LTAacute=ECA*ECAacute	LTAchronic=ECA*ECAchronic	LTAlowest	AMEL multiplier	MDEL multiplier
4	Cadmium (Cd)	0	1.750119663	1.75011966	1.919960395	4.787324547
6	Copper (Cu)	0	21.39787242	21.3978724	1.146489903	1.462798398
7	Lead (Pb)	0	6.880400344	6.88040034	1.297406282	2.027599646
8	Mercury (Hg)	NA	NA	NA	2.616470101	7.855295662
10	Selenium (Se)	NA	2.917459911	2.91745991	1.450996073	2.668131421
13	Zinc (Zn)	0	158.5470894	158.547089	1.22514254	1.747507127
14	Cyanide (CN)	7.063830703	2.742653909	2.74265391	1.552424614	3.114457427

Attachment J
Reasonable Potential Analyses and Limitation Derivations
(CA0056227, CI-5695)

				Human Health		Numerical Limitation	
CTR#	**Pollutant**	**AMELaquatic**	**MDELaquatic**	**AMELhh=ECA**	**MDELhh**	**Monthly Average**	**Daily Maximum**
4	Cadmium (Cd)	3.36016044	8.378390822	NA	NA	3.36016044	8.378390822
6	Copper (Cu)	24.53244467	31.30077349	NA	NA	24.53244467	31.30077349
7	Lead (Pb)	8.92667463	13.9506973	NA	NA	8.92667463	13.9506973
8	Mercury (Hg)	NA	NA	0.051	0.153114717	0.051	0.153114717
10	Selenium (Se)	4.233222875	7.784166456	NA	NA	4.233222875	7.784166456
13	Zinc (Zn)	194.2427838	277.0621687	NA	NA	194.2427838	277.0621687
14	Cyanide (CN)	4.257763436	8.541878839	220000	441361.6146	4.257763436	8.541878839

Attachment J
Reasonable Potential Analyses and Limitation Derivations
(CA0056227, CI-5695)

CTR#	Pollutant	Recommendation
4	Cadmium (Cd)	Need Limit. Based on FW Aq Life & Los Angeles River Metals TMDL
6	Copper (Cu)	Need Limit. Based on FW Aq Life & Los Angeles River Metals TMDL
7	Lead (Pb)	Need Limit. Based on FW Aq Life & Los Angeles River Metals TMDL
8	Mercury (Hg)	Need Limit. Based on Human Health Organisms only
10	Selenium (Se)	Need Limit. Receiving water conc. greater than effluent
13	Zinc (Zn)	Need Limit. Based on FW Aq Life & Los Angeles River Metals TMDL
14	Cyanide (CN)	Need Limit. Based on FW Aq Life

ATTACHMENT P – PRETREATMENT REPORTING REQUIREMENTS

The Discharger is required to submit annual and semi-annual Pretreatment Program Compliance Reports (Reports) to the Regional Water Board and submit copies of the Reports to the USEPA Region 9. This Attachment outlines the minimum reporting requirements of the Reports. If there is any conflict between requirements stated in this attachment and provisions stated in the Waste Discharge Requirements (WDR), those contained in the WDR will prevail.

I. ANNUAL REPORTING REQUIREMENTS

The Discharger is required to submit Annual Pretreatment Program Compliance Report (Annual Report). The Annual Report is due by March 1st of each year and must contain, but not be limited to, the following information:

A. A summary of wastewater and sludge monitoring.

The Discharger is required to monitor pollutants in the influent and the effluent of the POTW(s) as sludge is sent to HTP for processing. The Discharger is required to provide a summary of the monitoring. However, if the POTW does not process sludge/biosolids at the plant, the sludge/biosolids monitoring requirements prescribed in this attachment are not required.

The Discharger must monitor the priority pollutants that were identified in Section 307(a) of the Clean Water Act (excluding asbestos) and the nonpriority pollutants that may have existed in the wastewater and may be causing, or contributing to Pass-Through and/or Interference as defined in 40 Code of Federal Regulations (CFR) parts 403.3 (i) & (n), or adversely impacting sludge quality. The sampling and analyses must be performed in accordance with the techniques prescribed in 40 CFR part 136 and amendments thereto, unless specified otherwise in this Order. In lieu of duplicative sampling, the Discharger may use one set of sampling and analytical results to fulfill the reporting requirements for both the compliance monitoring program and the Pretreatment Program when the monitoring requirements match. However, pretreatment reports shall be submitted under a separate cover as stated in Section III. of this Attachment.

Wastewater samples of the POTW's influent and effluent must be obtained from representative, flow proportioned, 24-hour composites (except for constituents that must be taken through grab samples, such as cyanide). A full scan of the priority pollutants must be conducted at least annually in August, when flow is not affected by wet weather. Subsequent quarterly sampling and analysis must be conducted for those pollutants found in the full scan with concentrations higher than the detection limits set forth in 40 CFR 136. Results of any additional quarterly sampling will be included in the following semi-annual or annual report.

Sludge shall be sampled and analyzed quarterly for the same pollutants that were detected during the annual scan of the priority pollutants for the influent and effluent. Sludge must be taken as composite samples. When the sludge is dewatered onsite and is immediately hauled offsite for disposal, discrete samples from 12 batches of the dewatering operation must be collected and combined as a composite. If the sludge is dried in drying beds prior to its final disposal, samples collected from 12 representative locations in the drying beds must be taken and combined as a composite. Sludge analysis results must be expressed as mg/kg dry sludge, 100% dry weight basis. The Discharger will coordinate its monitoring requirements under this program with the requirements in the Hyperion Treatment Plant NPDES Permit (CA0109991, Order NO. R4-2010-0200).

B. A discussion of Pass-Through and Interference incidents.

The Discharger is required to report in the Annual Report the Pass-Through and Interference incidents, if any, at the treatment plant, that the Discharger knows, or suspects, were caused by non-domestic discharges to the POTW system. The discussion must include the causes of the incidents, the investigative actions taken to determine the source, the name and address of the party responsible, and the corrective actions taken to overcome and recover from the interference. The discussion must also include a review of the applicable pollutant limitations to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent Pass-Through or Interference.

C. A list of Discharger's industrial users.

The Discharger is required to update its significant industrial users (SIUs) list annually and to submit the list in the Annual Report. The Discharger is required to report deletions, additions, and name changes in the previously submitted SIU list. The Discharger must provide a brief explanation for each change.

D. A summary of SIU compliance.

The Discharger is required to provide a summary of SIU compliance in the Annual Report. The Discharger must characterize the compliance status of each SIU by providing a list or table, which includes the following information:

1. Name of the SIU;
2. Category, if subject to federal categorical standards, or nature of the wastewater discharge;
3. Type of wastewater treatment or control processes in place;
4. Number of monitoring samples taken by the POTW during the year;
5. Number of monitoring samples taken by the SIU during the year;
6. Verification that all required certifications were provided for an SIU subject to discharge requirements for total toxic organics;
7. Standards violated during the year (Federal and local, reported separately);
8. Description of the significant noncompliance (SNC) if the SIU was in SNC as defined at 40 CFR part 403.8(f)(2)(viii) during the year; and,
9. A summary of enforcement or other actions taken during the year to return the SIU in SNC to compliance. Describe the type of action, final compliance date,

and the amount of fines and penalties collected, if any. Describe any proposed actions for bringing the SIU in SNC into compliance.

E. A summary of program changes.

The Discharger is required to report changes of its POTW Pretreatment Program. A description of any significant changes in operating the pretreatment program which differ from the previous year including, but not limited to, changes concerning the program's sewer use ordinances, legal authority, local limits, monitoring program or monitoring frequencies, enforcement policy, administrative structure, funding levels, or staffing levels.

F. A summary of budget.

The Discharger is required to include annual pretreatment program budgets in the Annual Report. These annual budgets should include a) personnel costs (salaries, benefits, insurance, etc.), b) transportation costs (direct and indirect costs of trucks, gasoline, maintenance, etc.), c) overall laboratory analyses costs (contractor or in-house), d) equipment costs, e) administrative costs (supplies, overhead, secretarial time, attorney costs, copying, etc.), f) training and travel costs, g) contractor assistance, and h) other direct and indirect costs.

G. A summary of public participation.

The Discharger is required to provide a summary of public participation of pretreatment program in the Annual Report. The summary should describe activities to involve and inform the public of the program, including a copy of the newspaper notice required under 40 CFR part 403.8 (f)(2)(vii).

H. A description of sludge disposal methods.

The Discharger is required to report in the Annual Report the sludge disposal methods and a description of any changes from the previously submitted methods.

I. A description of pollutant reduction efforts.

The Discharger is required to describe in the Annual Report any programs the POTW implements to reduce pollutants from the non-domestic sources.

II. SEMI-ANNUAL REPORTING REQUIREMENTS

The Discharger is required to submit Semi-Annual Pretreatment Program Compliance Report (Semi-Annual Report). The Semi-Annual Report covers the periods from January 1 to June 30 and is due by September 1st of each year. The Semi-Annual Report must contain, but not be limited to, the following information:

A. A discussion of Pass-Through and Interference incidents as described in Section I.B. of this Requirements.

B. A summary of SIU compliance and enforcement actions as described in Section I. D. of this Requirements.

III. LOCAL LIMITS EVALUATION

A. In accordance with 40 CFR part 122.44(j)(2)(ii), the POTW shall provide a written technical evaluation of the need to revise local limits under 40 CFR part 403.5©(1), within ninety (90) days of permit issuance.

IV. SIGNATORY REQUIREMENTS AND REPORT SUBMITTAL

A. Signatory Requirements.

The annual report, semi-annual, and local limits evaluation must be signed by a principal executive officer, ranking elected official or other duly authorized employee if such employee is responsible for the overall operation of the POTW. Any person signing these reports must make the following certification [40 CFR part 403.6(a)(2)(ii)]:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

B. Report Submittal.

An original copy of the Annual Report and Semi-Annual Report must be sent to the Pretreatment Program Coordinator of the Regional Board and the duplicate copies of the Reports must be sent to USEPA through the following addresses:

Information and Technology Unit
Attn: Pretreatment Program Coordinator
California Regional Water Quality Control Board, Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Pretreatment Program
CWA Compliance Office (WTR-7)
Water Division
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Comments & RWQCB Response to Comments

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MAYOR

DEPARTMENT OF
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CALIFORNIA REGIONAL WATER
QUALITY CONTROL BOARD
LOS ANGELES REGION

September 2, 2011

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West Fourth Street
Los Angeles, California 90013

Attention: Brandy Outwin -Beals, Unit Lead
Municipal Permitting Unit (NPDES)

COMMENTS ON TENTATIVE ORDER - CITY OF LOS ANGELES DONALD C. TILLMAN WATER RECLAMATION PLANT – NPDES PERMIT NO. CA0056227, COMPLIANCE FILE NO.70-117

Dear Mr. Unger:

On August 4, 2011, the California Water Quality Control Board- Los Angeles Region (Regional Board) released the DONALD C. TILLMAN WATER RECLAMATION PLANT (DCTWRP) Tentative Order (NPDES No. CA0056227), Fact Sheet, and Monitoring and Reporting Program (MRP). The City of Los Angeles, Bureau of Sanitation (Bureau), appreciates the opportunity to provide the following comments and recommendations to the Regional Board. Bureau staff will be present to provide oral comments at the Regional Board public hearing on December 8, 2011. While the Bureau appreciates the Regional Board's staff for its efforts in developing the Tentative Order, there are several areas with which the Bureau has concerns and hopes that these technical comments will result in constructive changes to the permit.

Summary of Main Issues with DCTWRP Tentative Order

The following is a brief summary of the Bureau's major issues with the DCTWRP Tentative Permit. These are detailed in Attachment A:

- **Ammonia Effluent Limit**
- **Metals Effluent Limits Associated with the Los Angeles River and Tributaries Metals TMDL**

This letter incorporates by reference Attachment A, which details the above comment, and the Comment Matrix included as Attachment 1, which provides additional Bureau comments, proposed revisions, and further details on the above and other issues. The Bureau is committed to protecting and improving the local environment. The Bureau has worked diligently to develop the knowledge necessary to understand and improve the local environment.

The requests made in this letter are based on good science and support the protection of the environment that we all value so greatly. These recommendations will allow the Bureau to continue to operate its facility at DCTWRP efficiently and effectively, while continuing to protect the Los Angeles River and its environment. The Bureau has completed several recent scientific studies on the Los Angeles River to ensure the development of protective and scientifically based water quality objectives and accurate wasteload allocations. The Bureau hopes these recommendations will result in constructive changes to the DCTWRP NPDES Tentative Order.

If you have any questions regarding the Bureau's comments, please contact Mr. H.R. (Omar) Moghaddam of the Regulatory Affairs Division at (310) 648-5423

Sincerely,

Traci Minamide for

ENRIQUE C. ZALDIVAR, Director
Bureau of Sanitation

List of Attachments:

Attachment A – Detailed Discussion of Major Issues
Attachment 1 – Bureau of Sanitation's Detailed Comment Matrix
Attachment 2 – Revisions to Monitoring and Reporting Programs – Letter Dated January 12, 2009

c: Debbie J. Smith, Regional Water Quality Control Board, Los Angeles Region
David Hung, Regional Water Quality Control Board, Los Angeles Region
Don Tsai, Regional Water Quality Control Board, Los Angeles Region
Anderea A. Alarcon Board President, Board of Public Works
Rafael Prieto, Chief Legislative Analyst Office
Traci Minamide, Bureau of Sanitation/EXEC
Varouj Abkian, Bureau of Sanitation/EXEC
Omar Moghaddam, Bureau of Sanitation/RAD
Mas Dojiri, Bureau of Sanitation/EMD
Hiddo Netto, Bureau of Sanitation/DCT-LAG
Ali Poosti, Bureau of Sanitation/WESD
Barry Berggren, Bureau of Sanitation/WCSD
Shahram Kharghani, Bureau of Sanitation/WPD
Tim Dafeta, Bureau of Sanitation/IWMD
Robert Irvin, Bureau of Sanitation/ICSD

Attachment A- Detailed Discussion of Major Issues
Donald C. Tillman Water Reclamation Plant

ATTACHMENT A

Bureau of Sanitation's Detailed Discussion of Major Issues Regarding the August 4, 2011 Tentative Donald C. Tillman Water Reclamation Plant NPDES Permit, Fact Sheet, Monitoring and Reporting Program, and Other Attachments

On August 4, 2011, the California Water Quality Control Board Los Angeles Region (Regional Board) released the Donald C. Tillman Water Reclamation Plant (DCTWRP) Tentative Order (NPDES No. CA0056227), Fact Sheet, and Monitoring and Reporting Program (MRP). While the Bureau of Sanitation (Bureau) appreciates and thanks the Regional Board's staff for its efforts in developing the Tentative Order, there are two major areas with which the Bureau has concerns and hopes that these technical comments will result in constructive changes to the permit.

1- Ammonia Effluent Limits

The ammonia effluent limits for DCTWRP in the Tentative Order are set equal to the wasteload allocations (WLAs) in the Los Angeles River Nitrogen Compounds TMDL. The Nitrogen Compounds TMDL became effective in March 2004. During TMDL development, the City of Los Angeles in cooperation with the City of Burbank and the Los Angeles County Sanitation District were in the process of developing a site-specific objective (SSO) for ammonia. The TMDL acknowledges the SSO development but did not incorporate the SSO because at the time the TMDL was adopted, the SSO was not effective. In March 2009, the ammonia SSO became effective for the Los Angeles River.

From the time the SSO became the effective Basin Plan ammonia water quality objective for the Los Angeles River, the City has been encouraging Regional Board staff to modify the TMDL targets and allocations to reflect the revised ammonia objectives. Additionally, the Bureau has provided information demonstrating that, using the new Basin Plan objectives, the Los Angeles River is no longer impaired for ammonia and could be delisted in 2012. However, to date, the TMDL revision and/or delisting decision have not been completed. As a result, the ammonia effluent limits in the DCTWRP Tentative Order are currently set equal to the TMDL WLAs without an adjustment for the effective Basin Plan ammonia objectives.

The Bureau is concerned that the currently effective Basin Plan ammonia objectives are not the basis for the effluent limits in the Tentative Order. The proposed effluent limits in the Tentative Order present a compliance risk for the Bureau, and this risk is as a result of an administrative timing issue (i.e., the TMDL was not revised prior to the development of the tentative order and therefore the revised WLAs could not be incorporated) rather than a water quality issue. The Regional Board staff has indicated they will be revising the Los Angeles River Nitrogen Compounds TMDL to incorporate the new Basin Plan ammonia objectives in early to mid-2012. However, even if the TMDL is revised by the Regional Board as planned, it will take approximately a year to become effective and at least several months to revise DCTWRP's permit. Until such time as the effluent limitations are revised, the Bureau will potentially be subject to enforcement liability even though the discharge is meeting limits consistent with current Basin Plan objectives and the receiving water is meeting water quality objectives.

To resolve this administrative issue, the Bureau requests that the Tentative Order be modified to include effluent limitations based on the SSO-adjusted WLAs to be consistent with the Basin Plan objectives. We feel the inclusion of effluent limits based on the SSO-adjusted WLAs is consistent with the intent of the Clean Water Act and the requirements for incorporation of WLAs into NPDES permits. As stated in 40 CFR 122.44(d)(1)(vii)(B):

> "Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, ***are consistent with the assumptions and requirements of any available wasteload allocation*** for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7." (emphasis added)

The wasteload allocations for DCTWRP in the Nitrogen Compounds TMDL are set equal to the TMDL numeric targets minus a 10% margin of safety. The TMDL numeric targets were calculated based on Basin Plan ammonia water quality objectives that were in effect in 2003. The assumption that the WLAs are calculated directly from the Basin Plan water quality objectives are described in the staff report and amendment incorporating the TMDL into the Basin Plan. Some examples describing the assumptions include the following:

In the Numeric Targets Section of Basin Plan Amendment, page 6:

> "Numeric Targets-(Interpretation of the numeric water quality objective, used to calculate the load allocations)…"

In Section 2.1.2 Water Quality Objectives (WQOs) in the Staff Report on page 17:

> "The Basin Plan provides WQOs for nitrogen compounds and their related effects, including numeric and narrative objectives discussed below. Both types of objectives are used in developing numeric targets and wasteload allocations."

In Section 6.1.1 Wasteload Allocations for Major Point Sources in the Staff Report on page 63:

> "WLAs for ammonia are based on Resolution No. 2002-11 which establishes the relationship between water quality objectives and the beneficial uses of inland waterbodies."

Note that Resolution No. 2002-11 establishes the Basin Plan objectives for ammonia that were used to develop the TMDL.

Finally, page 36 of the Staff Report discusses the intent that the adoption of site-specific ammonia objectives would amend both the Basin Plan and the TMDL allocations and be used as the basis for the calculation of effluent limits.

> "At this time, stakeholders have initiated a WER study for ammonia in the Los Angeles River in conformance with a workplan that has been approved by Regional Board staff. It is anticipated that the WER study will serve as the basis for development of a proposed SSO and revised effluent limits, as appropriate, for Regional Board approval. A SSO based on a WER for ammonia would be implemented as a Basin Plan Amendment that, if approved, would amend both the Basin Plan and this TMDL."

These examples clearly demonstrate the WLAs were calculated based on the assumption that utilizing the Basin Plan ammonia water quality objectives would result in attainment of the beneficial uses, and the Basin Plan Amendment approving the ammonia site-specific objectives was also intended to serve as an amendment to the TMDL for the purposes of calculating revised effluent limits. Therefore, it would be consistent with the assumptions of the WLAs to incorporate effluent limits into DCTWRP's permit that were derived using the current Basin Plan ammonia water quality objectives. Because the site-specific objective only modified the chronic ammonia water quality objective, the Bureau requests that the Average Monthly Effluent Limitation (AMEL) for ammonia at DCTWRP be modified as follows:

AMEL = 2.75 mg/L

The proposed AMEL was calculated by utilizing the same pH and temperature used to calculate the current WLAs and the current ELS-absent Basin Plan objective. Once that number was determined, a 10% margin of safety was subtracted from the value to obtain the proposed AMEL.

<u>2- Metals Effluent Limits Associated with the Los Angeles River and Tributaries Metals TMDL</u>

In Table 6 of the Tentative Order for DCTWRP, effluent limits for cadmium, copper, lead, and zinc were calculated based on WLAs established in the Los Angeles River and Tributaries Metals TMDL (Metals TMDL) using the procedures in the SIP. The Bureau feels that the proposed effluent limits are not consistent with the assumptions of the Metals TMDL WLAs or the SIP and should be revised. Language from the LA Metals TMDL states the following:

> "Permit writers may translate applicable waste load allocations into effluent limits for … NPDES permits by applying the effluent limitation procedures in Section 1.4 of the [SIP]."

The Regional Board interpreted this statement to mean that the WLAs would be considered the 'applicable water quality criteria' to be used in the procedure described in Section 1.4.B on p.7 of the SIP (2005). However, Section 1.4.A. of the SIP (p. 7) states "If a TMDL is in effect, assign a portion of the loading capacity of the receiving water" to each identified source. This indicates that the WLA should be assigned directly as the effluent limit instead of the procedure described in the SIP (Section 1.4.B) for determining effluent limits. Furthermore, Section 1.4.A. refers to Appendix 6 of the SIP (Watershed Management and TMDLs) which states on p. 6-2:

> "A TMDL estalishes the amount of a pollutant that may be discharged into a water body and still maintain water quality standards with seasonal variations and a margin of safety that takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality."

The WLA provides the margin of safety needed for an effluent limit to be protective, and no further adjustment of the WLA should be necessary. Therefore, the Bureau requests that the WLAs shown in **Table 1** below be incorporated directly into the Tentative Order as AMELs for copper and lead. This approach is acknowledged as a calculation option in the Fact Sheet in the Tentative Order for DCTWRP (p. F-44).

Table 1. Revised Copper and Lead Effluent Limits Set Equal to TMDL WLAs

Parameter (µg/L)	AMEL	MDEL
Copper	26	NA
Lead	10	NA

If the Regional Board chooses to not expressely use the WLAs as effluent limits and calculates effluent limits based on the procedure in Section 1.4.B of the SIP, it should be used for all four metals and be consistent with the assumptions used to derive the WLAs. In the determination of effluent limits, the dry weather TMDL WLAs for copper and lead appear to have been used as the chronic criteria in the SIP calculation and the wet weather TMDL WLAs for copper and lead appear to have been used as the acute criteria (Table 7 on p. F-46 of the DCTWRP indicates that the acute and chronic criteria are both 26 µg/L). However, the assumptions of the WLAs for copper and lead as presented in the Metals TMDL were as follows:

1. The **chronic** criteria were used to develop the dry weather WLAs (Metals TMDL BPA p. 7).
2. The wet weather allocations were also based on the **chronic**, dry weather targets in the TMDL (Metals TMDL BPA p. 7).

Because the copper and lead WLAs are both based on the chronic criteria, it is inappropriate and inconsistent with the assumptions of the WLAs to use the wet weather allocations as the acute criteria in the SIP calculation process.

Additionally, this approach is inconsistent with the process used to calculate the zinc and cadmium effluent limits. For zinc and cadmium, the wet weather allocations were also based on the chronic criteria (BPA p. 7 states that the wet weather allocations for zinc and cadmium are based on the dry weather targets). For zinc and cadmium, the effluent limits presented in the Tentative Order were calculated based on just using a chronic criteria set equal to the WLA and no acute criteria. To be consistent with the assumptions of the WLAs and to make the calculations consistent across all metals, copper and lead effluent limits should be calculated using only chronic criteria set equal to the dry and wet weather WLAs.

If the effluent limit calculation approach described in Section 1.4.B of the SIP is used, the Bureau requests that the TMDL WLAs be evaluated as chronic criteria in the calculation of effluent limitations for copper and lead and the proposed effluent limits in **Table 2** be included in the Order.

Table 2. Revised Copper and Lead Effluent Limits

Parameter (µg/L)	AMEL	MDEL
Copper	24	32
Lead	8.8	14

Attachment 1- Bureau of Sanitation's Detailed Comment Matrix
Donald C. Tillman Water Reclamation Plant

ATTACHMENT 1- DETAILED COMMENT MATRIX ON DCTWRP TENTATIVE ORDER, SEPTEMBER 2011

Detailed Comment #	Document Reference : (Doc. #, Section #, Page #)	Issue	Comments
1	Tentative Order, List of Attachments, Page 4	Correction (extraneous references)	The Bureau requests that the RWQCB remove the following "Not Applicable" Attachments and remove references to the Attachments within documents. Attachment H Storm Water Pollution Prevention Plan Requirements (Not applicable) Attachment I Biosolids and Sludge Management (Not Applicable)
2	Tentative Order, Section II.F, Page 7; Fact Sheet, Attachment F, IV.C.2.B.i, Page F-29	BPJ technology-based limits	The permit states that: "The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR part 133 and Best Professional Judgment (BPJ) in accordance with 40 CFR part 125.3." Best Professional Judgment in 40 CFR 123.5 does not apply to POTWs. Please revise the language (and in the Fact Sheet) as follows: The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR part 133 ~~and Best Professional Judgment in accordance with 40 CFR part 125.3~~."
3	Tentative Order, Section II.H, Table 5a, Footnote 7, Page 9	Missing word	Please add the word conditionally to the sentence; "however, the Regional Water Board has only conditionally designated the MUN beneficial use and at this time cannot legally establish effluent limitations designed to protect the conditional designation…"
4	Tentative Order, Section N, Page 16	Reference correction	The permit refers to Oil and Grease, settleable solids and turbidity as TBEL constituents. These constituents are based on basin plan and not 40 CFR part 133. The Bureau requests to revise the reference to reflect that these are WQBELs.
5	Tentative Order, Section IV.A.1.a Table 6, Page 20	Units/footnote	The mass emissions lbs/day for parameters in units of ug/L refers to Footnote 14 which specifies the calculation for parameters in units of mg/L. Please include a separate footnote for ug/L unit.
6	Tentative Order, Section IV.A.3, Page 23 & Attachment F (Fact Sheet), Section IV.C.2.b.xi.i, Page F-35	Correction to Coliform requirements	The Bureau requests the following change: "No sample shall exceed an MPN of CFU of 240 total coliform bacteria per 100 milliliter. ~~In more than one sample in any 30 day period.~~" The statement is contradictory and not consistent with Title 22 requirements.
7	Tentative Order, Section IV.B.2, Page 24	Reclamation specifications	Please revise the language as follow: The City is currently developing a master plan for the use of recycled water with a goal of recharging ~~planning to recharge~~ up to 30,000 acre feet per year of recycled water, treated with advanced wastewater treatment facilities, into the San Fernando Groundwater Basin ~~via the Hansen Spreading Grounds. The Hansen Spreading Grounds are located in Sun Valley along the northwestern side of Tujunga Wash, and are bordered on the other three sides by San Fernando Road, Branford Street, and Glenoaks Boulevard. No exact date of discharging the recycled water to the San Fernando Valley has been finalized. The recycled water will be produced at the Tillman WRP.~~ The master plan is not yet completed and is considering the use of other spreading facilities and not just the Hansen Spreading Grounds. In addition, the final plan may change based on California Department of Public Health requirements or the outcome of the environmental review process.

ATTACHMENT 1- DETAILED COMMENT MATRIX ON DCTWRP TENTATIVE ORDER, SEPTEMBER 2011

Detailed Comment #	Document Reference : (Doc. #, Section #, Page #)	Issue	Comments
8	Tentative Order, Section VI.C.1.b, Page 31	Re-opener provision	It appears that this provision is related to Section 2.4.5 of the SIP that addresses Pollutant Minimization Programs (PMPs) and the need to collect additional information. In accordance with Section 2.4.5.2b of the SIP "RWQCBs may include special provisions in the permit to require the gathering of evidence to determine whether the constituent of concern is present in the effluent at levels above a calculated effluent limitation." It is not necessary for this permit provision to say that additional requirements may be included as result of the information collected because the other re-opener provisions in the permit are broad enough to allow for any necessary permit modification to take place. Suggested language is as follows: "This Order may be reopened ~~for modification, or revocation and reissuance,~~ based on the results of the Pollutant Minimization Program, pursuant to Permit Section VI.C.3.c, to gather evidence to determine whether a constituent of concern is present in the effluent at levels above a calculated effluent limitation. ~~as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are~~ Evidence may include but is not limited to data such as~~,~~ fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. ~~Additional requirements may be included in this Order as a result of the special condition monitoring the data.~~"
9	Tentative Order, Section VI.C.3.a, Page 34	Reference to SWPPP	The Bureau requests the section titled : "Storm Water Pollution Prevention Plan (SWPPP) – Not Applicable" be removed from the permit since as stated, it is not applicable.
10	Tentative Order, Section VI.C.5.a, Page 37 & Attachment F (Fact Sheet), Section VII.B.5.a, Page F-65	Section not applicable to DCT	Please strike this section because it does not apply to the DCT treatment process. DCT returns the solids generated by the treatment process back to the sewer for transport and treatment at HTP.
11	Tentative Order, Section VII.C. Page 45, Paragraph 3	Unachievable requirement	In many instances, the following requirement is unachievable and should be modified. "If the analytical result of any single sample, monitored monthly, quarterly, semiannually, or annually, exceeds the AMEL for any parameter, the Discharger shall collect up to four additional samples within the same calendar month." The organochlorine pesticide (EPA 608) and base/neutral, and acid extractable (EPA 625) analyses have a turn-around time of approximately one month. Additionally, the allowable holding time between sample collection and extraction is 7 days. So, from the time that the analytical result from one of these tests is known there is no time to collect an additional four samples within the same month. Please consider revising the sentence as follow: "If the analytical result of any single sample, monitored monthly, quarterly, semiannually, or annually, exceeds the AMEL for any parameter, the Discharger may collect up to four additional samples within the same calendar month.

ATTACHMENT 1- DETAILED COMMENT MATRIX ON DCTWRP TENTATIVE ORDER, SEPTEMBER 2011

Detailed Comment #	Document Reference : (Doc. #, Section #, Page #)	Issue	Comments
12	Tentative Order, Section VII.D, Paragraph 2, Page 45	Reporting period clarification, AWEL consistent with HTP	The Bureau requests that the language reflect the following: "A calendar week will begin on Sunday and end on Saturday. Partial calendar weeks at the end of the calendar month will be carried forward to the next month in order to calculate and report a consecutive seven-day average value on Saturday." This would be consistent with other Bureau permits.
13	Tentative Order, Section VII.N.1, Page 48	Definition of geometric mean	The Bureau requests the definition of a geometric mean include: "A minimum of 5 data points is needed to conduct a geometric mean that is statistically valid."
14	Attachment E (MRP), Section I.H, Page E-4	Incorrect Reference	The following text incorrectly references 40 CFR 136 as a source of procedures for establishing Minimum Levels (MLs). Method Detection Limits (MDLs), not MLs are addressed in 40 CFR 136. Please delete the reference.
15	Attachment E (MRP), Section II, Table 1, Page E-6	Effluent Sampling Station	The Bureau requests the effluent sampling station descriptions specify that sampling taken at EFF-001B is for Bacteria, and sampling taken at EFF-001A is the main sampling station for all other constituents.
16	Attachment E (MRP), Section III.A.1, Table 2, Page E-8	Influent monitoring frequency	The Bureau requests that the influent monitoring frequency for the "remaining USEPA priority pollutants excluding asbestos" be reduced from semiannually to annually since historical influent water data has been non-detect (ND).
17	Attachment E (MRP), Section IV.A, Table 3A, Page E-9	Use of footnote 8	Please revise Table 3A so that footnote 8 is associated with the Total residual chlorine grab sample type rather than the Total Residual Chlorine recorder sample type.
18	Attachment E (MRP), Section IV.A.2.a, Page E-12	Grab vs. Composite samples for acute toxicity tests	Attachment E, E-10, IV.A. correctly describes the samples for acute toxicity testing to be grabs, but Attachment E, E-12, V.A.2.a. page 12 describes the samples as 24 hr composites. The reference on page 12 should be changed to "grab" samples.
19	Attachment E (MRP), Section IV.A, Table 3A, Page E-10	Sample type of 1,4-Dioxane	The Bureau requests the sampling type of 1,4-Dioxane be changed from 'grab' to '24-Hour Composite' sample. This is consistent with previous permits.
20	Attachment E (MRP), Section IV.A, Table 3A, Page E-11	Sample type of radioactivity	The Bureau requests the sampling type of radioactivity be changed from 'calculated' to '24-Hours composite' sample. This is consistent with previous permits.
21	Attachment E (MRP), Section IV.B, Footnote 25, Page E-12	Impractical requirement	Footnote 25 requires the use of either CFU/100 mL or MPN/100 mL but not both for analysis of Total Coliform, Fecal Coliform, and *E. Coli* bacteria. Currently, the Bureau of Sanitation uses the Membrane Filtration Method to determine the concentrations of Total Coliform and Fecal Coliform bacteria in CFU/100 mL and the Chromogenic Substrate Method is used to determine *E. Coli* bacteria in MPN/100 mL. The above methods produce data at the end of a 24-hour incubation period. The Bureau would have to switch back to the Multiple Tube Fermentation Method of determining Total and Fecal Coliform Bacteria in order to generate MPN/100 mL data for all three tests. Because the Multiple Tube Fermentation Method can take up to 96-hours to produce test results, it is not as protective of public health and the environment as the Membrane Filtration Method that produces data after 24-hours. Please revise footnote 25 to indicate that either CFU/100mL or MPN/100mL is acceptable.

ATTACHMENT 1- DETAILED COMMENT MATRIX ON DCTWRP TENTATIVE ORDER, SEPTEMBER 2011

Detailed Comment #	**Document Reference :** (Doc. #, Section #, Page #)	Issue	Comments
22	Attachment E (MRP), Section IV.B, Table 3B, Page E-12 & Section VII.A,1, Table 4, Page E-20 & Section VII.A,2, Table 5, Page E-22 & Section VII.A.4, Table 7, Page E-25	Requirements to conduct tests for both Fecal coliforms and E. coli	On July 8, 2010 the Regional Board passed Resolution R10-005 to amend the Basin Plan to update the bacteria objectives for freshwater designated for water contact recreation by removing the fecal coliform objective. This amendment updates the freshwater bacteria objectives in the Basin Plan to maintain consistency with U.S. EPA's recommendation that *E. coli* replace fecal coliform as an indicator of the presence of pathogens in fresh water, and removes unnecessary permitting and monitoring requirements that arise from having water quality objectives for both indicators. The tentative permit contains requirements to test for both fecal coliforms and *E. coli* as part of the receiving water and effluent monitoring programs. To be consistent with the Basin Plan amendment and eliminate unnecessary monitoring, the Bureau recommends that the Regional Board remove the fecal coliform requirement for testing of the effluent and receiving waters.
23	Attachment E (MRP), Section V.E.6.b, Page E-18	Inconsistent accelerated testing requirements	This requirement is not consistent with the requirements as found in Attachment E, V.A.2.d Page E-13 and V.B.3 Page E-15. It should be revised as follows: "If the results of any of the six accelerated tests exceed the acute toxicity limitation, or the chronic toxicity trigger, then the Discharger shall ~~continue to monitor weekly until six consecutive weekly tests are in compliance~~ <u>conduct six additional tests, approximately every two weeks, over a 12-week period</u>."
24	Attachment E (MRP), Section VII.A., Table 4, Page E-20, & Table 5, Page E-22, & Table 7, Page E-25	Missing footnote	Please add a footnote to Units of the bacteria tests to indicate that either CFU/100mL or MPN/100mL are acceptable.
25	Attachment E (MRP), Section VII.A.1,Table 4, Page E-20 and E-21	Receiving water monitoring frequency	The Nitrogen Compounds TMDL only requires weekly monitoring for nitrate, nitrite, and nitrate+nitrite per the starred statement in the Wasteload Allocations section of the Basin Plan Amendment. The note requiring monitoring frequency does not apply to the ammonia allocations. As a result, the Bureau requests that the ammonia, organic nitrogen, and total nitrogen monitoring frequency be change to monthly consistent with the TMDL.
26	Attachment E (MRP), Section VII.A.1,Table 4, Page E-21	Receiving water monitoring frequency	The Bureau requests that the effluent monitoring frequency for the 2 metals (Mercury-Hg and Selenium-Se) be reduced from monthly to quarterly since historical effluent water data has been non-detect (ND) at monitoring location RSW-LATT630.
27	Attachment E (MRP), Section VII.A.1, Table 4, Page E-21 & Section VII.A.2, Table 5, E-23 & Section VII.C, Page E-26	Addition of bioassessment and algal biomass testing	The Los Angeles River Regional Monitoring Program (LARRMP), now called the Los Angeles River Watershed Monitoring Program (LARWMP), was submitted to the Regional Board by the City of Los Angeles and City of Burbank in December 2007 and was approved by the Regional Board on January 12, 2009. To fund this program, some receiving water stations were deleted from the monitoring program, and the remaining stations had their analyzed constituents and frequency changed. One of these approved changes was to remove bioassessment monitoring from receiving water stations RSW-LATT 616,622,628 and 630 and to remove chlorophyll a from the list of monitored constituents. Thus, the requirement in this permit for bioassessment and algal testing at the four receiving stations should be removed. The money saved will be used for bioassessment and algal biomass testing at the 10 annual random sites tested as part of the approved LARWMP program.

Detailed Comment #	Document Reference : (Doc. #, Section #, Page #)	Issue	Comments
28	Attachment E (MRP), Section VII.A.1, Table 4, Page E-22	Receiving water monitoring frequency	The Bureau requests that the receiving water monitoring frequency for the “remaining USEPA priority pollutants excluding asbestos” be reduced from semiannually to annually since historical receiving water data has been non-detect (ND) at monitoring location RSW-LATT630.
29	Attachment E (MRP), Section VII.A.2, Table 5, Page E-22	Monitoring frequency not consistent with LARWMP.	Table 5 has the frequency of testing for mercury, selenium, and cyanide as monthly for monitoring locations 612, 614, 616, 622, and 628. The narrative on page F-59 lists cyanide as being monitored quarterly and does not mention a change in the frequency of testing for mercury and selenium. As per the adoption of LARWMP, these constituents should be monitored quarterly and not monthly. Also the narrative on F-59 states that the frequency of zinc testing should be increased to semiannually while Table 5 still has the frequency as quarterly.
30	Attachment E (MRP), Section VII.A.2,Table 5, Page E-23	Receiving water monitoring frequency	The Bureau requests that the receiving water monitoring frequency for the 2 metals (Mercury-Hg and Selenium-Se) be reduced from monthly to quarterly since historical receiving water data has been non-detect (ND) at monitoring locations RSW-LATT622, RSW-LATT612, RSW-LATT616, RSW-LATT614, RSW-LATT628.
31	Attachment E (MRP), Section VII.A.2,Table 5, Page E-23	Receiving water monitoring frequency	The Bureau requests that the receiving water monitoring frequency for the “remaining USEPA priority pollutants excluding asbestos” be reduced from semiannually to annually since historical receiving water data has been non-detect (ND) at monitoring locations RSW-LATT622, RSW-LATT612, RSW-LATT616, RSW-LATT614, RSW-LATT628.
32	Attachment E (MRP), Section VII.A.3, Table 6, Page E-24	Missing sample type for the pH analysis	The Bureau requests the sample type for pH be specified as ‘Grab’. This is consistent with previous permits.
33	Attachment E (MRP), Section VII.B.1, Table 8, Page E-25 and throughout permit	Sediment monitoring frequency	The Bureau requests that the receiving monitoring frequency for the “remaining USEPA priority pollutants excluding asbestos” be reduced from semiannually to annually since historical sediment data has been non-detect (ND) at monitoring locations RSW-4 and RSW-W2.
34	Attachment E (MRP), Section VII.B.1,Table 8, Page E-25	Sediment monitoring frequency	The Bureau requests that the sediment monitoring frequency for the 2 metals (Mercury-Hg and Selenium-Se) be reduced from monthly to quarterly since historical sediment data has been non-detect (ND) at monitoring locations RSW-4 and RSW-W2.
35	Attachment E (MRP), Section VII.B.1, Table 8, Page E-25	Discrepancy between Table 8 and narrative on page F-59 for frequency of testing	Table 8 increases the frequency of sediment testing for mercury, selenium, and cyanide to monthly, while the narrative on F-59 does not mention any increase in the frequency of sediment testing for mercury and selenium and states that testing for cyanide should be increased to quarterly from semiannually. Also the permit does not require sediment testing at station 622 (D) which has been tested since 1997.

Detailed Comment #	Document Reference : (Doc. #, Section #, Page #)	Issue	Comments
36	Attachment E (MRP), Section VII.D.4, Page E-28	Receiving water sampling	Studies and previous sampling experience have shown that the flow of rainfall runoff after a storm event affects the receiving waters for up to 72 hours after receiving the runoff. If the receiving waters are sampled before 72 hours, runoff could still be affecting the test results. The new permit should keep the old permit guidelines and not allow receiving water sampling within 72 hours of rainfall runoff into the LA River.
37	Attachment E (MRP), Section VIII.A, Table 10, Page E-29	Meprobamate	The Bureau requests that meprobamate be deleted from the list of CECs because it is not listed as an analyte in any ASTM, EPA or USGS analytical method.
38	Attachment E (MRP), Section VIII.B, Page E-32, and throughout permit	Acronym change	The watershed monitoring program submitted to the LARWQCB in Dec 2007 and approved in Jan 2009 was called the Los Angeles River Regional Monitoring Program (LARRMP). It is now called the called the Los Angeles River Watershed Monitoring Program (LARWMP) to avoid confusion with another City program in place with the acronym LARRMP (Los Angeles River Revitalization Master Plan). The Bureau requests to change all references to Los Angeles River Regional Monitoring Program (LARRMP) contained in the permit to Los Angeles River Watershed Monitoring Program (LARWMP).
39	Attachment E (MRP), Section IX.B.3, Table 11, Page E-34	Quarterly Monitoring	The Bureau requests the quarterly monitoring periods to begin February, May, August, and November. This would be consistent with other Bureau permits.
40	Attachment E (MRP), Section IX.B.4, Page E-35	Reporting protocols	The permit contains the following provisions for reporting protocols: “Reporting Protocols. The Discharger shall report with each sample result the applicable reported Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.” This is not consistent with the SIP. We request that this language be replaced with the following: “Reporting Protocols. The Discharger shall report with each sample result the applicable reported Minimum Level (ML), for those constituents where the SIP specifies MLs, and the applicable reported Reporting Limit (RL), for all other constituents as appropriate, and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.”
41	Attachment E (MRP), Section IX.D.1, Page E-36	Redundant information requested	The Bureau requests the following change: “~~The annual report shall contain graphical and tabular summaries of the monitoring analytical data.~~” This information is readily available to LARWQCB staff via CIWQS.
42	Attachment F (Fact Sheet), Section II, Page F-4	Incorrect name for the City’s integrated network of facilities	The Bureau requests the following change: “The Tillman WRP is part of the City’s integrated network of facilities, known as the ~~North Outfall Sewer (NOS)~~ <u>Hyperion Service Area (HSA)</u>, which includes four treatment plants.”
43	Attachment F (Fact Sheet), Section II, Page F-4&5	Incorrect Sewer name	The Bureau requests the following change: “All solids removed from the Tillman WRP treatment process are returned untreated to the ~~NOS~~ <u>Additional Valley Outfall Relief Sewer (AVORS)</u> for downstream treatment at the Hyperion Wastewater Treatment Plant.”

ATTACHMENT 1- DETAILED COMMENT MATRIX ON DCTWRP TENTATIVE ORDER, SEPTEMBER 2011

Detailed Comment #	**Document Reference :** (Doc. #, Section #, Page #)	**Issue**	**Comments**
44	Attachment F (Fact Sheet), Section II.C.1, Table 2, Page F-10	Max Monthly Average vs. Max Daily values.	The Highest Monthly Average Zinc and Cyanide values are greater than the respective Highest Daily Discharge values. Please review these data and revise as appropriate.
45	Attachment F (Fact Sheet), Section III.E.5, Page F-22	Designation of required participants for the City to implement a Watershed Management Approach (WMA)	The Bureau requests the following change: "The accompanying Order fosters the implementation of this approach by protecting beneficial uses in the watershed and requiring the Discharger to participate with ~~the *Los Angeles and San Gabriel River Watershed Council*, and other~~ stakeholders, in ~~the development and~~ implementation of a watershed-wide monitoring program… ~~The *Los Angeles & San Gabriel Rivers Watershed Council* is a nonprofit organization which is tracking activities throughout the Los Angeles and San Gabriel River watersheds. Its goal is to help facilitate a process to preserve, restore, and enhance all aspects of both watersheds~~." The Los Angeles and San Gabriel River Watershed Council has been selected as a contractor to manage the LARWMP. The Bureau believes it is not necessary to name a contractor within the permit.
46	Attachment F (Fact Sheet), Section IV.C.2.b.ii Page F-29	Clarify word use	The Bureau requests the clarification of the word 'basic' in the following paragraph: "The hydrogen ion activity of water (pH) is measured on a logarithmic scale, ranging from 0 to 14. While the pH of "pure" water at 25°C is 7.0, the pH of natural waters is usually slightly basic due to the solubility of carbon dioxide from the atmosphere." If the pH of natural waters is slightly acidic, this statement makes sense because the product of carbon dioxide's interaction with water is carbonic acid. However, if the statement that natural waters pH is as written, natural salts that are alkaline would be a more appropriate basis for this statement.
47	Attachment F (Fact Sheet), Section IV.C.2.b.ix.iii Page F-32	Choice of word	The Bureau finds the term 'restored', to be ambiguous. The following change is requested: "However, if the Los Angeles River ~~is eventually restored and the Los Angeles River~~ becomes de-listed for nutrients, then the permit would be re-opened to include Basin Plan-based effluent limitations."
48	Attachment F (Fact Sheet), Section IV.C.2.c Page F-38	Typo (missing a)	"The procedures include those used to conduct a reasonable potential analysis (RPA) to determine the need for effluent limitations for priority and nonpriority pollutants."
49	Attachment F (Fact Sheet), Section VII.B.2.b, Page F-65	Inconsistent Toxicity Reduction Requirements	"The Discharger shall prepare and submit a copy of the Discharger's initial investigation Toxicity Reduction Evaluation (TRE) workplan to the Executive Officer of the Regional Water Board for approval within ~~60~~ 90 days of the effective date of this permit." This requirement is not consistent with the provisions as found in the Tentative Order in section VI.C.2.b, Page 32. This requested change would be consistent with previous permits.

ATTACHMENT 1- DETAILED COMMENT MATRIX ON DCTWRP TENTATIVE ORDER, SEPTEMBER 2011

Detailed Comment #	Document Reference : (Doc. #, Section #, Page #)	Issue	Comments
50	Attachment P (Pretreatment)	Correction to section and sub-section Numberings	The Bureau requests the following section and sub-section numbering changes: 1. Section Numbering for Semi-Annual Reporting Requirement should be “II” instead of “B”. 2. Sub-Section Numbering for Semi-Annual Reporting Requirement should be “A” and “B” instead of “1” and “2” 3. Section Numbering for Signatory Requirements and Report Submittal should be “III” instead of “C”. 4. Sub-Section Numbering for Signatory Requirements and Report Submittal should be “A” and “B” instead of “1” and “2”
51	Attachment P (Pretreatment), Section I.A, Paragraph 1, Page P-1	Annual Report Sludge monitoring	Sludge processing is not performed at DCT. Therefore, the Bureau requests the following reference to monitoring sludge from the secondary treatment process be deleted as follow: “The Discharger is required to monitor pollutants in the influent and the effluent of the POTW(s)~~”., and in the sludge from the secondary treatment process.~~
52	Attachment P (Pretreatment), Section I.A, Paragraph 4, Page P-2	Extraneous Reference	Please delete reference to the joint water pollution control plant NPDES permit as follow. ~~The Discharger will coordinate its monitoring requirements under this program with the requirements under in the Joint Water Pollution Control Plant NPDES Permit (CA0053813, Order NO. R4-2006-0042).~~
53	Attachment P (Pretreatment), Section I.D.8, Page P-2	Reference Correction	The Bureau request the reference to be corrected from 40 CFR 403.12(f)(2)(vii) to 40 CFR 403.8(f)(2)(viii).
54	Attachment P (Pretreatment), Pages 2-4	Incorrect Footnotes	The Bureau requests the following footnote changes: 1. Footnotes on pages 2, 3, and 4 should be “Attachment P – Pretreatment Reporting Requirements August 4, 2011” 2. Footnotes on pages 2, 3, and 4 should be “P-2” instead of “J-2”; “P-3” instead of “J-3”, and “P-4” instead of “J-4”
55	Attachment P (Pretreatment), Section B, Page P-3	Semi-Annual Reporting Submission due date.	The Bureau requests the submission due date for semi-annual reporting be changed from August 15th to September 1st. This is consistent with other Bureau permits.
56	Attachment E (MRP), Section IX.B.4, Page E-35	Reporting protocols	The permit contains the following provisions for reporting protocols: “Reporting Protocols. The Discharger shall report with each sample result the applicable reported Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.” This is not consistent with the SIP. We request that this language be replaced with the following: “Reporting Protocols. The Discharger shall report with each sample result the applicable reported Minimum Level (ML), for those constituents where the SIP specifies MLs, and the applicable reported Reporting Limit (RL), for all other constituents as appropriate, and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.”

Attachment 2- Revisions to Monitoring and Reporting Programs -
Letter Dated January 12, 2009

California Regional Water Quality Control Board
Los Angeles Region
Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

Linda S. Adams
Agency Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

Arnold Schwarzenegger
Governor

Attachment 2- Revisions to Monitoring and Reporting Programs- Letter Dated January 12, 2009

January 12, 2009

Mr. Enrique C. Zaldivar
Director, Bureau of Sanitation
1149 South Broadway Street, 9th Floor
Los Angeles, CA 90015

LOS ANGELES RIVER REGIONAL MONITORING PROGRAM IMPLEMENTATION - REVISIONS TO MONITORING AND REPORTING PROGRAMS FOR:
LOS ANGELES-GLENDALE WRP (NPDES NO. CA0053953, MRP NO. 5675)
DONALD C. TILLMAN WRP (NPDES NO. CA0056227, MRP NO. 5695)

Dear Mr. Zaldivar:

We have reviewed your letter of December 18, 2008, requesting approval of the proposed revisions to the Monitoring and Reporting Programs for the two water reclamation plants identified above. These revisions will facilitate a resource exchange to provide funding for implementation of the Los Angeles River Regional Monitoring Program (LARRMP). The LARRMP represents a comprehensive watershed-wide plan developed by your agency in cooperation with Regional Board and USEPA staff and several other local stakeholders. This program will improve coordination and efficiency of receiving water monitoring for existing dischargers by streamlining monitoring efforts and reducing redundancies throughout the watershed and will provide more useful water quality data on both watershed and site-specific scales.

The permanent modifications to the two Monitoring and Reporting Programs (MRP) are outlined below:

Los-Angeles Glendale WRP

Existing Stations	Retain	Drop	Move	Change frequency/parameters
R4	X			Drop bioassessment
R5		X		
R7	X			Biannually/quarterly instead of monthly for monitoring program constituents

Donald C. Tillman WRP

Existing Stations	Retain	Drop	Move	Change frequency/parameters
D	X		100 yards downstream	Biannually/quarterly instead of monthly for monitoring program constituents
F		X		
H		X		
I	X			Drop bioassessment
J	X			Biannually/quarterly instead of monthly for monitoring program constituents
K	X			Drop bioasessment
1		X		
4	X			
5		X		
7		X		
WD/R2		X		
WC		X		
WE	X			
W1		X		
W2	X			
W3		X		
R7				Biannually instead of monthly for monitoring program constituents
R8			Relocate	Monitor suite of constituents for watershed stations
R9			Relocate	Monitor suite of constituents for watershed stations

The LARRMP technical workgroup reviewed historical discharger monitoring data and determined that biannual/quarterly data would provide nearly the same trend monitoring information as monthly data at a substantially lower cost, that several receiving water stations were redundant and did not provide any additional useful information to warrant continued monitoring at those locations, and that water column chlorophyll a measurements provide no useful information with respect to tracking benthic algal growth and should be dropped (however, as nutrient TMDLs are developed in our region, Regional Board staff may choose to add some form of chlorophyll measurement to compliance or other types of monitoring programs). To promote consistency with the State's Surface Water Ambient Monitoring Program (SWAMP) and other bioassessment monitoring programs, it is desirable to shift the sampling period from the fall to the spring/summer timeframe and to employ uniform sampling protocols.

The projected savings as a result of the proposed revisions to the two Monitoring and Reporting Programs amounts to $358,806 per year. The City of Los Angeles proposes to provide this amount to the Los Angeles and San Gabriel Rivers Watershed Council (LASGRWC) on an annual basis to cover the costs of the regional monitoring elements identified in the LARRMP. These include 1) water column toxicity and water chemistry (metals, conventional pollutants, nutrients) monitoring at 10 random sites within the watershed; 2) water chemistry (metals, conventional pollutants, nutrients) and water column toxicity at several confluence sites within the watershed; 3) sediment chemistry (metals, pesticides, conventional pollutants), sediment toxicity, benthic infaunal community, bacteriological and water chemistry (conventional pollutants) monitoring at estuary sites at the base of the watershed; 4) bacteriological monitoring at 6-10 freshwater high-use recreational sites and 9 sentinel sites (including 1 estuary site); and 5) fish tissue chemistry monitoring (mercury, DDT, PCBs) at 6 high-use fishing sites.

This letter will serve to approve the revisions described above. The proposed changes are effective January 2009. The City of Los Angeles will continue to conduct routine compliance monitoring as required by the modified Monitoring and Reporting Programs for the two facilities cited above and will report the monitoring results to the Regional Board as required. LASGRWC will be responsible for administering the LARRMP. The City of Los Angeles proposes to conduct in-kind services with an estimated annual value of $115,939, as outlined in the December 18, 2008, letter, to support the LARRMP. The City of Los Angeles also proposes to provide an additional $242,867 to the LASGRWC on an annual basis to further support the LARRMP, which may be used for contracting as needed with outside entities to perform field sampling, laboratory analyses, data management and analysis and report writing. LASGRWC will be responsible for reporting the LARRMP monitoring results to the Regional Board annually. The annual Scope of Work for the LARRMP will be developed in collaboration with the Regional Board, USEPA, City of Los Angeles and the LARRMP technical workgroup. This plan must be submitted to the Executive Officer of the Los Angeles Regional Water Quality Control Board for review and approval each year prior to implementation.

We appreciate the time and effort that City of Los Angeles staff has dedicated to participating in the development of the regional monitoring program for the Los Angeles River Watershed. We believe that this new program will provide a better assessment of water quality conditions throughout the region and allow us to make better management decisions to protect and improve our resources and beneficial uses.

If you have any questions, please contact Michael Lyons at (213) 576-6718, as he is the staff person most familiar with these issues.

Sincerely,

Tracy J. Egoscue
Executive Officer

Cc: Terry Fleming, U.S. Environmental Protection Agency, Region IX
Gerald E. McGowen, Environmental Monitoring Division, City of Los Angeles
Traci Minamide, City of Los Angeles
Mas Dojiri, City of Los Angeles
Kay Yamamoto, City of Los Angeles
Ken Franklin, City of Los Angeles
Rodney Anderson, City of Burbank
Fred Gonzalez, Los Angeles County Department of Public Works
Edward Belden, Los Angeles/San Gabriel Rivers Watershed Council

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VARROUJ S. ABKIAN
ADEL H. HAGEKHALIL
ALEXANDER E. HELOU
ASSISTANT DIRECTORS
1149 SOUTH BROADWAY, 9TH FLOOR
LOS ANGELES, CA 90015
TEL: (213) 485-2210
FAX: (213) 485-2979

November 4, 2011

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West Fourth Street
Los Angeles, CA 90013

Attention: Brandy Outwin-Beals, Unit Chief
Municipal Permitting Unit (NPDES)

Dear Mr. Unger:

COMMENTS ON REVISED TENTATIVE ORDER - CITY OF LOS ANGELES DONALD C. TILLMAN AND LOS ANGELES-GLENDALE WATER RECLAMATION PLANTS – NPDES PERMIT NO. CA0056227, AND CA0053953 RESPECTIVELY

On October 6, 2011, the California Water Quality Control Board- Los Angeles Region (Regional Board) released the revised Donald C. Tillman Water Reclamation Plant (DCTWRP) and the Los Angeles-Glendale Water Reclamation Plant (LAGWRP) Tentative Orders (NPDES No. CA0056227 and CA0053953, respectively), Fact Sheet, and Monitoring and Reporting Programs (MRP). The City of Los Angeles, Bureau of Sanitation (Bureau), appreciates the opportunity to provide the following comments and recommendations to the Regional Board. Bureau staff will be present to provide oral comments at the Regional Board public hearing on December 8, 2011. While the Bureau appreciates the Regional Board's staff for its efforts in developing the Revised Tentative Permit, there are several areas with which the Bureau has concerns.

Summary of Main Issues with DCTWRP and LAGWRP Revised Tentative NPDES Permits

The following is a brief summary of the Bureau's major issues with the DCTWRP and LAGWRP Revised Tentative Permits. These are detailed in Attachment A:

- Ammonia Effluent Limits
- Toxicity Reporting Requirements

This letter incorporates by reference Attachment A which provides detailed comments on these issues. The requests made in this letter are based on good science and support the protection of the environment that we all value so greatly. These recommendations will allow the Bureau to continue to operate its facilities efficiently and effectively, while continuing to be protective of the Los Angeles River and its environment. The Bureau hopes these recommendations will result in constructive changes to the DCTWRP and LAGWRP Revised Tentative NPDES Orders.

If you have any questions regarding the Bureau's comments, please contact Mr. H.R. (Omar) Moghaddam of the Regulatory Affairs Division at (310) 648-5493, or Mr. Hassan Rad at (310) 648-5240.

Sincerely,

Traci Minamide, for

ENRIQUE C. ZALDIVAR, Director
Bureau of Sanitation

ECR:HR

Attachments:
Attachment A – Detailed Discussion of Major Issues
Attachment 1 – Bureau's November 9, 2010 Delisting Letter

cc: Debbie J. Smith, Regional Water Quality Control Board, Los Angeles Region
David Hung, Regional Water Quality Control Board, Los Angeles Region
Don Tsai, Regional Water Quality Control Board, Los Angeles Region
Raul Medina, Regional Water Quality Control Board, Los Angeles Region
Andrea A. Alarcon, Board of Public Works
Rafael Prieto, Chief Legislative Analyst Office
Traci Minamide, Bureau of Sanitation/EXEC
Varouj Abkian, Bureau of Sanitation/EXEC
Omar Moghaddam, Bureau of Sanitation/RAD
Masahiro Dojiri, Bureau of Sanitation/EMD
Hiddo Netto, Bureau of Sanitation/DCT-LAG

ATTACHMENT A

Bureau of Sanitation's Detailed Discussion of Issues Regarding the October 6, 2011 Tentative Donald C. Tillman Water Reclamation Plant and Los Angeles-Glendale Water Reclamation Plant NPDES Permits, Fact Sheets, Monitoring and Reporting Programs, and Other Attachments

On October 6, 2011, the California Water Quality Control Board Los Angeles Region (Regional Board) released the revised Donald C. Tillman Water Reclamation Plant (DCTWRP) and Los Angeles-Glendale Water Reclamation Plant (LAGWRP) Tentative Orders (NPDES No. CA0056227 and CA0053953, respectively), Fact Sheets, and Monitoring and Reporting Programs (MR&P) that incorporated changes due to comments received from the City of Los Angeles Bureau of Sanitation (Bureau), Heal the Bay, and USEPA. The Bureau appreciates the Regional Board staff's efforts to address the comments provided on the Tentative Orders. However, issues related to ammonia effluent limits not incorporating the Basin Plan ammonia objectives and the change to the Toxicity Reporting Requirements are of significant concern to the Bureau. As such, the Bureau staffs appreciate that these technical comments will result in constructive changes to the permits.

1 – Ammonia Effluent Limits

The ammonia effluent limits for DCTWRP and LAGWRP in the Revised Tentative Orders are set equal to the wasteload allocations (WLAs) in the Los Angeles River Nitrogen Compounds TMDL. The Nitrogen Compounds TMDL became effective in March 2004. During TMDL development, the City of Los Angeles in cooperation with the City of Burbank and the Los Angeles County Sanitation District were in the process of developing a site-specific objective (SSO) for ammonia, incurring considerable expense. The TMDL acknowledges the SSO development, but did not incorporate the SSO because at the time the TMDL was adopted, the SSO was not effective. In March 2009, the ammonia SSO became effective for the Los Angeles River.

From the time the SSO became the effective Basin Plan ammonia water quality objectives for the Los Angeles River, the Bureau staff has been encouraging Regional Board staff to modify the TMDL targets and allocations to reflect the revised ammonia objectives. Additionally, the Bureau has provided information demonstrating that, using the new Basin Plan objectives, the Los Angeles River is no longer impaired for ammonia and could be delisted (see the attached letter dated November 9, 2010) from City of Los Angeles to the Regional Board. To date, the TMDL revision and/or delisting decision have not been reached. As a result, the ammonia effluent limits in the DCTWRP and LAGWRP Tentative Orders are currently set equal to the TMDL WLAs without an adjustment for the effective Basin Plan ammonia objectives.

The Bureau is concerned that the currently effective Basin Plan ammonia objectives are not the basis for the effluent limits in the Tentative Orders. The proposed effluent limits in the Tentative Orders present a compliance risk for the Bureau and this risk is a result of an administrative timing issue (i.e., the TMDL was not revised prior to the development of the Tentative Orders and therefore the revised WLAs could not be incorporated) rather than a water quality issue. The Regional Board staff has indicated they will be revising the Los Angeles River Nitrogen Compounds TMDL to incorporate the new Basin Plan ammonia objectives in early to mid-2012. However, even if the TMDL is revised by the Regional Board as planned, it will take approximately a year to become effective and at least several months to revise the permits. Until such time as the effluent limitations are revised, the Bureau will potentially be subject to enforcement liability even though the discharges are meeting limits consistent with current Basin Plan objectives and the receiving water is meeting water quality objectives.

To resolve this administrative issue, the Bureau requested in its September 6, 2011 comment letter that the Tentative Orders be modified to include effluent limitations based on the SSO-adjusted WLAs to be consistent with the Basin Plan objectives. We believe the inclusion of effluent limits based on the SSO-adjusted WLAs is consistent with the intent of the Clean Water Act and the requirements for incorporation of WLAs into NPDES permits. As stated in 40 CFR 122.44(d)(1)(vii)(B):

> "Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, ***are consistent with the assumptions and requirements of any available wasteload allocation*** for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7." (emphasis added)

However, revisions were not made to the Tentative Orders. The Bureau understands that Regional Board staff does not believe the effluent limits could be changed in the absence of addressing the TMDL. If this is the case, the Bureau believes that at least two options are available: delisting as supported by the attached November 9, 2010 letter or revising the TMDL. As such, the Bureau requests that Regional Board staff 1) identify the most appropriate and expeditious approach to address this administrative issue, and 2) identify the earliest possible date that the revisions can be completed and brought before the Regional Board for consideration.

2 – Toxicity Reporting Requirements

On page E-10 of the DCTWRP and page E-9 of the LAGWRP Revised MR&Ps, a provision was added to Table 3A to require reporting of compliance with the chronic toxicity narrative effluent limit. The Bureau understands that this provision was added in response to comments from USEPA. While the Bureau acknowledges the desire to have clear information on compliance with effluent limitations, the approach that is proposed with respect to toxicity is neither appropriate nor accurate.

First, it is unclear why this reporting requirement has been deemed to be necessary for the Bureau's water reclamation plants. WQO 2003-0012, which is cited in USEPA's letter as the basis for this request has been in place for eight years, and these types of reporting requirements have not been required for any other dischargers within the Los Angeles region or the State.[1] We are aware of no justification to require the Bureau to be the first and only agency in the State providing this type of information for compliance purposes. Without a clear understanding of the intent and purpose of the reporting and the language, the Bureau is concerned that confusion regarding the intent of the reporting could occur.

Moreover, the State Water Resources Control Board has embarked upon a process to develop a statewide policy for toxicity that includes adoption of a statewide objective and implementation program, including monitoring and reporting requirements. The State Water Board has conducted multiple workshops and released an initial draft for public comment. Upon adoption, which is anticipated in early 2012, the policy will be binding on the Regional Water Boards. The existence of this statewide effort—which is motivated in large part by a desire to bring consistency to the approach to toxicity testing and related permit requirements—is a compelling reason not to depart from the Regional Board's established approach to toxicity on a permit-specific basis.

The Bureau requests that the reporting requirements for the LAGWRP and DCTWRP be consistent with the reporting requirements for other dischargers in the region and State and that the Regional Board remove the added language.

[1] The citation in the letter is to WQO *2002*-0012 but this appears to be a typographical error.

Attachment 1

HAND DELIVERED

CITY OF LOS ANGELES

CALIFORNIA

ANTONIO R. VILLARAIGOSA
MAYOR

DEPARTMENT OF
PUBLIC WORKS
BUREAU OF SANITATION
ENRIQUE C. ZALDIVAR
DIRECTOR
TRACI J. MINAMIDE
CHIEF OPERATING OFFICER
VAROUJ S. ABKIAN
ADEL H. HAGEKHALIL
ALEXANDER E. HELOU
ASSISTANT DIRECTORS
1149 SOUTH BROADWAY, 9TH FLOOR
LOS ANGELES, CA 90015
TEL: (213) 485-2210
FAX: (213) 485-2979

November 9, 2010

Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street
Los Angeles, CA 90013

Attention: Renee Purdy, Section Chief
Regional Programs

Dear Mr. Unger:

Information to Support Reassessment and Delisting of Ammonia in Los Angeles River Reach 3 and Reach 4

The City of Los Angeles, Bureau of Sanitation (Bureau), appreciates the opportunity to provide information to support the reassessment and delisting of ammonia in the Los Angeles River (LA River), Reach 3 and Reach 4. Reaches 3 and 4 are currently being addressed by a USEPA approved TMDL (Los Angeles River Nitrogen Compounds and Related Effects TMDL), as identified on the 2008 Los Angeles Regional Water Quality Control Board (RWQCB) approved 303(d) list. To meet the wasteload allocations (WLAs) and targets in the TMDL, the Bureau constructed nitrification-denitrification (NDN) facilities at the Los Angeles-Glendale (LAG) and Donald C. Tillman (DCT) Water Reclamation Plants (WRPs). The Bureau also completed with its partners, the City of Burbank and the Los Angeles County Sanitation Districts, the Ammonia Site Specific Objective (SSO) study that was the basis for the adoption of Resolution No. 2007-005 and resulted in a Basin Plan Amendment approved by U.S. EPA on March 30, 2009.

Given the facts that ammonia SSOs are now effective and the NDN facilities have been constructed at LAG and DCT that discharge into the LA River, the Bureau has examined receiving water data to determine if Reaches 3 and 4 could be delisted from the 303(d) list and to address potential discrepancies between current objectives and the now outdated TMDL targets and WLAs. Data collected in receiving waters since the start of the NDN operations at LAG and DCT were reviewed to determine if the site-specific ammonia objectives were being exceeded in Reaches 3 and 4 of the LA River.

Based on the data, the Bureau requests that ammonia be delisted for Reaches 3 and 4 of the LA River earlier than 2012, the next date for the 303d Listing cycle. Although these data have been submitted to the State Board for consideration under the 2012 listing process, the Bureau is requesting this timeline because the NPDES permits for its two WRPs will be considered for renewal by the RWQCB in 2011. Delisting Reaches 3 and 4 for ammonia before the permits are renewed will ensure that the appropriate ammonia effluent limits can be used in the NPDES permits. If the reaches are not delisted before the permits are renewed, the TMDL ammonia effluent limits which were based on outdated WLAs will apply and will impact the two WRPs' ability to comply with the effluent limits.

Attached please find data analysis and a summary of the data reviewed. Thank you for your consideration of these comments. We look forward to working with you to resolve this issue prior to the adoption of the permits in 2011 and would appreciate an opportunity to meet with at your earliest convenience. If you have any questions, please feel free to contact Hassan Rad at (310) 648-5240, or H.R. (Omar) Moghaddam of my staff at (310) 648-5423.

Sincerely,

Traci J. Minamide, for

ENRIQUE C. ZALDIVAR, Director
Bureau of Sanitation

ECZ:HR
w/Attachments:

1. Data Analysis
2. Reach 3-ELS Abs
   Reach 3-ELS Pres
   Cal for Delisting
3. BOS/EMD, Quality Assurance Manual

c: Renee Purdy, RWQCB-LA Region
Traci Minamide, BOS/EXEC
Varouj Abkian, BOS/EXEC
Adel Hagekhalil, BOS/EXEC
Timeyin Dafeta, BOS/IWMD
Hiddo Netto, BOS/ DCT_LAG
Shahram Kharaghani, BOS/WPD
Mas Dojiri, BOS/EMD
H.R. (Omar) Moghaddam, BOS/RAD
Hassan Rad, BOS/RAD

Heal the Bay

1444 9th Street
Santa Monica CA 90401

ph 310 451 1500
fax 310 496 1902

info@healthebay.org
www.healthebay.org

September 6, 2011

Mr. Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

Re: Comments on the Tentative Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System Permit (NPDES) – City of Los Angeles, Donald C. Tillman Water Reclamation Plant (NPDES No. CA0056227, CI No. 5695) and the Tentative WDRs and NPDES Los Angeles-Glendale Water Reclamation Plant (NPDES No. CA0053953, CI No. 5675)

Dear Mr. Unger:

On behalf of Heal the Bay, we submit the following comments on the *Tentative WDRs and NPDES Permit for the Donald C. Tillman Water Reclamation Plant and Tentative WDRs* and *NPDES Permit for the Los Angeles Glendale Water Reclamation Plant ("Permits" or "Revised Permits")*. As the Permits are very similar, we have combined our comments. We appreciate the opportunity to provide these comments.

We support many aspects of the Revised Permits. For instance, we support the inclusion of a reopener provision to revise the chronic toxicity effluent limitation to be consistent with pending State Water Board policy. This provision is critical considering the State Board is in the process of adopting the Policy for Toxicity Assessment and Control. In the Revised Tillman Permit, we are supportive of the increased monitoring frequencies for numerous constituents. We also support the inclusion of the proposed special studies for the plants – *Constituents of Emerging Concern in Effluent*. This is consistent with the special studies for the Hyperion Treatment Plant NPDES Permit adopted by the Los Angeles Regional Water Quality Control Board ("Regional Board") November 2010 and the JWPCP Permit adopted September 1, 2011. This study is important for gathering data that can be used for public assurance purposes in future efforts to expand water reuse for these plants.

However, the Revised Permits have several issues that should be resolved. For instance, in order to be consistent with the State Water Board's Recycled Water Policy and in accordance with the Reasonable Use Doctrine set forth in the State Constitution and California Statutes, the Regional Board should use the NPDES permit process to push the City to reuse significantly more effluent flow from Tillman and Glendale WRPs. Also, we are concerned that a number of effluent limits were dropped in the Revised Permits. In addition, we urge the Regional Board to include year round water quality-based effluent limitations ("WQBELs") for all metals in the Los Angeles River included on the California Clean Water Act Section 303(d) List of Water Quality Limited Segments ("303(d) List") instead of limiting the application of these limits to wet weather. These comments and others are detailed below.

Heal the Bay
1444 9th Street
Santa Monica CA 90401
ph 310 451 1500
fax 310 496 1902
info@healthebay.org
www.healthebay.org

Glendale and Tillman Water Recycling Plants should maximize water recycling in accordance with the Reasonable and Beneficial Use Doctrine and the State Recycled Water Policy.

While we recognize the efforts of City of Los Angeles to recycle water from the Glendale and Tillman plants, there is much more that can and should be done. According to the City of Los Angeles from 2010-2011 81% of the effluent from Donald C. Tillman Treatment Plant was recycled.[1] While this percentage sounds high, only 11% is recycled in a manner that offsets potable water use. The rest is only "reused" once for ornamental purposes as it passes through the Japanese Gardens and Balboa Wildlife lakes before it is discharged directly into the Los Angeles River. Discharging this water to the river is unreasonable after this use because this water is still clean, valuable, and has the potential to be recycled. Only 26% of the effluent from Los Angeles Glendale Water Treatment Plant was reused from 2010 to 2011[2], leaving potential for significant increases in water recycling.

The State Water Board's Recycled Water Policy calls for an increase in the use of recycled water over 2002 levels by one million acre-feet by 2020 and by two million acre-feet by 2030. Other water providers in Southern California, such as West Basin Municipal Water District, Los Angeles County Sanitation Districts, Las Virgenes Municipal Water District, and Orange County Water District are surpassing the City in the efforts to meet this goal. For example, Orange County Water District has created the Groundwater Replenishment System – the world's largest wastewater purification system for indirect potable reuse. This system treats and reuses 70 million gallons per day (MGD) of treated wastewater for a saltwater intrusion barrier and to replenish groundwater basins. In contrast, the City has backpedalled on a goal of increasing the recycled water by 50,000 acre-feet per year by 2019, as stated in the 2008 report *Securing L.A.'s Water Supply* by Mayor Antonio Villaraigosa and the City of Los Angeles Department of Water and Power. The new goal extends this date to 2029. This is unacceptable. Through the NPDES permitting process, the Regional Board should invoke and apply the Reasonable and Beneficial Use Doctrine to move the dischargers towards the recycling of *all* water not needed for Los Angeles River beneficial uses from the Tillman and Glendale WRPs. Collectively, the State Constitution, California Statutes, case law, and administrative decisions give the water boards ample authority to broadly implement the Reasonable Use Doctrine to promote more efficient water use. As discussed in the Delta Watermaster's recent report to the State Water Board, "…[the] failure to employ appropriate water conservation measures or make use of recycled water when available, are at the heart of the Reasonable Use Doctrine…"

Article 10 Water Section 2 of the State Constitution states:

> "It is hereby declared that because of the conditions prevailing in the State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that **the waste or unreasonable use or**

[1] Number acquired from Draft Recycled Water Table 2010-2011 through email communication with City of Los Angeles Staff dated 8-25-2011.
[2] Ibid.

Heal the Bay

1444 9th Street
Santa Monica CA 90401

ph 310 451 1500
fax 310 496 1902

info@healthebay.org
www.healthebay.org

> **unreasonable method of use of water be prevented,** and the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare. The right to water or to the use of flow of water in or from any natural stream or water course in this state is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and **such right does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water.**" (emphasis added).

Water Code Section 275 states:

> "The Department and board shall take all appropriate proceedings or actions before executive, legislative, or judicial agencies to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water in this state."

Because the Doctrine is established in the California Constitution and multiple Sections of the California Water Code, the Regional Board has ample authority to employ this doctrine to require more efficient water use through water recycling.

The City of Los Angeles generates an average of 400 MGD of wastewater, yet less than 20%[3] of this is recycled currently. Obviously, there is huge opportunity to expand water recycling in Los Angeles. There are numerous examples where tertiary treated water should replace precious potable water that is being used unreasonably and inefficiently. Outdoor irrigation constitutes over half of Southern California's water usage, most of which is currently done with potable water. The average household uses four feet of water per year to water lawns in a climate that produces merely 1.2 ft of precipitation per year, on average. Also, potable water is literally flushed down the toilet. Water from Tillman and Glendale WRPs that is not recycled is discharged and ultimately flows to the Pacific Ocean, where it can no longer be beneficially used. In Southern California, an area that constantly faces water shortages and rising water rates, wasting any tertiary treated freshwater into the ocean is an unreasonable and inefficient use of water.

Compounding this concern is the fact that agencies are exploring the use of expensive, energy intensive and resource impactful ocean desalination while precious treated water is constantly wasted to the ocean. Due to higher levels of salinity, it takes multiple times the amount of energy to treat ocean water to advanced levels as it does to treat tertiary effluent via reverse osmosis. These proposed desalination processes are often co-located with once-through cooling power plants that would otherwise be decommissioned or forced to repower to dry or recycled cooling. These plants have been shown to impact marine life through entrainment and impingement. While we appreciate that the City of Los Angeles is not pursuing this practice, we believe the

[3]Ibid. This number includes water that passes through lakes for ornamental purposes and then is discharged to the Los Angeles River.

Heal the Bay
1444 9th Street
Santa Monica CA 90401
ph 310 451 1500
fax 310 496 1902
info@healthebay.org
www.healthebay.org

city should more aggressively pursue water recycling to set an example showing a better alternative for other areas that are looking into desalination.

To avoid this waste of water and energy resources, the Permit should require the development of a workplan to determine the minimum flow needed to protect and sustain the Los Angeles River's beneficial uses, then maximize recycling of the effluent from Tillman and Glendale WRPs by a specified date. Any discharge to the Los Angeles River over and above the minimum flow needed to protect beneficial uses is an unreasonable use. Such a goal would be consistent with the Reasonable and Beneficial Use Doctrine, the cornerstone of California's water rights laws, and the State Board's Recycled Water Policy.

The WQBEL for metals from the Los Angeles River Metals TMDL should apply in both wet and dry weather.

The Tillman and Glendale Revised Permits include numeric effluent limits for cadmium and zinc based on the assigned wasteload allocations only during wet weather. This approach is inappropriate as the 303(d) list does not distinguish between impairments occurring in dry weather and wet weather. Plainly, the effluent limits for cadmium and zinc set in the Revised Permits should apply in both wet and dry weather, as the WRPs' discharges occur regardless of weather and flow conditions in their respective reaches and could contribute to impairments throughout the year. If monitoring efforts show that the permittee already meets the numeric targets and allocations under certain flow regimes, they will be in compliance with the Permits. Thus we urge the Regional Board to address this general deficiency by including a year-round effluent limit for cadmium and zinc in the Revised Permits.

The Regional Board should <u>not</u> remove WQBELs for constituents in the Permits based on results of the calculated reasonable potential analyses ("RPA").

While we support the inclusion of WQBELs for diazinon and cyanide, we are concerned that WQBELs for other pollutants have been removed from the Permits. The Regional Board utilized the calculated RPA approach to determine which constituents should have effluent limitations included in the Permit. As we have commented many times in the past, this approach is bad public policy for several reasons. The RPA approach never strengthens a permit. In fact, the RPA approach typically greatly reduces the number of WQBELs and the monitoring frequency of constituents in an NPDES permit. In this case, effluent limitations for tetrachloroethylene, bis(2-ethylhexyl)phthalate, and gamma-BHC have been dropped in the Revised Tillman Permit from the current permit. Effluent limitations for cyanide, tetrachloroethylene, benzo(a)anthracene, chrysene, and N-Nitrosodi-n-Propylamine are removed from the Revised Glendale Permit for constituents that no longer have "reasonable potential" as determined by the RPA approach. This is cause for major concern. While we understand the need for adapting permits to account for changes that occur between permit cycles, we also see that the current practice of the RPA approach favors dropping constituents and weakening the monitoring programs from the current permits, creating progressively less protective permits with every permitting cycle.

Heal the Bay

1444 9th Street
Santa Monica CA 90401

ph 310 451 1500
fax 310 496 1902

info@healthebay.org
www.healthebay.org

Even if the Permittee does not have a problem meeting the remaining effluent limits, the Regional Board should include these limits in the Permit as a safety net to ensure that objectives are met in the future. This is particularly important because the Permits lack a hard toxicity limit, which would have provided a safety net capturing potential impacts from the synergistic effects of low concentrations of multiple contaminants and impacts of contaminants that are not given limitations in this permit. The RPA approach should not grant dischargers "free exceedances" of the priority pollutants and other constituents without a risk of enforcement. Further, including additional WQBELs in the Revised Permits would provide no additional burden to the Permittee, as they would only need to maintain current wastewater performance.

To summarize, we have several issues with the Revised Permits as currently written. The Regional Board should require the permittees to work toward a goal of 100% beneficial and reasonable reuse of treated effluent from Tillman and Glendale WRPs in accordance with the Reasonable Use Doctrine. Also, the Regional Board should use Best Professional Judgment to restore dropped effluent limitations and decreased monitoring within the Permits. The Permits should be strengthened as outlined above.

If you have any questions or would like to discuss any of these comments, please feel free to contact us at (310) 451-1500. Thank you for your consideration of these comments.

Sincerely,

Kirsten James, MESM
Water Quality Director
Heal the Bay

W. Susie Santilena, MS, EIT
Environmental Engineer
Heal the Bay

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

SEP 06 2011

Reply to:
WTR-5

Ms. Brandi Outwin-Beals
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Re.: Los Angeles-Glendale Water Reclamation Plant (Order No. R4-2011-XXXX, NPDES No. CA0053953) and Donald C. Tillman Water Reclamation Plant (Order No. R4-2011-XXXX, NPDES No. CA0056227)

Dear Ms. Outwin-Beals:

We have reviewed the subject draft NPDES permits for Los Angeles-Glendale Water Reclamation Plant and Donald C. Tillman Water Reclamation Plant. We appreciate the considerable effort by Regional Water Board staff in developing the draft permits and supporting documentation. We commend the Regional Water Board's ongoing effort to reissue permits with up-to-date requirements in a timely manner. Our comments on the draft permits are limited to chronic toxicity reporting and TMDL implementation, as detailed below.

Chronic Toxicity Reporting

We request clarifying revisions to compliance reporting requirements for the proposed narrative chronic toxicity effluent limit implementing WQO 2002-0012. WQO 2002-0012 requires the enforceable narrative effluent limit to be the following: "There shall be no chronic toxicity in the effluent discharge." While the existing and draft permits require the discharger to report chronic toxicity monitoring results (in chronic toxic units, TUc), they do not require compliance reporting for the narrative chronic toxicity effluent limit.

To correct this omission and provide for our mutual compliance tracking of the narrative chronic toxicity effluent limit required by WQO 2002-0012, the permits should be revised to require a report of "pass" or "fail", on submitted Discharge Monitoring Reports/State Monitoring Reports, when accelerated testing is triggered by monitoring results greater than the numeric accelerated monitoring trigger specified in the permit (i.e., monthly median of 1 TUc = 100/NOEC). This reporting requirement is important to ensure the State and EPA receive evidence when chronic toxicity is present in the discharge at levels higher than the allowable narrative limit of no chronic toxicity in discharged 100 percent effluent.

This reporting requirement can be easily incorporated into each permit by adding the following underlined text to Monitoring and Reporting Table 3, for effluent monitoring:

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Chronic toxicity	TUc	24-hr composite	monthly	5
Chronic toxicity (narrative effluent limit reporting)[Footnote x]	Pass/Fail	24-hr composite	monthly	5

[Footnote x] For narrative chronic toxicity effluent limit reporting, "Pass" is reported when chronic toxicity effluent results do not trigger accelerated testing by exceeding the monthly median trigger of 1.0 TUc = 100/NOEC. "Fail" is reported when chronic toxicity effluent results trigger accelerated testing by exceeding the monthly median trigger of 1.0 TUc = 100/NOEC.

TMDL Implementation

We have reviewed TMDL implementation requirements in the draft permits and support the application of statistical procedures in section 1.4 of the State Implementation Policy (SIP) for TMDL wasteload allocation-to-WQBEL calculations, rather than direct implementation of wasteload allocations as WQBELs. Use of the SIP's statistical procedures ensures that calculated toxics WQBELs for discharges to impaired receiving waters with TMDL wasteload allocations based on CTR criteria are as stringent as the toxics WQBELs calculated for discharges to unimpaired receiving waters.

In 2009, EPA approved a site-specific objective (SSO) for ammonia that could result in less stringent permit limits than those based on current wasteload allocations in the Nitrogen TMDL. As a result, prior to permit implementation, the SSO must be incorporated into the Nitrogen TMDL to ensure that impaired receiving waters will achieve water quality standards for ammonia.

Our endorsement of the final permits is contingent upon inclusion of the requested chronic toxicity reporting revision in the final permits. If you have questions regarding our comments, please contact Robyn Stuber, of my staff, at (415) 972-3524 or stuber.robyn@epa.gov.

Sincerely,

David W. Smith, Manager
NPDES Permits Office

WATER RECLAMATION
SOLID WASTE MANAGEMENT

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

STEPHEN R. MAGUIN
Chief Engineer and General Manager

November 4, 2011
File No. 31.370-40.4A

Via Electronic Mail

Ms. Brandi Outwin-Beals
California Regional Water Quality Control Board,
Los Angeles Region
320 W. Fourth Street, Suite 200
Los Angeles, CA 90013

Dear Ms. Outwin-Beals:

Comments on the Revised Tentative Waste Discharge Retirements ("WDRs") and NPDES Permit, City of Los Angeles Donald C. Tillman and Los Angeles-Glendale Water Reclamation Plants

The Joint Outfall System[1] and the Santa Clarita Valley Sanitation District of Los Angeles County (Sanitation Districts) appreciate the opportunity to provide comments on the Revised Tentative Waste Discharge Requirements and National Pollutant Discharge Elimination System (NPDES) Permits for the Donald C. Tillman and Los-Angeles Glendale Water Reclamation Plants dated October 6, 2011 (Revised Tentative Permits). The Sanitation Districts' comments are regarding the proposed new reporting requirements for compliance with the narrative effluent limits for chronic toxicity in the Revised Tentative Permits. While we do not routinely comment on NPDES permits proposed by the California Regional Water Quality Control Board, Los Angeles Region (Regional Board) for other dischargers, in this case comments are appropriate because the proposed new requirements would establish a precedent that could impact future NPDES permits issued to the Sanitation Districts.

The Sanitation Districts have considerable experience and expertise in chronic toxicity testing, including owning and operating a toxicology lab employing twenty biologists who perform over 500 Whole Effluent Toxicity (WET) tests per year. We believe that the new reporting requirements are problematic for numerous reasons, and therefore request that the Regional Board delete them from the Revised Tentative Permits. In particular, the Revised Tentative Permits would require the Discharger to make a determination as to whether "Chronic toxicity (narrative effluent limit reporting)" is "Absent" or "Present" each month, based on whether the monthly median trigger of 1.0 TUc = 100/NOEC has been exceeded. The proposed requirements additionally state, ""Absent" does not imply the complete absence of chronic toxicity effects." According to a letter from U.S. EPA to the Regional Board,[2] the purpose of the requirements is, "to ensure that the State and EPA receive *evidence* when chronic toxicity is present in

[1] Ownership and operation of the Joint Outfall System is proportionally shared among the signatory parties to the amended Joint Outfall Agreement effective July 1, 1995. These parties include County Sanitation Districts of Los Angeles County Nos. 1, 2, 3, 5, 8, 15, 16,17, 18, 19, 21, 22, 23, 28, 29, and 34, and South Bay Cities Sanitation District of Los Angeles County.
[2] "Re: Los Angele-Glendale Water Reclamation Plant (Order No. R4-2011-XXXX, NPDES No. CA0053953) and Donald C. Tillman Water Reclamation Plant (Order No. R4-2011-XXX, NPDES No. CA 0056227), from David W. Smith, Manager, NPDES Permits Office, U.S. EPA to Brandi Outwin-Beals, Regional Board, dated September 6, 2011.

the discharge at levels higher than the allowable narrative limit of no chronic toxicity in discharged 100 percent effluent." (Emphasis added.)

The Sanitation Districts strongly object to inclusion of the new reporting requirements in the Revised Tentative Permits. Detailed comments are included in Attachment A, but the primary reasons for this objection are:

- A monthly median of 1.0 TUc is not an approved water quality standard or approved regulatory benchmark to establish the presence or absence of chronic toxicity.
- A discharger should not be compelled to report under penalty of perjury chronic toxicity as "Present" or "Absent" in a discharge based on comparisons to an accelerated monitoring trigger that does not provide conclusive results upon which to base such a determination;
- The proposed requirement is not supported by adequate findings or evidence, and would not provide new "evidence" of the presence or absence of chronic toxicity;
- The accelerated monitoring trigger would improperly operate like a final numeric effluent limitation for chronic toxicity;
- The State Water Resources Control Board has determined that Regional Boards shall not impose final numeric effluent limitations for chronic toxicity before adoption of a statewide policy on toxicity, which is currently under development and likely to be scheduled for board consideration in 2012; and
- After a statewide policy is adopted, if the Regional Board determines that changes to the permits are appropriate, the permits may be reopened pursuant to a reopener clause already included in each permit.

The Sanitation Districts request that the Revised Tentative Permits be amended to remove the requirement to make an "Absent/Present" compliance determination each month for the narrative effluent limit for chronic toxicity. If you have any questions concerning this letter or require additional information, please contact Ann Heil at (562) 908-4288, extension 2803.

Very truly yours,

Stephen R. Maguin

Philip L. Friess

Philip L. Friess
Department Head
Technical Services

PLF:ATH:lmb
Attachment

cc: Don Tsai, Los Angeles Regional Board
Raul Medina, Los Angeles Regional Board
Hassan Rad, City of Los Angeles

ATTACHMENT A
Comments on Proposed Monitoring and Reporting Requirements for Chronic Toxicity
Revised Tentative Order No. R4-2011-XXXX, NPDES No. CA0053953
City of Los Angeles/Los Angeles-Glendale Water Reclamation Plant and
Revised Tentative Order No. R4-2011-XXXX, NPDES No. CA0056227
City of Los Angeles/Donald C. Tillman Water Reclamation Plant

Introduction

On October 6, 2011, the California Regional Water Quality Control Board, Los Angeles Region (Regional Board) proposed the following new monitoring and reporting requirement for the City of Los Angeles' (City) Los Angeles-Glendale Water Reclamation Plant (LA-G) and Donald C. Tillman (Tillman) Water Reclamation Plant via Revised Tentative Order No. R4-2011-XXXX, NPDES No. CA 0053953 (Revised Tentative Order) and Revised Tentative Order No. R4-2011-XXXX, NPDES No. CA0056227:[3]

"Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Chronic Toxicity (narrative effluent limit reporting)[10]	Absent/ Present	24-hour composite	Monthly	5

[5] Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136; where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or State Water Resources Control Board. For any pollutant whose effluent limitation is lower than all the minimum levels (MLs) specified in Attachment 4 of the SIP, the analytical method with the lowest ML must be selected.
[10] For narrative chronic toxicity effluent reporting, "Absent" is reported when chronic toxicity effluent results do not trigger accelerated testing by exceeding the monthly median trigger of 1.0 TUc = 100/NOEC. "Absent" does not imply the complete absence of chronic toxicity effects. "Present" is reported when chronic toxicity effluent results trigger accelerated testing by exceeding the monthly median trigger of 1.0 TUc = 100/NOEC."[4]

The proposed monitoring and reporting requirement is especially significant because the new provision and Footnote 10 focus entirely on compliance with the narrative effluent limitation set forth in Section IV.A. 2.h(b) of the Revised Tentative Order, and require the City to report chronic toxicity as either conclusively "Absent" or "Present" based on the results of routine chronic toxicity effluent testing as compared to the monthly median accelerated monitoring trigger of 1.0 TUc = 100/NOEC. The Sanitation Districts object to inclusion of the proposed monitoring and reporting provision, as detailed below, and request that it be removed prior to the adoption of the Revised Tentative Orders. The remaining permit requirements for chronic toxicity are amply sufficient to allow the Regional Board and the City to assess and control chronic toxicity. These permit requirements include monthly chronic toxicity testing, reporting

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[3] For the purposes of these comments, all references will be to the LA-G Revised Tentative Order. However, precisely the same requirements are proposed in the Tillman Revised Tentative Order, and all comments herein apply equally to both Revised Tentative Orders.
[4] Revised Tentative Order No. R4-2011-XXXX, NPDES No. CA 0053953 at Attachment E, Monitoring and Reporting Program (MRP), Section IV.A.1, Table 3, page E-9.

of the results in TUc, accelerated testing when the chronic toxicity monthly median TUc value is greater than 1.0, and investigation of the source of toxicity if warranted by the results of the accelerated testing.

The City Cannot be Compelled to Report Chronic Toxicity as "Present" or "Absent" in Discharge Based on Comparisons to An Accelerated Monitoring Trigger

The City's Revised Tentative Orders and applicable federal regulations require the City to submit monthly Self-Monitoring Reports (SMRs) certifying under penalty of law that the information required to be submitted is "true, accurate, and complete."[5] Liability for submitting false information under these provisions can be significant.[6] The Revised Tentative Orders require that chronic toxicity be reported as being "Absent" or "Present" based on whether the monthly median chronic toxicity result is greater than 1.0 TUc. The 1.0 TUc value is not an approved water quality standard or other approved regulatory benchmark for the presence or absence of chronic toxicity. Regional Board staff is aware that chronic toxicity sampling is an imprecise science, and can suffer from laboratory interference and false positive and negative results.[7] The 1.0 TUc monthly median value serves in the Revised Tentative Orders as a trigger for accelerated monitoring, not a hard and fast determination as to whether chronic toxicity is present. Using a 1.0 TUc monthly median threshold to distinguish between chronic toxicity being present or absent is neither "true," "accurate," nor "complete," and should be discouraged.[8]

Under the Revised Tentative Orders, exceedance of the monthly trigger median value of 1.0 TUc indicates that accelerated monitoring is required to be performed, pursuant to Section V.B.3 of the MRP, for the purpose of further investigating the initial sample result to both determine veracity and scope.[9] Even after such accelerated monitoring is performed, the results can be ambiguous and inconclusive, which explains why the Revised Tentative Orders require the City to initiate Toxicity Identification Evaluation (TIE) and/or Toxicity Evaluation Reduction (TRE) studies if multiple, subsequent accelerated tests exceed the value of 1.0 TUc.[10] Only at that time can chronic toxicity be truly confirmed or eliminated as a concern (and sometimes, not even then, in certain factual circumstances). Requiring the City to now conclusively report the presence or absence of chronic toxicity prior to completing the carefully constructed monitoring process, designed to determine whether chronic toxicity is, in fact, present or absent, is unreasonable and contrary to the remaining provisions of the Revised Tentative Orders.

The Proposed Requirement is Not Supported by Adequate Findings or Evidence, Nor Will it Provide New Evidence of the Presence or Absence of Chronic Toxicity

The Regional Board included the proposed requirement after receiving comments from U.S. EPA, who alleges that the provision's purpose is to facilitate "mutual compliance tracking of the narrative chronic toxicity effluent limitation." [11] This justification is neither compelling nor binding on the Regional Board. The Revised Tentative Orders' existing requirements for chronic toxicity, <u>without</u> the newly proposed monitoring and reporting provision, are consistent with the Regional Board's Water Quality Control Plan (Basin Plan) provisions regarding chronic toxicity (Basin Plan page 3-17) and applicable state and federal law, and provide data needed to track compliance with the narrative chronic toxicity effluent limitation. U.S. EPA further states that the "reporting requirement is important to ensure that the State and EPA receive evidence when chronic toxicity is present in the discharge . . . ."[12] However, the reporting

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[5] Revised Tentative Order at Attachment D, Section V.B.5. at pg. D-7; *see also* 40 C.F.R. §122.22(d).
[6] *Id.*
[7] Federal Register, Volume 67, No. 223, November 19, 2002, p. 69955.
[8] *Accord*, *Systech Environmental Corp v. EPA*, 555 Fed.3d 1466 (1995) (landowner not required to execute penalty of law certification in RCRA permit for information he could not verify).
[9] Revised Tentative Order at Section IV.A.2.h(c), page 22.
[10] Revised Tentative Order at Attachment E, MRP, Section V.E. at pages E-15-17.
[11] September 6, 2011 letter from U.S. EPA to the Regional Board.
[12] *Id.*

requirement does not actually involve the collection and submittal of any additional test results that could be determined to be "evidence" of the presence or absence of toxicity. Rather, the required reporting of "Present" or "Absent" is an interpretive statement based on the same test results that will be available to the State and U.S. EPA regardless of whether or not the proposed adjectives are included in a self-monitoring report. The State and U.S. EPA will not receive any further evidence of the presence or absence of toxicity that they would not already have received. Therefore, requiring the City to make a conclusive monthly determination regarding the "absence" or "presence" of chronic toxicity is unreasonable and unsupported by findings and evidence in the record.[13]

Compliance with the Narrative Effluent Limitation for Chronic Toxicity Should Be Unambiguous

If the proposed requirement is adopted, the City would be required to report chronic toxicity in the discharge as either "Absent" or "Present" in its monthly SMRs for purposes of compliance with the narrative effluent limitation. However, the Revised Tentative Orders' own terms state that reporting "Absent" "*does not imply the complete absence of chronic toxicity effect*."[14] (Emphasis added.) Thus, even if samples do not exceed the monthly median trigger of 1.0 TUc = 100/NOEC, and the SMR reports "Absent" for chronic toxicity, some question remains whether the City will be considered in compliance with the narrative effluent limitation for chronic toxicity, since Footnote 10 implies that any given test result demonstrating the absence of toxicity may in fact be false or at least inconclusive. However, the reverse statement is also true (i.e., exceedance of the monthly median trigger of 1.0 TUc = 100/NOEC does not necessarily imply the actual presence of a chronic toxicity effect), based on studies used in support of promulgation of the chronic toxicity testing methods by U.S. EPA.[15] In other words, "absent" does not definitively mean "absent" and "present" does not definitively mean "present," which illustrates the difficulty of making a true and reliable statement about the presence or absence of toxicity in this circumstance that can be relied upon for the purpose of determining compliance. This level of compliance uncertainty is unreasonable to impose given the significant and strict civil and criminal liability authorized under the Porter-Cologne Water Quality Control Act and the Clean Water Act, and the potential for the filing of third party citizen suits under the Clean Water Act, for alleged non-compliance.

The Accelerated Monitoring Trigger Will Improperly Operate Like a Final Numeric Effluent Limitation for Chronic Toxicity

Another concern of the Sanitation Districts is the implication that via the "Absent"/ "Present" reporting system described above, the monthly median accelerated monitoring trigger of 1.0 TUc = 100/NOEC will inappropriately operate as if it were a final numeric effluent limitation for chronic toxicity. The determination whether chronic toxicity is "Absent" or "Present" for reporting purposes rests entirely on that value, and reporting "Present" will call into question, by Regional Board staff or the public, compliance with the existing narrative effluent limitation, which states, "There shall be no chronic toxicity in the effluent discharge."[16] Thus, by requiring the new "Present"/ "Absent" reporting scheme in the MRP, the Regional Board is improperly performing a modification of the final narrative effluent limitation for chronic toxicity in violation of substantive and procedural requirements contained in 40 C.F.R. Parts 122 and 124 applicable to the imposition and modification of final effluent limits, and without first undertaking the necessary basin planning efforts pursuant to Water Code sections 13240 *et seq.* to justify the change in regulatory approach to controlling chronic toxicity.

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[13] Orders adopted by the Regional Water Board not supported by the findings, or findings not supported by the evidence, constitute an abuse of discretion. (*See Topanga Association for a Scenic Community v. County of Los Angeles*, 11 Cal.3d 506, 514-5 (1974); *California Edison v. SWRCB*, 116 Cal. App.3d 751, 761 (4th Dt. 1981); *see also In the Matter of the Petition of City and County of San Francisco, et al.*, State Board Order No. WQ-95-4 at 10 (Sept. 21, 1995).
[14] Revised Tentative Order at Attachment E, MRP Section IV.A.1, Table 3, page E-9.
[15] Federal Register, Volume 67, No. 223, November 19, 2002, p. 69955.
[16] Revised Tentative Order at Section IV.A. 2.h(b) at page 22.

The State Water Board Opined that Regional Boards Should Not Impose Final Numeric Effluent Limitations for Chronic Toxicity before Adoption of a Statewide Policy on Toxicity

In 2003, the State Water Resources Control Board (State Water Board) opined, in a precedential Water Quality Order, that final numeric effluent limitations for chronic toxicity are premature to impose absent formal adoption of a statewide policy on this issue, including specific modification of the State Implementation Plan (SIP).[17] In lieu of final numeric effluent limitations, the State Water Board instead endorsed the accelerated monitoring trigger of 1 TUc with rigorous TIE/TRE conditions, as is currently imposed upon the City.[18]

As the Regional Board is probably aware, the State Water Board is currently in the process of developing a comprehensive, statewide policy for toxicity assessment and control. A draft policy was issued by the State Water Board in 2010, public comments were submitted in January 2011, and a workshop held in August 2011 to discuss stakeholder comments, questions, and concerns. The Sanitation Districts expect that policy to be considered for adoption in 2012. For this reason, the Regional Board should refrain from imposing new, significant chronic toxicity requirements in NPDES permits until a new statewide policy is adopted by the State Water Board. If new toxicity-related requirements are appropriate based on the adopted statewide policy, the Regional Board may re-evaluate and modify permit terms in accordance with the reopener clauses included in the Revised Tentative Orders.

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[17] *In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 and R4-2002-0123 and Time Schedule Order Nos. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants*, SWRCB/OCC Files A-1496 and 1496(a) at pages 8-10.
[18] *Id.*

Tri-TAC
Jointly Sponsored by:
League of California Cities
California Association of Sanitation Agencies
California Water Environment Association

November 4, 2011

Reply to: 500 Capitol Mall, Suite 1000
Sacramento, CA 95814
(916) 446-7979
blarson@somachlaw.com

<u>*Via Electronic Mail*</u>
Mr. Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

c/o Brandi Outwin-Beals: boutwin@waterboards.ca.gov

SUBJECT: **Tentative Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System Permit (NPDES) – City of Los Angeles, Donald C. Tillman Water Reclamation Plant (NPDES No. CA0056227, CI No. 5695) and Los Angeles-Glendale Water Reclamation Plant (NPDES No. CA0053953, CI No. 5675)**

Dear Mr. Unger:

The California Association of Sanitation Agencies (CASA) and Tri-TAC appreciate the opportunity to provide comments on the Tentative Waste Discharge Requirements (WDRs) for the City of Los Angeles' Donald C. Tillman and Los Angeles-Glendale Water Reclamation Plants (WRPs). CASA and Tri-TAC are statewide organizations comprised of members from public agencies and other professionals responsible for wastewater treatment. Tri-TAC is sponsored jointly by CASA, the California Water Environment Association, and the League of California Cities. The constituency base for CASA and Tri-TAC collects, treats and reclaims more than two billion gallons of wastewater each day and serves most of the sewered population of California.

CASA and Tri-TAC do not routinely comment on individual WDRs proposed by the regional water boards. The exception to this practice is when a draft permit would establish a precedent or conflict with efforts to ensure consistent statewide approaches to important regulatory and technical issues. The latest drafts of the WDRs for the City of Los Angeles' WRPs include new language related to whole effluent toxicity monitoring, reporting, and compliance that we believe is inappropriate, technically flawed and at best premature, given the State Water Resources Control Board's (State Water Board) ongoing process to develop statewide policy governing toxicity testing and permitting. Specifically, apparently in response to comments from United States Environmental Protection Agency (U.S. EPA), both draft WDRs would require a novel manner of reporting of "compliance" with the chronic toxicity narrative effluent limit.[1]

U.S. EPA's comments provide no legal authority supporting the proposed change, and CASA and Tri-TAC do not agree that this reporting requirement is appropriate for wastewater treatment plants. To our knowledge, this requirement has not been imposed on any other discharger within the Los Angeles region or the rest of the state. The revision was not justified by any findings setting forth the need for the proposed requirement.

As acknowledged by many experts, chronic toxicity testing is inherently uncertain. According to studies used in the support of promulgation of the chronic toxicity testing methods, the false positive rate for the *Ceriodaphnia dubia* and fathead minnow chronic toxicity tests are each 4%.[2] Due to this uncertainty, it is not possible to conclusively demonstrate the presence of chronic toxicity using a numeric effluent limit such as 1.0 TUc=100/NOEC, even if it is based on multiple test results (e.g. a monthly median). Instead, conclusive demonstration of chronic toxicity must be determined using multiple test results, followed by accelerated testing, which is why current implementation requirements include a trigger for further accelerated testing, which can be (though is not always) more conclusive. It is not correct to state that chronic toxicity is "Present' when a 1.0 TUc monthly median has been exceeded. For instance, if the discharger is unable to conduct three tests to calculate a monthly median, due to control failure in a test or other reasons, the exceedance of a 1.0 TUc=100/NOEC could simply be due to the inherent false positive rate of the test methods.

The Regional Water Board acknowledged this uncertainty by including language stating that an "Absent" determination "does not imply the complete absence of chronic toxicity effect."[3] However, the reverse statement is also true (i.e., "Present" does not necessarily imply the actual presence of chronic toxicity effect). Due to this uncertainty, the discharger cannot accurately state in a monitoring report, under penalty of perjury, that chronic toxicity is "Present" or "Absent." Requiring a discharger to do so would put the discharger in the untenable position of having to submit incomplete monitoring reports to avoid potentially perjuring him or herself.

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[1] Table 3A of the draft Monitoring and Reporting Programs for the Donald C. Tillman WRP (p. E-10) and of the Los Angeles Glendale WRP (p. E-9).

[2] Federal Register, Volume 67, No. 223, November 19, 2002, p. 69955.

[3] Draft Monitoring and Reporting Programs for the Donald C. Tillman WRP (p. E-10) and for the Los Angeles Glendale WRP (p. E-9).

Furthermore, a requirement for the discharger to report chronic toxicity as "Present" or "Absent" based on whether monthly median chronic toxicity results are above or below 1.0 TUc could be interpreted as if it were a final numeric effluent limitation for chronic toxicity. Reporting "Present" does not, however, signify a violation of the narrative chronic toxicity effluent limit due to uncertainty in the chronic toxicity test. In 2003, the State Water Board issued a precedential Water Quality Order indicating that it is premature to impose numeric effluent limitations for chronic toxicity absent formal adoption of a statewide policy on this issue.[4]

The State Water Board has embarked upon a process to develop such a statewide policy for toxicity, including adoption of a statewide objective and implementation program with monitoring and reporting requirements. The State Water Board has conducted multiple workshops and released an initial draft for public comment. Upon adoption, which is anticipated in 2012, the policy will be binding on the regional water boards. This statewide policy is nearing completion, and is intended to bring consistency to the approach to toxicity testing and related permit requirements. We urge the Regional Water Board not to depart from its established approach to toxicity in these permits, but rather to allow the state process to proceed before making substantive changes in the regional approach that has been working well for many years.

CASA and Tri-TAC join the City of Los Angeles Bureau of Sanitation in requesting that the reporting requirements for these WRPs be consistent with the reporting requirements for other dischargers in the region and State, and that the Regional Water Board remove the added language from Table 3A.

Sincerely,

Terrie Mitchell, Chair
Tri-TAC

Roberta L. Larson, Director, Legal and
Regulatory Affairs
CASA

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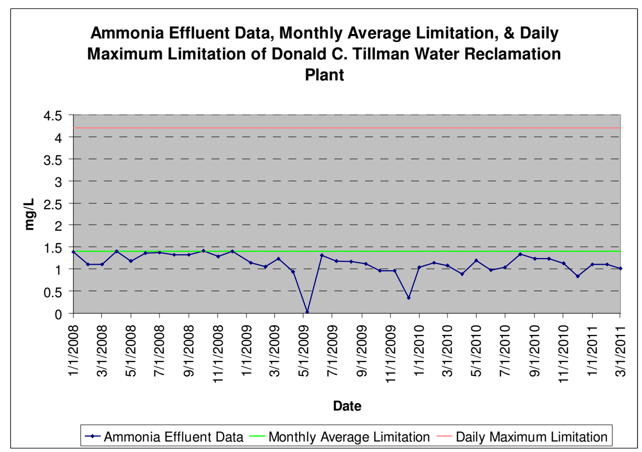
[4] WQO 2003-0012.

Response to Comments

City of Los Angeles
Donald C. Tillman Water Reclamation Plant
Tentative NPDES Permit CA0056227

Letter/ Issue	#	Comment	Agree	Disagree	Response to Comment	Action Taken
City of Los Angeles Bureau of Sanitation (Bureau) September 6, 2011 Cover letter – Comments of Attachment A Regarding Tentative Order dated August 4, 2011						
Revision of Ammonia Effluent Limitations	C 1	The ammonia effluent limitations for the Donald C. Tillman Water Reclamation Plant (DCT) in the Tentative Order are set equal to the Waste Load Allocations (WLAs) in the Los Angeles River Nitrogen Compounds TMDL. The Nitrogen Compounds TMDL became effective in March 2004. During TMDL development, the City of Los Angeles in cooperation with the City of Burbank and the Los Angeles County Sanitation District were in the process of developing a site-specific objective (SSO) for ammonia. The TMDL did not incorporate the SSO because at the time the TMDL was adopted; the SSO was not effective. In March 2009, the ammonia SSO became effective for the Los Angeles River. The Bureau has provided information demonstrating that, using the new Basin Plan objectives, the Los Angeles River is no longer impaired for ammonia and could be delisted in 2012. However, to date, the TMDL revision and/or delisting decision have not been completed. As a result, the ammonia effluent limitations in the Donald C. Tillman WRP Tentative Order are currently set equal to the TMDL WLAs without an adjustment for the effective Basin Plan ammonia objectives. The Bureau is concerned that the currently effective Basin Plan ammonia objectives are not the basis for the effluent limitations in the Tentative Order. The proposed effluent limitations in the Tentative Order present a compliance risk for the Bureau, and this risk is as a result of an administrative timing issue (i.e., the TMDL was not revised prior to the development of the tentative order and		X	The Nitrogen Compounds TMDL has been in effect since March 23, 2004. This TMDL established the waste load allocations for ammonia. On March 30, 2009, a Basin Plan amendment incorporating the site specific objectives for ammonia 30-day average objective (SSO) was approved by USEPA. DCT's ammonia effluent data between January 1, 2008 and March 31, 2011 showed no exceedance of the proposed ammonia effluent limitations of 1.4 mg/L for monthly average and 4.2 mg/L for daily maximum. In addition, the ammonia effluent concentrations are decreasing (see ammonia effluent chart below).  The Implementation Schedule in the TMDL states:	None necessary.

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		therefore the revised WLAs could not be incorporated) rather than a water quality issue. Regional Water Board staff has indicated they will be revising the Los Angeles River Nitrogen Compounds TMDL to incorporate the new Basin Plan ammonia objectives in early to mid-2012. However, even if the TMDL is revised by the Regional Water Board as planned, it will take approximately a year to become effective and at least several months to revise Donald C. Tillman WRP's permit. Until such time as the effluent limitations are revised, the Bureau will potentially be subject to enforcement liability even though the discharge is meeting limitations consistent with current Basin Plan objectives and the receiving water is meeting water quality objectives. To resolve this administrative issue, the Bureau requests that the Tentative Order be modified to include effluent limitations based on the SSO-adjusted WLAs to be consistent with the Basin Plan objectives. The proposed AMEL of 2.75 mg/L was calculated by utilizing the same pH and temperature used to calculate the current WLAs and the current ELS-absent Basin Plan objective. Once that number was determined, a 10% margin of safety was subtracted from the value to obtain the proposed AMEL.			"If a site specific objective is adopted by the Regional Board, and approved by relevant approving agencies, this TMDL will need to be revised, readopted, and reapproved to reflect the revised water quality objectives." The TMDL has not yet been revised.	
Revision of Metals Effluent Limitations of Copper and Lead	C2	In Table 6 of the Tentative Order for the Donald C. Tillman WRP, effluent limitations for cadmium, copper, lead, and zinc were calculated based on WLAs established in the Los Angeles River and Tributaries Metals TMDL (Metals TMDL) using the procedures in the SIP. The Bureau feels that the proposed effluent limitations of copper and lead are not consistent with the assumptions of the Metals TMDL WLAs or the SIP and should be revised.	X		Regional Water Board staff revisited this issue with the TMDL staff. TMDL staff stated that the intent of the Metals TMDL is to provide only the chronic criteria for dry weather. Therefore, there will be no assigned acute criteria in the calculation using SIP procedure. The revised calculated effluent limitations for copper and lead are now in agreement with the Bureau's proposed effluent limitations. Please see attached revised Reasonable Potential Analysis Table.	Changes have been made.
City of Los Angeles Bureau of Sanitation (Bureau) **September 6, 2011 Cover letter – Comments of Attachment 1 Regarding Tentative Order dated August 4, 2011**						

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Tentative Order, List of Attachments, Page 4 Correction (extraneous references)	1	The Bureau requests that the Regional Water Board remove the following "Not Applicable" Attachments and remove references to the Attachments within documents. Attachment H Storm Water Pollution Prevention Plan Requirements (Not applicable) Attachment I Biosolids and Sludge Management (Not Applicable)		X	Regional Water Board staff does not agree with the request to remove Attachments H and I. The text in each of those attachments was removed, but the topic header was retained. This is necessary to retain the format consistent with Statewide NPDES template and so that it is clear that the issue has been addressed.	Changes have been made.
Tentative Order, Section II.F, Page 7; Fact Sheet, Attachment F, IV.C.2.B.i, Page F-29 BPJ technology-based limits	2	The permit states that: "The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR part 133 and Best Professional Judgment (BPJ) in accordance with 40 CFR part 125.3." Best Professional Judgment in 40 CFR 125.3 does not apply to POTWs. Please revise the language (and in the Fact Sheet) as follows: "The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR part 133 ~~and Best Professional Judgment in accordance with 40 CFR part 125.3~~."		X	Regional Water Board staff disagree. 40 CFR part 123.5 describes the Technology-based treatment requirements for POTWs. However, the Best Professional Judgment was used in connection with the discharges other than POTWs. The revised language shall read: "The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR part 133 and ~~Best Professional Judgment in accordance with~~ 40 CFR part 125.3."	Change has been made.
Tentative Order, Section II.H, Table 5a, Footnote 7, Page 9 Missing word	3	Please add the word conditionally to the sentence; "however, the Regional Water Board has only <u>conditionally</u> designated the MUN beneficial use and at this time cannot <u>legally</u> establish effluent limitations designed to protect the conditional designation…"	X		Regional Water Board staff agree to revise the Order, as proposed.	Changes have been made.
Tentative Order, Section N, Page 16 Reference correction	4	The permit refers to Oil and Grease, settleable solids and turbidity as TBEL constituents. These constituents are based on basin plan and not 40 CFR part 133. The Bureau requests to revise the reference to reflect that these are WQBELs.	X		Regional Water Board staff agree to revise section N as: "**Stringency of Requirements for Individual Pollutants.** … The TBELS consist of restrictions on five-day biochemical oxygen demand at 20°C ($BOD_{5@20^{o}C}$), total suspended solids (TSS), ~~oil and grease, settleable solids, turbidity, and~~ pH, <u>and percent removal of BOD and TSS.</u> <u>Restrictions on BOD, TSS, and pH are</u> ~~as~~ discussed in the Fact	Changes have been made.

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					Sheet...”	
Tentative Order, Section IV.A.1.a Table 6, Page 20 Units/footnote	5	The mass emissions lbs/day for parameters in units of ug/L refers to Footnote 14, which specifies the calculation for parameters in units of mg/L. Please include a separate footnote for µg/L unit.		X	Regional Water Board staff disagree. Footnote 14 is for the mass emission lbs/day calculation in units of mg/L. The mass emission lbs/day calculation for an unit of µg/L is specified in Footnote 24 on Page 21.	None necessary .
Tentative Order, Section IV.A.3, Page 23 & Attachment F (Fact Sheet), Section IV.C.2.b.xi.i, Page F-35 Correction to Coliform requirements	6	The Bureau requests the following change: “No sample shall exceed an MPN of CFU of 240 total coliform bacteria per 100 milliliter. ~~In more than one sample in any 30 day period.~~” The statement is contradictory and not consistent with Title 22 requirements.	X		Regional Water Board staff agree. After review of CDPH Title 22 requirements, staff agree with the Bureau’s comment. The suggested changes will be reflected in the cited sections of the permit.	Change has been made.
Tentative Order, Section IV.B.2, Page 24 Reclamation specifications	7	Please revise the language as follow: The City is currently developing a master plan for the use of recycled water with a goal of recharging ~~planning to recharge~~ up to 30,000 acre feet per year of recycled water, treated with advanced wastewater treatment facilities, into the San Fernando Groundwater Basin ~~via the Hansen Spreading Grounds. The Hansen Spreading Grounds are located in Sun Valley along the northwestern side of Tujunga Wash, and are bordered on the other three sides by San Fernando Road, Branford Street, and Glenoaks Boulevard. No exact date of discharging the recycled water to the San Fernando Valley has been finalized. The recycled water will be produced at the Tillman WRP.~~ The master plan is not yet completed and is considering the use of other spreading facilities and not just the Hansen Spreading Grounds. In addition, the final plan may change based on California Department of Public Health requirements or the outcome of the environmental review process.	X		Regional Water Board staff agree to revise the Order, as proposed.	Changes have been made.
Tentative	8	It appears that this provision is related to Section 2.4.5 of		X	Regional Water Board staff disagree to revise	None

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Order, Section VI.C.1.b, Page 31 Re-opener provision		the SIP that addresses Pollutant Minimization Program (PMP) and the need to collect additional information. In accordance with Section 2.4.5.2b of the SIP, "RWQCBs may include special provisions in the permit to require the gathering of evidence to determine whether the constituent of concern is present in the effluent at levels above a calculated effluent limitation." It is not necessary for this permit provision to say that additional requirements may be included as result of the information collected because the other re-opener provisions in the permit are broad enough to allow for any necessary permit modification to take place. Suggested language is as follows: "This Order may be reopened ~~for modification, or revocation and reissuance,~~ based on the results of the Pollutant Minimization Program, pursuant to Permit Section VI.C.3.c, to gather evidence to determine whether a constituent of concern is present in the effluent at levels above a calculated effluent limitation. ~~As a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are~~ Evidence may include but is not limited to data such as~~,~~ fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. ~~Additional requirements may be included in this Order as a result of the special condition monitoring the data.~~"			section VI.C.1.b, which is slightly modified from section 2.4.5.1 Pollutant Minimization Program (PMP) of the SIP. The PMP of the SIP states: "The permit shall contain a reopener clause authorizing modifications, or revocation and reissuance of the permit, as a result of the detection of a reportable priority pollutant generated by special conditions included in the permit. These special conditions in the permit may be, but are not limited to, fish tissue sampling, whole effluent toxicity tests, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in the permit as a result of the special condition monitoring data."	necessary .
Tentative Order, Section VI.C.3.a, Page 34 Reference to SWPPP	9	The Bureau requests the section titled: "Storm Water Pollution Prevention Plan (SWPPP) – Not Applicable" be removed from the permit since as stated, it is not applicable.	X		Regional Water Board staff agree. The foregoing texts of the SWPPP discussion were deleted but the topic header was retained. See also Response to Comment No. 1.	Change has been made.
Tentative Order, Section VI.C.5.a, Page 37 & Attachment F (Fact Sheet), Section	1 0	Please strike this section because it does not apply to the DCT treatment process. DCT returns the solids generated by the treatment process back to the sewer for transport and treatment at HTP.	X		Regional Water Board staff agree to revise the Order, as proposed.	Changes have been made.

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VII.B.5.a, Page F-65 Section not applicable to DCT						
Tentative Order, Section VII.C. Page 45, Paragraph 3 Unachievable requirement	11	In many instances, the following requirement is unachievable and should be modified. "If the analytical result of any single sample, monitored monthly, quarterly, semiannually, or annually, exceeds the AMEL for any parameter, the Discharger shall collect up to four additional samples within the same calendar month." The organochlorine pesticide (EPA 608) and base/neutral, and acid extractable (EPA 625) analyses have a turn-around time of approximately one month. Additionally, the allowable holding time between sample collection and extraction is 7 days. So, from the time that the analytical result from one of these tests is known there is no time to collect an additional four samples within the same month. Please consider revising the sentence as follow: "If the analytical result of any single sample, monitored monthly, quarterly, semiannually, or annually, exceeds the AMEL for any parameter, the Discharger may collect up to four additional samples within the same calendar month.	X		Regional Water Board staff agree to revise the Order, as proposed.	Change has been made.
Tentative Order, Section VII.D, Paragraph 2, Page 45 Reporting period clarification, AWEL consistent with HTP	12	The Bureau requests that the language reflect the following: "A calendar week will begin on Sunday and end on Saturday. Partial calendar weeks at the end of the calendar month will be carried forward to the next month in order to calculate and report a consecutive seven-day average value on Saturday." This would be consistent with other Bureau permits.	X		Regional Water Board staff agree to revise the Order, as proposed.	Changes have been made.
Tentative Order, Section VII.N.1, Page 48	13	The Bureau requests the definition of a geometric mean include: "A minimum of 5 data points is needed to conduct a geometric mean that is statistically valid."		X	Regional Water Board staff disagree. The intent of the Basin Plan in calculating the geometric mean for bacteria is to have a minimum of 5 samples per month. However, it also allows for a lower number	None necessary.

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Definition of geometric mean					if it is deemed statistically valid. Basically, weekly sampling is accepted to be statistically valid, so a geometric mean can and should be calculated with only 4 weekly samples in a 30-day period.	
Attachment E (MRP), Section I.H, Page E-4 Incorrect Reference	14	The following text incorrectly references 40 CFR 136 as a source of procedures for establishing Minimum Levels (MLs). Method Detection Limits (MDLs), not MLs are addressed in 40 CFR 136. Please delete the reference.	X		Regional Water Board staff agree. MDLs are discussed in 40 CFR part 136. Staff deleted the reference to 40 CFR part 136. Section I.H. has been revised as: "The Discharger shall …, unless the Discharger can demonstrate that a particular ML is not attainable~~, in accordance with procedures set forth in 40 CFR part 136,~~ and obtains approval for a higher ML from the Executive Officer, as provided for in section J, below."	Change has been made.
Attachment E (MRP), Section II, Table 1, Page E-6 Effluent Sampling Station	15	The Bureau requests the effluent sampling station descriptions specify that sampling taken at EFF-001B is for Bacteria, and sampling taken at EFF-001A is the main sampling station for all other constituents.	X		Regional Water Board staff agree to revise Table 1. Monitoring Location Name for EFF-001A and EFF-001B has been revised as "Effluent Transfer Station Used for Point of Compliance <u>for all Constituents but Bacteria</u>" and "Effluent Transfer Station Used for Point of Compliance <u>for Bacteria</u>", respectively.	Changes have been made.
Attachment E (MRP), Section III.A.1, Table 2, Page E-8 Influent monitoring frequency	16	The Bureau requests that the influent monitoring frequency for the "remaining USEPA priority pollutants excluding asbestos" be reduced from semiannually to annually since historical influent water data has been non-detect (ND).		X	Regional Water Board staff disagree. See "Response to Comment" No. 26.	None necessary.
Attachment E (MRP), Section IV.A, Table 3A, Page E-9 Use of footnote 8	17	Please revise Table 3A so that footnote 8 is associated with the Total residual chlorine grab sample type rather than the Total Residual Chlorine recorder sample type.	X		Regional Water Board staff agree to revise Footnote of the Attachment E.	Changes have been made.
Attachment E (MRP),	18	Attachment E, E-10, IV.A. correctly describes the samples for acute toxicity testing to be grabs, but Attachment E, E-	X	X	The typographic error has been corrected for the sample type of acute toxicity in Table 3A of the	Change has been

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Section IV.A.2.a, Page E-12 Grab vs. Composite samples for acute toxicity tests		12, V.A.2.a. page 12 describes the samples as 24 hr composites. The reference on page 12 should be changed to "grab" samples.			Attachment E. The acute toxicity tests for effluent and receiving water shall be 24-hour composite and grab, respectively (see section V.A.2.a of the Attachment E).	made.
Attachment E (MRP), Section IV.A, Table 3A, Page E-10 Sample type of 1,4-Dioxane	19	The Bureau requests the sampling type of 1,4-Dioxane be changed from 'grab' to '24-Hour Composite' sample. This is consistent with previous permits.		X	Regional Water Board staff disagree. Based on the USEPA SW-846, 1,4-Dioxane is listed as a volatile compound. The sample type of 1,4-Dioxane shall be grab.	None necessary.
Attachment E (MRP), Section IV.A, Table 3A, Page E-11 Sample type of radioactivity	20	The Bureau requests the sampling type of radioactivity be changed from 'calculated' to '24-Hours composite' sample. This is consistent with previous permits.	X		Regional Water Board staff agree to revise the Attachment E, as proposed.	Change has been made.
Attachment E (MRP), Section IV.B, Footnote 25, Page E-12 Impractical requirement	21	Footnote 25 requires the use of either CFU/100 mL or MPN/100 mL but not both for analysis of Total Coliform, Fecal Coliform, and *E. Coli* bacteria. Currently, the Bureau uses the Membrane Filtration Method to determine the concentrations of Total Coliform and Fecal Coliform bacteria in CFU/100 mL and the Chromogenic Substrate Method is used to determine *E. Coli* bacteria in MPN/100 mL. The above methods produce data at the end of a 24-hour incubation period. The Bureau would have to switch back to the Multiple Tube Fermentation Method of determining Total and Fecal Coliform Bacteria in order to generate MPN/100 mL data for all three tests. Because the Multiple Tube Fermentation Method can take up to 96-hours to produce test results, it is not as protective of public health and the environment as the Membrane	X		Regional Water Board staff agree to revise the Attachment E, as appropriate.	Change has been made.

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		Filtration Method that produces data after 24-hours. Please revise footnote 25 to indicate that either CFU/100mL or MPN/100mL is acceptable.				
Attachment E (MRP), Section IV.B, Table 3B, Page E-12 & Section VII.A,1, Table 4, Page E-20 & Section VII.A,2, Table 5, Page E-22 & Section VII.A.4, Table 7, Page E-25 Requirements to conduct tests for both Fecal coliforms and E. coli	22	On July 8, 2010 the Regional Water Board passed Resolution R10-005 to amend the Basin Plan to update the bacteria objectives for freshwater designated for water contact recreation by removing the fecal coliform objective. This amendment updates the freshwater bacteria objectives in the Basin Plan to maintain consistency with U.S. EPA's recommendation that *E. coli* replace fecal coliform as an indicator of the presence of pathogens in fresh water, and removes unnecessary permitting and monitoring requirements that arise from having water quality objectives for both indicators. The tentative permit contains requirements to test for both fecal coliforms and *E. coli* as part of the receiving water and effluent monitoring programs. To be consistent with the Basin Plan amendment and eliminate unnecessary monitoring, the Bureau recommends that the Regional Water Board remove the fecal coliform requirement for testing of the effluent and receiving waters.		X	Regional Water Board staff disagree. Resolution R10-005 has not been approved by the State Board, OAL, and USEPA. As written, the tentative permit contains effluent limitation for fecal coliform, therefore, fecal coliform must be monitored to verify facility's compliance.	None necessary.
Attachment E (MRP), Section V.E.6.b, Page E-18 Inconsistent accelerated testing requirements	23	This requirement is not consistent with the requirements as found in Attachment E, V.A.2.d Page E-13 and V.B.3 Page E-15. It should be revised as follows: "If the results of any of the six accelerated tests exceed the acute toxicity limitation, or the chronic toxicity trigger, then the Discharger shall ~~continue to monitor weekly until six consecutive weekly tests are in compliance~~ conduct six additional tests, approximately every two weeks, over a 12-week period."	X		Regional Water Board staff agree to revise the Attachment E, as proposed.	Changes have been made.
Attachment E (MRP), Section VII.A., Table 4, Page E-20, & Table 5, Page E-22, & Table 7,	24	Please add a footnote to Units of the bacteria tests to indicate that either CFU/100mL or MPN/100mL are acceptable.	X		The missing Footnote 26 has been added.	Changes have been made.

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Page E-25 Missing footnote						
Attachment E (MRP), Section VII.A.1,Table 4, Page E-20 and E-21 Receiving water monitoring frequency	25	The Nitrogen Compounds TMDL only requires weekly monitoring for nitrate, nitrite, and nitrate+nitrite per the starred statement in the Wasteload Allocations section of the Basin Plan Amendment. The note requiring monitoring frequency does not apply to the ammonia allocations. As a result, the Bureau requests that the ammonia, organic nitrogen, and total nitrogen monitoring frequency be change to monthly consistent with the TMDL.		X	Regional Water Board staff disagree. The objectives of monitoring nitrogen compounds in the receiving water are to assess compliance with in-stream targets, to evaluate effectiveness of the TMDL, and to determine if additional WLAs are required for other constituents. This TMDL document also recommended monitoring for organic nitrogen in order to keep track of total nitrogen loadings.	None necessary.
Attachment E (MRP), Section VII.A.1,Table 4, Page E-21 Receiving water monitoring frequency	26	The Bureau requests that the effluent monitoring frequency for the 2 metals (Mercury-Hg and Selenium-Se) be reduced from monthly to quarterly since historical effluent water data has been non-detect (ND) at monitoring location RSW-LATT630.		X	Regional Water Board staff disagree. Regional Water Board staff use a matrix of criteria, based upon Best Professional Judgment, to set the effluent and receiving monitoring frequencies for regulating the myriad pollutants. The monitoring frequencies for these pollutants, which vary from monthly, quarterly, to semiannually, are generally set based on the following three criteria: Criterion 1: Monitoring frequency will be monthly, for those pollutants with reasonable potential to exceed water quality objectives (i.e. monitoring has shown exceedances of the objectives); or, Criterion 2: Monitoring frequency will be quarterly, for those pollutants in which some or all of the historic effluent monitoring data detected the pollutants, but without reasonable potential to exceed water quality objectives; or, Criterion 3: Monitoring frequency will be semiannually, for those pollutants in which all of the historic effluent monitoring data have had non-detected concentrations of the pollutants and without current reasonable potential to exceed water quality objectives.	None necessary.

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					Mercury and selenium fit Criterion 1.	
Attachment E (MRP), Section VII.A.1, Table 4, Page E-21 & Section VII.A.2, Table 5, E-23 & Section VII.C, Page E-26 Addition of bioassessment and algal biomass testing	27	The Los Angeles River Regional Monitoring Program (LARRMP), now called the Los Angeles River Watershed Monitoring Program (LARWMP), was submitted to the Regional Water Board by the City of Los Angeles and City of Burbank in December 2007 and was approved by the Regional Water Board on January 12, 2009. To fund this program, some receiving water stations were deleted from the monitoring program, and the remaining stations had their analyzed constituents and frequency changed. One of these approved changes was to remove bioassessment monitoring from receiving water stations RSW-LATT616, RSW-LATT622, RSW-LATT628 and RSW-LATT630 and to remove chlorophyll a from the list of monitored constituents. Thus, the requirement in this permit for bioassessment and algal testing at the four receiving stations should be removed. The money saved will be used for bioassessment and algal biomass testing at the 10 annual random sites tested as part of the approved LARWMP program.	X X		Regional Water Board staff agree to modify "LARRMP" as "LARWMP". Regional Water Board staff agree. The City of Los Angeles' contribution to fund bioassessment monitoring at 10 random sites, in conjunction with bioassessment monitoring at several targeted sites conducted by the LARWMP program, will provide the information needed to assess the overall health of Los Angeles River watershed receiving waters.	Changes have been made. Changes have been made.
Attachment E (MRP), Section VII.A.1, Table 4, Page E-22 Receiving water monitoring frequency	28	The Bureau requests that the receiving water monitoring frequency for the "remaining USEPA priority pollutants excluding asbestos" be reduced from semiannually to annually since historical receiving water data has been non-detect (ND) at monitoring location RSW-LATT630.		X	Regional Water Board staff disagree See Response to Comment No. 26.	None necessary.
Attachment E (MRP), Section VII.A.2, Table 5, Page E-22 Monitoring frequency not consistent with	29	Table 5 has the frequency of testing for mercury, selenium, and cyanide as monthly for monitoring locations 612, 614, 616, 622, 628, and 630. The narrative on page F-59 lists cyanide as being monitored quarterly and does not mention a change in the frequency of testing for mercury and selenium. As per the adoption of LARWMP, these constituents should be monitored quarterly and not monthly. Also the narrative on F-59 states that the frequency of zinc testing should be increased to semiannually while Table 5 still has the frequency as		X	See Response to Comment No. 26 for determination of pollutant's monitoring frequency. Regional Water Board staff have corrected the following typographic errors: Section VI. D.1.b.i has been revised as "Decreasing quarterly monitoring frequency of boron, fluoride, ~~zinc,~~ and heptachlor epoxide to semiannually." Section VI. D.1.b.i has been revised as "RSW-4 and	Changes have been made.

Letter/ Issue	#	Comment	Agree	Disagree	Response to Comment	Action Taken
LARWMP.		quarterly.			RSW-W2 (Sediment)."	
Attachment E (MRP), Section VII.A.2,Table 5, Page E-23 Receiving water monitoring frequency	30	The Bureau requests that the receiving water monitoring frequency for the 2 metals (Mercury-Hg and Selenium-Se) be reduced from monthly to quarterly since historical receiving water data has been non-detect (ND) at monitoring locations RSW-LATT622, RSW-LATT612, RSW-LATT616, RSW-LATT614, RSW-LATT628.		X	Regional Water Board staff disagree See Response to Comment No. 26.	None necessary .
Attachment E (MRP), Section VII.A.2,Table 5, Page E-23 Receiving water monitoring frequency	31	The Bureau requests that the receiving water monitoring frequency for the "remaining USEPA priority pollutants excluding asbestos" be reduced from semiannually to annually since historical receiving water data has been non-detect (ND) at monitoring locations RSW-LATT622, RSW-LATT612, RSW-LATT616, RSW-LATT614, RSW-LATT628.		X	Regional Water Board staff disagree. See Response to Comment No. 26.	None necessary .
Attachment E (MRP), Section VII.A.3, Table 6, Page E-24 Missing sample type for the pH analysis	32	The Bureau requests the sample type for pH be specified as 'Grab'. This is consistent with previous permits.	X		Regional Water Board staff agree to revise the Attachment E, as proposed.	Change has been made.
Attachment E (MRP), Section VII.B.1, Table 8, Page E-25 and throughout permit Sediment	33	The Bureau requests that the receiving monitoring frequency for the "remaining USEPA priority pollutants excluding asbestos" be reduced from semiannually to annually since historical sediment data has been non-detect (ND) at monitoring locations RSW-4 and RSW-W2.		X	Regional Water Board staff disagree. See Response to Comment No. 26.	None necessary .

Letter/ Issue	#	Comment	Agree	Disagree	Response to Comment	Action Taken
monitoring frequency						
Attachment E (MRP), Section VII.B.1,Table 8, Page E-25 Sediment monitoring frequency	34	The Bureau requests that the sediment monitoring frequency for the 2 metals (Mercury-Hg and Selenium-Se) be reduced from monthly to quarterly since historical sediment data has been non-detect (ND) at monitoring locations RSW-4 and RSW-W2.	X		Regional Water Board staff agree to revise the Attachment E for sediment monitoring frequency, as proposed.	Changes have been made.
Attachment E (MRP), Section VII.B.1, Table 8, Page E-25 Discrepancy between Table 8 and narrative on page F-59 for frequency of testing	35	Table 8 increases the frequency of sediment testing for mercury, selenium, and cyanide to monthly, while the narrative on F-59 does not mention any increase in the frequency of sediment testing for mercury and selenium and states that testing for cyanide should be increased to quarterly from semiannually. Also the permit does not require sediment testing at RSW-LATT622 (D) which has been tested since 1997.	X		Regional Water Board staff agree to revise the Attachment E for sediment monitoring frequency, as proposed. The monitoring frequency for mercury, selenium, and cyanide stays as quarterly, consistent with the current permit. The proposed Attachment does not require sediment testing at RSW-LATT622 (D).	Changes have been made.
Attachment E (MRP), Section VII.D.4, Page E-28 Receiving water sampling	36	Studies and previous sampling experience have shown that the flow of rainfall runoff after a storm event affects the receiving waters for up to 72 hours after receiving the runoff. If the receiving waters are sampled before 72 hours, runoff could still be affecting the test results. The new permit should keep the old permit guidelines and not allow receiving water sampling within 72 hours of rainfall runoff into the LA River.	X		Regional Water Board staff agree with the bureau's request.	Change has been made.
Attachement E (MRP), Section VIII.A, Table 10, Page E-29 Meprobamate	37	The Bureau requests that meprobamate be deleted from the list of CECs because it is not listed as an analyte in any ASTM, EPA or USGS analytical method.	X		Regional Water Board staff agree. However, to be consistent with recently adopted POTW permit, iodinated contrast media (i.e., iopromide) will be added to the list of CECs.	Change has been made.
Attachment E	3	The watershed monitoring program submitted to the	X		Regional Water Board staff agree to revise the	Changes

Letter/ Issue	#	Comment	Agree	Disagree	Response to Comment	Action Taken
(MRP), Section VIII.B, Page E-32, & throughout permit Acronym change	8	LARWQCB in Dec 2007 and approved in Jan 2009 was called the Los Angeles River Regional Monitoring Program (LARRMP). It is now called the called the Los Angeles River Watershed Monitoring Program (LARWMP) to avoid confusion with another City program in place with the acronym LARRMP (Los Angeles River Revitalization Master Plan). The Bureau requests to change all references to Los Angeles River Regional Monitoring Program (LARRMP) contained in the permit to Los Angeles River Watershed Monitoring Program (LARWMP).			Attachment E, as proposed.	have been made.
Attachment E (MRP), Section IX.B.3, Table 11, Page E-34 Quarterly Monitoring	39	The Bureau requests the quarterly monitoring periods to begin February, May, August, and November. This would be consistent with other Bureau permits.		X	Regional Water Board staff disagree. The proposed quarterly monitoring periods specified in Table 11 are identical with the recently adopted permits for the Bureau. They are Order No. R4-2010-0071 and Order No. R4-2010-0200, adopted by this Regional Water Board on May 6, 2010 and November 4, 2010, for the Terminal Island Water Reclamation Plant and Hyperion Treatment Plant, respectively. The monitoring period specified on Table 11 of the MRP shall stay the same. Monitoring period follows calendar month that starts, e.g., January 1 to March 31 as first quarter. This is standard for all NPDES permits.	None necessary.
Attachment E (MRP), Section IX.B.4, Page E-35 Reporting protocols	40	The permit contains the following provisions for reporting protocols: "Reporting Protocols. The Discharger shall report with each sample result the applicable reported Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136." This is not consistent with the SIP. We request that this language be replaced with the following: "Reporting Protocols. The Discharger shall report with each sample result the applicable reported Minimum Level (ML), for those constituents where the SIP specifies MLs, and the applicable reported Reporting Limit (RL), for all other constituents as appropriate, and the current Method Detection Limit (MDL), as determined by the procedure in Part 136."	X		Regional Water Board staff agree to revise the Attachment E, as proposed.	Change has been made.
Attachment E (MRP),	41	The Bureau requests the following change: "~~The annual report shall contain graphical and tabular summaries of the~~	X		Regional Water Board staff agree to revise the Attachment E, as proposed.	Changes have been

Letter/ Issue	#	Comment	Agree	Disagree	Response to Comment	Action Taken
Section IX.D.1, Page E-36 Redundant information requested		~~monitoring analytical data.~~" This information is readily available to LARWQCB staff via CIWQS.				made.
Attachment F (Fact Sheet), Section II, Page F-4 Incorrect name for the City's integrated network of facilities	42	The Bureau requests the following change: "The Tillman WRP is part of the City's integrated network of facilities, known as the ~~North Outfall Sewer (NOS)~~ Hyperion Service Area (I), which includes four treatment plants."	X		Regional Water Board staff agree to revise the Attachment F, as proposed.	Changes have been made.
Attachment F (Fact Sheet), Section II, Page F-4&5 Incorrect Sewer name	43	The Bureau requests the following change: "All solids removed from the Tillman WRP treatment process are returned untreated to the ~~NOS~~ Additional Valley Outfall Relief Sewer (AVORS) for downstream treatment at the Hyperion Wastewater Treatment Plant."	X		Regional Water Board staff agree to revise the Attachment F, as proposed.	Changes have been made.
Attachment F (Fact Sheet), Section II.C.1, Table 2, Page F-10 Max Monthly Average vs. Max Daily values.	44	The Highest Monthly Average Zinc and Cyanide values are greater than the respective Highest Daily Discharge values. Please review these data and revise as appropriate.	X		Regional Water Board staff agree to revise the Attachment F, as proposed.	Change has been made.
Attachment F (Fact Sheet), Section III.E.5, Page F-22	45	The Bureau requests the following change: "The accompanying Order fosters the implementation of this approach by protecting beneficial uses in the watershed and requiring the Discharger to participate with ~~the *Los Angeles and San Gabriel River Watershed Council*, and other~~ stakeholders, in ~~the development and~~	X		Regional Water Board staff agree to revise the Attachment F, as proposed.	Changes have been made.

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Designation of required participants for the City to implement a Watershed Management Approach (WMA)		implementation of a watershed-wide monitoring program… ~~The *Los Angeles & San Gabriel Rivers Watershed Council* is a nonprofit organization which is tracking activities throughout the Los Angeles and San Gabriel River watersheds. Its goal is to help facilitate a process to preserve, restore, and enhance all aspects of both watersheds~~." The Los Angeles and San Gabriel River Watershed Council has been selected as a contractor to manage the LARWMP. The Bureau believes it is not necessary to name a contractor within the permit.				
Attachment F (Fact Sheet), Section IV.C.2.b.ii Page F-29 Clarify word use	46	The Bureau requests the clarification of the word 'basic' in the following paragraph: "The hydrogen ion activity of water (pH) is measured on a logarithmic scale, ranging from 0 to 14. While the pH of "pure" water at 25°C is 7.0, the pH of natural waters is usually slightly basic due to the solubility of carbon dioxide from the atmosphere." If the pH of natural waters is slightly acidic, this statement makes sense because the product of carbon dioxide's interaction with water is carbonic acid. However, if the statement that natural waters pH is as written, natural salts that are alkaline would be a more appropriate basis for this statement.	X		Regional Water Board staff agree to revise section IV.C.2.b.ii of the Attachment F as: "The hydrogen ion activity of water (pH) is measured on a logarithmic scale, ranging from 0 to 14. ~~While the pH of "pure" water at 25°C is 7.0, the pH of natural waters is usually slightly basic due to the solubility of carbon dioxide from the atmosphere~~…"	Change has been made.
Attachment F (Fact Sheet), Section IV.C.2.b.ix.iii Page F-32 Choice of word	47	The Bureau finds the term 'restored', to be ambiguous. The following change is requested: "However, if the Los Angeles River ~~is eventually restored and the Los Angeles River~~ becomes de-listed for nutrients, then the permit would be re-opened to include Basin Plan-based effluent limitations."	X		Regional Water Board staff agree to revise the Attachment F, as proposed.	Change has been made.
Attachment F (Fact Sheet), Section IV.C.2.c Page F-38	48	"The procedures include those used to conduct a reasonable potential analysis (RPA) to determine the need for effluent limitations for priority and nonpriority pollutants."	X		Regional Water Board staff agree to revise the Attachment F, as proposed.	Change has been made.

Letter/ Issue	#	Comment	Agree	Disagree	Response to Comment	Action Taken
Typo (missing a)						
Attachment F (Fact Sheet), Section VII.B.2.b, Page F-65 Inconsistent Toxicity Reduction Requirements	49	“The Discharger shall prepare and submit a copy of the Discharger’s initial investigation Toxicity Reduction Evaluation (TRE) workplan to the Executive Officer of the Regional Water Board for approval within ~~60~~ 90 days of the effective date of this permit.” This requirement is not consistent with the provisions as found in the Tentative Order in section VI.C.2.b, Page 32. This requested change would be consistent with previous permits.	X		Regional Water Board staff agree to revise the Attachment F, as proposed.	Change has been made.
Attachment P (Pretreatment) Correction to section and sub-section Numberings	50	The Bureau requests the following section and sub-section numbering changes: 1. Section Numbering for Semi-Annual Reporting Requirement should be “II” instead of “B”. 2. Sub-Section Numbering for Semi-Annual Reporting Requirement should be “A” and “B” instead of “1” and “2” 3. Section Numbering for Signatory Requirements and Report Submittal should be “III” instead of “C”. 4. Sub-Section Numbering for Signatory Requirements and Report Submittal should be “A” and “B” instead of “1” and “2”	X		Regional Water Board staff agree to revise the Attachment P, as proposed.	Changes have been made.
Attachment P (Pretreatment), Section I.A, Paragraph 1, Page P-1 Annual Report Sludge monitoring	51	Sludge processing is not performed at DCT. Therefore, the Bureau requests the following reference to monitoring sludge from the secondary treatment process be deleted as follow: “The Discharger is required to monitor pollutants in the influent and the effluent of the POTW(s~~)~~”.~~, and in the sludge from the secondary treatment process.~~	X		Regional Water Board staff agree to revise the Attachment P, as proposed.	Change has been made.
Attachment P (Pretreatment), Section I.A, Paragraph 4, Page P-2 Extraneous	52	Please delete reference to the joint water pollution control plant NPDES permit as follow. ~~The Discharger will coordinate its monitoring requirements under this program with the requirements under in the Joint Water Pollution Control Plant NPDES Permit (CA0053813, Order NO. R4-2006-0042).~~		X	Regional Water Board staff agree to revise section I.A. of the Attachment P as: “The Discharger will coordinate its monitoring requirements under this program with the requirements under in the~~ Joint Water Pollution Control Plant ~~Hyperion Treatment Plant NPDES Permit (CA~~0053813~~0109991, Order NO. R4-~~2006-0042~~2010-0200).	Changes have been made.

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Reference						
Attachment P (Pretreatment), Section I.D.8, Page P-2 Reference Correction	53	The Bureau request the reference to be corrected from 40 CFR 403.12(f)(2)(vii) to 40 CFR 403.8(f)(2)(viii).	X		Regional Water Board staff agree.	Changes have been made.
Attachment P (Pretreatment), Pages 2-4 Incorrect Footnotes	54	The Bureau requests the following footnote changes: 1. Footnotes on pages 2, 3, and 4 should be "Attachment P – Pretreatment Reporting Requirements August 4, 2011" 2. Footnotes on pages 2, 3, and 4 should be "P-2" instead of "J-2"; "P-3" instead of "J-3", and "P-4" instead of "J-4"	X		Regional Water Board staff agree to revise the Attachment P, as proposed.	Changes have been made.
Attachment P (Pretreatment), Section B, Page P-3 Semi-Annual Reporting Submission due date.	55	The Bureau requests the submission due date for semi-annual reporting be changed from August 15^{th} to September 1^{st}. This is consistent with other Bureau permits.	X		Regional Water Board staff agree to revise the Attachment P, as proposed.	Changes have been made.
Heal the Bay **September 6, 2011 Cover letter – Comments Regarding Tentative Order dated August 4, 2011**						
	1	LAG and Tillman WRPs should maximize water recycling in accordance with the Reasonable and Beneficial Use Doctrine and the State Recycled Water Policy. The Regional Water Board should enforce/require the City to reuse all water treated at LAG and Tillman WRPs (to offset potable demand) that is not required to sustain the Los Angeles River.		X	Regional Water Board staff agree that the LAG and Tillman WRPs should maximize water recycling. The State Water Board's Recycled Water Policy directs the Regional Water Boards to encourage the use of recycled water. The proposed permit is an NPDES permit that regulates the discharges of waste. Tillman WRP's water reclamation is addressed in separate Waste Discharge Requirements Order No. R4-2007-0008 (as amended by R4-2008-0040, adopted on July 10, 2008) and Water Recycling Requirements Order No. R4-2007-0009 (as amended by R4-2011-0032,	None necessary.

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					adopted on February 3, 2011), both original Orders adopted by this Regional Water Board on January 11, 2007. The State Water Board addressed waste and unreasonable use in the Recycled Water Policy as follows: "The State Water Board hereby declares that, pursuant to Water Code sections 13550 *et seq.*, it is a waste and unreasonable use of water for water agencies not to use recycled water when recycled water of adequate quality is available and is not being put to beneficial use, subject to the conditions established in sections 13550 *et seq*. The State Water Board shall exercise its authority pursuant to Water Code section 275 to the fullest extent possible to enforce the mandates of this subparagraph." The City of Los Angeles' Response to Heal the Bay's Comments, dated September 23, 2011, supports water recycling to offset potable demand and for other beneficial uses. The LADWP and BOS are working together to expand recycled water usage that will reduce reliance on imported water. To this end, the City of Los Angeles has been developing Recycled Water Master Planning (RWMP) documents since 2009, a process in which Heal the Bay has been involved as a founding participant of the Recycled Water Advisory Group. The RWMP effort began in June 2009 and is scheduled to be concluded in 2012. Once the RWMP is finalized in 2012, the City of Los Angeles should be able to provide the recycled water work plan, which describes much more detailed quantity of recycled water used and produced at all POTWs and recycled water applications such as groundwater recharge and non-potable reuse.	

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	2	The WQBEL for metals from the Los Angeles River Metals TMDL should apply in both wet and dry weather.		X	The Los Angeles River Metals TMDL has been adopted by the Regional Water Board and approved by the State Board and USEPA. There are wet- and dry-weather copper and lead Waste Load Allocations for the Donald C. Tillman Water Reclamation Plant discharging the treated-waste water via Discharge Points 002, 003, and 008 into the receiving water of Los Angeles River Reach 4. The WQBELs for cadmium and zinc are consistent with the Los Angeles River Metals TMDL. TMDLs cannot be modified through a permitting action, but instead must go through a separate public hearing process. If in the future the TMDL is modified, to specify that the WLAs should be applied all year round, then the NPDES permit may be modified, consistent with reopener provision in section VI.C.1. of the Order.	None necessary.
	3	The Regional Water Board should not remove WQBELs and decrease monitoring frequencies for constituents in the Permits based on results of the calculated reasonable potential analyses ("RPA").		X	To establish WQBELs for the Tentative Permits using RPA is the policy of the State of California. The RPA is based on the methodology set forth in State Water Board policy. The RPA has been used in all adopted permits since 2000. The removal of effluent limitations, for constituents that no longer show reasonable potential, is consistent with the State Water Board's Precedential Order WQO 2003-0009. Regional Water Board staff use a matrix of criteria, based upon Best Professional Judgment, to set the effluent and receiving monitoring frequencies for regulating the myriad pollutants. The monitoring frequencies for these pollutants, which vary from monthly, quarterly, to semiannually, are generally set based on the following three criteria: Criterion 1: Monitoring frequency will be monthly, for those pollutants with reasonable potential to exceed water quality objectives (i.e. monitoring has shown exceedances of the objectives); or,	None necessary.

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					Criterion 2: Monitoring frequency will be quarterly, for those pollutants in which some or all of the historic effluent monitoring data detected the pollutants, but without reasonable potential to exceed water quality objectives; or, Criterion 3: Monitoring frequency will be semiannually, for those pollutants in which all of the historic effluent monitoring data have had non-detected concentrations of the pollutants and without current reasonable potential to exceed water quality objectives.	
United States Environmental Protection Agency September 6, 2011 Cover letter – Comments Regarding Tentative Order dated August 4, 2011						
Chronic Toxicity Reporting	1	Chronic Toxicity Reporting The USEPA requests clarifying revisions to compliance reporting requirements'for the proposed narrative chronic toxicity effluent limit implementing WQO 2002-0012. WQO 2002-0012 requires the enforceable narrative effluent limit to be the following: "There shall be no chronic toxicity in the effluent discharge." While the existing and draft permits require the discharger to report chronic toxicity monitoring results (in chronic toxic units, TUc), they do not require compliance reporting for the narrative chronic toxicity effluent limit. To correct this omission and provide for our mutual compliance tracking of the narrative chronic toxicity effluent limit required by WQO 2002-0012, the permits should be revised to require a report of "pass" or "fail", on submitted Discharge Monitoring Reports/State Monitoring Reports, when accelerated testing is triggered by monitoring results greater than the numeric accelerated monitoring trigger specified in the permit (i.e., monthly median of 1 TUc = 100/NOEC). This reporting requirement is important to ensure the State and EPA receive evidence when chronic toxicity is present in the discharge at levels higher than the allowable narrative limit of no chronic toxicity in discharged	X		The suggested language and footnote (both modified) were incorporated into the Monitoring and Reporting Program (MRP). Based on discussions with USEPA, the reporting of "Pass" / "Fail" were replaced with "Absent" / "Present" to indicate that the accelerated monitoring for chronic toxicity was triggered. The modified footnote now reads: "For narrative chronic toxicity effluent limit reporting, "Absent" is reported when chronic toxicity effluent results do not trigger accelerated testing by exceeding the monthly median trigger of 1.0 TU_c = 100/NOEC. "Absent" does not imply the complete absence of chronic toxicity effects. "Present" is reported when chronic toxicity effluent results trigger accelerated testing by exceeding the monthly median trigger of 1.0 TU_c = 100/NOEC." Please see the newly revised chronic toxicity reporting, which supercedes the above response and is specified in the following response to November 4, 2011 comments provided by the City of Los Angles, CASA, Tr-TAC, and County	Changes have been made.

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		100 percent effluent. This reporting requirement can be easily incorporated into each permit by adding the following underlined text to Monitoring and Reporting Table 3, for effluent monitoring:			Sanitation Districts of Los Angeles County.	
TMDL Implementation	2	TMDL Implementation The USEPA has reviewed TMDL implementation requirements in the draft permits and support the application of statistical procedures in section 1.4 of the State Implementation Policy (SIP) for TMDL wasteload allocation-to-WQBEL calculations, rather than direct implementation of wasteload allocations as WQBELs. Use of the SIP's statistical procedures ensures that calculated toxics WQBELs for discharges to impaired receiving waters with TMDL wasteload allocations based on CTR criteria are as stringent as the toxics WQBELs calculated for discharges to unimpaired receiving waters. In 2009, EPA approved a site-specific objective (SSO) for ammonia that could result in less stringent permit limits than those based on current wasteload allocations in the Nitrogen TMDL. As a result, prior to permit implementation, the SSO must be incorporated into the Nitrogen TMDL to ensure that impaired receiving waters will achieve water quality standards for ammonia.	X		Thank you for your comment in support of the permits' derivation of WLA- WQBELs.	None necessary .

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City of Los Angeles, Bureau of Sanitation's (Bureau) Comments Regarding the Revised Tentative NPDES Permit dated October 6, 2011						
Ammonia Effluent Limitations	1	**Ammonia Effluent Limits** The Bureau repeated their comment submitted on September 2, 2011. (Please see comment C1 on page 1.) The Bureau's comment letter dated October 6, 2011, added the following paragraph: However, revisions were not made to the Tentative Orders. The Bureau understands that Regional Board staff does not believe the effluent limits could be changed in the absence of addressing the TMDL. If this is the case, the Bureau believes that at least two options are available: delisting as supported by the attached November 9, 2010 letter or revising the TMDL. As such, the Bureau requests that Regional Board staff 1) identify the most appropriate and expeditious approach to address this administrative issue, and 2) identify the earliest possible date that the revisions can be completed and brought before the Regional Board for consideration.		X	As indicated in the previous response on page 1, once the Nitrogen Compounds TMDL is revised to incorporate the ammonia SSO and reapproved, staff will revise this NPDES permit. However, Regional Water Board staff are exploring options on how to incorporate the 30-day objective SSO in the calculation of ammonia effluent limitations.	None necessary.
Toxicity Reporting Requirements	2	On page E-10 of the Tillman WRP.and page E-9 of the LAGWRP Revised MR&Ps, a provision was added to Table 3A to require reporting of compliance with the chronic toxicity narrative effluent limit. The Bureau understands that this provision was added in response to comments from USEPA. While the Bureau acknowledges the desire to have clear information on compliance with effluent limitations, the approach that is proposed with respect to toxicity is neither appropriate nor accurate. First, it is unclear why this reporting requirement has been deemed to be necessary for the Bureau's water reclamation plants. WQO 2003-0012, which is cited in USEPA's letter as the basis for this request has been in place for eight years, and these types of reporting requirements have not been required for any other		X	After receiving the comments from interested parties that includes, City of Los Angeles, Joint Outfall System, CASA/Tri-TAC, reiterating similar concerns regarding chronic toxicity issue, the Regional Water Board staff confer with the USEPA on possible revision to the previously suggested chronic toxicity monitoring requirement. Based on discussions with the USEPA, the reporting of "Absent" / "Present" were replaced with "Passed" / "Triggered" to indicate whether accelerated monitoring for chronic toxicity was triggered or not. The revised footnote now reads: "For narrative chronic toxicity effluent limit reporting, "Passed" is reported when chronic toxicity effluent	The chronic toxicity language was revised as indicated in the revised tentative permit.

		dischargers within the Los Angeles region or the State. We are aware of no justification to require the Bureau to be the first and only agency in the State providing this type of information for compliance purposes. Without a clear understanding of the intent and purpose of the reporting and the language, the Bureau is concerned that confusion regarding the intent of the reporting could occur. Moreover, the State Water Resources Control Board has embarked upon a process to develop a statewide policy for toxicity that includes adoption of a statewide objective and implementation program, including monitoring and reporting requirements. The State Water Board has conducted multiple workshops and released.an initial draft for public comment. Upon adoption, which is anticipated in early 2012, the policy will be binding on the Regional Water Boards. The existence of this statewide effort-which is motivated in large part by a desire to bring consistency to the approach to toxicity testing and related permit requirements-is a compelling reason not to depart from the Regional Board's established approach to toxicity on a permit specific basis. . The Bureau,requests that the reporting requirements for, the. LAGWRP and DCTWRP be consistent with the reporting requirements for other dischargers in the region and State and that the Regional Board remove the added language.			results do not trigger accelerated testing by exceeding the monthly median trigger of 1.0 TU_c = 100/NOEC. <u>"Triggered"</u> is reported when chronic toxicity effluent results trigger accelerated testing by exceeding the monthly median trigger of 1.0 TU_c = 100/NOEC." Please also see the response to CASA below.	
California Association of Sanitation Agencies (CASA) and Tri-TAC Comments Regarding the Revised Tentative NPDES Permit dated October 6, 2011						
	1	CASA and Tri-TAC join the City of Los Angeles Bureau of Sanitation in requesting that the reporting requirements for these WRPs be consistent with the reporting requirements for other dischargers in the region and State, and that the Regional Water Board remove the added language from Table 3A.		X	It appears the commenter misunderstands the intent of the proposed chronic toxicity reporting requirement. It is not the Water Board's intent to create a numeric effluent limit for chronic toxicity at this time, or to create new requirements for monitoring chronic toxicity or interpreting test results. Rather, the proposed change simply requires actual chronic toxicity test results to be compared with the permit's existing monitoring threshold, and reported in a narrative manner indicating whether test results are above or below the existing monitoring threshold. This type of reporting is needed by the Water Board because the existing monitoring and reporting approach	The chronic toxicity language was revised as indicated in the revised tentative permit.

					does not provide clear information that can be efficiently reviewed or coded in State and EPA databases. As DMRs tend to be very lengthy, it is infeasible for State or EPA staff to review every reported data value to determine whether reporting thresholds or permit limits are met or exceeded. With respect to the permit's narrative chronic toxicity effluent limit and associated monitoring requirements, the Water Board believes it is necessary to incorporate a summary of monitoring results for permit requirements that can be efficiently reviewed and coded in State and EPA databases. With respect to the comment that the proposed chronic toxicity reporting requirement might require a permittee to draw conclusions about underlying toxicity, the commenter misunderstands the representation that a permittee would be required to make in reporting whether a chronic toxicity test result is higher than, or lower than, a specified threshold. While the State and EPA continue to believe chronic and acute toxicity testing methods do reliably indicate the presence of toxicity, the proposed reporting requirement simply requires the permittee to report test results in comparison with the existing monitoring threshold, not to evaluate whether the test results are reliable indicators of actual underlying toxicity.	
Joint Outfall System (County Sanitation Districts of Los Angeles County) Comments Regarding the Revised Tentative NPDES Permit dated October 6, 2011						
	1	The Sanitation Districts object to inclusion of the proposed monitoring and reporting provision, as detailed below, and request that it be removed prior to the adoption of the Revised Tentative Orders. The remaining permit requirements for chronic toxicity are amply sufficient to allow the Regional Board and the City to assess and control chronic toxicity. These permit requirements include monthly chronic toxicity testing, reporting of the results in TUc, accelerated testing when the chronic toxicity monthly median TUc value is greater than 1.0, and investigation of the source of toxicity if warranted by the results of the		X	Please see response above.	The chronic toxicity language was revised as indicated in the revised tentative permit.

		accelerated testing. 1. A monthly median of 1.0 TUc is not an approved water quality standard or approved regulatory benchmark to establish the presence or absence of chronic toxicity. 2. The City Cannot be Compelled to Report Chronic Toxicity as “Present” or “Absent” in Discharge Based on Comparisons to An Accelerated Monitoring Trigger 3. The Proposed Requirement is Not Supported by Adequate Findings or Evidence, Nor Will it Provide New Evidence of the Presence or Absence of Chronic Toxicity 4. Compliance with the Narrative Effluent Limitation for Chronic Toxicity Should Be Unambiguous 5. The Accelerated Monitoring Trigger Will Improperly Operate Like a Final Numeric Effluent Limitation for Chronic Toxicity 6. The State Water Board Opined that Regional Boards Should Not Impose Final Numeric Effluent Limitations for Chronic Toxicity before Adoption of a Statewide Policy on Toxicity				

Permit Due Dates and Deliverables

Donald C. Tillman Water Reclamation Plant

NPDES Dates to Remember

Effective dates for the monitoring program

Sampling Frequency	Monitoring Period Begins On…
Continuous and Daily	February 3, 2012
Weekly	February 5, 2012
Monthly	March 1, 2012
Quarterly	May, 2012
Semiannually	August, 2012

Reference:
Page E-34, Table 11

Donald C. Tillman Water Reclamation Plant

NPDES Dates to Remember

One Time Dates

Item/Pg	**Due Date**	**Action**	**Division**
Permit Adopted (WDR-2)	12/8/11		-
Permit Effective (WDR-2)	2/3/12		-
Permit Expires (WDR-2)	11/10/16		-
File RWD/NPDES Permit Renewal Application (WDR-2)	5/14/16	File Application	RAD
CEC Special Study Work plan (WDR-32 E-28)	8/3/12	Within 6 months of the effective date, submit CEC Special Study work plan. Upon approval implement the work plan	EMD
Initial Investigation TRE Work plan (WDR-32 E-15)	5/3/12	Within 90 days of effective date, submit Initial Investigation TRE Work plan	EMD
Spill Clean-up Contingency Plan (WDR-34)	5/3/12	Within 90 days of effective date, submit SCCP describing activities and protocols to address clean up of spills, overflows, and bypasses	WCSD
A list of all chemicals and proprietary additives (E-37)	4/15/12	Submit together with the first monitoring report to RWQCB	DCT
A technical report on the preventive and contingency plans for controlling accidental discharges, and for minimizing the effect of such events (E-37)	4/26/12	Within 90 days after effective date, submit the technical report	DCT

Donald C. Tillman Water Reclamation Plant

NPDES Dates to Remember

Routine Reporting Dates

Area	Report	Due Date(s)	Division
Spill Clean-up Contingency Plan (WDR-34)	Annual Report – Include discussion in annual report of any modifications to the SCCP and the application of the SCCP to all spills during the year	April 15	WCSD
PMP Report (WDR-35)	Annual Report: Status report to RWQCB including all PMP monitoring results from previous year; a list of potential sources of reportable priority pollutants; a summary of all actions undertaken pursuant to the control strategy; and a description of actions to be taken in the following year	April 15 (To be determined on case by case basis with approval of RWQCB)	EMD IWMD
Pretreatment Program (WDR-37, Attachment P)	Annual Report: Submit Annual Pretreatment Program Compliance Report to the Regional Water Board and to the USEPA Region 9.	March 1 of every year	IWMD
Pretreatment Program (WDR-37, Attachment P)	Semiannual Report: Submit Semiannual Pretreatment Program Compliance Report to the Regional Water Board and to the USEPA Region 9.	September 1 of every year covering the periods from January 1 to June 30	IWMD
Spill Certification (WDR-40)	Include certification in annual summary report stating that sewer system emergency equipment are maintained and tested in accordance with the Preventative Maintenance Plan.	April 15	WCSD
Spill Records (WDR-41)	Develop and maintain a record of all spills, overflows, or bypasses and include in annual summary report	April 15	WCSD
Toxicity Test Results (E-18)	Include any accelerated testing conducted during the month	By the 15th day of the third month following sampling	EMD
Bioassessment Monitoring Program (E-25)	Annual Report: Include analyses of the results of the bioassessment monitoring program, along with photographs	April 15	EMD
CEC Special Study (E-31)	Annual Report: submit to the EO of RWQCB summarizing the monitoring	April 15 starting 2013	EMD

	results from the previous year		
Annual Summary Report (E-36)	Annual Report: Include a discussion of the previous year's influent/effluent analytical results and receiving water bacterial monitoring data; an overview of any plans for upgrades to the treatment facility's collection system, the treatment processes, or the outfall system. Sent hard copy to RWQCB.	April 15	EMD
Reasonable Potential Analysis (E-36)	Annual Report: Discuss whether or not reasonable potential was triggered for pollutants which do not have a final effluent limitation in the NPDES permit.	April 15	EMD RAD
TSO updates	Quarterly report on status of activities to meet final ammonia effluent limit	March 1	DCT

Donald C. Tillman Water Reclamation Plant

NPDES Dates to Remember

Response Procedures

Item	Page#	Required Action by City	Division
Acute Toxicity: Survival in any 3 consecutive 96 hr static renewal bioassay tests <90% or 1 test <70% survival	WDR-22 WDR-33	If either test fails, conduct 6 more tests every 2 weeks over a 12 week period. Results required within 24 hrs of completion. Additional tests must begin within 5 business days of receipt	EMD
Acute Toxicity: Results of 2 of 6 of accelerated tests <90% survival	WDR-22 WDR-33	Begin TIE	EMD
Acute Toxicity: Results of initial test and any additional of the 6 accelerated tests <70% survival	WDR-22	Immediately implement initial investigation TRE workplan	EMD
Chronic Toxicity: Result > monthly median of 1.0 TU_c trigger	WDR-23	Immediately implement accelerated testing.	EMD
Chronic Toxicity: If any 3 from the initial test and the 6 accelerated tests >1.0 TU_c	WDR-23 WDR-26	Initiate TIE and implement the initial investigation TRE workplan.	EMD
Any toxicity exceedance	E-19	Notify Regional Water Board immediately and in writing 14 days after the receipt of the results of any effluent limit	EMD
Material change in character, location, or volume of discharge	WDR-29	File a ROWD report with the RWQCB Within 120 days of making a material or proposed change in character, location, or volume of the discharge.	RAD
Planned discharge of chemical toxic to aquatic life not previously reported	WDR-29	Notify EO in writing within 6 months of the planned discharge	DCT
Noncompliance or unable to comply with any prohibition, effluent limit, or receiving water limit	WDR-30	Notify RWQCB Watershed Regulatory Section Chief by phone (213) 576-6616 or electronically within 24 hrs of knowledge and confirm in writing within 5 days unless waived.	EMD

Change in point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse	WDR-30	Prior to making change, file a petition with the SWRCB Division of Water Rights and receive approval	DCT
Toxicity Reduction Requirements: Results of initial investigation TRE work plan indicate the need to continue the TRE/TRI	WDR-33	Expeditiously develop a more detailed TRE work plan within 15 days of completion of the initial investigation TRE and submit to EO	EMD
Treatment Plant Capacity: Average Daily dry-weather flow equals or exceeds 75 % of design capacity	WDR-33	Within 90 days after the 30-day monthly average dry-weather flow equals or exceeds 75% of the design capacity, submit a written report to RWQCB, signed by the senior administrative officer, with information regarding flow characteristics and studies, if any, to review plant capacity requirements	DCT
Spill Clean-up Contingency Plan: After every spill from facility or collection system servicing the facility	WDR-34	Review and amend SCCP as appropriate	WCSD
Pollutant Minimization Program	WDR-34	Develop a PMP when evidence that a priority pollutant is present above the effluent limitation and either the concentration is reported as DNQ and the effluent limit is less than the ML; or the concentration is reported as ND and the effluent limit is less than the MDL	EMD
Pretreatment: Changes to pretreatment regulations 40 CFR 403	WDR-37	Within 6 months of pretreatment regulation (40 CFR 403) revisions with no timetable specified, complete the required actions	IWMD
Spills: Local Health Agency Initial Notification	WDR-37	Notify local health officer of any unauthorized release of sewage or other waste that causes or likely will cause a discharge to water of the State within 2 hours of knowledge of spill	WCSD
Spills: Cal EMA Notification	WDR-38	Notify Cal EMA of reportable Quantity of sewage or hazardous waste (>1,000 gal) that enters or is likely to enter waters of the state	WCSD

		within 2 hours of knowledge of the release (800) 852-7550	
Spills: RWQCB Notification	WDR-38	Notify RWQCB of any unauthorized release of sewage or other waste that causes or likely will cause a discharge to water of the State within 2 hours of knowledge of spill (213) 576-6657	WCSD
Spills Monitoring	WDR-39	Take a grab sample of all SSOs that reach a water of the State of any volume and take a grab sample of all SSOs greater than 1,000 gallons.	WPD EMD
Spills Monitoring	WDR-39	Take daily grab samples upstream and downstream of SSO entry point until two consecutive sets indicate return to background levels	WPD EMD
Spills: RWQCB USEPA 24 hour Reporting	WDR-39	Submit a report to RWQCB via email (aanijielo@waterboards.ca.gov) and to the USEPA by phone (415 972 3577) or by facsimile (415 947 3545) for spills reaching waters of the State or if spill is >1,000 gallons as soon as possible but within 24 hours of knowledge of spill	WPD EMD
Spills: RWQCB USEPA Preliminary Reporting	WDR-40	Submit a preliminary written report to RWQCB and to the USEPA for spills reaching waters of the State or if spill is >1,000 gallons within 5 working days after disclosure of the spill	WPD EMD
Spills: RWQCB USEPA Final Reporting	WDR-40	Submit final written report to RWQCB and to the USEPA for spills reaching waters of the State or if spill is >1,000 gallons within 30 days after submittal of preliminary report	WPD EMD
Noncompliance with AMEL	WDR-44	In the event of noncompliance with AMELs, the sampling frequency shall be increased to weekly and shall continue until compliance with the AMEL is demonstrated	EMD
Bypassed Filters	E-27 E-32	Monitor the receiving water downstream of the discharge for BOD5, inform RWQCB by telephone within 24 hrs of the event, submit a written report to the RWQCB according to the corresponding monthly self-monitoring report schedule	EMD

Presentations

Los Angeles–Glendale and Donald C. Tillman Water Reclamation Plant

Presentation to the
Los Angeles
Regional Water Quality Control Board

Presented By:

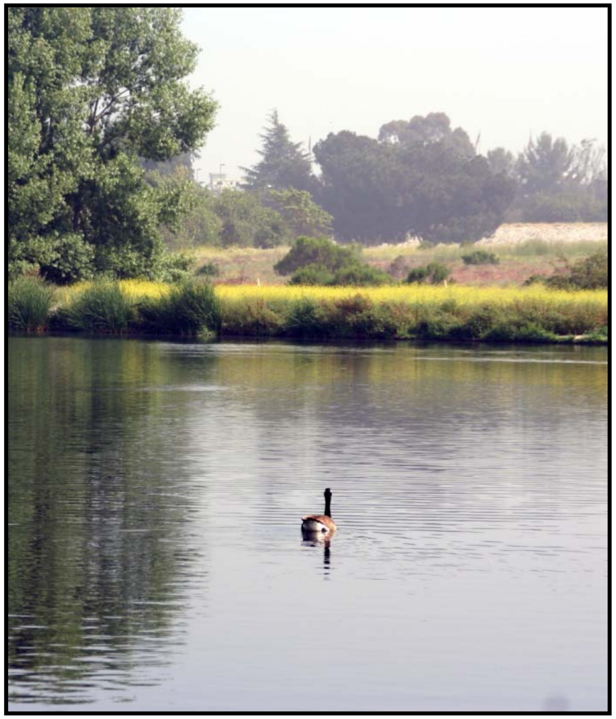
Hassan Rad
City of Los Angeles
Department of Public Works
Bureau of Sanitation

December 08, 2011

CITY OF LOS ANGELES
SANITATION
DEPARTMENT OF
PUBLIC WORKS

Presentation Outline

- Introduction
- LAG and DCT's Accomplishments
- Water Recycling Program
- Summary



Introduction

- Donald C. Tillman
  - Design Capacity 80 MGD
  - Serves West San Fernando Valley
  - Tertiary Treated, NDN, Chlorinated/ Dechlorinated
  - Discharge flow to Japanese Garden, Balboa Lake, Wildlife Lake, and LA River
- Los Angeles-Glendale
  - Design capacity 20 MGD
  - Tertiary Treated, NDN, Chlorinated/ Dechlorinated
  - Discharges flow to LA River

Plants' Accomplishments

- 2007- Completed $61 million Nitrification-Denitrification projects
- 2013- $10 million wet weather emergency storage tank (DCT)
- Excellent effluent quality

Current Water Recycling Program

- 31 million gallons per day of recycled water from DCTWRP and LAGWRP is used for beneficial reuse.

- ## DCTWRP Usage
  - Irrigation, Balboa Lake, Wildlife Lake, Japanese Garden, Los Angeles River, and In plant usage

- ## LAGWRP Usage
  - Irrigation, Industrial Cooling Water, and In plant usage

Future Water Recycling Program

- In partnership with LADWP to expand water recycling usage
- Recycled Water Master Plan
  - Provide up to an additional 50,000 AFY of Recycled Water including Ground Water Replenishment (GWR).
  - Completed a pilot study to evaluate the proposed GWR treatment process.
  - Implementation of additional non-potable reuse projects (i.e., irrigation and industrial process).
  - Maximize Reuse

Summary

- LAG and DCT are exceptional wastewater treatment plants with excellent performance.
- The Bureau supports water recycling programs in the Los Angeles Region.
- **The Bureau supports RWQCB's staff recommendation for the adoption of the proposed revised tentative permits for both DCTWRP and LAGWRP.**

Thank You

Hassan Rad, PE
Acting Senior Environmental Engineer
12000 Vista Del Mar M.S. 535
Playa Del Rey, CA 90293
(310) 648-5240
hassan.rad@lacity.org

CITY OF LOS ANGELES
SANITATION
DEPARTMENT OF
PUBLIC WORKS

DCT & LAG 2011 Permits

DCT & LAG 2011 NPDES Permit Workshop

Changes, Responsibilities, & Requirements

Regulatory Affairs Division
February 8, 2012

CITY OF LOS ANGELES
SANITATION
DEPARTMENT OF PUBLIC WORKS

Overview

- DCT/LAG Permit History
- Effluent Limits and Changes
- Monitoring Requirements and Changes
- Ammonia History
- DCT TSO Requirements
- Chronic Toxicity Narrative
- Alternative Power Source Requirement
- Grab Schedule Change
- CEC Special Study
- Sanitary Sewer Overflows Requirements
- Deliverables
- Questions/Comments

DCT/LAG Permit History

Milestone	DCT	LAG
2006 NPDES Permit Adopted	December 14, 2006	December 14, 2006
Modified NPDES Permit	April 1, 2010	April 1, 2010
2006 NPDES Permit Expired	November 10, 2011	November 13, 2011
New NPDES Application Submitted	April 19, 2011	April 19, 2011
New NPDES Permit Adopted	December 8, 2011	December 8, 2011
New NPDES Effective Date	February 3, 2012	January 27, 2012
New NPDES Expiration Date	November 10, 2016	November 10, 2016
Application Renewal Deadline	May 14, 2016	May 14, 2016

DCT Effluent Limits- Sample Point 001A

Parameter SP 001	Units	Ave Monthly	Ave Weekly	Daily Maximum
BOD5	mg/l	20	30	45
TSS	mg/l	15	40	45
O&G	mg/l	10	--	15
Settleable Solids	ml/L	0.1	--	0.3
Total Residual Chlorine	mg/l	--	--	0.1
Chloride	mg/l	190	--	--
TDS	mg/l	950	--	--
Sulfate	mg/l	300	--	--
MBAS	mg/l	0.5	--	--
Nitrate	mg/l	7.2	--	--
Nitrite	mg/l	0.9	--	--
Nitrate+Nitrite	mg/l	7.2	--	--
Ammonia	mg/l	2.2*	--	4.2
Cd (Wet Weather)	ug/l	3.4	--	8.4
Copper (Dry & Wet)	ug/l	25	--	31
Lead (Dry & Wet)	ug/l	9	--	14
Mercury	ug/l	0.051	--	0.15
Selenium	ug/l	4.2	--	7.8
Zinc (Wet Weather)	ug/l	194	--	277
CN	ug/l	4.3	--	8.5

* Interim TSO Limit

DCT Effluent Limits Changes

DCT Old vs. New NPDES						
		Daily Max			Monthly Ave	
Parameter SP 001	**Units**	**Old**	**New**		**Old**	**New**
Cadmium	µg/L	8.2	8.4		4.1	3.4
Copper	µg/L	34	31		23	25
Lead	µg/L	18	14		7.3	9
Mercury	µg/L	0.12	0.15		0.051	0.051
Selenium	µg/L	9.2	7.8		3.6	4.2
Zinc	µg/L	257	277		193	194
CN	µg/L	--	8.5		--	4.3
Ammonia	mg/L	4.2	4.2		1.4	2.2*

* Interim TSO Limit

LAG Effluent Limits- Sample Point 001

Parameter SP 001	Units	Ave Monthly	Ave Weekly	Daily Maximum
BOD5	mg/l	20	30	45
TSS	mg/l	15	40	45
O&G	mg/l	10	--	15
Settleable Solids	ml/L	0.1 ml/L	--	0.3ml/L
Total Residual Chlorine	mg/l	--	--	0.1
Chloride	mg/l	190	--	--
TDS	mg/l	950	--	--
Sulfate	mg/l	300	--	--
MBAS	mg/l	0.5	--	--
Nitrate	mg/l	7.2	--	--
Nitrite	mg/l	0.9	--	--
Nitrate+Nitrite	mg/l	7.2	--	--
Ammonia	mg/l	2.2	--	7.8
Cd (Wet Weather)	ug/l	4.3	--	8.9
Copper (Dry & Wet)	ug/l	24	--	34
Lead (Dry & Wet)	ug/l	10	--	20
Mercury	ug/l	0.051	--	0.17
Zinc (Wet Weather)	ug/l	240	--	298
CN	ug/l	4.3	--	8.5
Bis(2-Ethylhexyl)Phthalate	ug/l	4	--	--
Dibenzo(a,h)Anthracene	ug/l	0.049	--	0.098

LAG Effluent Limits Changes

LAG Old vs New NPDES						
		Daily Max		Monthly Ave		
Parameter SP 01	**Units**	**Old**	**New**	**Old**	**New**
Cadmium	µg/L	9.2	8.9	4.6	4.3
Copper	µg/L	40	34	22	24
Lead	µg/L	22	20	8.8	10
Mercury	µg/L	0.13	0.17	0.051	0.051
Zinc	µg/L	288	298	217	240
Dibenzo(a,h)Anthracene	µg/L	0.11	0.098	0.049	0.049
Cyanide	µg/L	--	8.5	--	4.3

DCT Monitoring Requirements Changes

Parameter SP001	Old Monitoring Frequency	New Monitoring Frequency
Boron	Monthly	Quarterly
Fluoride	Monthly	Quarterly
Zinc	Quarterly	Monthly
CN	Quarterly	Monthly
Tetrachlorethylene	Quarterly	Semiannually
Bis(2-ethylhexyl)phthalate	Quarterly	Semiannually
Gamma-BHC	Quarterly	Semiannually
Diazinon	NA	Quarterly

LAG Monitoring Requirements Changes

Parameter SP001	Old Monitoring Frequency	New Monitoring Frequency
Boron	Monthly	Quarterly
Fluoride	Monthly	Quarterly
CN	Quarterly	Monthly
Diazinon	NA	Quarterly

Effective Dates For Changes to Monitoring Program

Date	Sample Type		Date	Sample Type
2/3/2012	DCT Continuous and Daily		1/27/2012	LAG Continuous and Daily
2/5/2012	DCT Weekly		1/29/2012	LAG Weekly
3/1/2012	DCT Monthly		2/1/2012	LAG Monthly
May 2012	DCT Quarterly		May 2012	LAG Quarterly
August 2012	DCT Semiannual		August 2012	LAG Semiannual

Reference:
LAG, Page E-28, Table 6
DCT, Page E-34, Table 11

Ammonia History

- **7/9/07 -** NDN pilot start up at DCT
- **10/1/07** – DCT incorporated N TMDL ammonia WLAs
- **3/30/09** – Ammonia SSO Approved by USEPA
- **11/9/11** - BOS submits request for TSO
- **12/8/11** – RWQCB adopts DCT/LAG NPDES permits
- **2/2/12** – RWQCB adopts Ammonia TSO for DCT

DCT TSO Requirements

- Effluent Limit Change for Ammonia

	Old Limit	New Limit
Monthly Average	1.4 mg/l	2.2 mg/l*
Daily Maximum	4.2 mg/L	4.2 mg/l

* TSO Interim Limit

- Expires October 2012
- May apply for 5 year extension
- SWRCB planning to revise Ammonia TMDL to incorporate SSOs
- Once TMDL is revised, new Ammonia Limits
- TSO Update

Chronic Toxicity Narrative

- Proposed permit contained “Absent” or “Present” Compliance Reporting
- Violation of Narrative Toxicity Standard “There shall be no toxicity present”
- Final permit contains “Passed” or “Triggered” language

DCT Alternative Power Source Requirement

- Must maintain a sufficient alternate power source
- Must provide standby or emergency power and/or storage capacity to prevent sewage spill due to plant upset or power failure

Grab Schedule Change

- New Grab Sample Schedule requirements for pH, temp, settleable solids, TSS which provides:
- “Daily grab samples shall be collected Monday through Friday, except for holidays; and not on weekends.”

CEC Special Study

- Bureau must develop a CEC special study work plan within 6 months of effective date of permit (8/3/12 DCT, 7/27/12 LAG)
- Fully implement the special study upon RWQCB & US EPA approval of the work plan
- Annual report due each year by April 15th (Starting 4/15/13)

SSO Requirements

Sewage Spills Requirements

- Notification Requirements
- Reporting Requirements
- Monitoring Requirements

Sewage Spills

	EVENT #1	EVENT #2	EVENT #3
EVENT TYPE	1000 GAL SPILL ENTERING REC'G WATER	1000 GAL SPILL	1000 GAL SPILL & REC'G WATER, OR GROUND WATER, OR PUBLIC EXPOSURE
STEP 1	DAILY GRAB REC'G WATER (UPSTREAM & DOWNSTREAM)	"GOOD FAITH EFFORT" TO COLLECT GRAB SAMPLE OF SPILL, OVERFLOW, OR BYPASS	
STEP 2	NOTIFY RWQCB BY ELECTRONIC MEANS WITHIN 24 HOURS		
STEP 3	SUBMIT PRELIMINARY WRITTEN REPORT WITHIN 5 DAYS		
STEP 4	SUBMIT FINAL WRITTEN REPORT WITHIN 10 DAYS		

SSO Notification Requirements

LA RWQCB

LA RWQCB – NPDES

- Unauthorized SSO that enters or is likely to enter a water of the state or if public contact likely
- NPDES - notification ASAP within 2 hrs after knowledge
- Unauthorized release of any volume of sewage
- Daytime phone (213) 576-6657
- Weekends (213) 305-2253
- After Hours (213) 305-2284

SSO Notification Requirements
Cal EMA/OES

Cal EMA/OES – NPDES & CWC 13271

- Reportable Quantity of sewage or hazardous waste that enters or is likely to enter waters of the state
- CWC 13271 requires "Immediate" notification as soon as:

  1) knowledge of the discharge

  2) notification is possible, and

  3) notification can be provided without substantially impeding cleanup or other emergency measures
- NPDES - notification ASAP within 2 hrs after knowledge
- Reportable Quantity > 1,000 gal
- 24 hr reporting (800) 852-7550

SSO Notification Requirements
LACDPH

LACDPH – NPDES & CA HSC 5415.5

- Unauthorized release of sewage, effluent, or other waste that causes or likely will cause a release to waters of the state
- NPDES requires notification within 2 hrs after knowledge
- CA HSC 5415.5 requires “Immediate” notification as soon as knowledge of release
- “Immediately” interpreted by LACDPH to be within 15 minutes after knowledge of the release
- Unauthorized release (sewage, effluent, waste) of any volume
- Daytime phone (626) 430-5420
- Weekend/After Hours (213) 974-1234

SSO Reporting Requirements
NPDES

Sewage Spills Reporting Requirements

- RWQCB/US EPA - Surface Waters or > 1,000 gal

  - ASAP within 24 hours of knowledge

  - Preliminary Written Rpt - 5 days after disclosure

  - Final Written Rpt - 30 days of preliminary report

  - Annual Summary Report – Yearly PMP/O&M Certification & Record of spills

SSO Reporting Requirements

SSO WDR

Sewage Spills Reporting Requirements

- SSO WDR

  - Category 1 – 1,000 gal or more - SSO dbase

    Initial Reporting ASAP but within 3 days of knowledge

    Final Certified Reporting – Within 15 days of SSO response and remediation

  - Category 2 – All other spills - SSO dbase

    Within 30 days after the end of calendar month in which the SSO occurs

  - Private Laterals – Discretionary

SSO Monitoring Requirements

- Grabs for all SSOs that reach a water of the State of any volume
- Grabs for all SSOs greater than 1,000 gallons
- Daily grabs upstream and downstream of SSO entry point until two consecutive sets indicate return to background levels

DCT One-Time Submittals

Item/Pg	Due Date	Action	Division
Permit Adopted (WDR-2)	12/8/11		-
Permit Effective (WDR-2)	2/3/12		-
Permit Expires (WDR-2)	11/10/16		-
File RWD/NPDES Permit Renewal Application (WDR-2)	5/14/16	File Application	RAD
CEC Special Study Work plan (WDR-32 E-28)	8/3/12	Within 6 months of the effective date, submit CEC Special Study work plan. Upon approval implement the work plan	EMD
Initial Investigation TRE Work plan (WDR-32 E-15)	5/3/12	Within 90 days of effective date, submit Initial Investigation TRE Work plan	EMD
Spill Clean-up Contingency Plan (WDR-34)	5/3/12	Within 90 days of effective date, submit SCCP describing activities and protocols to address clean up of spills, overflows, and bypasses	WCSD
A list of all chemicals and proprietary additives (E-37)	4/15/12	Submit together with the first monitoring report to RWQCB	DCT
A technical report on the preventive and contingency plans for controlling accidental discharges, and for minimizing the effect of such events (E-37)	4/26/12	Within 90 days after effective date, submit the technical report	DCT

LAG One-Time Submittals

Item/Pg	Due Date	Action	Division
Permit Adopted (WDR-1)	12/8/11		-
Permit Effective (WDR-1)	1/27/12		-
Permit Expire (WDR-1)	11/10/16		-
File RWD/NPDES Permit Renewal Application (WDR-1)	5/14/16	File Application	RAD
CEC Special Study Work plan (WDR-32 E-23)	7/27/12	Within 6 months of the effective date, submit CEC Special Study work plan. Upon approval implement the work plan	EMD
Initial Investigation TRE Work plan (WDR-32 E-15)	4/26/12	Within 90 days of effective date, submit Initial Investigation TRE Work plan	EMD
Spill Clean-up Contingency Plan (WDR-33)	4/26/12	Within 90 days of effective date, submit SCCP describing activities and protocols to address clean up of spills, overflows, and bypasses	WCSD
A list of all chemicals and proprietary additives (E-31)	4/15/12	Submit together with the first monitoring report to RWQCB	LAG
A technical report on the preventive and contingency plans for controlling accidental discharges, and for minimizing the effect of such events (E-31)	4/26/12	Within 90 days after effective date, submit the technical report	LAG

DCT Routine Reporting

Area	Report	Due Date(s)	Division
Spill Clean-up Contingency Plan (WDR-34)	Annual Report – Include discussion in annual report of any modifications to the SCCP and the application of the SCCP to all spills during the year	April 15th	WCSD
PMP Report (WDR-35)	Annual Report: Status report to RWQCB including all PMP monitoring results from previous year; a list of potential sources of reportable priority pollutants; a summary of all actions undertaken pursuant to the control strategy; and a description of actions to be taken in the following year	April 15th (To be determined on case by case basis with approval of RWQCB)	EMD IWMD
Pretreatment Program (WDR-37, Attachment P)	Annual Report: Submit Annual Pretreatment Program Compliance Report to the Regional Water Board and to the USEPA Region 9.	March 1 of every year	IWMD
Pretreatment Program (WDR-37, Attachment P)	Semiannual Report: Submit Semiannual Pretreatment Program Compliance Report to the Regional Water Board and to the USEPA Region 9.	September 1 of every year covering the periods from January 1 to June 30	IWMD
Spill Certification (WDR-40)	Include certification in annual summary report stating that sewer system emergency equipment are maintained and tested in accordance with the Preventative Maintenance Plan.	April 15th	WCSD
Spill Records (WDR-41)	Develop and maintain a record of all spills, overflows, or bypasses and include in annual summary report	April 15th	WCSD

DCT Routine Reporting (Continued)

Area	Report	Due Date(s)	Division
Toxicity Test Results (E-18)	Include any accelerated testing conducted during the month	By the 15th day of the third month following sampling	EMD
Bioassessment Monitoring Program (E-25)	Annual Report: Include analyses of the results of the bioassessment monitoring program, along with photographs	April 15th	EMD
CEC Special Study (E-31)	Annual Report: submit to the EO of RWQCB summarizing the monitoring results from the previous year	April 15th starting 2013	EMD
Annual Summary Report (E-36)	Annual Report: Include a discussion of the previous year's influent/effluent analytical results and receiving water bacterial monitoring data; an overview of any plans for upgrades to the treatment facility's collection system, the treatment processes, or the outfall system. Sent hard copy to RWQCB.	April 15th	EMD
Reasonable Potential Analysis (E-36)	Annual Report: Discuss whether or not reasonable potential was triggered for pollutants which do not have a final effluent limitation in the NPDES permit.	April 15th	EMD RAD
TSO updates (correspondence)	Quarterly Report on status of activities to meet final ammonia effluent limit.	March 1st	DCT

LAG Routine Reporting

Area	Report	Due Date(s)	Division
Spill Clean-up Contingency Plan (WDR-34)	Annual Report – Include discussion in annual report of any modifications to the SCCP and the application of the SCCP to all spills during the year	April 15th	EMD
PMP Report (WDR-35)	Annual Report: Status report to RWQCB including all PMP monitoring results from previous year; a list of potential sources of reportable priority pollutants; a summary of all actions undertaken pursuant to the control strategy; and a description of actions to be taken in the following year	April 15th (To be determined on case by case basis with approval of RWQCB)	EMD IWMD
Pretreatment Program (WDR-36, Attachment P)	Annual Report: Submit Annual Pretreatment Program Compliance Report to the Regional Water Board and to the USEPA Region 9.	March 1 of every year	IWMD
Pretreatment Program (WDR-36, Attachment P)	Semiannual Report: Submit Semiannual Pretreatment Program Compliance Report to the Regional Water Board and to the USEPA Region 9.	September 1 of every year covering the periods from January 1 to June 30	IWMD
Spill Certification (WDR 39)	Include certification in annual summary report stating that sewer system emergency equipment are maintained and tested in accordance with the Preventative Maintenance Plan.	April 15th	WCSD
Spill Records (WDR-40)	Develop and maintain a record of all spills, overflows, or bypasses and include in annual summary report	April 15th	WCSD

LAG Routine Reporting (Continued)

Area	Report	Due Date(s)	Division
Toxicity Test Results (E-18)	Include any accelerated testing conducted during the month	By the 15th day of the third month following sampling	EMD
Bioassessment Monitoring Program (E-22)	Annual Report: Include analyses of the results of the bioassessment monitoring program, along with photographs	April 15th	EMD
CEC Special Study (E-25)	Annual Report: submit to the EO of RWQCB summarizing the monitoring results from the previous year	April 15th starting 2013	EMD
Annual Summary Report (E-30)	Annual Report: Include a discussion of the previous year's influent/effluent analytical results and receiving water bacterial monitoring data; an overview of any plans for upgrades to the treatment facility's collection system, the treatment processes, or the outfall system. Sent hard copy to RWQCB.	April 15th	EMD
Reasonable Potential Analysis (E-30)	Annual Report: Discuss whether or not reasonable potential was triggered for pollutants which do not have a final effluent limitation in the NPDES permit.	April 15th	EMD RAD

DCT Response Procedures

Item	Page#	Required Action by City	Division
Acute Toxicity: Survival in any 3 consecutive 96 hr static renewal bioassay tests <90% or 1 test <70% survival	WDR-22 WDR-33	If either test fails, conduct 6 more tests every 2 weeks over a 12 week period. Results required within 24 hrs of completion. Additional tests must begin within 5 business days of receipt	EMD
Acute Toxicity: Results of 2 of 6 of accelerated tests <90% survival	WDR-22 WDR-33	Begin TIE	EMD
Acute Toxicity: Results of initial test and any additional of the 6 accelerated tests <70% survival	WDR-22	Immediately implement initial investigation TRE workplan	EMD
Chronic Toxicity: Result > monthly median of 1.0 TU_c trigger	WDR-23	Immediately implement accelerated testing.	EMD
Chronic Toxicity: If any 3 from the initial test and the 6 accelerated tests >1.0 TU_c	WDR-23 WDR-26	Initiate TIE and implement the initial investigation TRE workplan.	EMD
Any toxicity exceedance	E-19	Notify Regional Water Board immediately and in writing 14 days after the receipt of the results of any effluent limit	EMD
Material change in character, location, or volume of discharge	WDR-29	File a ROWD report with the RWQCB within 120 days of making a material or proposed change in character, location, or volume of the discharge.	RAD
Planned discharge of chemical toxic to aquatic life not previously reported	WDR-29	Notify EO in writing within 6 months of the planned discharge	DCT

DCT Response Procedures (Continued)

Item	Page#	Required Action by City	Division
Noncompliance or unable to comply with any prohibition, effluent limit, or receiving water limit	WDR-30	Notify RWQCB Watershed Regulatory Section Chief by phone (213) 576-6616 or electronically within 24 hrs of knowledge and confirm in writing within 5 days unless waived.	EMD
Change in point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse	WDR-30	Prior to making change, file a petition with the SWRCB Division of Water Rights and receive approval	DCT RAD
Toxicity Reduction Requirements: Results of initial investigation TRE work plan indicate the need to continue the TRE/TRI	WDR-33	Expeditiously develop a more detailed TRE work plan within 15 days of completion of the initial investigation TRE and submit to EO	EMD
Treatment Plant Capacity: Average Daily dry-weather flow equals or exceeds 75 % of design capacity	WDR-33	Within 90 days after the 30-day monthly average dry-weather flow equals or exceeds 75% of the design capacity, submit a written report to RWQCB, signed by the senior administrative officer, with information regarding flow characteristics and studies, if any, to review plant capacity requirements	DCT
Spill Clean-up Contingency Plan: After every spill from facility or collection system servicing the facility	WDR-34	Review and amend SCCP as appropriate	WCSD
Pollutant Minimization Program	WDR-34	Develop a PMP when evidence that a priority pollutant is present above the effluent limitation and either the concentration is reported as DNQ and the effluent limit is less than the ML; or the concentration is reported as ND and the effluent limit is less than the MDL	EMD

DCT Response Procedures (Continued)

Item	Page#	Required Action by City	Division
Pretreatment: Changes to pretreatment regulations 40 CFR 403	WDR-37	Within 6 months of pretreatment regulation (40 CFR 403) revisions with no timetable specified, complete the required actions	IWMD
Spills: Local Health Agency Initial Notification	WDR-37	Notify local health officer of any unauthorized release of sewage or other waste that causes or likely will cause a discharge to water of the State within 2 hours of knowledge of spill	WCSD
Spills: Cal EMA Notification	WDR-38	Notify Cal EMA of reportable Quantity of sewage or hazardous waste (>1,000 gal) that enters or is likely to enter waters of the state within 2 hours of knowledge of the release (800) 852-7550	WCSD
Spills: RWQCB Notification	WDR-38	Notify RWQCB of any unauthorized release of sewage or other waste that causes or likely will cause a discharge to water of the State within 2 hours of knowledge of spill (213) 576-6657	WCSD
Spills Monitoring	WDR-39	Take a grab sample of all SSOs that reach a water of the State of any volume and take a grab sample of all SSOs greater than 1,000 gallons.	WPD EMD
Spills Monitoring	WDR-39	Take daily grab samples upstream and downstream of SSO entry point until two consecutive sets indicate return to background levels	WPD EMD

DCT Response Procedures (Continued)

Item	Page#	Required Action by City	Division
Spills: RWQCB USEPA 24 hour Reporting	WDR-39	Submit a report to RWQCB via email (aanijielo@waterboards.ca.gov) and to the USEPA by phone (415 972 3577) or by facsimile (415 947 3545) for spills reaching waters of the State or if spill is >1,000 gallons as soon as possible but within 24 hours of knowledge of spill	WPD EMD
Spills: RWQCB USEPA Preliminary Reporting	WDR-40	Submit a preliminary written report to RWQCB and to the USEPA for spills reaching waters of the State or if spill is >1,000 gallons within 5 working days after disclosure of the spill	WPD EMD
Spills: RWQCB USEPA Final Reporting	WDR-40	Submit final written report to RWQCB and to the USEPA for spills reaching waters of the State or if spill is >1,000 gallons within 30 days after submittal of preliminary report	WPD EMD
Noncompliance with AMEL	WDR-44	In the event of noncompliance with AMELs, the sampling frequency shall be increased to weekly and shall continue until compliance with the AMEL is demonstrated	EMD
Bypassed Filters	E-27 E-32	Monitor the receiving water downstream of the discharge for BOD5, inform RWQCB by telephone within 24 hrs of the event, submit a written report to the RWQCB according to the corresponding monthly self-monitoring report schedule	EMD

LAG Response Procedures

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QUESTIONS / COMMENTS

NPDES Permits - LAGWRP

FINAL LOS ANGELES-GLENDALE WATER RECLAMATION PLANT PERMIT

ORDER NO. R4 – 2011 – 0197
NPDES PERMIT NO. CA 0053953
ADOPTED: DECEMBER 8, 2011
EFFECTIVE: JANUARY 27, 2012
EXPIRING: NOVEMBER 10, 2016

CITY OF LOS ANGELES

REGULATORY AFFAIRS DIVISION

FINAL LOS ANGELES-GLENDALE WATER RECLAMATION PLANT PERMIT

ORDER NO. R4 – 2011 – 0197

NPDES PERMIT NO. CA0053953

ADOPTED: December 8, 2011

EFFECTIVE: January 27, 2012

CONTACTS:

H.R. (OMAR) MOGHADDAM, DIVISION MANAGER, REGULATORY AFFAIRS DIVISION, (310) 648-5423

HASSAN RAD, ASSISTANT DIVISION MANAGER, WATER QUALITY AND PERMITTING SECTION, (310) 648-5240

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Final Adopted Order

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

REGION 4, LOS ANGELES REGION

320 W. 4th Street, Suite 200, Los Angeles, California 90013
(213) 576-6600 • Fax (213) 576-6640
http://www.waterboards.ca.gov

ORDER NO. R4-2011-0197
NPDES NO. CA0053953

WASTE DISCHARGE REQUIREMENTS
FOR THE CITY OF LOS ANGELES
LOS ANGELES-GLENDALE WATER RECLAMATION PLANT

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger Information

Discharger	**City of Los Angeles**
Name of Facility	**Los Angeles-Glendale Water Reclamation Plant**
Facility Address	**4600 Colorado Boulevard**
	Los Angeles, CA 90039
	Los Angeles County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a **major** discharge.	

The discharge by the City of Los Angeles from the discharge point identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Tertiary treated effluent	34º, 08’, 25” N	118º, 17’, 24” W	Los Angeles River

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**December 8, 2011**
This Order shall become effective on:	**January 27, 2012**
This Order shall expire on:	**November 10, 2016**
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	**180 days prior to the Order expiration date**

I, Samuel Unger, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on December 8, 2011.

Samuel Unger

Samuel Unger, P.E., Executive Officer

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List of Attachments

I. FACILITY INFORMATION

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 4. Facility Information

Discharger	City of Los Angeles
Name of Facility	Los Angeles–Glendale Water Reclamation Plant
Facility Address	4600 Colorado Boulevard
	Los Angeles, CA 90039
	Los Angeles County
Facility Contact, Title, and Phone	Hiddo Netto, Sanitation Wastewater Manager III, (818) 778-4120
Mailing Address	1149 S. Broadway Street, 9th Floor, Los Angeles, CA 90015-2213
Type of Facility	Publicly-Owned Treatment Works
Facility Design Flow	20 million gallons per day

II. FINDINGS

The California Regional Water Quality Control Board, Los Angeles Region (hereinafter Regional Water Board), finds:

A. Background. The City of Los Angeles (hereinafter Discharger) is currently discharging pursuant to Order No. R4-2006-0092 as amended by R4-2010-0059 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0053953. The Discharger submitted a Report of Waste Discharge, dated April 18, 2011, and applied for an NPDES permit renewal to discharge up to 20 million gallons per day (mgd) of treated wastewater from Los Angeles-Glendale Water Reclamation Plant (hereinafter Facility or LAGWRP). The application was deemed complete on May 19, 2011.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. Facility Description. The Discharger owns and operates a Publicly-Owned Treatment Works (POTW). The treatment system consists of primary sedimentation, activated sludge biological treatment with nitrification and denitrification, secondary sedimentation with coagulation, dual media and deep bed sand filtration, chlorination, and dechlorination. Wastewater is discharged from Discharge Point 001 (see Table 2 on the cover page) to Los Angeles River, a water of the United States. Attachment B provides a map of the area around the facility. Attachment C provides a flow schematic of the facility.

C. Legal Authorities. This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (CWC) (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the CWC (commencing with section 13260).

D. Background and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, monitoring and reporting reports, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through G and J are also incorporated into this Order.

E. California Environmental Quality Act (CEQA). Under CWC section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.

F. Technology-based Effluent Limitations (TBELs). Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of

Federal Regulations (CFR)[1], require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR part 133 and 40 CFR part 125.3. A detailed discussion of the TBELs development is included in the Fact Sheet (Attachment F).

G. **Water Quality-Based Effluent Limitations (WQBELs).** Section 301(b) of the CWA and 40 CFR part 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements for biochemical oxygen demand (BOD) and total suspended solids (TSS), expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements or other provisions, is discussed in the Fact Sheet (Attachment F).

40 CFR part 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR part 122.44(d)(1)(vi).

H. **Water Quality Control Plans.** The Regional Water Board adopted a Water Quality Control Plan for the Los Angeles Region (hereinafter Basin Plan) on June 13, 1994, that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Beneficial uses applicable to Los Angeles River are as follows:

[1] All further statutory references are to title 40 of the CFR unless otherwise indicated.

Table 5a. Basin Plan Beneficial Uses – Surface Waters

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Los Angeles River (Hydro. Unit No. 405.21)	Existing: Groundwater recharge (GWR); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); wildlife habitat (WILD); and wetland habitat (WET). Potential: Municipal and domestic water supply (MUN[2]) and industrial service supply (IND).
001	Los Angeles River (Hydro. Unit No. 405.15)	Existing: Groundwater recharge (GWR); water contact recreation (REC-1[3]); non-contact water recreation (REC-2); and warm freshwater habitat (WARM). Potential: Municipal and domestic water supply (MUN[2]); industrial service supply (IND); and wildlife habitat (WILD).
001	Los Angeles River to Estuary (Hydro. Unit No. 405.12)	Existing: Groundwater recharge (GWR); water contact recreation (REC-1[3]); non-contact water recreation (REC-2); warm freshwater habitat (WARM); marine habitat (MAR); wildlife habitat (WILD); and rare, threatened, or endangered species (RARE). Potential: Municipal and domestic water supply (MUN[2]); industrial service supply (IND); industrial process supply (PROC); migration of aquatic organisms (MIGR); spawning, reproduction, and/or early development (SPWN); and shellfish harvesting (SHELL[3]).
001	Los Angeles River Estuary (Hydro. Unit No. 405.12)	Existing: Industrial service supply (IND); navigation (NAV); water contact recreation (REC-1); non-contact water recreation (REC-2); commercial and sport fishing (COMM); estuarine habitat (EST); marine habitat (MAR); wildlife habitat (WILD); rare, threatened, or endangered species (RARE[4]); migration of aquatic organisms (MIGR[5]); and spawning, reproduction, and/or early development (SPWN[5]); and wetland habitat (WET). Potential: Shellfish harvesting (SHELL).

2 The potential municipal and domestic supply (p*MUN) beneficial use for the waterbody is consistent with the State Water Resources Control Board Resolution 88-63 and Regional Water Board Resolution No. 89-003; however, the Regional Water Board has only conditionally designated the MUN beneficial use of the surface water and at this time cannot establish effluent limitation designed to protect the conditional designation.

3 Access prohibited by County of Los Angeles Department of Public Works.

4 One or more rare species utilize all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

Beneficial uses of the receiving ground waters are as follows:

Table 5b. Basin Plan Beneficial Uses – Ground Waters

Discharge Point	Basin Name	Beneficial Use(s)
001	San Fernando Basin East of Highway 405 (overall) DWR Basin No. 4-12	Existing: Municipal and domestic water supply (MUN); industrial service supply (IND); industrial process supply (PROC); and agricultural supply (AGR)
001	Los Angeles Coastal Plain Central Basin DWR Basin No. 4-11	Existing: Municipal and domestic water supply (MUN); industrial service supply (IND); industrial process supply (PROC); and agricultural supply (AGR)
001	Los Angeles Coastal Plain West Coast Basin DWR Basin No. 4-11	Existing: Municipal and domestic water supply (MUN); industrial service supply (IND); industrial process supply (PROC); and agricultural supply (AGR)

Requirements of this Order implement the Basin Plan and subsequent amendments.

1. **Ammonia WQOs –** Table 3-1 through Table 3-4 of the 1994 Basin Plan provided WQOs for ammonia to protect aquatic life. Those ammonia WQOs were revised on April 25, 2002, by the Regional Water Board with the adoption of Resolution No. 2002-011, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Update the Ammonia Objectives for Inland Surface Waters (Including Enclosed Bays, Estuaries and Wetlands) with Beneficial Use Designations for Protection of Aquatic Lif*e. The ammonia Basin Plan amendment was approved by the State Water Board, Office of Administrative Law (OAL), and USEPA on April 30, 2003, June 5, 2003, and June 19, 2003, respectively. On December 1, 2005, Resolution No. 2005-014, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Revise the Early Life Stage Implementation Provision of the Freshwater Ammonia Objectives for Inland Surface Waters (including enclosed bays, estuaries and wetlands) for Protection of Aquatic Life,* was adopted by the Regional Water Board. Resolution No. 2005-014 was approved by the State Water Board, OAL, and USEPA on July 19, 2006, August 31, 2006, and April 5, 2007, respectively. On June 7, 2007, the Regional Water Board adopted Resolution No. 2007-005, *Amendments to the Water Quality Control Plan-Los Angeles Region-To Incorporate Site-Specific Objectives for Select Inland Surface Waters in the San Gabriel River, Los Angeles River and Santa Clara River Watersheds.* This amendment to the Basin Plan incorporates site-specific 30-day average objectives for ammonia along with corresponding site-specific early life

[5] Aquatic organisms utilize all bays, estuaries, lagoons and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

stage implementation provisions for select waterbody reaches and tributaries in the Santa Clara, Los Angeles, and San Gabriel River watersheds. The State Water Board, OAL, and USEPA approved this Basin Plan amendment on January 15, 2008, May 12, 2008, and March 30, 2009, respectively.

2. **Chloride WQOs –** Table 3-8 of the 1994 Basin Plan contains WQOs for chloride. However, the chloride WQOs for some waterbodies were revised by the Regional Water Board on January 27, 1997, with the adoption of Resolution No. 97-02, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate a Policy for Addressing Levels of Chloride in Discharges of Wastewaters*. Resolution No. 97-02 was approved by the State Water Board, OAL, and USEPA on October 23, 1997, January 9, 1998, and February 5, 1998, respectively, and is now in effect. The chloride WQO was revised from 150 mg/L to 190 mg/L, for the Los Angeles River between Figueroa Street and Los Angeles River Estuary (Willow Street) and between Sepulveda Flood Control Basin and Figueroa Street (including Burbank Western Channel). The final effluent limitations for chloride prescribed in this Order are based on the revised chloride WQOs and apply at the end of pipe.

3. **Integrated Report –** The State Water Board proposed the California 2008-2010 Integrated Report from a compilation of the adopted Regional Water Boards' Integrated Reports containing 303(d) List of Impaired Waters and 305(b) Reports following recommendations from the Regional Water Boards and information solicited from the public and other interested parties. The Regional Water Boards' Integrated Reports were used to revise their 2006 303(d) List. On August 4, 2010, the State Water Board adopted the California 2008-2010 Integrated Report. On November 12, 2010, the USEPA approved California 2008-2010 Integrated Report Section 303(d) List of Impaired Waters requiring TMDLs for the Los Angeles Region.

   The Los Angeles River and its tributaries are in California 2008-2010 Integrated Report. The following pollutants were identified as impacting the receiving waters:

   a. **Los Angeles River Estuary (Queensway Bay) –** Calwater Watershed 40512000 (Hydro. Unit No. 405.12 in Basin Plan)

      Pollutants – Chlordane (sediment)[6], DDT (sediment)[6], PCBs (sediment)[6], sediment toxicity[6], and trash[7].

   b. **Los Angeles River Reach 1 (Estuary to Carson Street) –** Calwater Watershed 40512000 (Hydro. Unit No. 405.12 in Basin Plan)

      Pollutants – Ammonia[7], cadmium[7], coliform bacteria[6], copper[7], cyanide[6], diazinon[6], lead[7], nutrients (algae)[7], trash[7], zinc[7], and pH[7]

   c. **Los Angeles River Reach 2 (Carson Street to Figueroa Street) –** Calwater Watershed 40515000 (Hydro. Unit No. 405.15 in Basin Plan)

[6] This pollutant requires TMDL.
[7] TMDL has been approved for this pollutant, which has being addressed by USEPA.

Pollutants – Ammonia[7], coliform bacteria[6], copper[7], lead[7], nutrients (algae)[7], oil[6], and trash[7]

d. **Angeles River Reach 3 (Figueroa Street to Riverside Drive) –** Calwater Watershed 40521000 (Hydro. Unit No. 405.21 in Basin Plan)

Pollutants – Ammonia[7], copper[7], lead[7], nutrients (algae)[7], and trash[7]

4. **TMDL -** A TMDL is a determination of the amount of a pollutant from point, nonpoint, and natural background sources plus a margin of safety, which may be discharged to a water quality-limited water body. Section 303(d) of the CWA established the TMDL process. The statutory requirements are codified at 40 CFR part 130.7. TMDLs must be developed for the pollutants of concern which impact the water quality of water bodies on the 303(d) list. According to the TMDL schedule under an amended consent decree (Heal the Bay, Santa Monica Bay Keeper, et al. v. Browner, et al. (March 22, 1999)), all TMDLs for the Los Angeles River have been approved by the Regional Water Board.

a. **Nitrogen Compounds TMDL –** On July 10, 2003, the Regional Water Board adopted Resolution No. 2003-009, *Amendment to the Basin Plan for the Los Angeles Region to Include a TMDL for Nitrogen Compounds and Related Effects in the Los Angeles River (LA River Nitrogen Compounds TMDL*). On November 19, 2003, the State Water Board approved the *LA River Nitrogen Compounds TMDL*. On December 4, 2003, the Regional Water Board revised the *LA River Nitrogen Compounds TMDL* by adopting Resolution No. 2003-016*, Revision of Interim Effluent Limitations for Ammonia in the Amendment to the Water Quality Control Plan for the Los Angeles Region to Include a TMDL for Nitrogen Compounds and Related Effects in the Los Angeles River*. Resolution No. 2003-016 only revised the portion of the *LA River Nitrogen Compounds TMDL* containing interim limitations for total ammonia as nitrogen for the Glendale and Tillman WRPs. All other portions of the TMDL remained unchanged. The *LA River Nitrogen Compounds TMDL* went into effect on March 23, 2004, when the Regional Water Board filed the Certificate of Fee Exemption with the California Department of Fish and Game.

On June 7, 2007, the Regional Water Board adopted Resolution No. 2007-005, *Amendments to the Water Quality Control Plan-Los Angeles Region-To Incorporate Site-Specific Objectives for Select Inland Surface Waters in the San Gabriel River, Los Angeles River and Santa Clara River Watersheds.* This amendment to the Basin Plan incorporates site-specific 30-day average objectives for ammonia along with corresponding site-specific early life stage implementation provisions for select waterbody reaches and tributaries in the Santa Clara, Los Angeles, and San Gabriel River watersheds. In accordance with Implementation Table, Task 8 of the *LA River Nitrogen Compounds TMDL*, "…If a site specific objective is adopted by the Regional Board, and approved by relevant approving agencies, this TMDL will need to be revised, readopted, and reapproved to reflect the revised water quality objectives."

b. **Trash TMDL –** On September 19, 2001, the Regional Water Board adopted Resolution No. 2001-013, *Amendment to the Basin Plan for the Los Angeles Region to Incorporate a TMDL for Trash in the Los Angeles River (LA River Trash TMDL)*.

The LA River Trash TMDL was subsequently approved by the State Water Board (Resolution No. 02-038) on February 19, 2002, and by OAL on July 16, 2002. However, the State Water Board and OAL failed to approve the *LA River Trash TMDL* in time to meet the relevant federal consent decree; therefore, USEPA promulgated its own Trash TMDL in order to meet the consent decree timeline of March 23, 2002. Then, upon approval of the Regional Water Board's *LA River Trash TMDL* by OAL, USEPA approved the Regional Water Board's *Los Angeles River Trash TMDL* on August 1, 2002, and deemed it to have superseded the Trash TMDL promulgated by USEPA.

The City and the County of Los Angeles both filed petitions and complaints in the Los Angeles Superior Court challenging the *LA* River *Trash TMDL*. Subsequent negotiations led to a settlement agreement, which became effective on September 23, 2003. Twenty-two other cities sued the Regional Water Board to set aside the TMDL, on several grounds. On January 26, 2006, the Court of Appeal rejected the claims litigated by the cities but found that the Regional Water Board did not adequately complete the environmental checklist. The Court therefore affirmed a writ of mandate issued by the trial court ordering the Regional Water Board to set aside and not implement the *LA River Trash TMDL* until it had been brought into compliance with CEQA.

On June 8, 2006, the Regional Water Board set aside the *LA River Trash TMDL* and Resolution No. 01-013 which established it, pursuant to the writ of mandate. On August 9, 2007, the Regional Water Board approved the *LA River Trash TMDL* based on a revised CEQA analysis as Resolution No. 2007-012. The *LA River Trash TMDL* was approved by the State Water Board on April 15, 2008, and USEPA on July 24, 2008. The *LA River Trash TMDL* became effective on September 23, 2008, when the Certificate of Fee Exemption was filed with the California Department of Fish and Game.

c. **Metals TMDL –** On June 2, 2005, the Regional Water Board adopted Resolution No. R05-006, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate a Total Maximum Daily Load for Metals for the Los Angeles River and its Tributaries* (*LA River Metals TMDL*). The *LA River Metals TMDL* contains WLAs for cadmium, copper, lead, and zinc. On October 20, 2005, the State Water Board approved the *LA River Metals TMDL* by adopting Resolution No. 2005-0077. On December 9, 2005 and December 22, 2005, respectively, OAL and USEPA approved the *LA River Metals TMDL*. It went into effect on January 11, 2006, when the Certificate of Fee Exemption was filed with the California Department of Fish and Game.

On February 16, 2006, the cities of Bellflower, Carson, Cerritos, Downey, Paramount, Santa Fe Springs, Signal Hill, and Whittier (Cities) filed a petition for a writ of mandate challenging many aspects of the *LA River Metals TMDL* and the *Ballona Creek Metals TMDL*. (*Cities of Bellflower et al v. SWRCB et al,* Los Angeles Superior Court No. BS101732.) On May 24, 2007, the Los Angeles County Superior Court adopted the third of three rulings with respect to the writ petition. Collectively, all challenges to the *LA River Metals TMDL* were rejected, except for one CEQA claim. The Court ruled that the State and Regional Water Boards (Water Boards) should have adopted and circulated an alternatives analysis that analyzed alternatives to the project. The Court issued its writ of mandate, directing the Water Boards to adopt an alternative analysis and to reconsider the *LA River Metals TMDL* accordingly.

After considering the alternative analysis, the Regional Water Board found that the *LA River Metals TMDL* as originally proposed and adopted was appropriate. The Regional Water Board further found that nothing in the alternatives analysis nor any of the evidence generated, presented basis for the Regional Water Board to conclude that it would have acted differently when it adopted the TMDLs had the alternative analysis been prepared and circulated at that time. Thus, on September 6, 2007, the Regional Water Board adopted Resolution No. R2007-014, which reestablished the *LA River Metals TMDL* in substantially its original form.

On May 7, 2009, the Regional Water Board adopted Resolution No. 09-003, which voided and set aside Resolution Nos. R05-006, as required by the writ of mandate in the matter of *Cities of Bellflower et al v. SWRCB*.

On May 6, 2010, the Regional Water Board adopted Resolution No. R10-003, an amendment to the Basin Plan to revise the *LA River Metals TMDL*. The amendment revises the TMDL to adjust the numeric targets for copper in Reaches 1-4 of the Los Angeles River and the Burbank Western Channel and the corresponding WLAs for the Donald C. Tillman, Los Angeles-Glendale and Burbank WRPs based on a water effect ratio (WER). The revision includes language stating that regardless of the WER, the WRPs must perform at a level that can be attained by existing treatment technologies at the time of permit issuance, reissuance or modification. On April 19, 2011, the State Water Board adopted Resolution No. 2011-0021, approving the revised *LA River Metals TMDL*. At this hearing, the State Water Board made it clear that should the performance of the facility's treatment technologies change for reasons beyond the facility's control, the permit may be reopened to revise the effluent limitations considering the applicability of the copper WER or other performance-based measure such that the effluent limitations ensure that effluent concentrations and mass discharges do not exceed the levels of water quality that can be attained by performance of this facility's treatment technologies existing at the time of permit issuance, reissuance, or modification. On July 27, 2011, the LA River Metals TMDL was approved by OAL. The *LA River Metals TMDL* (Resolution No. R10-003) must still be approved by the USEPA before it becomes effective.

d. **Bacteria TMDL –** On July 8, 2010, the Regional Water Board adopted Resolution No. R10-007, *Amendment to the Water Quality Control Plan for* *the Los Angeles Region to Incorporate a Total Maximum Daily Load for Indicator Bacteria in the Los Angeles River Watershed* (*LA River Bacteria TMDL*). The *LA River Bacteria TMDL* contains WLAs for Tillman, Los Angeles-Glendale, and Burbank WRPs, which are set equal to a 7-day median of 2.2 MPN/100 mL of E. coli and/or a daily max of 235 MPN/100mL to ensure zero days of allowable exceedances. No exceedances of the geometric mean TMDL numeric target of 126/100 mL E.coli are permitted. The *LA River Bacteria TMDL* must still be approved by the State Water Board, OAL, and USEPA before it becomes effective.

I. National Toxics Rule (NTR) and California Toxics Rule (CTR). USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

J. State Implementation Policy. On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

K. Compliance Schedules and Interim Requirements. Section 2.1 of the SIP provides that, based on a Discharger's request and demonstration that it is infeasible for an existing Discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds one year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised WQO. This Order does not include compliance schedules and interim effluent limitations.

L. Alaska Rule. On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. (40 CFR. section 131.21; 65 Federal Register 24641 (April 27, 2000).) Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

M. Title 22 of the California Code of Regulations (Title 22). The California Department of Public Health established primary and secondary maximum contaminant levels (MCLs) for inorganic, organic, and radioactive contaminants in drinking water. These MCLs are codified in Title 22. The Basin Plan (Chapter 3) incorporates Title 22 primary MCLs by reference. This incorporation by reference is prospective, including future changes to the incorporated provisions as the changes take effect. Title 22 primary MCLs have been used as the basis for effluent limitations in WDRs and NPDES permits to protect groundwater recharge beneficial use when that receiving groundwater is designated as MUN. Also, the Basin Plan specifies that “Groundwaters shall not contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.”

N. Stringency of Requirements for Individual Pollutants. This Order contains both TBELs and WQBELs for individual pollutants. The TBELs consist of restrictions on BOD, TSS, pH, and percent removal of BOD and TSS. Restrictions on BOD, TSS, and pH are discussed in section IV.B. of the Fact Sheet (Attachment F). This Order’s technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the WQOs have been approved pursuant to federal law and are the applicable federal WQS. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR part 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP, which was approved by USEPA on May 18, 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless “applicable WQS for purposes of the CWA” pursuant to 40 CFR part 131.21(c)(1).

This Order contains pollutant restrictions that are more stringent than applicable federal requirements and standards. Specifically, this Order includes effluent limitations for BOD and TSS that are more stringent than applicable federal standards, but that are nonetheless necessary to meet numeric objectives or protect beneficial uses. The rationale for including these limitations is explained in Section IV.B. of the Fact Sheet.

O. Sources of Drinking Water Policy (SODW Policy). On May 19, 1988, the State Water Board adopted Resolution No. 88-63, *Sources of Drinking Water Policy*, which established a policy that all surface and ground waters, with limited exemptions, are suitable or potentially suitable for municipal and domestic supply. To be consistent with State Water Board’s SODW policy, on March 27, 1989, the Regional Water Board adopted Resolution No. 89-03, *Incorporation of Sources of Drinking Water Policy into the Water Quality Control Plans (Basin Plans) – Santa Clara River Basin (4A)/ Los Angeles River Basin (4B).*

Consistent with Regional Water Board Resolution No. 89-03 and State Water Board Resolution No. 88-63, in 1994 the Regional Water Board conditionally designated all inland surface waters in Table 2-1 of the 1994 Basin Plan as existing, intermittent, or potential for Municipal and Domestic Supply (MUN). However, the conditional designation in the 1994 Basin Plan included the following implementation provision: “no new effluent limitations will be placed in WDRs as a result of these [potential MUN designations made pursuant to the SODW policy and the Regional Water Board’s enabling resolution] until the Regional Water Board adopts [a special Basin Plan Amendment that incorporates a detailed review of the waters in the Region that should be exempted from the potential MUN designations arising from SODW policy and the Regional Water Board’s enabling resolution].” On February 15, 2002, the USEPA clarified its partial approval (May 26, 2000) of the 1994 Basin Plan amendments and acknowledged that the conditional designations do not currently have a legal effect, do not reflect new water quality standards subject to USEPA review, and do not support new effluent limitations based on the conditional designations stemming from the SODW Policy until a subsequent review by the Regional Water Board finalizes the designations for these waters. This permit is designed to be consistent with the existing Basin Plan.

P. Antidegradation Policy. Section 131.12 requires that the state WQS include an antidegradation policy consistent with the federal policy. The State Water Board established California’s antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board’s Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet (Attachment F) the permitted discharge is consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16.

Q. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40 CFR part 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. Some effluent limitations in this Order are less stringent that those in the previous Order. As discussed in detail in the Fact Sheet this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

R. Endangered Species Act (ESA). This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California (ESA) (Fish and Game Code sections 2050 to 2097) or the Federal (ESA) (16 U.S.C.A. sections 1531 to 1544).

This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The discharger is responsible for meeting all requirements of the applicable ESA.

S. Monitoring and Reporting. 40 CFR part 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement federal and state requirements. This Monitoring and Reporting Program is provided in Attachment E.

T. Standard and Special Provisions. Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR part 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR part 122.42 are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR part 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet (Attachment F).

U. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections VI.C. of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

V. Notification of Interested Parties. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet (Attachment F) of this Order.

W. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet (Attachment F) of this Order.

THEREFORE, IT IS HEREBY ORDERED, that this Order supercedes Order No. R4-2006-0092 as amended by Order No. R4-2010-0059 except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the CWC (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater at a location different from that described in this Order is prohibited.

B. The bypass or overflow of untreated wastewater or wastes to surface waters or surface water drainage courses is prohibited, except as allowed in Standard Provision I.G. of Attachment D, Standard Provisions.

C. The monthly average effluent dry weather discharge flow rate from the facility shall not exceed the design capacity.

D. The Discharger shall not cause degradation of any water supply, except as consistent with State Water Board Resolution No. 68-16.

E. The treatment or disposal of wastes from the facility shall not cause pollution or nuisance as defined in section 13050, subdivision (l) and (m) of the CWC.

F. The discharge of any substances in concentrations toxic to animal or plant is prohibited.

G. The discharge of any radiological, chemical, or biological warfare agent or high level radiological waste is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations

1. Effluent Limitations Applicable to Discharge Point 001

a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001 into Los Angeles River with compliance measured at Monitoring Location EFF-001 as described in the attached Monitoring and Reporting Program (MRP) (Attachment E).

Table 6. Effluent Limitations Applicable to Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
$BOD_5 20^{o}C$	mg/L	20	30	45		
	lbs/day[8]	3,340	5,000	7,510		
Total Suspended Solids (TSS)	mg/L	15	40	45		
	lbs/day[8]	2,500	6,680	7,500		
pH	standard units	--	--	--	6.5	8.5
Oil and Grease	mg/L	10	--	15		
	lbs/day[8]	1,670	--	2,500		
Settleable Solids	ml/L	0.1	--	0.3		
Total Residual Chlorine	mg/L	--	--	0.1		
	lbs/day[8]	--	--	17		
Total Dissolved Solids	mg/L	950	--	--		
	lbs/day[8]	158,600	--	--		
Sulfate	mg/L	300	--	--		
	lbs/day[8]	50,080	--	--		
Chloride	mg/L	190	--	--		
	lbs/day[8]	31,710	--	--		
MBAS	mg/L	0.5	--	--		
	lbs/day[8]	83	--	--		
Ammonia Nitrogen	mg/L	2.2[9]	--	7.8[9]		
	lbs/day[8]	--	--	--		

8 The mass emission rates are based on the plant design flow rate of 20 mgd, and are calculated as follows: Flow (MGD) x Concentration (mg/L) x 8.34 (conversion factor) = lbs/day, or Flow (MGD) x Concentration (µg/L) x 0.00834 (conversion factor) = lbs/day. During wet-weather storm events in which the flow exceeds the design capacity, the mass discharge rate limitations shall not apply, and concentration limitations will provide the only applicable effluent limitations.

9 This is the waste load allocation (WLA) according to the Nitrogen Compounds TMDL Resolution No. 2003-009, adopted by the Regional Board on July 10, 2003. The WLA serves as the effluent limitation for the discharge. It became effective on March 23, 2004.

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Nitrate + Nitrite (as N)	mg/L	7.2[9]	--	--		
	lbs/day[8]	--	--	--		
Nitrate (as N)	mg/L	7.2[9]	--	--		
	lbs/day[8]	--	--	--		
Nitrite (as N)	mg/L	0.9[9]	--	--		
	lbs/day[8]		--	--		
Cadmium (Wet-weather)	µg/L	4.3[10]	--	8.9[10]		
	lbs/day[8]	0.72[11]	--	1.5[11]		
Copper (Dry and Wet-weather)	µg/L	24[10,12]	--	34[10,12]		
	lbs/day[8]	4.0[11]	--	5.7[11]		
Lead (Dry and Wet-weather)	µg/L	10[10,12]	--	20[10,12]		
	lbs/day[8]	1.7[11]	--	3.3[11]		
Mercury	µg/L	0.051	--	0.17		
	lbs/day[8]	0.0085	--	0.028		
Zinc (Wet-weather)	µg/L	240[10]	--	298[10]		
	lbs/day[8]	40[11]	--	50[11]		
Cyanide	µg/L	4.3	--	8.5		
	lbs/day[8]	0.72	--	1.4		
Bis(2-Ethylhexyl)Phthalate	µg/L	4	--	--		
	lbs/day[8]	0.67	--	--		
Dibenzo(a,h)Anthracene	µg/L	0.049	--	0.098		
	lbs/day[8]	0.0082	--	0.016		

2. Other Effluent Limitations Applicable to Discharge Point 001

a. **Percent removal**: The average monthly removal of BOD 5-day 20°C and total suspended solids shall not be less than 85 percent.

b. The temperature of wastes discharged shall not exceed 86°F except as a result of external ambient temperature.

[10] Wet-weather effluent limitations apply when the maximum daily flow measured at the Los Angeles River Wardlow station is equal to or greater than 500 cubic feet per second.

[11] According to *LA River Metals TMDL*, the mass-based effluent limitations for cadmium, copper, lead, and zinc do not apply during wet weather when the influent exceeds the plant design flow rate of 20 mgd.

[12] Dry-weather effluent limitations apply when the maximum daily flow measured at the Los Angeles River Wardlow station is less than 500 cubic feet per second.

c. Radioactivity of the wastes discharged shall not exceed the limits specified in title 22, chapter 15, article 5, section 64443, of the California Code of Regulations, or subsequent revisions.

d. The wastes discharged to water courses shall at all times be adequately disinfected. For the purpose of this requirement, the wastes shall be considered adequately disinfected if the median number of total coliform bacteria in the disinfected effluent does not exceed an MPN or CFU of 2.2 per 100 milliliters, and the number of total coliform bacteria does not exceed an MPN or CFU of 23 per 100 milliliters in more than one sample within any 30-day period. No sample shall exceed an MPN or CFU of 240 total coliform bacteria per 100 milliliters. The median value shall be determined from the bacteriological results of the last seven (7) days for which an analysis has been completed. Samples shall be collected at a time when wastewater flow and characteristics are most demanding on treatment facilities and disinfection processes.

e. For the protection of the water contact recreation beneficial use, the wastes discharged to water courses shall have received adequate treatment, so that the turbidity of the wastewater does not exceed any of the following: (a) an average of 2 Nephelometric turbidity units (NTUs) within a 24-hour period; (b) 5 NTUs more than 5 percent of the time (72 minutes) within a 24-hour period; and (c) 10 NTU at any time.

f. To protect the underlying ground water basins, pollutants shall not be present in the wastes discharged at concentrations that pose a threat to ground water quality.

g. Acute Toxicity Limitation

   a. The acute toxicity of the effluent shall be such that:

      (i) the average survival in the undiluted effluent for any three (3) consecutive 96-hour static renewal bioassay tests shall be at least 90%, and

      (ii) no single test producing less than 70% survival.

   b. If either of the above requirements IV.A.4.g.a.(i) or IV.A.4.g.a.(ii) is not met, the Discharger shall conduct six additional tests, approximately every two weeks, over a 12-week period. The Discharger shall ensure that results of a failing acute toxicity test are received by the Discharger within 24 hours of completion of the test and the additional tests shall begin within 5 business days of receipt of the result. If the additional tests indicate compliance with acute toxicity limitation, the Discharger may resume regular testing. However, if the results of any two of the six accelerated tests are less than 90% survival, then the Discharger shall begin a Toxicity Identification Evaluation (TIE). The TIE shall include all reasonable steps to identify the sources of toxicity. Once the sources are identified, the Discharger shall take all reasonable steps to reduce toxicity to meet the objective.

c. If the initial test and any of the additional six acute toxicity bioassay tests results are less than 70% survival, the Discharger shall immediately implement Initial Investigation Toxicity Reduction Evaluation (TRE) Workplan.

d. The Discharger shall conduct acute toxicity monitoring as specified in Attachment E - Monitoring and Reporting Program (MRP).

h. Chronic Toxicity Trigger and Requirements:

a. The chronic toxicity of the effluent shall be expressed and reported in toxic units, where:

$$TU_c = \frac{100}{NOEC}$$

The No Observable Effect Concentration (NOEC) is expressed as the maximum percent effluent concentration that causes no observable effect on test organisms, as determined by the results of a critical life stage toxicity test.

b. There shall be no chronic toxicity in the effluent discharge.

c. If the chronic toxicity of the effluent exceeds the monthly trigger median of 1.0 TU_c, the Discharger shall immediately implement accelerated chronic toxicity testing according to Attachment E - MRP, Section V.B.3. If any three out of the initial test and the six accelerated tests results exceed 1.0 TU_c, the Discharger shall initiate a TIE and implement the Initial Investigation TRE Workplan, as specified in Attachment E – MRP, Section V.D.

d. The Discharger shall conduct chronic toxicity monitoring as specified in Attachment E – MRP.

B. Reclamation Specifications – Discharge Point 001

1. The Discharger currently recycles nearly all of the treated effluent and plans to continue doing so. The production, distribution, and reuse of recycled water for direct, non-potable applications are presently regulated under Water Recycling Requirements contained in Order No. R4-2007-0007 as amended by Order No. R4-2011-0035. The effluent is stored in a

2-million gallon storage tank located across Los Angeles River and Interstate 5 in Griffith Park. The Department of Water and Power for the City of Los Angeles and the Public Service Department for the City of Glendale are the agencies who distribute the recycled water. There are currently over 40 users of the recycled water produced by the Plant. Recycled water is used mainly for irrigation and it is also used in cooling towers at the Glendale Power Plant and for industrial and process at the LAGWRP.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on WQOs contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in Los Angeles River:

1. For waters designated with a warm freshwater habitat (WARM) beneficial use, the temperature of the receiving water at any time or place and within any given 24-hour period shall not be altered by more than 5°F above the natural temperature and shall not be raised above 86°F due to the discharge of effluent at the receiving water station located downstream of the discharge. Natural conditions shall be determined on a case-by-case basis.

   If the receiving water temperature, downstream of the discharge, exceeds 86°F as a result of the following:

   a. High temperature in the ambient air; or,

   b. High temperature in the receiving water upstream of the discharge,

   then the exceedance shall not be considered a violation.

2. The pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of wastes discharged. Ambient pH levels shall not be changed more than 0.5 units from natural conditions as a result of wastes discharged. Natural conditions shall be determined on a case-by-case basis.

3. The dissolved oxygen in the receiving water shall not be depressed below 5 mg/L as a result of the wastes discharged.

4. The fecal coliform concentration in the receiving water shall not exceed the following, as a result of wastes discharged:

   a. Geometric Mean Limits

      i. E.coli density shall not exceed 126/100 mL.

      ii. Fecal coliform density shall not exceed 200/100 mL.

   b. Single Sample Limits

      i. E.coli density shall not exceed 235/100 mL.

      ii. Fecal coliform density shall not exceed 400/100 mL.

5. Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in natural turbidity attributable to controllable water quality factors shall not exceed the following limits, as a result of wastes discharged:

   a. Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20%, and

   b. Where natural turbidity is greater than 50 NTU, increases shall not exceed 10%.

6. The wastes discharged shall not produce concentrations of toxic substances in the receiving water that are toxic to or cause detrimental physiological responses in human, animal, or aquatic life.

7. The wastes discharged shall not cause concentrations of contaminants to occur at levels that are harmful to human health in waters which are existing or potential sources of drinking water.

8. The concentrations of toxic pollutants in the water column, sediments, or biota shall not adversely affect beneficial uses as a result of the wastes discharged.

9. The wastes discharged shall not contain substances that result in increases in BOD, which adversely affect the beneficial uses of the receiving waters.

10. Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.

11. The wastes discharged shall not cause the receiving waters to contain any substance in concentrations that adversely affect any designated beneficial use.

12. The wastes discharged shall not alter the natural taste, odor, and color of fish, shellfish, or other surface water resources used for human consumption.

13. The wastes discharged shall not result in problems due to breeding of mosquitoes, gnats, black flies, midges, or other pests.

14. The wastes discharged shall not result in visible floating particulates, foams, and oil and grease in the receiving waters.

15. The wastes discharged shall not alter the color of the receiving waters; create a visual contrast with the natural appearance of the water; nor cause aesthetically undesirable discoloration of the receiving waters.

16. The wastes discharged shall not contain any individual pesticide or combination of pesticides in concentrations that adversely affect beneficial uses of the receiving

waters. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life as a result of the wastes discharged.

17. Acute Toxicity Receiving Water Quality Objective

    a. There shall be no acute toxicity in ambient waters as a result of wastes discharged.

    b. Receiving water and effluent toxicity testing shall be performed on the same day as close to concurrently as possible.

    c. The acute toxicity of the receiving water, at monitoring location RSW-LAGT654 located immediately downstream of the discharge, shall be such that: (i) the average survival in the undiluted receiving water for any three (3) consecutive 96-hour static, static-renewal, or continuous flow bioassay tests shall be at least 90%, and (ii) no single test producing less than 70% survival. Static-renewal bioassay tests may be used, as allowed by the most current USEPA test method for measuring acute toxicity.

    d. If the upstream acute toxicity of the receiving water is greater than the downstream acute toxicity but the effluent acute toxicity is in compliance, acute toxicity accelerated monitoring in the receiving water according to MRP Section V.A.2.d does not apply.

18. Chronic Toxicity Receiving WQO

    a. There shall be no chronic toxicity in ambient waters as a result of wastes discharged.

    b. Receiving water and effluent toxicity testing shall be performed on the same day as close to concurrently as possible.

    c. If the chronic toxicity in the receiving water at the monitoring station immediately downstream of the discharge, exceeds the monthly median of 1.0 TU_c trigger in a critical life stage test and the toxicity cannot be attributed to upstream toxicity, as assessed by the Discharger, then the Discharger shall immediately implement an accelerated chronic toxicity testing according to MRP CI 5675, section V.B.3. If two of the six tests exceed a 1.0 TU_c trigger, the Discharger shall initiate a TIE and implement the Initial Investigation TRE Workplan.

    d. If the chronic toxicity of the receiving water upstream of the discharge is greater than the downstream and the TUc of the effluent chronic toxicity test is less than or equal to a monthly median of 1 TU_c trigger, then accelerated monitoring need not be implemented.

B. Groundwater Limitations

1. The discharge shall not cause the underlying groundwater to be degraded, exceed water quality objectives, unreasonably affect beneficial uses, or cause a condition of pollution or nuisance.

VI. PROVISIONS

A. Standard Provisions

1. **Standard Provisions**
The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

2. **Regional Water Board Standard Provisions**
The Discharger shall comply with the Regional Water Board-specific Standard Provisions as follows:

   a. Neither the treatment nor the discharge of pollutants shall create pollution, contamination, or nuisance as defined by Section 13050 of the CWC.

   b. Odors, vectors, and other nuisances of sewage or sludge origin beyond the limits of the treatment plant site or the sewage collection system due to improper operation of facilities, as determined by the Regional Water Board, are prohibited.

   c. All facilities used for collection, transport, treatment, or disposal of "wastes" shall be adequately protected against damage resulting from overflow, washout, or inundation from a storm or flood having a recurrence interval of once in 100 years.

   d. Collection, treatment, and disposal systems shall be operated in a manner that precludes public contact with wastewater.

   e. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer of the Regional Water Board.

   f. The provisions of this order are severable. If any provision of this order is found invalid, the remainder of this Order shall not be affected.

   g. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities or penalties established pursuant to any applicable State law or regulation under authority preserved by section 510 of the CWA.

h. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities or penalties to which the discharger is or may be subject to under section 311 of the CWA.

i. The Discharger must comply with the lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding discharges of storm water to storm drain systems or other water courses under their jurisdiction, including applicable requirements in municipal storm water management program developed to comply with NPDES permits issued by the Regional Water Board to local agencies.

j. Discharge of wastes to any point other than specifically described in this Order is prohibited, and constitutes a violation thereof.

k. The Discharger shall comply with all applicable effluent limitations, national standards of performance, toxic effluent standards, and all federal regulations established pursuant to sections 301, 302, 303(d), 304, 306, 307, 316, 403, and 405 of the CWA and amendments thereto.

l. These requirements do not exempt the operator of the waste disposal facility from compliance with any other laws, regulations, or ordinances which may be applicable; they do not legalize this waste disposal facility, and they leave unaffected any further restraints on the disposal of wastes at this site which may be contained in other statutes or required by other agencies.

m. Oil or oily material, chemicals, refuse, or other pollutionable materials shall not be stored or deposited in areas where they may be picked up by rainfall and carried off of the property and/or discharged to surface waters. Any such spill of such materials shall be contained and removed immediately.

n. A copy of these waste discharge specifications shall be maintained at the discharge facility so as to be available at all times to operating personnel.

o. If there is any storage of hazardous or toxic materials or hydrocarbons at this facility and if the facility is not manned at all times, a 24-hour emergency response telephone number shall be prominently posted where it can easily be read from the outside.

p. The Discharger shall file with the Regional Water Board a report of waste discharge at least 120 days before making any material change or proposed change in the character, location or volume of the discharge.

q. In the event of any change in name, ownership, or control of these waste disposal facilities, the discharger shall notify the Regional Water Board of such change and shall notify the succeeding owner or operator of the existence of this Order by letter, copy of which shall be forwarded to the Regional Water Board.

r. The CWC provides that any person who violates a waste discharge requirement or a provision of the CWC is subject to civil penalties of up to $5,000 per day, $10,000 per day, or $25,000 per day of violation, or when the violation involves the discharge of pollutants, is subject to civil penalties of up to $10 per gallon per day or $25 per gallon per day of violation; or some combination thereof, depending on the violation, or upon the combination of violations. Violation of any of the provisions of the NPDES program or of any of the provisions of this Order may subject the violator to any of the penalties described herein, or any combination thereof, at the discretion of the prosecuting authority; except that only one kind of penalty may be applied for each kind of violation.

s. Under CWC 13387, any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this order, including monitoring reports or reports of compliance or noncompliance, or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required to be maintained in this order and is subject to a fine of not more than $25,000 or imprisonment of not more than two years, or both. For a second conviction, such a person shall be punished by a fine of not more than $25,000 per day of violation, or by imprisonment of not more than four years, or by both.

t. The discharge of any waste resulting from the combustion of toxic or hazardous wastes to any waste stream that ultimately discharges to waters of the United States is prohibited, unless specifically authorized elsewhere in this permit.

u. The Discharger shall notify the Executive Officer in writing no later than 6 months prior to planned discharge of any chemical, other than the products previously reported to the Executive Officer, which may be toxic to aquatic life. Such notification shall include:
(1) Name and general composition of the chemical,
(2) Frequency of use,
(3) Quantities to be used,
(4) Proposed discharge concentrations, and
(5) USEPA registration number, if applicable.

v. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

w. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, or receiving water limitation of this Order, the Discharger shall notify Watershed Regulatory Section Chief at the Regional Water Board by telephone (213) 576-6616, or electronically dhung@waterboards.ca.gov within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Regional Water Board waives confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance, and shall describe the measures being taken to remedy the current noncompliance and, prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal monitoring report.

x. Prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (CWC section 1211)

B. Monitoring and Reporting Program (MRP) Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

a. This Order may be modified, revoked and reissued, or terminated for cause, including, but not limited to:

(1) Violation of any term or condition contained in this Order;

(2) Obtaining this Order by misrepresentation, or by failure to disclose fully all relevant facts; and,

(3) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

The filing of a request by the Discharger for an Order modification, revocation, and issuance or termination, or a notification of planned changes or anticipated noncompliances does not stay any condition of this Order.

b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

c. This Order may be modified, in accordance with the provisions set forth in 40 CFR, parts 122 and 124 to include requirements for the implementation of the watershed protection management approach.

d. The Regional Water Board may modify, or revoke and reissue this Order if present or future investigations demonstrate that the discharge(s) governed by this Order will cause, have the potential to cause, or will contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters.

e. This Order may also be modified, revoked and reissued, or terminated in accordance with the provisions of 40 CFR parts 122.44, 122.62 to 122.64, 125.62, and 125.64. Causes for taking such actions include, but are not limited to, failure to comply with any condition of this Order, endangerment to human health or the environment resulting from the permitted activity, or acquisition of newly obtained information which would have justified the application of different conditions if known at the time of Order adoption. The filing of a request by the Discharger for an Order modification, revocation and issuance or termination, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

f. This Order may be modified, in accordance with the provisions set forth in 40 CFR parts 122 to 124, to include new Minimum Levels.

g. This Order may be reopened and modified, to revise effluent limitations as a result of future Basin Plan Amendments, such as an update of a water quality objective, or the adoption of a TMDL for the Los Angeles River Watershed.

h. This Order may be reopened and modified, to revise effluent limitations as a result of the delisting of a pollutant from the 303(d) list.

i. This Order may be reopened and modified to revise the chronic toxicity effluent limitation, and/or total residual chlorine limitations, to the extent necessary, to be consistent with State Water Board precedential decisions, new policies, new laws, or new regulations.

j. This Order may be reopened to modify final effluent limits, if at the conclusion of necessary studies conducted by the Discharger, the Regional Water Board determines that dilution credits, attenuation factors, water effects ratio, site specific objectives, or metal translators are warranted.

k. This Order may be reopened to modify copper effluent limitations consistent with the *LA River Metals TMDL* and its implementation plan.

2. Special Studies, Technical Reports, and Additional Monitoring Requirements

a. Special Study – Constituents of Emerging Concern (CECs) in the Effluent

i. The Discharger shall conduct a special study to investigate the CECs in the effluent discharge. Within six months of the effective date of this Order, the Discharger shall submit to the Executive Officer a CECs Special Study Work Plan (Work Plan) for approval. Upon approval, the Discharger shall implement the Work Plan.

ii. The Discharger shall follow the requirements of the Special Study Work Plan as discussed in the MRP and the Fact Sheet.

b. Toxicity Reduction Requirements

The Discharger shall update its existing initial investigation Toxicity Reduction Evaluation (TRE) workplan and submit a copy of the revised initial investigation TRE workplan to the Executive Officer of the Regional Water Board for approval within 90 days of the effective date of this permit. If the Executive Officer does not disapprove the workplan within 60 days from the date in which it was received, the workplan shall become effective. The Discharger shall use USEPA manual EPA/833B-99/002 (municipal) or most current version as guidance. At a minimum, the initial investigation TRE workplan must contain the provisions in Attachment G. This workplan shall describe the steps the Discharger intends to follow if toxicity is detected, and should include, at a minimum:

(1) A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency.

(2) A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in the operation of the facility; and,

(3) If a toxicity identification evaluation (TIE) is necessary, an indication of the person who would conduct the TIEs (i.e., an in-house expert or an outside contractor).

If the effluent toxicity test result exceeds the limitation, then the Discharger shall immediately implement accelerated toxicity testing that consists of six additional tests, each test done approximately every two weeks, over a 12-week period. Effluent sampling for the first test of the six additional tests shall commence within 5 days of receipt of the test results exceeding the toxicity limitation.

If the results of any two of the six tests (any two tests in a 12-week period) exceed the limitation, the Discharger shall initiate a Toxicity Reduction Evaluation (TRE).

If results of the implementation of the facility's initial investigation TRE workplan (as described above) indicate the need to continue the TRE/TIE, the Discharger shall expeditiously develop a more detailed TRE workplan for submittal to the Executive Officer within 15 days of completion of the initial investigation TRE.

Detailed toxicity testing and reporting requirements are contained in Section V of the MRP, (Attachment E).

b. Treatment Plant Capacity

The Discharger shall submit a written report to the Executive Officer of the Regional Water Board within 90 days after the "30-day (monthly) average" daily dry-weather flow equals or exceeds 75 percent of the design capacity of waste treatment and/or disposal facilities. The Discharger's senior administrative officer shall sign a letter, which transmits that report and certifies that the discharger's policy-making body is adequately informed of the report's contents. The report shall include the following:

(1) The average daily flow for the month, the date on which the peak flow occurred, the rate of that peak flow, and the total flow for the day;

(2) The best estimate of when the monthly average daily dry-weather flow rate will equal or exceed the design capacity of the facilities; and

(3) A schedule for studies, design, and other steps needed to provide additional capacity for waste treatment and/or disposal facilities before the waste flow rate equals the capacity of present units.

This requirement is applicable to those facilities which have not reached 75 percent of capacity as of the effective date of this Order. For those facilities that have reached 75 percent of capacity by that date but for which no such report has been previously submitted, such report shall be filed within 90 days of the issuance of this Order.

3. Best Management Practices and Pollution Prevention

a. Storm Water Pollution Prevention Plan (SWPPP) Not Applicable

b. Spill Clean-up Contingency Plan (SCCP)

Within 90 days, the Discharger is required to submit a Spill Clean-up Contingency Plan, which describes the activities and protocols, to address clean-up of spills, overflows, and bypasses of untreated or partially treated wastewater from the Discharger's collection system or treatment facilities, that reach water bodies, including dry channels and beach sands. At a minimum, the interim Plan shall include sections on spill clean-up and containment measures, public notification, and monitoring. The Discharger shall review and amend the Plan as appropriate after each spill from the facility or in the service area of the facility.

The Discharger shall include a discussion in the annual summary report of any modifications to the Plan and the application of the Plan to all spills during the year.

c. Pollutant Minimization Program (PMP)

Reporting protocols in the MRP, Attachment E, section X.B.4 describe sample results that are to be reported as Detected but Not Quantified (DNQ) or Not Detected (ND). Definitions for a reported Minimum Level (ML) and Method Detection Limit (MDL) are provided in Attachment A. These reporting protocols and definitions are used in determining the need to conduct a Pollution Minimization Program (PMP) as follows:

The Discharger shall be required to develop and conduct a PMP as further described below when there is evidence (e.g., sample results reported as DNQ when the effluent limitation is less than the MDL, sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a pollutant is present in the effluent above an effluent limitation and either:

(1) The concentration of the pollutant is reported as DNQ and the effluent limitation is less than the reported ML; or

(2) The concentration of the pollutant is reported as ND and the effluent limitation is less than the MDL.

The goal of the PMP shall be to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost-effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to CWC Section 13263.3(d), shall be considered to fulfill the PMP requirements.

The PMP shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board:

(1) An annual review and semi-annual monitoring of potential sources of the reportable pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling;

(2) Quarterly monitoring for the reportable pollutant(s) in the influent to the wastewater treatment system;

(3) Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable pollutant(s) in the effluent at or below the effluent limitation;

(4) Implementation of appropriate cost-effective control measures for the reportable pollutant(s), consistent with the control strategy; and

(5) An annual status report that shall be sent to the Regional Water Board including:

(a) All PMP monitoring results for the previous year;

(b) A list of potential sources of the reportable pollutant(s);

(c) A summary of all actions undertaken pursuant to the control strategy; and

(d) A description of actions to be taken in the following year.

4. Construction, Operation and Maintenance Specifications

a. Wastewater treatment facilities subject to this Order shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to chapter 3, subchapter 14, title 23 of the California Code of Regulations (section 13625 of the CWC).

b. The Discharger shall maintain in good working order a sufficient alternate power source for operating the wastewater treatment and disposal facilities. All equipment shall be located to minimize failure due to moisture, liquid spray, flooding, and other physical phenomena. The alternate power source shall be designed to permit inspection and maintenance and shall provide for periodic testing. If such alternate power source is not in existence, the discharger shall halt, reduce, or otherwise control all discharges upon the reduction, loss, or failure of the primary source of power.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. **Sludge Disposal Requirements (Not Applicable)**

(1) All sludge generated at the wastewater treatment plant is returned back to the sewer for transport and processing at the Hyperion Treatment Plant.

b. **Pretreatment Requirements**

(1) This Order includes the Discharger's Pretreatment Program as previously submitted to this Regional Water Board. Any change to the Program shall be reported to the Regional Water Board in writing and shall not become effective until approved by the Executive Officer in accordance with procedures established in 40 CFR part 403.18.

(2) The Discharger shall enforce the requirements promulgated under sections 307(b), 307(c), 307(d), and 402(b) of the Federal Clean Water Act with timely, appropriate, and effective enforcement actions. The Discharger shall require industrial users to comply with Federal Categorical Standards and shall initiate enforcement actions against those users who do not comply with the standards. The Discharger shall require industrial users subject to the Federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of a new industrial user, upon commencement of the discharge.

(3) The Discharger shall perform the pretreatment functions as required in Federal Regulations 40 CFR part 403 including, but not limited to:

A. Implement the necessary legal authorities as provided in 40 CFR part 403.8(f)(1);

B. Enforce the pretreatment requirements under 40 CFR part 403.5 and 403.6;

C. Implement the programmatic functions as provided in 40 CFR part 403.8(f)(2); and

D. Provide the requisite funding of personnel to implement the Pretreatment Program as provided in 40 CFR part 403.8(f)(3).

(4) The Discharger shall submit semiannual and annual reports to the Regional Water Board, with copies to the State Water Board, and USEPA Region 9, describing the Discharger's pretreatment activities over the period. The annual and semiannual reports shall contain, but not be limited to, the information required in the attached *Pretreatment Reporting Requirements* (Attachment J), or an approved revised version thereof. If the Discharger is not in compliance with any conditions or requirements of this Order, the Discharger shall include the reasons for noncompliance and shall state how and when the Discharger will comply with such conditions and requirements.

(5) The Discharger shall be responsible and liable for the performance of all control authority pretreatment requirements contained in 40 CFR part 403, including subsequent regulatory revisions thereof. Where 40 CFR part 403 or subsequent revision places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within six months from the effective date of this Order or the effective date of 40 CFR part 403 revisions, whichever comes later. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies by the Regional Water Board, USEPA, or other appropriate parties, as provided in the Federal Clean Water Act. The Regional Water Board or USEPA may initiate enforcement action against an industrial user for

noncompliance with acceptable standards and requirements as provided in the Federal Clean Water Act and/or the CWC.

c. The Discharger's collection system is part of the system that is subject to this Order. As such, the Discharger must properly operate and maintain its collection system (40 CFR part 122.41(e)). The Discharger must report any non-compliance (40 CFR part 122.41(l)(6) and (7)) and mitigate any discharge from the collection system in violation of this Order (40 CFR part 122.41(d)). See Attachment D, subsections I.D, V.E, V.H, and I.C., and the following section (Spill Reporting Requirements) of this Order.

6. Spill Reporting Requirements

1. **Initial Notification**

Although State and Regional Water Board staff do not have duties as first responders, this requirement is an appropriate mechanism to ensure that the agencies that do have first responder duties are notified in a timely manner in order to protect public health and beneficial uses. For certain spills, overflows and bypasses, the Discharger shall make notifications as required below:

a. In accordance with the requirements of Health and Safety Code section 5411.5, the Discharger shall provide notification to the local health officer or the director of environmental health with jurisdiction over the affected water body of any unauthorized release of sewage or other waste that causes, or probably will cause, a discharge to any waters of the State as soon as possible, but no later than two (2) hours after becoming aware of the release.

b. In accordance with the requirements of CWC section 13271, the Discharger shall provide notification to the California Emergency Management Agency (Cal EMA) of the release of reportable amounts of hazardous substances or sewage that causes, or probably will cause, a discharge to any waters of the State as soon as possible, but not later than two (2) hours after becoming aware of the release. The California Code of Regulations, Title 23, section 2250, defines a reportable amount of sewage as being 1,000 gallons. The phone number for reporting these releases to the Cal EMA is (800) 852-7550**.**

c. The Discharger shall notify the Regional Water Board of any unauthorized release of sewage from its POTWs that causes, or probably will cause, a discharge to a water of the State as soon as possible, but not later than **two (2)** hours after becoming aware of the release. This initial notification does not need to be made if the Discharger has notified Cal EMA and the local health officer or the director of environmental health with jurisdiction over the affected waterbody. The phone number for reporting these releases of sewage to the Regional Water Board is (213) 576-6657. The phone numbers for after hours and weekend reporting of releases of sewage to the Regional Water Board are (213) 305-2284 and (213) 305-2253.

At a minimum, the following information shall be provided to the Regional Water Board:

(i) The location, date, and time of the release.

(ii) The water body that received or will receive the discharge.

(iii) An estimate of the amount of sewage or other waste released and the amount that reached a surface water at the time of notification.

(iv) If ongoing, the estimated flow rate of the release at the time of the notification.

(v) The name, organization, phone number and email address of the reporting representative.

2. **Monitoring**

For spills, overflows and bypasses reported under section VI.C.6.1.c., the Discharger shall monitor as required below:

a. To define the geographical extent of spill's impact the Discharger shall obtain grab samples (if feasible, accessible, and safe) for spills, overflows or bypasses of any volume that reach receiving waters. The Discharger shall analyze the samples for total and fecal coliforms or E. coli, and enterococcus, and relevant pollutants of concern, upstream and downstream of the point of entry of the spill (if feasible, accessible and safe). This monitoring shall be done on a daily basis from time the spill is known until the results of two consecutive sets of bacteriological monitoring indicate the return to the background level or the County Department of Public Health authorizes cessation of monitoring.

b. The Discharger shall obtain a grab sample (if feasible, accessible, and safe) for spills, overflows or bypasses of any volume that flowed to receiving waters, entered a shallow ground water aquifer, or have the potential for public exposure; and for all spills, overflows or bypasses of 1,000 gallons or more. The Discharger shall characterize the sample for total and fecal coliforms or E. coli, and enterococcus, and analyze relevant pollutants of concern depending on the area and nature of spills or overflows if feasible, accessible and safe.

3. **Reporting**

The Regional Water Board initial notification required under section VI.C.6.1.a. shall be followed by:

a. As soon as possible, but **not later than twenty four (24) hours** after becoming aware of an unauthorized discharge of sewage or other waste from its wastewater treatment plant to a water of the state, the discharger shall submit a statement to the Regional Water Board by email at aanijielo@waterboards.ca.gov . If the discharge is 1,000 gallons or more, this statement shall certify that Cal EMA has been notified of the discharge in accordance with CWC section 13271. The statement shall also certify that the local health officer or director of environmental health with jurisdiction over the affected water bodies has been notified of the discharge in accordance with Health and Safety Code section 5411.5. The statement shall also include at a minimum the following information:

(i) Agency, NPDES No., Order No., and MRP CI No., if applicable.

(ii) The location, date, and time of the discharge.

(iii) The water body that received the discharge.

(iv) A description of the level of treatment of the sewage or other waste discharged.

(v) An initial estimate of the amount of sewage or other waste released and the amount that reached a surface water.

(vi) The Cal EMA control number and the date and time that notification of the incident was provided to Cal EMA.

(vii) The name of the local health officer or director of environmental health representative notified (if contacted directly); the date and time of notification; and the method of notification (e.g., phone, fax, email).

b. A written preliminary report five working days after disclosure of the incident (submission to the Regional Water Board of the California Integrated Water Quality System (CIWQS) Sanitary Sewer Overflow (SSO) event number shall satisfy this requirement). Within 30 days after submitting the preliminary report, the Discharger shall submit the final written report to this Regional Water Board. (A copy of the final written report, for a given incident, already submitted pursuant to a Statewide General Waste Discharge Requirements for Wastewater Collection System Agencies, may be submitted to the Regional Water Board to satisfy this requirement.) The written report shall document the information required in paragraph D below, monitoring results and any other information required in provisions of the Standard Provisions document including corrective measures implemented or proposed to be implemented to prevent/minimize future occurrences. The Executive Officer for just cause can grant an extension for submittal of the final written report.

c. The Discharger shall include a certification in the annual summary report (due according to the schedule in the MRP) that states—the sewer system emergency equipment, including alarm systems, backup pumps, standby power generators, and other critical emergency pump station components were maintained and tested in accordance with the Discharger's Preventive Maintenance Plan. Any deviations from or modifications to the Plan shall be discussed.

4. **Records**

The Discharger shall develop and maintain a record of all spills, overflows or bypasses of raw or partially treated sewage from its collection system or treatment plant. This record shall be made available to the Regional Water Board upon request and a spill summary shall be included in the annual summary report. The records shall contain:

a. The date and time of each spill, overflow or bypass;

b. The location of each spill, overflow or bypass;

c. The estimated volume of each spill, overflow or bypass including gross volume, amount recovered and amount not recovered, monitoring results as required by section VI.C.6.2;

d. The cause of each spill, overflow or bypass;

e. Whether each spill, overflow or bypass entered a receiving water and, if so, the name of the water body and whether it entered via storm drains or other man-made conveyances;

f. Mitigation measures implemented;

g. Corrective measures implemented or proposed to be implemented to prevent/minimize future occurrences; and,

h. The mandatory information included in SSO online reporting for finalizing and certifying the SSO report for each spill, overflow, or bypass under the SSO WDR.

5. **Activities Coordination**

In addition, Regional Water Board expects that the POTW's owners/operators will coordinate their compliance activities for consistency and efficiency with other entities that have responsibilities to implement: (i) this NPDES permit, including the Pretreatment Program, (ii) a MS4 NPDES permit that may contain spill prevention, sewer maintenance, reporting requirements and (iii) the SSO WDR.

6. **Consistency with Sanitary Sewer Overflows WDRs**

   The Clean Water Act prohibits the discharge of pollutants from point sources to surface waters of the United States unless authorized under an NPDES permit. (33 U.S.C. §§1311, 1342). The State Water Board adopted General Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems, (WQ Order No. 2006-0003) on May 2, 2006, to provide a consistent, statewide regulatory approach to address Sanitary Sewer Overflows (SSOs). The SSOs WDR requires public agencies that own or operate sanitary sewer systems to develop and implement sewer system management plans and report all SSOs to the State Water Board's online SSOs database.

   The requirements contained in this Order in sections VI.C.3.b. (Spill Contingency Plan Section), VI.C.4. (Construction, Operation and Maintenance Specifications Section), and VI.C.6. (Spill Reporting Requirements) are intended to be consistent with the requirements of the SSOs WDR. The Regional Water Board recognizes that there may be some overlap between the NPDES permit provisions and SSOs WDR requirements, at least as related to the collection systems. The requirements of the SSOs WDR are considered the minimum thresholds (see Finding 11 of State Board Order No. 2006-0003-DWQ). To encourage efficiency, the Regional Water Board will accept the documentation prepared by the Permittees under the SSOs WDR for compliance purposes, as satisfying the requirements in sections VI.C.3.b., VI.C.4., and VI.C.6. provided the monitoring requirements contained in this Order in sections IV.9.B.d. and IV.9.B.e. are also addressed. Pursuant to the SSO WDR, State Board Order No. 2006-0003-DWQ, section D., provision 2.(iii) and (iv), the provisions of this NPDES permit supercede the SSO WDR, for all purposes, including enforcement, to the extent the requirements may be deemed duplicative.

7. The Discharger shall provide standby or emergency power facilities and/or storage capacity or other means so that in the event of plant upset or outage due to power failure or other cause, discharge of raw or inadequately treated sewage does not occur.

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below:

A. General.

Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined in the MRP and Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional and State Water Boards, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

B. Multiple Sample Data

When determining compliance with a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses and the data set contains one or more reported determinations of “Detected, but Not Quantified” (DNQ) or “Not Detected” (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

C. Average Monthly Effluent Limitation (AMEL)

If the average (or when applicable, the median determined by subsection B above for multiple sample data) of daily discharges over a calendar month exceeds the AMEL for a given parameter, this will represent a single violation, though the Discharger may be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month). If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Discharger may be considered out of compliance for that calendar month. The Discharger will only be considered out of compliance for days when the discharge occurs. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month with respect to the AMEL.

If the analytical result of a single sample, monitored monthly, quarterly, semiannually, or annually, does not exceed the AMEL for a given parameter, the Discharger will have demonstrated compliance with the AMEL for each day of that month for that parameter.

If the analytical result of any single sample, monitored monthly, quarterly, semiannually, or annually, exceeds the AMEL for any parameter, the Discharger may collect up to four additional samples within the same calendar month. All analytical results shall be reported in the monitoring report for that month. The concentration of pollutant (an arithmetic mean or a median) in these samples estimated from the “Multiple Sample Data Reduction” Section above, will be used for compliance determination.

In the event of noncompliance with an AMEL, the sampling frequency for that parameter shall be increased to weekly and shall continue at this level until compliance with the AMEL has been demonstrated.

D. Average Weekly Effluent Limitation (AWEL)

If the average of daily discharges over a calendar week exceeds the AWEL for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for each day of that week for that parameter, resulting in 7 days of non-compliance. The average of daily discharges over the calendar week that exceeds the AWEL for a parameter will be considered out of compliance for that week only. If only a single sample is taken during the calendar week and the analytical result for that sample exceeds the AWEL, the discharger will be considered out of compliance for that calendar week. For any one calendar week during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar week with respect to the AWEL.

A calendar week will begin on Sunday and end on Saturday. Partial calendar weeks at the end of the calendar month will be carried forward to the next month in order to calculate and report a consecutive seven-day average value on Saturday.

E. Maximum Daily Effluent Limitation (MDEL)

If a daily discharge exceeds the MDEL for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period. For any 1 day during which no sample is taken, no compliance determination can be made for that day with respect to the MDEL.

F. Instantaneous Minimum Effluent Limitation.

If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, a violation will be flagged and the discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

G. Instantaneous Maximum Effluent Limitation.

If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, a violation will be flagged and the discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

H. Six-month Median Effluent Limitation.

If the median of daily discharges over any 180-day period exceeds the six-month median effluent limitation for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for each day of that 180-day period for that parameter. The next assessment of compliance will occur after the next sample is taken. If only a single sample is taken during a given 180-day period and the analytical result for that sample exceeds the six-month median, the discharger will be considered out of compliance for the 180-day period. For any 180-period during which no sample is taken, no compliance determination can be made for the six-month median effluent limitation.

I. Percent Removal.

The average monthly percent removal is the removal efficiency expressed in percentage across a treatment plant for a given pollutant parameter, as determined from the 30-day average values of pollutant concentrations (C in mg/L) of influent and effluent samples collected at about the same time using the following equation:
Percent Removal (%) = $[1-(C_{Efluent}/C_{Influent})] \times 100\ \%$
When preferred, the Discharger may substitute mass loadings and mass emissions for the concentrations.

J. Mass and Concentration Limitations

Compliance with mass and concentration effluent limitations for the same parameter shall be determined separately with their respective limitations. When the concentration of a constituent in an effluent sample is determined to be ND or DNQ, the corresponding mass emission rate determined from that sample concentration shall also be reported as ND or DNQ.

K. Compliance with single constituent effluent limitations

Dischargers may be considered out of compliance with the effluent limitation if the concentration of the pollutant (see Section B “Multiple Sample Data Reduction” above) in the monitoring sample is greater than the effluent limitation and greater than or equal to the Reporting Level (RL).

L. Compliance with effluent limitations expressed as a sum of several constituents

Dischargers are out of compliance with an effluent limitation which applies to the sum of a group of chemicals (e.g., PCB’s) if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as ND or DNQ.

M. Mass Emission Rate.

The mass emission rate shall be obtained from the following calculation for any calendar day:

$$\text{Mass emission rate (lb/day)} = \frac{8.34}{N}\sum_{i=1}^{N} Q_i C_i$$

$$\text{Mass emission rate (kg/day)} = \frac{3.79}{N}\sum_{i=1}^{N} Q_i C_i$$

in which 'N' is the number of samples analyzed in any calendar day. 'Qi' and 'Ci' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' grab samples, which may be taken in any calendar day. If a composite sample is taken, 'Ci' is the concentration measured in the composite sample and 'Qi' is the average flow rate occurring during the period over which samples are composited.

The daily concentration of all constituents shall be determined from the flow-weighted average of the same constituents in the combined waste streams as follows:

$$\text{Daily concentration} = \frac{1}{Q_t}\sum_{i=1}^{N} Q_i C_i$$

in which 'N' is the number of component waste streams. 'Qi' and 'Ci' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' waste streams. 'Qt' is the total flow rate of the combined waste streams.

N. Bacterial Standards and Analysis.

1. The geometric mean used for determining compliance with bacterial standards is calculated with the following equation:

   $$\text{Geometric Mean} = (C1 \times C2 \times \ldots \times Cn)^{1/n}$$

   where n is the number of days samples were collected during the period and C is the concentration of bacteria (MPN/100 mL or CFU/100 mL) found on each day of sampling.

2. For bacterial analyses, sample dilutions should be performed so the expected range of values is bracketed (for example, with multiple tube fermentation method or membrane filtration method, 2 to 16,000 per 100 ml for total and fecal coliform, at a minimum, and 1 to 1000 per 100 ml for enterococcus). The detection methods used for each analysis shall be reported with the results of the analyses.

3. Detection methods used for coliforms (total and fecal) shall be those presented in Table 1A of 40 CFR part 136 (revised March 12, 2007), unless alternate methods have been approved by USEPA pursuant to 40 CFR part 136, or improved methods have been determined by the Executive Officer and/or USEPA.

4. Detection methods used for enterococcus shall be those presented in Table 1A of 40 CFR part 136 (revised March 12, 2007) or in the USEPA publication EPA 600/4-85/076, *Test Methods for Escherichia coli and Enterococci in Water By Membrane Filter Procedure* or any improved method determined by the Executive Officer and/or USEPA to be appropriate.

O. Single Operational Upset

A single operational upset (SOU) that leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation and limits the Discharger's liability in accordance with the following conditions:

1. A single operational upset is broadly defined as a single unusual event that temporarily disrupts the usually satisfactory operation of a system in such a way that it results in violation of multiple pollutant parameters.

2. A Discharger may assert SOU to limit liability only for those violations which the Discharger submitted notice of the upset as required in Provision V.E.2(b) of Attachment D – Standard Provisions.

3. For purpose outside of CWC section 13385 (h) and (i), determination of compliance and civil liability (including any more specific definition of SOU, the requirements for Dischargers to assert the SOU limitation of liability, and the manner of counting violations) shall be in accordance with USEPA Memorandum "Issuance of Guidance Interpreting Single Operational Upset" (September 27, 1989).

4. For purpose of CWC section 13385 (h) and (i), determination of compliance and civil liability (including any more specific definition of SOU, the requirements for Dischargers to assert the SOU limitation of liability, and the manner of counting violations) shall be in accordance with CWC section 13385 (f)(2).

Attachment A, B, C, D

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ), also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL): the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL): the highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative pollutants are those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (CV) is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge: Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ) are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA) is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration is the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in California Water Code (CWC) section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters are all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation: the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation: the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL) means the highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median is the middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (*n*) is odd, then the median = $X_{(n+1)/2}$. If *n* is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the *n*/2 and *n*/2+1).

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND) are those sample results less than the laboratory's MDL.

Ocean Waters are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP) means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to CWC section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in CWC section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL) is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Satellite Collection System is the portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Source of Drinking Water is any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

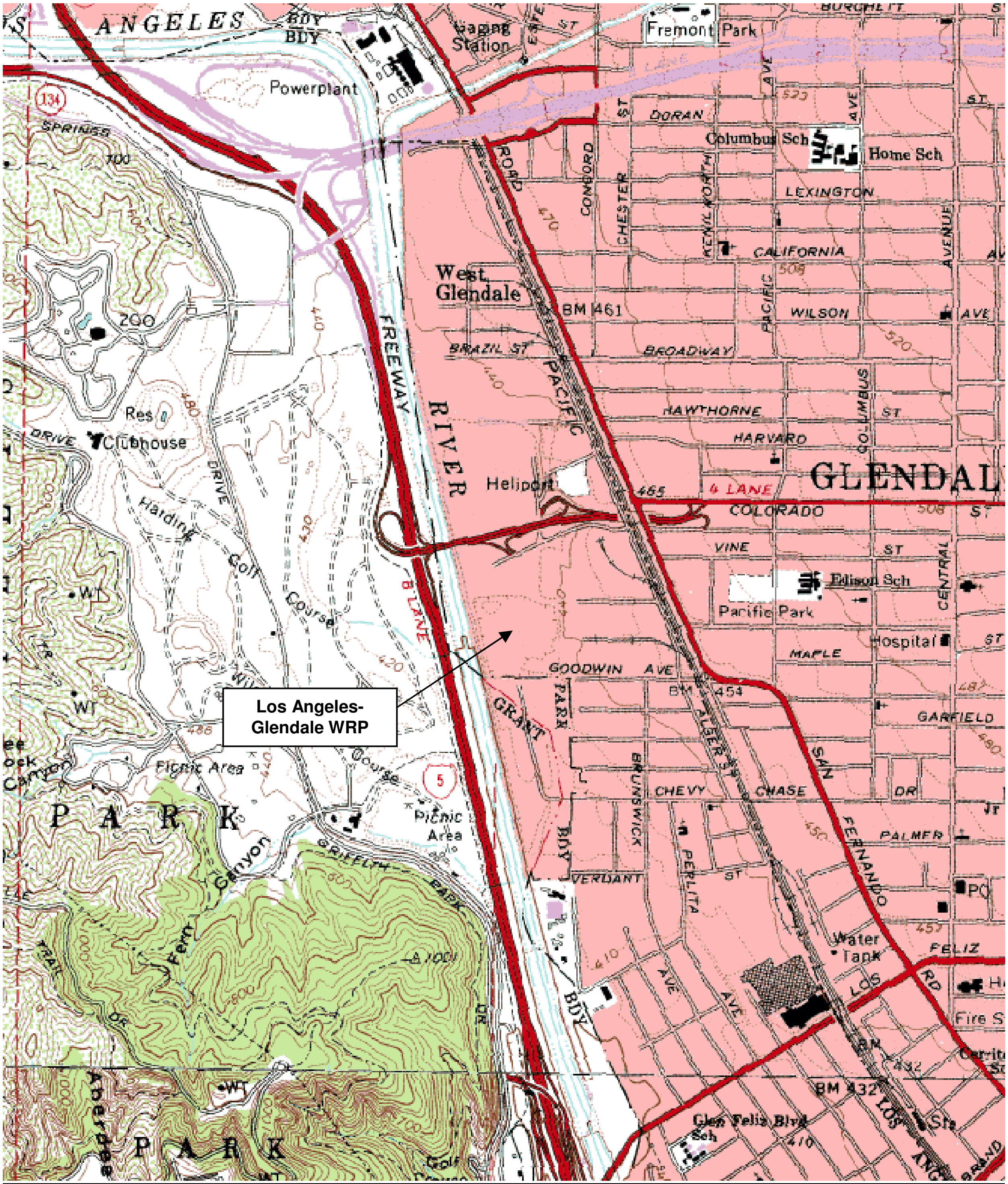
Standard Deviation (σ) is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B – MAP



ATTACHMENT C – FLOW SCHEMATIC

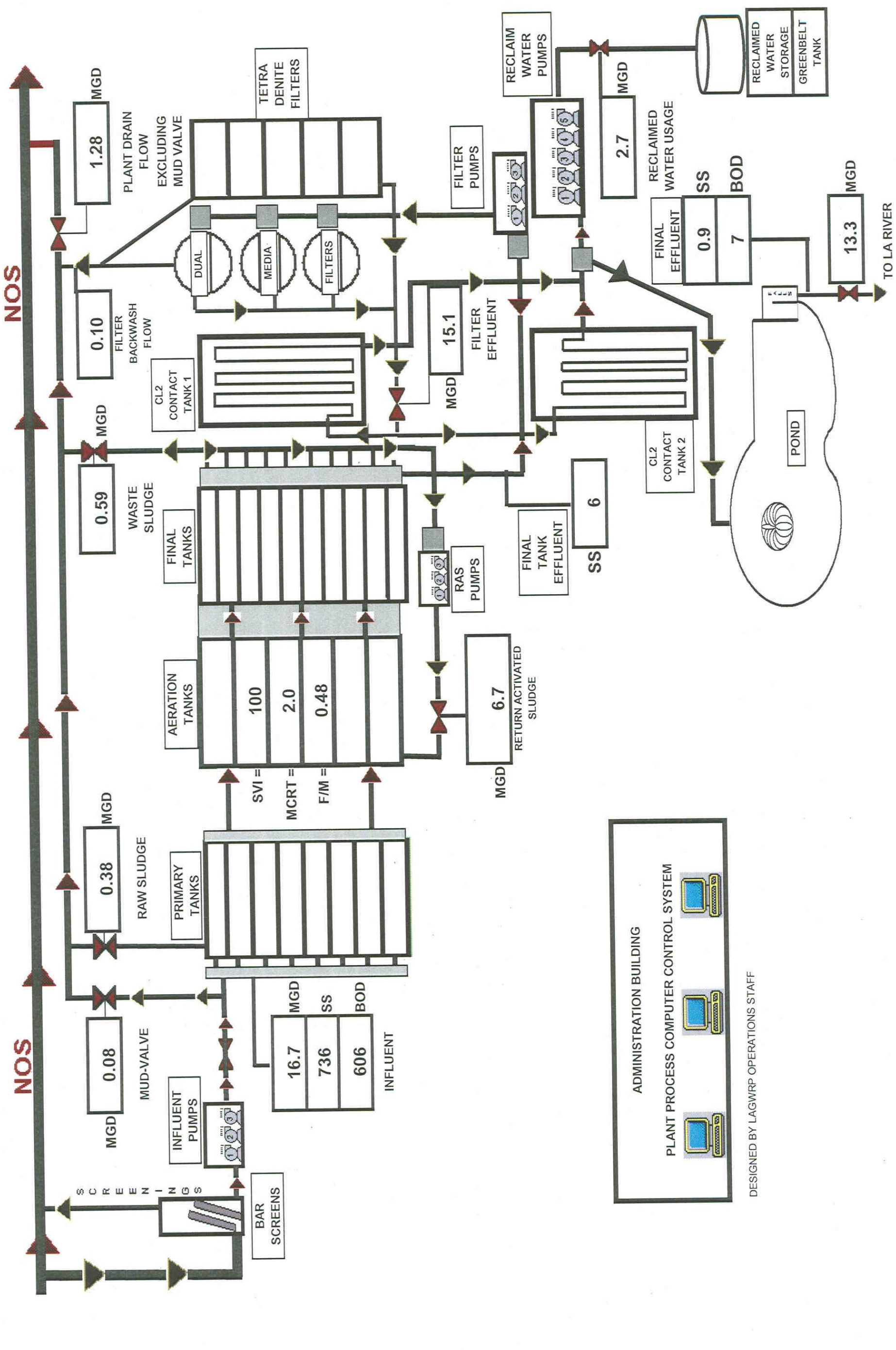


Figure 2 - The Flow Diagram of Wastewater Treatment Process

ATTACHMENT D –STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR part 122.41(a).)

2. The Discharger shall comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR part 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 CFR part 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR part 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 CFR part 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR part 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 CFR part 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR part 122.41(i); CWC section 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 CFR part 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR part 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR part 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location. (40 CFR part 122.41(i)(4).)

G. Bypass

1. Definitions

   a. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR part 122.41(m)(1)(i).)

   b. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR part 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 CFR part 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR part 122.41(m)(4)(i)):

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR part 122.41(m)(4)(i)(A));

   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR part 122.41(m)(4)(i)(B)); and

   c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR part 122.41(m)(4)(i)(C).)

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR part 122.41(m)(4)(ii).)

5. Notice

   a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 CFR part 122.41(m)(3)(i).)

   b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 CFR part 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 CFR part 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was

caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR part 122.41(n)(2).).

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR part 122.41(n)(3)):

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR part 122.41(n)(3)(i));

   b. The permitted facility was, at the time, being properly operated (40 CFR part 122.41(n)(3)(ii));

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR part 122.41(n)(3)(iii)); and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR part 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR part 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 CFR part 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 CFR part 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the CWC. (40 CFR part 122.41(l)(3); part 122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR part 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under 40 CFR part 136 or, in the case of sludge use or disposal, approved under 40 CFR part 136 unless otherwise specified in 40 CFR part 503 unless other test procedures have been specified in this Order. (40 CFR part 122.41(j)(4); part 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 CFR part 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR part 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 CFR part 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 CFR part 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 CFR part 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 CFR part 122.41(j)(3)(v)); and

6. The results of such analyses. (40 CFR part 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 CFR part 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 CFR part 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 CFR part 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR part 122.41(h); CWC § 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 CFR part 122.41(k).)

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR part 122.22(a)(3).).

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

    a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR part 122.22(b)(1));

    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR part 122.22(b)(2)); and

    c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 CFR part 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR part 122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 CFR part 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR part 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR part 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR part 136 or, in the case of sludge use or disposal, approved under 40 CFR part 136 unless otherwise specified in 40 CFR part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 CFR part 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR part 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 CFR part 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR part 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR part 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR part 122.41(l)(6)(ii)(A).)

   b. Any upset that exceeds any effluent limitation in this Order. (40 CFR part 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR part 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 CFR part 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 CFR part 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR part 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during

the permit application process or not reported pursuant to an approved land application plan. (40 CFR part 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 CFR part 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 CFR part 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 CFR part 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 CFR part 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 CFR part 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 CFR part 122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the

quantity or quality of effluent to be discharged from the POTW. (40 CFR part 122.42(b)(3).)

Attachment E – MRP

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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List of Tables

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP), CI-5675

The Code of Federal Regulations title 40, section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. California Water Code (CWC) sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. All samples shall be representative of the waste discharge under conditions of peak load. Quarterly effluent analyses shall be performed during the months of February, May, August, and November. Semiannual analyses shall be performed during the months of February and August. Annual analyses shall be performed during the month of August with the exception of bioassessments. Should there be instances when monitoring could not be done during these specified months, the Discharger must notify the Regional Water Board, state the reason why monitoring could not be conducted, and obtain approval from the Executive Officer for an alternate schedule. Results of quarterly, semiannual, and annual analyses shall be reported in the monthly monitoring report following the analysis.

B. Pollutants shall be analyzed using the analytical methods described in 40 CFR parts 136.3, 136.4, and 136.5 (revised March 12, 2007); or where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board. Laboratories analyzing effluent samples and receiving water samples shall be certified by the California Department of Public Health Environmental Laboratory Accreditation Program (ELAP) or approved by the Executive Officer and must include quality assurance/quality control (QA/QC) data in their reports. A copy of the laboratory certification shall be provided each time a new certification and/or renewal of the certification is obtained from ELAP.

C. Water/wastewater samples must be analyzed within allowable holding time limits as specified in 40 CFR part 136.3 (revised March 12, 2007). All QA/QC analyses must be run on the same dates that samples are actually analyzed. The Discharger shall retain the QA/QC documentation in its files and make available for inspection and/or submit them when requested by the Regional Water Board. Proper chain of custody procedures must be followed and a copy of that documentation shall be submitted with the monthly report.

D. The Discharger shall calibrate and perform maintenance procedures on all monitoring instruments and to ensure accuracy of measurements, or shall ensure that both equipment activities will be conducted.

E. For any analyses performed for which no procedure is specified in the USEPA guidelines, or in the MRP, the constituent or parameter analyzed and the method or procedure used must be specified in the monitoring report.

F. Each monitoring report must affirm in writing that "all analyses were conducted at a laboratory certified for such analyses by the California Department of Public Health or approved by the Executive Officer and in accordance with current USEPA guideline procedures or as specified in this MRP."

G. The monitoring report shall specify the USEPA analytical method used, the Method Detection Limit (MDL), and the Reporting Level (RL) [the applicable minimum level (ML) or reported Minimum Level (RML)] for each pollutant. The MLs are those published by the State Water Board in the *Policy for the Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California,* (SIP) February 9, 2005, Appendix 4. The ML represents the lowest quantifiable concentration in a sample based on the proper application of all method-based analytical procedures and the absence of any matrix interference. When all specific analytical steps are followed and after appropriate application of method specific factors, the ML also represents the lowest standard in the calibration curve for that specific analytical technique. When there is deviation from the method analytical procedures, such as dilution or concentration of samples, other factors may be applied to the ML depending on the sample preparation. The resulting value is the reported minimum level.

H. The Discharger shall select the analytical method that provides a ML lower than the permit limit established for a given parameter, unless the Discharger can demonstrate that a particular ML is not attainable and obtains approval for a higher ML from the Executive Officer, as provided for in section J, below. If the effluent limitation is lower than all the MLs in Appendix 4 of the SIP, the Discharge must select the method with the lowest ML for compliance purposes. The Discharger shall include in the Annual Summary Report a list of the analytical methods employed for each test.

I. The Discharger shall instruct its laboratories to establish calibration standards so that the ML (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve. In accordance with section J, below, the Discharger's laboratory may employ a calibration standard lower than the ML in Appendix 4 of the SIP.

J. In accordance with section 2.4.3 of the SIP, the Regional Water Board Executive Officer, in consultation with the State Water Board's Quality Assurance Program Manager, may establish an ML that is not contained in Appendix 4 of the SIP to be included in the discharger's permit in any of the following situations:

   a. When the pollutant under consideration is not included in Appendix 4 of the SIP;

   b. When the discharger and the Regional Water Board agree to include in the permit a test method that is more sensitive than those specified in 40 CFR part 136 (revised as of March 12, 2007);

   c. When a discharger agrees to use an ML that is lower than those listed in Appendix 4;

d. When a discharger demonstrates that the calibration standard matrix is sufficiently different from that used to establish the ML in Appendix 4 and proposes an appropriate ML for the matrix; or,

e. When the discharger uses a method, which quantification practices are not consistent with the definition of the ML. Examples of such methods are USEPA-approved method 1613 for dioxins, and furans, method 1624 for volatile organic substances, and method 1625 for semi-volatile organic substances. In such cases, the discharger, the Regional Water Board, and the State Water Resources Control Board shall agree on a lowest quantifiable limit and that limit will substitute for the ML for reporting and compliance determination purposes.

If there is any conflict between foregoing provisions and the State Implementation Policy (SIP), the provisions stated in the SIP (section 2.4) shall prevail.

K. If the Discharger samples and performs analyses (other than for process/operational control, startup, research, or equipment testing) on any influent, effluent, or receiving water constituent more frequently than required by this Program using approved analytical methods, the results of those analyses shall be included in the report. These results shall be reflected in the calculation of the average used in demonstrating compliance with average effluent, receiving water, etc., limitations.

L. The Discharger shall develop and maintain a record of all spills or bypasses of raw or partially treated sewage from its collection system or treatment plant according to the requirements in the WDR section of this Order. This record shall be made available to the Regional Water Board upon request and a spill summary shall be included in the annual summary report.

M. For all bacteriological analyses, sample dilutions should be performed so the expected range of values is bracketed (for example, with multiple tube fermentation method or membrane filtration method, 2 to 16,000 per 100 ml for total and fecal coliform, at a minimum, and 1 to 1000 per 100 ml for enterococcus). The detection methods used for each analysis shall be reported with the results of the analyses.

a. Detection methods used for coliforms (total and fecal) shall be those presented in Table 1A of 40 CFR part 136 (revised March 12, 2007), unless alternate methods have been approved in advance by the USEPA pursuant to 40 CFR part 136.

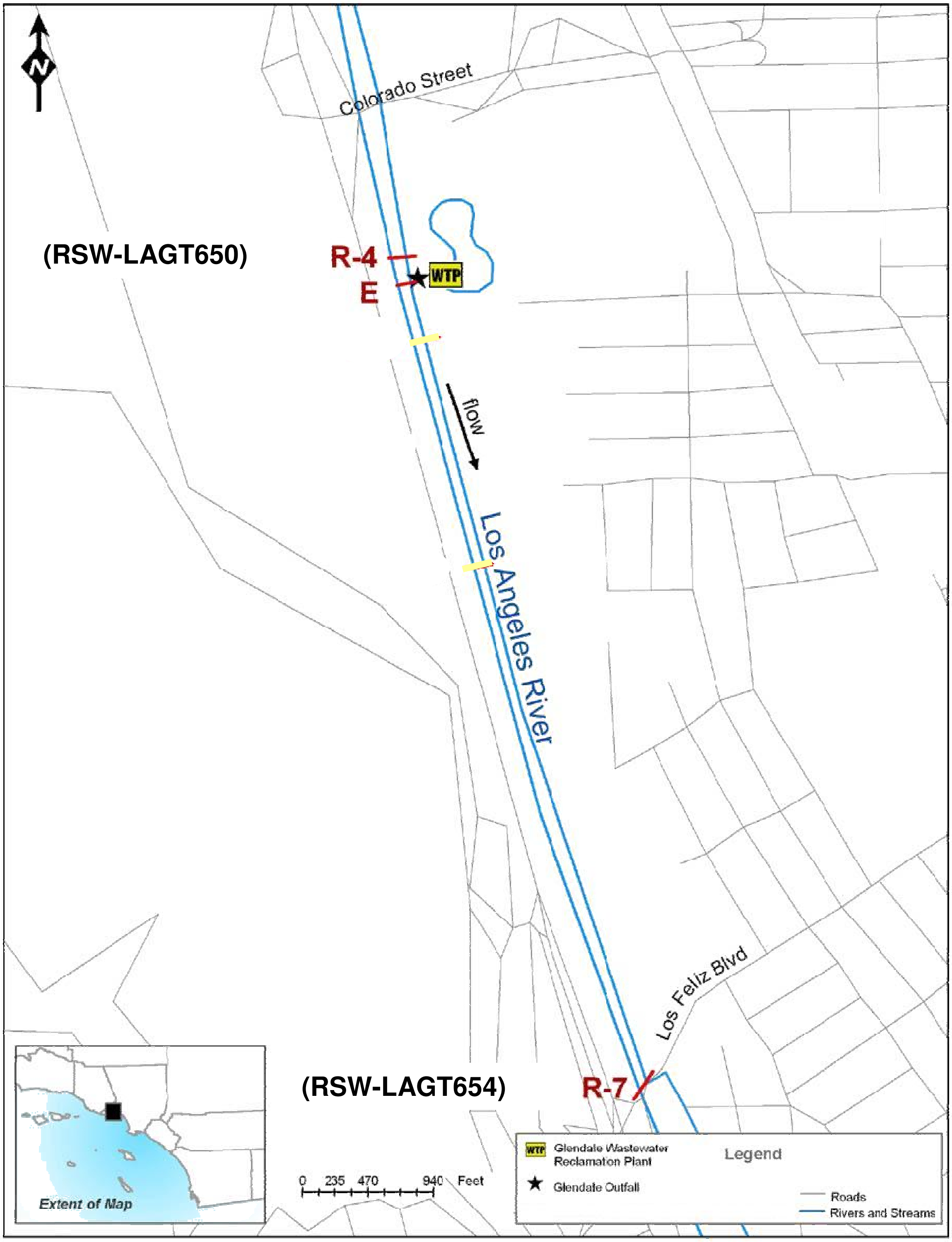
b. Detection methods used for enterococcus shall be those presented in Table 1A of 40 CFR part 136 (revised March 12, 2007) or in the USEPA publication EPA 600/4-85/076, *Test Methods for Escherichia coli and Enterococci in Water By Membrane Filter Procedure*, or any improved method determined by the Regional Water Board to be appropriate.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table 1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
Influent Monitoring Station		
--	INF-001	Sampling stations shall be established at each point of inflow to the sewage treatment plant and shall be located upstream of any in-plant return flows and where representative samples of the influent can be obtained.
Effluent Monitoring Stations		
001	EFF-001A	The effluent sampling station for all constituents (except for bacteria and turbidity) shall be located downstream of the dechlorination process and inside the plant, where representative samples can be obtained.
001	EFF-001B	The effluent sampling station for bacteria and turbidity shall be located downstream of any in-plant return flows and after final disinfection process, where representative samples of the effluent can be obtained
Receiving Water Monitoring Stations		
--	RSW-LAGT650	Los Angeles River, approximately 214 feet upstream of Discharge Point 001. (Previously designated as R-4)
--	RSW-LAGT654	Los Angeles River at Los Feliz Boulevard (upstream from Los Feliz Boulevard). (Previously designated as R-7)
TMDL Wet-Weather Flow Monitoring Station		
--	RSW-003D	TMDL Wet-weather Flow Monitoring Station at the County of Los Angeles Department of Public Works' Wardlow Gage Station No. F319-R, in Los Angeles River, just below Wardlow River Road.



Los Angeles-Glendale WRP Receiving Water Stations

III. INFLUENT MONITORING REQUIREMENTS

Influent monitoring is required to:

- Determine compliance with NPDES permit conditions.
- Assess treatment plant performance.
- Assess effectiveness of the Pretreatment Program.

A. Monitoring Location INF-001

1. The Discharger shall monitor influent to the facility at INF-001 as follows:

Table 2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	recorder	continuous[1]	[1]
pH	pH unit	grab	weekly	[2]
Total suspended solids	mg/L	24-hour composite	weekly	[2]
BOD_5 20°C	mg/L	24-hour composite	weekly	[2]
Cadmium	µg/L	24-hour composite	quarterly	[2]
Copper	µg/L	24-hour composite	quarterly	[2]
Lead	µg/L	24-hour composite	quarterly	[2]
Zinc	µg/L	24-hour composite	quarterly	[2]
Mercury	µg/L	24-hour composite	quarterly	[2]
Cyanide	µg/L	grab	quarterly	[2]
Bis(2-Ethylhexyl)Phthalate	µg/L	24-hour composite	quarterly	[2]
Dibenzo(a,h)Anthracene	µg/L	24-hour composite	quarterly	[2]
Remaining EPA priority pollutants[3] excluding asbestos	µg/L	24-hour composite/grab for VOCs and Chromium VI	semiannually	[2]

[1] Total daily flow and instantaneous peak daily flow (24-hr basis). Actual monitored flow shall be reported (not the maximum flow, i.e., design capacity).

[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136; where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or State Water Resources Control Board. For any pollutant whose effluent limitation is lower than all the MLs specified in Attachment 4 of the SIP, the analytical method with the lowest ML must be selected.

[3] Priority pollutants are those constituents referred to in 40 CFR part 401.15; a list of these pollutants is provided as Appendix A to 40 CFR part 423.

IV. EFFLUENT MONITORING REQUIREMENTS

Effluent monitoring is required to:

- Determine compliance with NPDES permit conditions and water quality standards.
- Assess plant performance, identify operational problems and improve plant performance.
- Provide information on wastewater characteristics and flows for use in interpreting water quality and biological data.
- Determine reasonable potential analysis for toxic pollutants.
- Determine TMDL effectiveness in waste load allocation compliance.

A. Monitoring Location EFF-001

1. The Discharger shall monitor the discharge of tertiary-treated effluent at EFF-001A, except for bacteria and turbidity. Bacteria and turbidity shall be monitored at EFF-001B. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding ML.

Table 3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Total waste flow	mgd	recorder	continuous[4]	[4]
Turbidity	NTU	recorder	continuous[4]	[5]
Total residual chlorine	mg/L	recorder	continuous[6]	--
Total residual chlorine	mg/L	grab	daily[7]	[5]
Total coliform	MPN/ 100mL or CFU/100ml	grab	daily	[5]

[4] Where continuous monitoring of a constituent is required, the following shall be reported:
Total waste flow – total daily and peak daily flow (24-hr basis);
Turbidity – maximum daily value, total amount of time each day the turbidity exceeded five turbidity units, flow-proportioned average daily value. A grab sample can be used to determine compliance with the 5 NTU limit.

[5] Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136; where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or State Water Resources Control Board. For any pollutant whose effluent limitation is lower than all the minimum levels (MLs) specified in Attachment 4 of the SIP, the analytical method with the lowest ML must be selected.

[6] Total residual chlorine shall be recorded continuously. The recorded data shall be maintained by the Permittee for at least five years. The Permittee shall extract the maximum daily peak, minimum daily peak, and average daily from the recorded media and shall be made available upon request of the Regional Water Board. The continuous monitoring data are not intended to be used for compliance determination purposes.

[7] Daily grab samples shall be collected during peak flow at monitoring location EFF-001A, Monday through Friday only, except for holidays. Analytical results of daily grab samples will be used to determine compliance with total residual chlorine effluent limitation. Furthermore, additional monitoring requirements specified in section IV.A.2. shall be followed.

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Fecal coliform	MPN/ 100mL or CFU/100ml	grab	daily	[5]
E.coli	MPN/ 100mL or CFU/100ml	grab	weekly[8]	[5]
Temperature	°F	grab	daily[9]	[5]
pH	pH units	grab	daily[9]	[5]
Settleable solids	mL/L	grab	daily[9]	[5]
Suspended solids	mg/L	24-hour composite	daily[9]	[5]
BOD_5 20°C	mg/L	24-hour composite	weekly	[5]
Oil and grease	mg/L	grab	weekly	[5]
Dissolved oxygen	mg/L	grab	monthly	[5]
Total Dissolved Solids	mg/L	24-hour composite	monthly	[5]
Sulfate	mg/L	24-hour composite	monthly	[5]
Chloride	mg/L	24-hour composite	monthly	[5]
Ammonia Nitrogen	mg/L	24-hour composite	monthly	[5]
Nitrite nitrogen	mg/L	24-hour composite	monthly	[5]
Nitrate nitrogen	mg/L	24-hour composite	monthly	[5]
Organic nitrogen	mg/L	24-hour composite	monthly	[5]
Total nitrogen	mg/L	24-hour composite	monthly	[5]
Surfactants (MBAS)	mg/L	24-hour composite	monthly	[5]
Surfactants (CTAS)	mg/L	24-hour composite	monthly	[5]
Total hardness ($CaCO_3$)	mg/L	24-hour composite	monthly	[5]
Chronic toxicity	TUc	24-hour composite	monthly	[5]
Chronic toxicity (narrative effluent limit reporting)[10]	Passed / Triggered	24-hour composite	monthly	[5]
Acute toxicity	% Survival	24-hour composite	quarterly	[5]
Radioactivity (Including gross alpha, gross beta, combined radium-226 and radium-228, tritium, strontium-90 and uranium)	pCi/L	24-hour composite	semiannually	[11]
Cadmium	µg/L	24-hour composite	monthly	[5]

[8] E. coli testing shall be conducted only if fecal coliform testing is positive. If the fecal coliform analysis results in no detection, a result of less than (<) the reporting limit for fecal coliform will be reported for E. coli.

[9] Daily samples shall be collected Monday through Friday, except, for holidays; and not on weekends.

[10] For narrative chronic toxicity effluent limit reporting, "Passed" is reported when chronic toxicity effluent results do not trigger accelerated testing by exceeding the monthly median trigger of 1.0 TU_c = 100/NOEC. "Triggered" is reported when chronic toxicity effluent results trigger accelerated testing by exceeding the monthly median trigger of 1.0 TU_c = 100/NOEC.

[11] Analyze these radiochemicals by the following USEPA methods: method 900.0 for gross alpha and gross beta, method 903.0 or 903.1 for radium-226, method 904.0 for radium-228, method 906.0 for tritium, method 905.0 for strontium-90, and method 908.0 for uranium. Analysis for combined Radium-226 & 228 shall be conducted only if gross alpha results for the same sample exceed 15 pCi/L or beta greater than 50 pCi/L. If Radium-226 & 228 exceeds the stipulated criteria, analyze for Tritium, Strontium-90 and uranium.

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Copper	µg/L	24-hour composite	monthly	[5]
Lead	µg/L	24-hour composite	monthly	[5]
Zinc	µg/L	24-hour composite	monthly	[5]
Mercury	µg/L	24-hour composite	monthly	[5]
Cyanide	µg/L	grab	monthly	[5]
Bis(2-Ethylhexyl)Phthalate	µg/L	24-hour composite	monthly	[5]
Dibenzo(a,h)Anthracene	µg/L	24-hour composite	monthly	[5]
Tetrachloroethylene	µg/L	grab	quarterly	[5]
Benzo(a)anthracene	µg/L	24-hour composite	quarterly	[5]
Chrysene	µg/L	24-hour composite	quarterly	[5]
N-Nitrosodi-n-propylamine	µg/L	24-hour composite	quarterly	[5]
Antimony	µg/L	24-hour composite	quarterly	[5]
Arsenic	µg/L	24-hour composite	quarterly	[5]
Beryllium	µg/L	24-hour composite	quarterly	[5]
Total Chromium	µg/L	grab	quarterly	[5]
Chromium III	µg/L	calculation	quarterly	[5]
Chromium VI	µg/L	grab	quarterly	[5]
Nickel	µg/L	24-hour composite	quarterly	[5]
Selenium	µg/L	24-hour composite	quarterly	[5]
Silver	µg/L	24-hour composite	quarterly	[5]
Thallium	µg/L	24-hour composite	quarterly	[5]
Diazinon	µg/L	24-hour composite	quarterly	[5]
2,3,7,8-TCDD[12]	pg/L	24-hour composite	semiannually	[5]
Perchlorate	µg/L	grab	semiannually	[13]
1,4-Dioxane	µg/L	grab	semiannually	[13]
1,2,3-Trichloropropane	µg/L	grab	semiannually	[13]
Methyl tert-butyl-ether (MTBE)	µg/L	grab	semiannually	[13]
Boron	mg/L	24-hour composite	quarterly	[5]

[12] In accordance with the SIP, the Discharger shall conduct effluent monitoring for the seventeen 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD or dioxin) congeners in the effluent and in the receiving water Station RSW-LAGT650, located upstream of the discharge point 001. The Discharger shall use the appropriate Toxicity Equivalence Factor (TEF) to determine Toxic Equivalence (TEQ). Where TEQ equals the product between each of the 17 individual congeners' (i) concentration analytical result (C_i) and their corresponding Toxicity Equivalence Factor (TEF_i)., (i.e., $TEQ_i = C_i \times TEF_i$). Compliance with the Dioxin limitation shall be determined by the summation of the seventeen individual TEQs, or the following equation:

$$\text{Dioxin concentration in effluent} = \sum_{1}^{17}(TEQ_i) = \sum_{1}^{17}(C_i)(TEF_i)$$

[13] Emerging chemicals include 1,4-dioxane (USEPA 8270M test method), perchlorate (USEPA 314 test method, or USEPA method 331 if a detection limit of less than 6 µg/L is achieved), 1,2,3-trichloropropane (USEPA 504.1, 8260B test method, or USEPA 524.2 in SIM mode), and methyl tert-butyl ether (USEPA 8260B test method or USEPA method 624 if a detection level of less than 5 µg/L is achieved, and if the Discharger received ELAP certification to run USEPA method 624).

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Fluoride	mg/L	24-hour composite	quarterly	5
2,4-D	µg/L	24-hour composite	semiannually	5
2,4,5-TP (Silvex)	µg/L	24-hour composite	semiannually	5
Pesticide[14]	µg/L	24-hour composite	semiannually	5
Remaining EPA priority pollutants[15] excluding asbestos	µg/L	24-hour composite; grab for VOCs	semiannually	5

2. Total Residual Chlorine Additional Monitoring

   Continuous monitoring of total residual chlorine at the current location shall serve as an internal trigger for the increased grab sampling at EFF-001A if either of the following occurs, except as noted in item c:

   a. Total residual chlorine concentration excursions of up to 0.3 mg/L lasting greater than 15 minutes; or

   b. Total residual chlorine concentration peaks in excess of 0.3 mg/L lasting greater than 1 minute.

   c. Additional grab samples need not be taken if it can be demonstrated that a stoichiometrically appropriate amount of dechlorination chemical has been added to effectively dechlorinate the effluent to 0.1 mg/L or less for peaks in excess of 0.3 mg/L lasting more than 1 minute, but not for more than five minutes.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Acute Toxicity

1. Definition of Acute Toxicity

Acute toxicity is a measure of primarily lethal effects that occur over a 96-hour period. Acute toxicity shall be measured in percent survival measured in undiluted (100%) effluent.

a. The average survival in the undiluted effluent for any three (3) consecutive 96-hour static renewal bioassay tests shall be at least 90%, and

b. No single test shall produce less than 70% survival.

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[14] Pesticides are, for the purposes of this Order, those six constituent referred in 40 CFR part 125.58(p), (demeton, guthion, malathion, mirex, methoxychlor, parathion).

[15] Priority pollutants are those constituents referred to in 40 CFR part 401.15; a list of these pollutants is provided as Appendix A to 40 CFR part 423.

2. Acute Toxicity Effluent Monitoring Program

a. **Method.** The Discharger shall conduct acute toxicity tests on 24-hr composite 100% effluent and receiving water grab samples by methods specified in 40 CFR part 136, which cites USEPA's *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, October, 2002 (EPA-821-R-02-012) or a more recent edition to ensure compliance.

b. **Test Species.** The fathead minnow, *Pimephales promelas*, shall be used as the test species for fresh water discharges and the topsmelt, *Atherinops affinis*, shall be used as the test species for brackish discharges. However, if the salinity of the receiving water is between 1 to 32 parts per thousand (ppt), the Discharger may have the option of using the inland silverslide, *Menidia beryllina*, instead of the topsmelt. The method for topsmelt is found in USEPA's *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, October, 2002 (EPA-821-R-02-012).

c. **Alternate Reporting.** In lieu of conducting the standard acute toxicity testing with the fathead minnow, the Discharger may elect to report the results or endpoint from the first 96 hours of the chronic toxicity test as the results of the acute toxicity test, but only if the Discharger uses USEPA's October 2002 protocol (EPA-821-R-02-013) and fathead minnow is used to conduct the chronic toxicity test.

d. **Acute Toxicity Accelerated Monitoring.** If either of the effluent or receiving water acute toxicity requirements in Section IV.A.4.g.a.(i) and (ii), and Section V.A.17.c., respectively, of this Order is not met, the Discharger shall conduct six additional tests, approximately every two weeks, over a 12-week period. The Discharger shall ensure that results of a failing acute toxicity test are received by the Discharger within 24 hours of completion of the test and the additional tests shall begin within 5 business days of receipt of the result. If the additional tests indicate compliance with acute toxicity limitation, the Discharger may resume regular testing.

   However, if the extent of the acute toxicity of the receiving water upstream of the discharge is greater than the downstream and the results of the effluent acute toxicity test comply with acute toxicity limitation, the accelerated monitoring need not be implemented for the receiving water.

e. **Toxicity Identification Evaluation (TIE).**

   1. If the results of any two of the six accelerated tests are less than 90% survival, then the Discharger shall begin a Toxicity Identification Evaluation (TIE). The TIE shall include all reasonable steps to identify the sources of toxicity. Once the sources are identified, the Discharger shall take all reasonable steps to reduce toxicity to meet the objective.

2. If the initial test and any of the additional six acute toxicity bioassay tests results are less than 70% survival, the Discharger shall immediately implement Initial Investigation Toxicity Reduction Evaluation (TRE) Workplan. Once the sources are identified the Discharger shall take all reasonable steps to reduce toxicity to meet the requirements.

B. Chronic Toxicity Testing

1. Definition of Chronic Toxicity

Chronic toxicity is a measure of adverse sub-lethal effects in plants, animals, or invertebrates in a long-term test. The effects measured may include lethality or decreases in fertilization, growth, and reproduction.

2. Chronic Toxicity Effluent Monitoring Program

a. **Test Methods**. The Discharger shall conduct critical life stage chronic toxicity tests on 24-hour composite 100 % effluent samples and receiving water grab samples in accordance with EPA's *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, October 2002 (EPA-821-R-02-013) or EPA's *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*, October 2002 (EPA-821-R-02-014), or current version. The Discharger shall conduct static renewal tests in accordance with the 2002 freshwater chronic methods manual for water flea and fathead minnow. For Selenastrum, use a static non-renewal test protocol.

b. **Frequency**

1. **Screening and Monitoring**. - The Discharger shall conduct the first chronic toxicity test screening for three consecutive months in 2012. The Discharger shall conduct short-term tests with the cladoceran, water flea (*Ceriodaphnia dubia* - survival and reproduction test), the fathead minnow (*Pimephales promelas* - larval survival and growth test), and the green algae (*Selenastrum capricornutum* - growth test) as an initial screening process for a minimum of three, but not to exceed, five suites of tests to account for potential variability of the effluent/receiving water. After this screening period, monitoring shall be conducted using the most sensitive species.

2. **Re-screening** is required every 24 months. The Discharger shall re-screen with the three species listed above and continue to monitor with the most sensitive species. If the first suite of re-screening tests demonstrates that the same species is the most sensitive then the re-screening does not need to include more than one suite of tests. If a different species is the most sensitive or if there is ambiguity, then the Discharger shall proceed with suites of screening tests for a minimum of three, but not to exceed five suites.

3. Regular toxicity tests - After the screening period, monitoring shall be conducted monthly using the most sensitive species.

c. **Toxicity Units.** The chronic toxicity of the effluent shall be expressed and reported in Chronic Toxic Units, TUc, where,

$$TUc = \frac{100}{NOEC}$$

The No Observable Effect Concentration (NOEC) is expressed as the maximum percent effluent concentration that causes no observable effect on test organisms, as determined by the results of a critical life stage toxicity test.

3. Accelerated Monitoring

If the chronic toxicity of the effluent or the receiving water downstream the discharge exceeds the monthly trigger median of 1.0 TU_c, the Discharger shall conduct six additional tests, approximately every two weeks, over a 12-week period. The Discharger shall ensure that they receive results of a failing chronic toxicity test within 24 hours of the completion of the test and the additional tests shall begin within 5 business days of the receipt of the result. However, if the chronic toxicity of the receiving water upstream of the discharge is greater than the downstream and the TUc of the effluent chronic toxicity test is less than or equal to a monthly median of 1.0 TU_c trigger, then accelerated monitoring need not be implemented for the receiving water.

a. If any three out of the initial test and the six additional tests results exceed 1.0 TU_c the Discharger shall immediately implement the Initial Investigation TRE workplan.

b. If implementation of the initial investigation TRE workplan indicates the source of toxicity (e.g., a temporary plant upset, etc.), then the Discharger shall return to the normal sampling frequency required in Table 3 and Table 4a of this MRP.

c. If all of the six additional tests required above do not exceed 1.0 TUc, then the Discharger may return to the normal sampling frequency.

d. If a TRE/TIE is initiated prior to completion of the accelerated testing schedule required, then the accelerated testing schedule may be terminated, or used as necessary in performing the TRE/TIE, as determined by the Executive Officer.

C. Quality Assurance

1. Concurrent testing with a reference toxicant shall be conducted. Reference toxicant tests shall be conducted using the same test conditions as the effluent toxicity tests (e.g., same test duration, etc).

2. If either the reference toxicant test or effluent test does not meet all test acceptability criteria (TAC) as specified in the test methods manual (EPA-821-R-02-012 and/or EPA-821-R-02-013), then the Discharger must re-sample and re-test within 14 days.

3. Control and dilution water should be receiving water or laboratory water, as appropriate, as described in the manual. If the dilution water used is different from the culture water, a second control using culture water shall be used.

D. Preparation of an Initial Investigation TRE Workplan

The Discharger shall prepare and submit a copy of the Discharger's initial investigation TRE workplan to the Executive Officer of the Regional Water Board for approval within 90 days of the effective date of this permit. If the Executive Officer does not disapprove the workplan within 60 days, the workplan shall become effective. The Discharger shall use USEPA manual EPA/833B-99/002 (municipal) as guidance, or most current version. At a minimum, the TRE Workplan must contain the provisions in Attachment G. This workplan shall describe the steps the Discharger intends to follow if toxicity is detected, and should include, at a minimum:

1. A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency.

2. A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in the operation of the facility; and,

3. If a toxicity identification evaluation (TIE) is necessary, an indication of the person who would conduct the TIEs (i.e., an in-house expert or an outside contractor). See MRP Section V.E.3. for guidance manuals.

E. Steps in TRE and TIE

1. If results of the implementation of the facility's initial investigation TRE workplan indicate the need to continue the TRE/TIE, the Discharger shall expeditiously develop a more detailed TRE workplan for submittal to the Executive Officer within 15 days of completion of the initial investigation TRE. The detailed workplan shall include, but not be limited to:

   a. Further actions to investigate and identify the cause of toxicity;

   b. Actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and

   c. A schedule for these actions.

2. The following section summarizes the stepwise approach used in conducting the TRE:

a. Step 1 includes basic data collection.

b. Step 2 evaluates optimization of the treatment system operation, facility housekeeping, and selection and use of in-plant process chemicals.

c. If Steps 1 and 2 are unsuccessful, Step 3 implements a Toxicity Identification Evaluation (TIE) and employment of all reasonable efforts using currently available TIE methodologies. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity.

d. Assuming successful identification or characterization of the toxicant(s), Step 4 evaluates final effluent treatment options.

e. Step 5 evaluates in-plant treatment options.

f. Step 6 consists of confirmation once a toxicity control method has been implemented.

   Many recommended TRE elements parallel source control, pollution prevention, and storm water control program best management practices (BMPs). To prevent duplication of efforts, evidence of compliance with those requirements may be sufficient to comply with TRE requirements. By requiring the first steps of a TRE to be accelerated testing and review of the facility's TRE workplan, a TRE may be ended in its early stages. All reasonable steps shall be taken to reduce toxicity to the required level. The TRE may be ended at any stage if monitoring indicates there are no longer toxicity violations.

3. The Discharger shall initiate a TIE as part of the TRE process to identify the cause(s) of toxicity. The Discharger shall use the USEPA acute manual, chronic manual, EPA/600/R-96-054 (Phase I), EPA/600/R-92/080 (Phase II), and EPA-600/R-92/081 (Phase III), as guidance.

4. If a TRE/TIE is initiated prior to completion of the accelerated testing required in Section V.D. of this program, then the accelerated testing schedule may be terminated, or used as necessary in performing the TRE/TIE, as determined by the Executive Officer .

5. Toxicity tests conducted as part of a TRE/TIE may also be used for compliance, if appropriate.

6. The Regional Water Board recognizes that toxicity may be episodic and identification of causes of and reduction of sources of toxicity may not be successful in all cases. Consideration of enforcement action by the Board will be based, in part, on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

a. If all the results of the six additional tests are in compliance with the chronic toxicity limitation, the Discharger may resume regular monthly testing.

b. If the results of any of the six accelerated tests exceeds the limitation, the Discharger shall continue to monitor until six additional tests, approximately every two weeks, over a 12-week periodare in compliance. At that time, the Discharger may resume regular monthly testing.

c. If the results of two of the six tests exceed the $1TU_C$ trigger, the Discharger shall initiate a TRE.

d. If implementation of the initial investigation TRE workplan (see item D.3, above) indicates the source of toxicity (e.g., a temporary plant upset, etc.), then the Discharger shall return to the regular testing frequency.

F. Ammonia Removal

1. Except with prior approval from the Executive Officer of the Regional Water Board, ammonia shall not be removed from bioassay samples. The Discharger must demonstrate the effluent toxicity is caused by ammonia because of increasing test pH when conducting the toxicity test. It is important to distinguish the potential toxic effects of ammonia from other pH sensitive chemicals, such as certain heavy metals, sulfide, and cyanide. The following may be steps to demonstrate that the toxicity is caused by ammonia and not other toxicants before the Executive Officer would allow for control of pH in the test.

   a. There is consistent toxicity in the effluent and the maximum pH in the toxicity test is in the range to cause toxicity due to increased pH.

   b. Chronic ammonia concentrations in the effluent are greater than 4 mg/L total ammonia.

   c. Conduct graduated pH tests as specified in the toxicity identification evaluation methods. For example, mortality should be higher at pH 8 and lower at pH 6.

   d. Treat the effluent with a zeolite column to remove ammonia. Mortality in the zeolite treated effluent should be lower than the non-zeolite treated effluent. Then add ammonia back to the zeolite-treated samples to confirm toxicity due to ammonia.

2. When it has been demonstrated that toxicity is due to ammonia because of increasing test pH, pH may be controlled using appropriate procedures which do not significantly alter the nature of the effluent, after submitting a written request to the Regional Water Board, and receiving written permission expressing approval from the Executive Officer of the Regional Water Board.

G. Reporting

The Discharger shall submit a full report of the toxicity test results, including any accelerated testing conducted during the month, as required by this permit. Test results shall be reported in Acute Toxicity Units (TUa) or Chronic Toxicity Units (TUc), as required, with the self-monitoring report (SMR) for the month in which the test is conducted. If an initial investigation indicates the source of toxicity and accelerated testing is unnecessary, pursuant to Section V.A.2.d. and V.B.3., then those results also shall be submitted with the SMR for the period in which the Investigation occurred.

1. The full report shall be received by the Regional Water Board by the 15th day of the third month following sampling.

2. The full report shall consist of (1) the results; (2) the dates of sample collection and initiation of each toxicity test; (3) the toxicity limit; and, (4) printout of the toxicity program (ToxCalc or CETIS).

3. Test results for toxicity tests also shall be reported according to the appropriate manual chapter on Report Preparation and shall be attached to the SMR. Routine reporting shall include, at a minimum, as applicable, for each test, as appropriate:

   a. sample date(s)

   b. test initiation date

   c. test species

   d. end point value(s) for each dilution (e.g. number of young, growth rate, percent survival)

   e. NOEC values in percent effluent

   f. TUc value(s), where $TU_c = \frac{100}{NOEC}$

   g. Mean percent mortality (+standard deviation) after 96 hours in 100% effluent (if applicable)

   h. NOEC and LOEC (Lowest Observable Effect Concentration) values for reference toxicant test(s)

   i. Available water quality measurements for each test (e.g., pH, D.O., temperature, conductivity, hardness, salinity, ammonia).

4. The Discharger shall provide a compliance summary that includes a summary table of toxicity data from at least eleven of the most recent samples.

5. The Discharger shall notify this Regional Water Board immediately of any toxicity exceedance and in writing 14 days after the receipt of the results of an effluent limit. The notification will describe actions the Discharger has taken or will take to investigate and correct the cause(s) of toxicity. It may also include a status report on any actions required by the permit, with a schedule for actions not yet completed. If no actions have been taken, the reasons shall be given.

VI. RECLAMATION MONITORING REQUIREMENTS

The Discharger currently recycles nearly all of the treated effluent and plans to continue doing so. The production, distribution, and reuse of recycled water for direct, non-potable applications are presently regulated under Water Recycling Requirements contained in Order No. R4-2007-0007 as amended by Order No. R4-2011-0035. The effluent is stored in a 2-million gallon storage tank located across Los Angeles River and Interstate 5 in Griffith Park. The Department of Water and Power for the City of Los Angeles and the Public Service Department for the City of Glendale are the agencies who distribute the recycled water. There are currently over 40 users of the recycled water produced by the Plant. Recycled water is used mainly for irrigation and it is also used in cooling towers at the Glendale Power Plant and for industrial and process at the Los Angeles-Glendale WRP.

VII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

A. Monitoring Location RSW-LAGT650 and RSW-LAGT654

1. The Discharger shall monitor Los Angeles River at RSW-LAGT650 and RSW-LAGT654 as follows:

Table 4a. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total flow	cfs	calculation	monthly	--
Turbidity	NTU	grab	quarterly	[16]
Total residual chlorine	mg/L	grab	weekly	[16]
Total coliform	MPN/100ml or CFU/100ml	grab	weekly	[16]
Fecal coliform	MPN/100ml or CFU/100ml	grab	weekly	[16]
E.coli	MPN/100ml or CFU/100ml	grab	weekly[17]	[16]
Temperature	°F	grab	weekly	[16]

[16] Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136; where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or State Water Resources Control Board. For any pollutant whose effluent limitation is lower than all the MLs specified in Attachment 4 of the SIP, the analytical method with the lowest ML must be selected.

[17] E. coli testing shall be conducted only if fecal coliform testing is positive. If fecal coliform analysis results in no detection, a result of less than (<) the reporting limit for fecal coliform will reported for E. coli.

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
pH	pH units	grab	weekly	[16]
Settleable solids	mL/L	grab	quarterly	[16]
Suspended solids	mg/L	grab	quarterly	[16]
BOD_5 20°C	mg/L	grab	quarterly	[16]
Total organic carbon	mg/L	grab	quarterly	[16]
Oil and grease	mg/L	grab	quarterly	[16]
Dissolved oxygen	mg/L	grab	weekly	[16]
Total Dissolved Solids	mg/L	grab	quarterly	[16]
Conductivity	µmhos/cm	grab	quarterly	[16]
Sulfate	mg/L	grab	quarterly	[16]
Chloride	mg/L	grab	quarterly	[16]
Ammonia nitrogen	mg/L	grab	weekly[18]	[16]
Nitrate nitrogen	mg/L	grab	weekly[18]	[16]
Nitrite nitrogen	mg/L	grab	weekly[18]	[16]
Organic nitrogen	mg/L	grab	weekly[18]	[16]
Total nitrogen	mg/L	grab	weekly[18]	[16]
Total kjeldahl nitrogen (TKN)	mg/L	grab	weekly[18]	[16]
Total phosphorus	mg/L	grab	quarterly	[16]
Orthophosphate-P	mg/L	grab	quarterly	[16]
Surfactants (MBAS)	mg/L	grab	quarterly	[16]
Surfactants (CTAS)	mg/L	grab	quarterly	[16]
Total hardness ($CaCO_3$)	mg/L	grab	quarterly	[16]
Chronic toxicity	TUc	grab	quarterly	[16]
Acute toxicity	% Survival	grab	quarterly	[16]
Cadmium	µg/L	grab	quarterly	[16]
Copper	µg/L	grab	quarterly	[16]
Lead	µg/L	grab	quarterly	[16]
Zinc	µg/L	grab	quarterly	[16]
Mercury	µg/L	grab	quarterly	[16]
Cyanide	µg/L	grab	quarterly	[16]
Bis(2-Ethylhexyl)Phthalate	µg/L	grab	quarterly	[16]
Dibenzo(a,h)Anthracene	µg/L	grab	quarterly	[16]
Tetrachloroethylene	µg/L	grab	quarterly	[16]
Benzo(a)anthracene	µg/L	grab	quarterly	[16]
Chrysene	µg/L	grab	quarterly	[16]
N-Nitrosodi-n-propylamine	µg/L	grab	quarterly	[16]
Antimony	µg/L	grab	quarterly	[16]
Arsenic	µg/L	grab	quarterly	[16]
Beryllium	µg/L	grab	quarterly	[16]
Chromium III	µg/L	calculation	quarterly	[16]
Chromium VI	µg/L	grab	quarterly	[16]

[18] Regional Board Resolution No. 2003-009, Amendment to the Basin Plan for the Los Angeles Region to Include a TMDL for Nitrogen Compounds and Related Effects in the Los Angeles River (Nitrogen Compounds TMDL), requires weekly receiving water monitoring to ensure compliance with the water quality objective.

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Chromium	µg/L	grab	quarterly	16
Nickel	µg/L	grab	quarterly	16
Selenium	µg/L	grab	quarterly	16
Silver	µg/L	grab	quarterly	16
Thallium	µg/L	grab	quarterly	16
Methyl tert-butyl-ether (MTBE)	µg/L	grab	semiannually	19
Perchlorate	µg/L	grab	semiannually	19
1,2,3-Trichloropropane	µg/L	grab	semiannually	19
1,4-Dioxane	µg/L	grab	semiannually	19
Diazinon[20]	µg/L	grab	quarterly	16
2,3,7,8-TCDD[21]	pg/L	grab	semiannually	16
Chemical oxygen demand (COD)	mg/L	grab	quarterly	16
Fluoride	mg/L	grab	quarterly	16
Boron	mg/L	grab	quarterly	16
Pesticide[22]	µg/L	grab	semiannually	16
2,4-D	µg/L	grab	semiannually	16
2,4,5-TP (Silvex)	µg/L	grab	semiannually	16
Remaining EPA priority pollutants[23] excluding asbestos	µg/L	grab	semiannually	16

[19] Emerging chemicals include 1,4-dioxane (USEPA 8270M test method), perchlorate (USEPA 314 test method, or USEPA method 331 if a detection limit of less than 6 µg/L is achieved), 1,2,3-trichloropropane (USEPA 504.1, 8260B test method, or USEPA 524.2 in SIM mode), and methyl tert-butyl ether (USEPA 8260B test method or USEPA method 624 if a detection level of less than 5 µg/L is achieved, and if the Discharger received ELAP certification to run USEPA method 624).

[20] Diazinon sampling shall be conducted concurrently with the receiving water chronic toxicity sampling.

[21] In accordance with the SIP, the Discharger shall conduct effluent monitoring for the seventeen 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD or dioxin) congeners in the effluent and in the receiving water Station RSW-LAGT650 located upstream of the discharge points 001. The Discharger shall use the appropriate Toxicity Equivalence Factor (TEF) to determine Toxic Equivalence (TEQ). Where TEQ equals the product between each of the 17 individual congeners' (i) concentration analytical result (C_i) and their corresponding Toxicity Equivalence Factor (TEF_i)., (i.e., $TEQ_i = C_i \times TEF_i$). Compliance with the Dioxin limitation shall be determined by the summation of the seventeen individual TEQs, or the following equation:

$$\text{Dioxin concentration in effluent} = \sum_{1}^{17} (TEQ_i) = \sum_{1}^{17} (C_i)(TEF_i)$$

[22] Pesticides are, for purposes of this Order, those six constituents referred in 40CFR part 125.58(p), (demeton, guthion, malathion, mirex, methoxychlor, and parathion).

[23] Priority pollutants are those constituents referred to in 40 CFR part 401.15; a list of these pollutants is provided as Appendix A to 40 CFR part 423.

B. Bioassessment Monitoring Program

1. The bioassessment program shall be conducted annually in the spring/summer period and include an analysis of the community structure of the instream macroinvertebrate assemblages, the community structure of the instream algal assemblages (benthic diatoms and soft-bodied algae), chlorophyll a and biomass for instream algae, and physical habitat assessment at the 10 random monitoring stations designated by the Los Angeles River Watershed Monitoring Program.

   This program shall be implemented by appropriately trained staff. Alternatively, a professional subcontractor qualified to conduct bioassessments may be selected to perform the bioassessment work for the Discharger. Analyses of the results of the bioassessment monitoring program, along with photographs of the monitoring site locations taken during sample collection, shall be submitted in the corresponding annual report. If another stakeholder, or interested party in the watershed subcontracts a qualified professional to conduct bioassessment monitoring during the same season and at the same location as specified in the MRP, then the Discharger may, in lieu of duplicative sampling, submit the data, a report interpreting the data, photographs of the site, and related QA/QC documentation in the corresponding annual report.

2. The Discharger must provide a copy of their Standard Operation Procedures (SOPs) for the Bioassessment Monitoring Program to the Regional Board upon request. The document must contain step-by-step field, laboratory and data entry procedures, as well as, related QA/QC procedures. The SOP must also include specific information about each bioassessment program including: assessment program description, its organization and the responsibilities of all its personnel; assessment project description and objectives; qualifications of all personnel; and the type of training each member has received.

3. Field sampling must conform to the SOP established for the California Stream Bioassessment Procedure (CSBP) or more recently established sampling protocols, such as used by the Surface Water Ambient Monitoring Program (SWAMP). Field crews shall be trained on aspects of the protocol and appropriate safety issues. All field data and sample Chain of Custody (COC) forms must be examined for completion and gross errors. Field inspections shall be planned with random visits and shall be performed by the Discharger or an independent auditor. These visits shall report on all aspects of the field procedure with corrective action occurring immediately.

4. A taxonomic identification laboratory shall process the biological samples that usually consist of subsampling organisms, enumerating and identifying taxonomic groups and entering the information into an electronic format. The Regional Board may require QA/QC documents from the taxonomic laboratories and examine their records regularly. Intra-laboratory QA/QC for subsampling, taxonomic validation and corrective actions shall be conducted and documented. Biological laboratories shall also maintain reference collections, vouchered specimens (the Discharger may request the return of their sample voucher collections) and remnant collections. The laboratory should participate in an

(external) laboratory taxonomic validation program at a recommended level of 10% or 20%. External QA/QC can be arranged through the California Department of Fish and Game's Aquatic Bioassessment Laboratory located in Rancho Cordova, California.

C. Monitoring Location RSW-003D, Los Angeles River Wardlow Station

1. The Discharger shall report the maximum daily flow at Los Angeles River, downstream of the discharge, at the LA County Department of Public Works' Gage Station No. F319-R Los Angeles River below Wardlow. For the purposes of this permit, this station is also known as RSW-003D. This information is necessary to determine the wet-weather and dry-weather conditions of the river as defined by *Los Angeles River Metals TMDL*. If the gauging station is not operational, an estimated maximum daily flow may be submitted.

Table 4b. TMDL Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Maximum Daily Flow	cfs	recorder	daily	N/A

VIII. OTHER MONITORING REQUIREMENTS

A. Special Study – Constituents of Emerging Concern in Effluent

CECs Special Study Requirements

1. The Discharger shall conduct a special study to investigate the CECs in the effluent discharge. Within six months of the effective date of this Order, the Discharger shall submit to the Executive Officer a CECs Special Study Work Plan (Work Plan) for approval. Upon approval, the Discharger shall implement the Work Plan.

   This Special Study Work Plan shall include, but not limited to, the following:

   a. Identification of CECs to be monitored in the effluent, sample type (e.g. 24-hour composite), sampling frequency, proposed sampling month, and sampling methodology. Table 5 identifies the minimum parameters to be monitored.

Table 5. Effluent Monitoring of CECs

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
17α-Ethinyl Estradiol	ng/L	To be proposed	Annually	To be proposed
17β-Estradiol	ng/L	To be proposed	Annually	To be proposed
Estrone	ng/L	To be proposed	Annually	To be proposed
Bisphenol A	ng/L	To be proposed	Annually	To be proposed
Nonylphenol and nonylphenol polyethoxylates	ng/L	To be proposed	Annually	To be proposed
Octylphenol and octylphenol	ng/L	To be proposed	Annually	To be proposed

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
polyethoxylates				
Polybrominated diphenyl ethers	ng/L	To be proposed	Annually	To be proposed
Acetaminophen	ng/L	To be proposed	Annually	To be proposed
Amoxicillin	ng/L	To be proposed	Annually	To be proposed
Azithromycin	ng/L	To be proposed	Annually	To be proposed
Carbamazepine	ng/L	To be proposed	Annually	To be proposed
Caffeine	ng/L	To be proposed	Annually	To be proposed
Ciprofloxacin	ng/L	To be proposed	Annually	To be proposed
DEET	ng/L	To be proposed	Annually	To be proposed
Dilantin	ng/L	To be proposed	Annually	To be proposed
Gemfibrozil	ng/L	To be proposed	Annually	To be proposed
Ibuprofen	ng/L	To be proposed	Annually	To be proposed
Lipitor (Atorvastain)	ng/L	To be proposed	Annually	To be proposed
Iodinated contrast media (i.e., iopromide)	ng/L	To be proposed	Annually	To be proposed
Sulfamethoxazole	ng/L	To be proposed	Annually	To be proposed
Trimethoprim	ng/L	To be proposed	Annually	To be proposed
Salicylic acid	ng/L	To be proposed	Annually	To be proposed
TCEP	ng/L	To be proposed	Annually	To be proposed
Triclosan	ng/L	To be proposed	Annually	To be proposed

Once the SCCWRP's recommended list of CECs monitoring in ambient waters, including ocean waters, is finalized, the above list of minimum parameters to be monitored by the Discharger and the sampling frequency may be re-evaluated and modified by the Executive Officer. At such time, upon request by the Executive Officer, the Discharger shall monitor the requested CECs parameters at the specified frequency. In the Special Study Work Plan, the Discharger may also propose, for consideration and approval by the Executive Officer, surrogate or indicator CECs that may contribute towards a better understanding of CECs in its effluent.

Sample Type – The Discharger shall propose in the Work Plan the appropriate sample type (e.g. grab or composite) for each constituent.

Sampling Period – At minimum, the Discharger shall monitor the specified CECs once per year. The Work Plan shall propose the appropriate sampling month or quarter for each year, consistent with the goals of the analyses. The rationale for selecting the particular sampling month or quarter shall be explained in the Work Plan.

Proposed Sampling Month- The Discharger may choose a fixed month for sampling or vary the sampling month over the duration of the special study in order to examine possible temporal associations.

Analytical Test Methodology – The Discharger shall review and consider all available analytical test methodologies, including but not limited to those listed in USEPA Methods 1694 and 1698, and methodologies approved or utilized by U.S. Geologic Survey, California Department of Public Health, and other federal or State agencies. Based on its review, the Discharger shall propose the most appropriate analytical methodology, considering sensitivity, accuracy, availability, and cost.

b. Characterization of existing CECs data (data collected previous to Special Study). The Discharger shall propose a characterization of all existing CECs data (associated with its effluent or receiving water) that have been collected for various purposes in the past. At a minimum, the characterization shall include:

- an identification of all CECs monitored to date (outside of this Special Study);
- monitoring duration, frequency, and date(s) (for example, from 2000-present, annually);
- analytical methodologies employed;
- RL, MLs and MDLs achieved for each methodology used; and,
- If detected, temporal/seasonal trend analyses (using both statistical and graphical demonstration) of CECs.

c. Evaluation of CECs data collected as part of this Special Study. The Discharger shall propose an evaluation of CECs data (associated with its effluent) to be collected as part of this special study. At a minimum, the characterization shall include:

- an identification of CECs that have been monitored;
- monitoring duration, frequency, and date(s);
- RL, MLs and MDLs achieved for each methodology used;
- a brief update on any improvements (or change) in the analytical methodologies and associated RL, MLs and MDLs achieved for each methodology used; and,
- If detected, temporal/seasonal trend analyses (using both statistical and graphical demonstration) of cumulative CECs data collected as part of this special study.

2. Reporting – By April 15th of each year (starting April 15, 2013), the Discharger shall submit to the Executive Officer of this Regional Water Board, an annual report summarizing the monitoring results from the previous year. For example, the annual report due April 15, 2013, shall include CECs monitoring data from January to December 2012. Each annual report shall include a compilation of effluent monitoring data of CECs listed in the approved Work Plan, MLs, sample type, analytical methodology used, sampling date/time, QA/QC information, and an evaluation of cumulative CECs data collected to date as part of this special study (see above for further details on CECs data evaluation). In addition, the first annual report due April 15, 2013, shall include a characterization of existing CECs data, i.e., all data collected outside of this special study (see above for further details on existing CECs data characterization).

B. Los Angeles River Watershed Monitoring Program (LARWMP)

1. Pursuant to the 40 CFR section 122.41(j) and section 122.48(b), the monitoring program for a discharger receiving an NPDES permit must be designed to determine compliance with NPDES permit terms and conditions, and demonstrate that State water quality standards are met.

   Since compliance monitoring focuses on the effects of a point source discharge, it is not designed to assess impacts from other sources of pollution (e.g., non-point source run-off, aerial fallout) or to evaluate the current status of important ecological resources on a regional basis.

   The LARWMP was developed for the Los Angeles River Watershed by the City of Los Angeles in cooperation with Los Angeles Regional Water Quality Control Board and USEPA staff, as well as several other local stakeholders. The LARWMP was approved by the Executive Officer on August 8, 2008.

   The goals of the comprehensive watershed-wide monitoring program include evaluating or assessing: compliance with receiving water objectives, trends in surface water quality, impacts to beneficial uses, the health of the biological community, data needs for modeling contaminants of concern, and attaining the goals of the TMDLs under implementation in the Los Angeles River.

2. The Discharger shall participate in the implementation of the LARWMP as indicated in that plan. In coordination with interested stakeholders in the Los Angeles River Watershed, LARWMP shall conduct instream bioassessment monitoring once a year, during the spring/summer period (unless an alternate sampling period is approved by the Executive Officer). Over time, bioassessment monitoring will provide a measurement of the physical condition of the waterbody and the integrity of its biological communities.

3. Changes to the compliance monitoring program may be required over time to fulfill the goals of the watershed-wide monitoring program, while retaining the compliance monitoring component required to evaluate compliance with the NPDES permit. Revisions to the Discharger's program will be made under the direction of the Regional Water Board's Executive Officer, as necessary, to accomplish the goal, and may include a reduction or increase in the number of parameters to be monitored, the frequency of monitoring, and/or the number of samples collected.

C. Tertiary Filter Treatment Bypasses

1. During any day that filters are bypassed, the Discharger shall monitor the effluent for BOD, suspended solids, settleable solids, and oil and grease, on daily basis, until it is demonstrated that the filter “bypass” has not caused an adverse impact on the receiving water.

2. The Discharger shall maintain chronological log of tertiary filter treatment process bypasses, to include the following:

    a. Date and time of bypass start and end;
    b. Total duration time; and,
    c. Estimated total volume bypassed

3. The Discharger shall notify Regional Water Board staff by telephone within 24 hours of the filter bypass event.

4. The Discharger shall submit a written report to the Regional Water Board, according to the corresponding monthly self monitoring report schedule. The report shall include, at a minimum, the information from the chronological log. Results from the daily effluent monitoring, required by VII.C.1. above, shall be submitted to the Regional Water Board as the results become available.

IX. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

2. If there is no discharge during any reporting period, the report shall so state.

3. Each monitoring report shall contain a separate section titled "Summary of Non-Compliance" which discusses the compliance record and the corrective actions taken or planned that may be needed to bring the discharge into full compliance with waste discharge requirements. This section shall clearly list all non-compliance with discharge requirements, as well as all excursions of effluent limitations.

4. The Discharger shall inform the Regional Water Board well in advance of any proposed construction activity that could potentially affect compliance with applicable requirements.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through VIII. The Discharger shall submit monthly, quarterly, semiannual, annual SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. If the

Discharger monitors any pollutant more frequently than required by this Order (other than for process/operational control, startup, research, or equipment testing), the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table 6. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
Daily	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	Submit with monthly SMR
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1st day of calendar month through last day of calendar month	By the 15th day of the third month after the month of sampling
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	June 15 September 15 December 15 March 15
Semiannually	Closest of January 1 or July 1 following (or on) permit effective date	January 1 through June 30 July 1 through December 31	September 15 March 15
Annually	January 1 following (or on) permit effective date	January 1 through December 31	April 15

4. Reporting Protocols. The Discharger shall report with each sample result the applicable reported Minimum Level (ML), for those constituents where the SIP specifies MLs, and the applicable reported Reporting Level (RL), for all other constituents as appropriate, and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.

   The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

      For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words “Estimated Concentration” (may be shortened to “Est. Conc.”). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory’s MDL shall be reported as “Not Detected,” or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.

5. The Discharger shall submit SMRs in accordance with the following requirements:

   a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

   b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

   c. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below: (Reference the reports to **Compliance File No. 5675** to facilitate routing to the appropriate staff and file.)

   California Regional Water Quality Control Board
   320 West 4th Street, Suite 200
   Los Angeles, CA 90013
   Attention: Information Technology Unit

C. Discharge Monitoring Reports (DMRs)

1. As described in Section X.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to the address listed below:

STANDARD MAIL	FEDEX/UPS/ OTHER PRIVATE CARRIERS
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format of EPA Form 3320-1.

D. Other Reports

1. Annual Summary Report

By April 15 of each year, the Discharger shall submit an annual report containing a discussion of the previous year's influent/effluent analytical results and receiving water bacterial monitoring data. The annual report shall also contain an overview of any plans for upgrades to the treatment plant's collection system, the treatment processes, or the outfall system. The Discharger shall submit a hard copy annual report to the Regional Water Board in accordance with the requirements described in subsection IX.B.5 above.

Each annual monitoring report shall contain a separate section titled "Reasonable Potential Analysis" which discusses whether or not reasonable potential was triggered for pollutants which do not have a final effluent limitation in the NPDES permit. This section shall contain the following statement: "The analytical results for this sampling period did/ did not trigger reasonable potential." If reasonable potential was triggered, then the following information should also be provided:

a. A list of the pollutant(s) that triggered reasonable potential;
b. The Basin Plan or CTR criteria that was exceeded for each given pollutant;

c. The concentration of the pollutant(s);
d. The test method used to analyze the sample; and,
e. The date and time of sample collection.

2. The Discharger shall submit to the Regional Water Board, together with the first monitoring report required by this permit, a list of all chemicals and proprietary additives which could affect this waste discharge, including quantities of each. Any subsequent changes in types and/or quantities shall be reported promptly.

3. The Regional Water Board requires the Discharger to file with the Regional Water Board, within 90 days after the effective date of this Order, a technical report on his preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. The technical report should:

   a. Identify the possible sources of accidental loss, untreated waste bypass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks, and pipes should be considered.

   b. Evaluate the effectiveness of present facilities and procedures and state when they become operational.

   c. Describe facilities and procedures needed for effective preventive and contingency plans.

   d. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule contingent interim and final dates when they will be constructed, implemented, or operational.

Attachment F – Fact Sheet

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to the City of Los Angeles (City or Discharger). Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table 1. Facility Information

WDID	4B190106001
Discharger	City of Los Angeles
Name of Facility	Los Angeles-Glendale Water Reclamation Plant
Facility Address	4600 Colorado Boulevard
	Los Angeles, CA 90039
	Los Angeles County
Facility Contact, Title and Phone	Hiddo Netto, Sanitation Wastewater Manager III, (818) 778-4120
Authorized Person to Sign and Submit Reports	Hiddo Netto, Sanitation Wastewater Manager III
Mailing Address	1149 S. Broadway Street, 9th Floor, Los Angeles, CA 90015-2213
Billing Address	SAME
Type of Facility	POTW
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Y
Reclamation Requirements	Producer
Facility Permitted Flow	20 million gallons per day
Facility Design Flow	20 million gallons per day
Watershed	Los Angeles River
Receiving Water	Los Angeles River
Receiving Water Type	Inland surface water

A. The City of Los Angeles (hereinafter Discharger) is the owner and operator of the Los Angeles-Glendale Water Reclamation Plant (hereinafter Facility), a Publicly-Owned Treatment Works.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Facility discharges wastewater to Los Angeles River, a water of the United States, and is currently regulated by Order No. R4-2006-0092 adopted on December 14, 2006. This Order was subsequently amended by Order No. R4-2010-0059 adopted on April 1, 2010, and expired on November 13, 2011. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements and NPDES permit are adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on April 18, 2011. A site visit was conducted on July 6, 2011, to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Discharger owns and operates the Los Angeles-Glendale WRP, a tertiary wastewater treatment plant located at 4600 Colorado Boulevard, Los Angeles, California. Attachment B shows the location of the plant. The Los Angeles-Glendale WRP currently receives wastewater from the cities of Glendale, Burbank, Los Angeles, La Cañada Flintridge, and from Los Angeles Zoo. The wastewater is a mixture of domestic and industrial wastewater that is pre-treated pursuant to 40 CFR Part 403. Los Angeles-Glendale WRP has a design capacity of 20 mgd and serves an estimated population of 380,000 people.

The Los Angeles-Glendale WRP is part of the City of Los Angeles’ integrated network of facilities, known as the North Outfall Sewer (NOS), which includes four treatment plants. The upstream treatment plants (Tillman WRP, Los Angeles-Glendale WRP, and Burbank WRP) discharge solids to the Hyperion Treatment Plant. This system also allows biosolids, solids, and excess flows to be diverted from the upstream plants to the Hyperion Wastewater Treatment Plant for treatment and disposal. All solids removed from the Los Angeles-Glendale WRP treatment process are returned untreated to the NOS for downstream treatment at the Hyperion Treatment Plant.

A. Description of Wastewater and Biosolids Treatment or Controls

1. Treatment at the Los Angeles-Glendale WRP consists of barscreen removal of large solids, primary sedimentation, activated sludge biological treatment with nitrification and denitrification, secondary sedimentation with coagulation, dual media and deep bed sand filtration, chlorination, and dechlorination. Treated wastewater discharged to Los Angeles River is dechlorinated but the effluent delivered for reuse is not dechlorinated.

2. Sodium hypochlorite is used as a disinfectant in the Los Angeles-Glendale WRP. The disinfecting agent is added to the treated effluent prior to the filters to destroy bacteria, pathogens and viruses, and to minimize algal growth in the filters. Prior to

discharge, sodium bisulfite is added to the treated effluent to remove residual chlorine.

3. No facilities are provided for solids processed at the plant. Sewage solids separated from the wastewater are returned to the trunk sewer for conveyance to NOS, where treatment and disposal occur, under Hyperion Wastewater Treatment Plant's NPDES permit. Attachment C is a schematic of the Los Angeles-Glendale WRP wastewater flow.

4. City of Los Angeles has constructed a biological nutrient removal system with nitrogen de-nitrification process (NDN) in order to achieve compliance with the ammonia Basin Plan objectives. The system was completed and has been in operation since June 2007.

B. Discharge Points and Receiving Waters

The Los Angeles-Glendale WRP discharges tertiary-treated municipal to the Los Angeles River, a water of the United States, above the Estuary. Treated effluents are discharged from the plant to surface waters at the following discharge points:

<u>Discharge Point 001</u>: Discharge to Los Angeles River at a point located approximately 1,400 feet downstream of Colorado Boulevard (approximate coordinates: Latitude 34° 08' 25", Longitude 118° 17' 24").

During dry weather (May 1 – October 31), the primary sources of water flow in Los Angeles River, downstream of the discharge points, are the Los Angeles-Glendale WRP effluent and other NPDES-permitted discharges, including urban runoff conveyed through the municipal separate storm sewer systems (MS4). Storm water and dry weather urban runoff from MS4s are regulated under an NPDES permit, *Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles* (LA Municipal Permit), NPDES Permit No. CAS004001.

The Los Angeles County Flood Control District channelized portions of the Los Angeles River to convey and control floodwater, and to prevent damage to homes located adjacent to the river. Although not its main purpose, the Los Angeles River conveys treated wastewater along with floodwater, and urban runoff. The Los Angeles River is unlined further downstream of its confluence with the Burbank Western Channel, in what is known as the Glendale Narrows. Groundwater recharge occurs incidentally, in these unlined areas of the Los Angeles River. At times when the groundwater table is high, groundwater rises and contributes flow to the Los Angeles River. Natural springs feed the river and support willows, sycamores, and cottonwood trees. South of the Glendale Narrows, the Los Angeles River is concrete-lined down to Willow Street, in Long Beach.

The Los Angeles (LA) River watershed is one of the largest in the Region. It is also one of the most diverse in terms of land use patterns. The LA River drains an 824 square mile area. Approximately 324 square miles of the watershed are covered by forest or open space land including the area near the headwaters which originate in the Santa Monica, Santa Susana, and San Gabriel Mountains. The rest of the watershed is highly developed. The river flows through the San Fernando Valley past heavily developed residential and commercial areas. From the Arroyo Seco, north of downtown Los Angeles, to the confluence with the Rio Hondo, the river flows through industrial and commercial areas and is bordered by railyards, freeways, and major commercial and government buildings. From the Rio Hondo to the Pacific Ocean, the river flows through industrial, residential, and commercial areas, including major refineries and petroleum products storage facilities, major freeways, rail lines, and railyards serving the Ports of Los Angeles and Long Beach.

Major tributaries to the river in the San Fernando Valley are the Pacoima Wash, Tujunga Wash (both drain portions of the Angeles National Forest in the San Gabriel Mountains), Burbank Western Channel and Verdugo Wash (both drain the Verdugo Mountains). Due to major flood events at the beginning of the century, by the 1950's most of the river was lined with concrete. In the San Fernando Valley, there is a section of the river with a soft bottom at the Sepulveda Flood Control Basin. The Basin is a 2,150-acre open space upstream of the Sepulveda Dam designed to collect flood waters during major storms. Because the area is periodically inundated, it remains in a semi-natural condition and supports a variety of low-intensity uses as well as supplying habitat. At the eastern end of the San Fernando Valley, the river bends around the Hollywood Hills and flows through Griffith and Elysian Parks, in an area known as the Glendale Narrows. Since the water table was too high to allow laying of concrete, the river in this area has a rocky, unlined bottom with concrete-lined or rip-rap sides. This stretch of the river is fed by natural springs and supports stands of willows, sycamores, and cottonwoods. The many trails and paths along the river in this area are heavily used by the public for hiking, horseback riding, and bird watching.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in the existing Order for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of the previous Order are as follows:

Table 2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (From 07/01/2007 to 03/31/2011)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
$BOD_5 20^oC$	mg/L	20	30	45	< 2.7	--	24
Suspended Solids	mg/L	15	40	45	< 1.1	--	8.7
Oil and Grease	mg/L	10	--	15	<1.5	--	4
Settleable Solids	ml/L	0.1	--	0.3	< 0.1	--	< 0.1
Residual Chlorine	mg/L	--	--	0.1	< 0.05	--	0.05
Total Dissolved Solids	mg/L	950	--	--	671	--	832

Parameter	Units	Effluent Limitation			Monitoring Data (From 07/01/2007 to 03/31/2011)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
MBAS	mg/L	0.5	--	--	0.12	--	0.28
Chloride	mg/L	190	--	--	149	--	187
Sulfate	mg/L	300	--	--	142	--	293
Boron	mg/L	1	--	--	<0.25	--	0.63
Fluoride	mg/L	2.0	--	--	0.5	--	1
Nitrate-N (as N)	mg/L	7.2	--	--	6.9	--	6.9
Nitrite-N (as N)	mg/L	0.9	--	--	0.36	--	0.36
Nitrate + Nitrite as N	mg/L	7.2	--	--	4.6	--	6.9
Total Ammonia	mg/L	2.2	--	7.8	1.65	--	1.65
Antimony	µg/L	--	--	--	0.67	--	0.95
Arsenic	µg/L	--	--	--	1.46	--	2.98
Beryllium	µg/L	--	--	--	<0.3	--	0.14
Cadmium	µg/L	4.6	--	9.2	<0.28	--	1.04
Chromium III	µg/L	--	--	--	1.7	--	4.9
Chromium VI	µg/L	--	--	--	<0.6	--	<1
Copper	µg/L	22	--	44	9.5	--	21
Lead	µg/L	8.8	--	22	<1.4	--	18.4
Mercury	µg/L	0.051		0.13	<0.01	--	0.229
Nickel	µg/L	--	--	--	3.8	--	6.8
Selenium	µg/L	--	--	--	0.5	--	1.1
Silver	µg/L	--	--	--	<0.27	--	0.79
Thallium	µg/L	--	--	--	0.16	--	0.55
Zinc	µg/L	217	--	288	51.9	--	83
Cyanide	µg/L	3.4	--	9.6	<0.003	--	9
Asbestos	µg/L	--	--	--	--	--	--
2,3,7,8-TCDD (Dioxin)	µg/L	--	--	--	0	--	0
Acrolein	µg/L	--	--	--	<0.65	--	< 0.98
Acrylonitrile	µg/L	--	--	--	<0.08	--	<0.145
Benzene	µg/L	--	--	--	< 0.05	--	< 0.075
Bromoform	µg/L	--	--	--	<0.96	--	8.33
Carbon Tetrachloride	µg/L	--	--	--	< 0.08	--	< 0.225
Chlorobenzene	µg/L	--	--	--	<0.06	--	<0.17
Dibromochloromethane	µg/L	--	--	--	<5.84	--	48.2
Chloroethane	µg/L	--	--	--	<0.06	--	<0.14
2-chloroethyl vinyl ether	µg/L	--	--	--	<0.2	--	<0.5
Chloroform	µg/L	--	--	--	11.6	--	53

Parameter	Units	Effluent Limitation			Monitoring Data (From 07/01/2007 to 03/31/2011)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Dichlorobromomethane	µg/L	--	--	--	<9.4	--	59.6
1,1-dichloroethane	µg/L	--	--	--	<0.07	--	<0.18
1,2-dichloroethane	µg/L	--	--	--	< 0.04	--	< 0.115
1,1-dichloroethylene	µg/L	--	--	--	< 0.09	--	<0.205
1,2-dichloropropane	µg/L	--	--	--	< 0.06	--	<0.255
1,3-dichloropropylene	µg/L	--	--	--	< 0.05	--	<0.12
Ethylbenzene	µg/L	--	--	--	< 0.09	--	0.26
Methyl bromide	µg/L	--	--	--	<0.5	--	3.2
Methyl chloride	µg/L	--	--	--	< 0.08	--	<0.165
Methylene chloride	µg/L	--	--	--	<0.032	--	1.49
1,1,2,2-tetrachloroethane	µg/L	--	--	--	<0.07	--	<0.145
Tetrachloroethylene	µg/L	5	--	--	<0.18	--	2.26
Toluene	µg/L	--	--	--	<0.1	--	0.72
Trans 1,2-Dichloroethylene	µg/L	--	--	--	<0.08	--	<0.285
1,1,1-Trichloroethane	µg/L	--	--	--	<0.07	--	<0.145
1,1,2-Trichloroethane	µg/L	--	--	--	<0.04	--	<0.155
Trichloroethylene	µg/L	--	--	--	<0.13	--	0.86
Vinyl Chloride	µg/L	--	--	--	< 0.07	--	< 0.185
2-chlorophenol	µg/L	--	--	--	<0.05	--	< 0.13
2,4-dichlorophenol	µg/L	--	--	--	<0.06	--	0.14
2,4-dimethylphenol	µg/L	--	--	--	<0.09	--	<0.12
4,6-dinitro-o-resol(aka 2-methyl-4,6-Dinitrophenol)	µg/L	--	--	--	< 0.22	--	<0.58
2,4-dinitrophenol	µg/L	--	--	--	<0.14	--	<0.545
2-nitrophenol	µg/L	--	--	--	<0.06	--	<0.225
4-nitrophenol	µg/L	--	--	--	< 0.06	--	<0.28
3-Methyl-4-Chlorophenol (aka P-chloro-m-cresol)	µg/L	--	--	--	<0.1	--	<0.225
Pentachlorophenol	µg/L	--	--	--	<0.22	--	<0.47
Phenol	µg/L	--	--	--	< 0.19	--	<0.2
2,4,6-trichlorophenol	µg/L	--	--	--	<0.09	--	<0.335
Acenaphthene	µg/L	--	--	--	< 0.06	--	<0.065

Parameter	Units	Effluent Limitation			Monitoring Data (From 07/01/2007 to 03/31/2011)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Acenaphthylene	µg/L	--	--	--	<0.06	--	<0.065
Anthracene	µg/L	--	--	--	<0.05	--	<0.055
Benzidine	µg/L	--	--	--	<2.3	--	<2.5
Benzo(a)Anthracene	µg/L	0.049	--	0.12	< 0.06	--	<0.07
Benzo(a)Pyrene	µg/L	--	--	--	< 0.06	--	< 0.065
Benzo(b)Fluoranthene	µg/L	--	--	--	< 0.06	--	< 0.07
Benzo(ghi)Perylene	µg/L	--	--	--	< 0.02	--	< 0.07
Benzo(k)Fluoranthene	µg/L	--	--	--	< 0.06	--	< 0.095
Bis(2-Chloroethoxy) methane	µg/L	--	--	--	< 0.04	--	< 0.175
Bis(2-Chloroethyl)Ether	µg/L	--	--	--	< 0.05	--	< 0.16
Bis(2-Chloroisopropyl) Ether	µg/L	--	--	--	< 0.04	--	< 0.175
Bis(2-Ethylhexyl)Phthalate	µg/L	4	--	--	< 1.4	--	7
4-Bromophenyl Phenyl Ether	µg/L	--	--	--	< 0.04	--	< 0.11
Butylbenzyl Phthalate	µg/L	--	--	--	< 0.03	--	< 0.13
2-Chloronaphthalene	µg/L	--	--	--	< 0.04	--	< 0.15
4-Chlorophenyl Phenyl Ether	µg/L	--	--	--	< 0.03	--	< 0.14
Chrysene	µg/L	0.049	--	0.11	< 0.05	--	< 0.06
Dibenzo(a,h) Anthracene	µg/L	0.049	--	0.11	< 0.01	--	< 0.09
1,2-Dichlorobenzene	µg/L	--	--	--	< 0.07	--	0.21
1,3-Dichlorobenzene	µg/L	--	--	--	< 0.03	--	< 0.115
1,4-Dichlorobenzene	µg/L	--	--	--	<0.04	--	<0.12
3-3'-Dichlorobenzidine	µg/L	--	--	--	< 0.18	--	< 1.39
Diethyl Phthalate	µg/L	--	--	--	<0.05	--	<0.31
Dimethyl Phthalate	µg/L	--	--	--	< 0.14	--	0.32

Parameter	Units	Effluent Limitation			Monitoring Data (From 07/01/2007 to 03/31/2011)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Di-n-Butyl Phthalate	µg/L	--	--	--	< 0.3	--	< 0.6
2-4-Dinitrotoluene	µg/L	--	--	--	< 0.05	--	< 0.105
2-6-Dinitrotoluene	µg/L	--	--	--	< 0.02	--	< 0.105
Di-n-Octyl Phthalate	µg/L	--	--	--	< 0.26	--	< 0.41
1,2-Diphenylhydrazine	µg/L	--	--	--	< 1	--	< 1
Fluoranthene	µg/L	--	--	--	< 0.01	--	< 0.03
Fluorene	µg/L	--	--	--	< 0.01	--	< 0.025
Hexachlorobenzene	µg/L	--	--	--	< 0.04	--	< 0.09
Hexachlorobutadiene	µg/L	--	--	--	< 0.04	--	< 0.115
Hexachlorocyclopentadiene	µg/L	--	--	--	< 1.46	--	< 1.915
Hexachloroethane	µg/L	--	--	--	< 0.04	--	< 0.125
Indeno(1,2,3-cd)Pyrene	µg/L	--	--	--	< 0.01	--	< 0.035
Isophorone	µg/L	--	--	--	<0.04	--	<0.15
Naphthalene	µg/L	--	--	--	< 0.06	--	< 0.065
Nitrobenzene	µg/L	--	--	--	< 0.04	--	< 0.165
N-Nitrosodimethylamine	µg/L	--	--	--	< 0.1	--	< 0.25
N-Nitrosodi-n-Propylamine	µg/L	1.4	--	3.3	< 0.07	--	< 0.18
N-Nitrosodiphenylamine	µg/L	--	--	--	< 0.07	--	< 0.43
Phenanthrene	µg/L	--	--	--	< 0.01	--	< 0.04
Pyrene	µg/L	--	--	--	< 0.01	--	< 0.035
1,2,4-Trichlorobenzene	µg/L	--	--	--	< 0.06	--	< 0.21
Aldrin	µg/L	--	--	--	< 0.001	--	< 0.002
Alpha-BHC	µg/L	--	--	--	< 0.001	--	< 0.002
Beta-BHC	µg/L	--	--	--	< 0.001	--	< 0.0015
Gamma-BHC (aka Lindane)	µg/L	0.2	--	--	<0.001	--	<0.0025
delta-BHC	µg/L	--	--	--	< 0.001	--	< 0.002
Chlordane	µg/L	--	--	--	< 0.01	--	< 0.03
4,4'-DDT	µg/L	--	--	--	< 0.002	--	< 0.0035
4,4'-DDE	µg/L	--	--	--	< 0.002	--	< 0.002
4,4'-DDD	µg/L	--	--	--	< 0.002	--	< 0.002

Parameter	Units	Effluent Limitation			Monitoring Data (From 07/01/2007 to 03/31/2011)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Dieldrin	µg/L	--	--	--	< 0.002	--	< 0.0025
Alpha-Endosulfan	µg/L	--	--	--	< 0.003	--	< 0.004
Beta-Endosulfan	µg/L	--	--	--	< 0.003	--	< 0.0035
Endosulfan Sulfate	µg/L	--	--	--	< 0.001	--	< 0.004
Endrin	µg/L	--	--	--	< 0.003	--	< 0.0035
Endrin Aldehyde	µg/L	--	--	--	< 0.001	--	< 0.002
Heptachlor	µg/L	--	--	--	< 0.001	--	< 0.0015
Heptachlor Epoxide	µg/L	--	--	--	< 0.001	--	< 0.0015
PCB 1016	µg/L	--	--	--	< 0.02	--	< 0.04
PCB 1221	µg/L	--	--	--	< 0.07	--	< 0.245
PCB 1232	µg/L	--	--	--	< 0.03	--	< 0.05
PCB 1242	µg/L	--	--	--	< 0.04	--	< 0.1
PCB 1248	µg/L	--	--	--	< 0.04	--	< 0.06
PCB 1254	µg/L	--	--	--	< 0.02	--	< 0.025
PCB 1260	µg/L	--	--	--	< 0.02	--	< 0.05
Toxaphene	µg/L		--	--	< 0.02	--	< 0.05
Mirex	µg/L	--	--	--	< 0.002	--	< 0.004
Demeton-o	µg/L	--	--	--	< 0.03	--	< 0.045
Demeton-s	µg/L	--	--	--	< 0.04	--	< 0.055
Guthion	µg/L	--	--	--	< 0.1	--	< 0.245
Malathion	µg/L	--	--	--	< 0.05	--	< 0.055
Ethyl Parathion	µg/L	--	--	--	< 0.05	--	< 0.06
1,4-Dioxane	µg/L	--	--	--	1.8	--	3.1
MTBE	µg/L	--	--	--	< 0.05	--	< 0.07
Perchlorate	µg/L	--	--	--	<0.45	--	1.2
1,2,3-Trichloropropane	µg/L	--	--	--	<0.1	--	<0.125
Methoxychlor	µg/L	--	--	--	< 0.002	--	< 0.0035
2,4-D	µg/L	--	--	--	< 0.13	--	< 0.4
2,4,5-TP (Sylvex)	µg/L	--	--	--	< 0.11	--	< 0.44
Alpha Radioactivitiy	pCi/mL	--	--	--	< 0.003	--	< 0.00474
Beta Radioactivity	pCi/mL	--	--	--	< 0.008	--	< 0.0107

D. Compliance Summary

Monitoring data from 2007 to December 2010 indicate that the Discharger has consistently complied with the effluent limitations of Order No. R4-2006-0092 as amended by Order No. R4-2010-0059 except for three effluent violations and two reporting violations. Daily total coliform was not reported during January 27 and 28, 2007 sampling dates. On March 2, 2007, the ammonia concentration exceeded the daily maximum interim effluent limitation. On August 6, 2008, the chronic toxicity testing exceeded the chronic toxicity daily maximum limitation. On August 12, 2008, the effluent discharge exceeded the pH minimum limitation.

Interim Effluent Limitations:

Order No. R4-2006-0092 as amended by Order No. R4-2010-0059 provided interim effluent limitations for copper, mercury, dibenzo (a,h)anthracene, total ammonia, nitrate, nitrite, and nitrate plus nitrite. The Discharger met all the interim effluent limitations except for one exceedance of ammonia daily maximum effluent limitation.

E. Planned Changes

The Discharger is planning to: (1) upgrade the existing sand filters, (2) upgrade electrical substation switchgear, and (3) replace water lines and instrument air lines with stainless steel pipes. The planned improvements are expected to be completed in three years.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (CWC) (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the CWC (commencing with section 13260).

B. California Environmental Quality Act (CEQA)

Under CWC section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100 through 21177.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** The Regional Water Quality Control Board (Regional Water Board) adopted a Water Quality Control Plan for the Los Angeles Region (hereinafter Basin Plan) on June 13, 1994 that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which establishes state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Beneficial uses applicable to Los Angeles River are as follows:

Table 3a. Basin Plan Beneficial Uses – Receiving Waters

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Los Angeles River (Hydro. Unit No. 405.21)	Existing: Ground water recharge (GWR); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); wildlife habitat (WILD); and wetland habitat (WET). Potential: Municipal and domestic water supply (MUN[1]) and industrial service supply (IND).
001	Los Angeles River (Hydro. Unit No. 405.15)	Existing: Ground water recharge (GWR); water contact recreation (REC-1[2]); non-contact water recreation (REC-2); and warm freshwater habitat (WARM). Potential: Municipal and domestic water supply (MUN[1]); industrial service supply (IND); and wildlife habitat (WILD).

1 The potential municipal and domestic supply (p*MUN) beneficial use for the water body is consistent with the State Water Resources Control Board Resolution 88-63 and Regional Water Board Resolution No. 89-003; however, the Regional Water Board has only conditionally designated the MUN beneficial use of the surface water and at this time cannot establish effluent limitation designed to protect the conditional designation.

2 Access prohibited by Los Angeles County DPW.

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Los Angeles River to Estuary (Hydro. Unit No. 405.12)	Existing: Ground water recharge (GWR); water contact recreation (REC-1[2]); non-contact water recreation (REC-2); warm freshwater habitat (WARM); marine habitat (MAR); wildlife habitat (WILD); and rare, threatened, or endangered species (RARE). Potential: Municipal and domestic water supply (MUN[1]); industrial service supply (IND); industrial process supply (PROC); migration of aquatic organisms (MIGR); spawning, reproduction, and/or early development (SPWN); and shellfish harvesting (SHELL[2]).
001	Los Angeles River Estuary (Hydro. Unit No. 405.12)	Existing: Industrial service supply (IND); navigation (NAV); water contact recreation (REC-1); non-contact water recreation (REC-2); commercial and sport fishing (COMM); estuarine habitat (EST); marine habitat (MAR); wildlife habitat (WILD); rare, threatened, or endangered species (RARE[3]); migration of aquatic organisms (MIGR[4]); and spawning, reproduction, and/or early development (SPWN[4]); and wetland habitat (WET). Potential: Shellfish harvesting (SHELL).

Beneficial uses of the receiving ground waters are as follows:

Table 3b. Basin Plan Beneficial Uses – Ground Waters

Discharge Point	Basin Name	Beneficial Use(s)
001	San Fernando Basin East of Highway 405 (overall) DWR Basin No. 4-12	Existing: Municipal and domestic water supply (MUN); industrial service supply (IND); industrial process supply (PROC); and agricultural supply (AGR)
001	Los Angeles Coastal Plain Central Basin DWR Basin No. 4-11	Existing: Municipal and domestic water supply (MUN); industrial service supply (IND); industrial process supply (PROC); and agricultural supply (AGR)

[3] One or more rare species utilize all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

[4] Aquatic organisms utilize all bays, estuaries, lagoons and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

Discharge Point	Basin Name	Beneficial Use(s)
001	Los Angeles Coastal Plain West Coast Basin DWR Basin No. 4-11	Existing: Municipal and domestic water supply (MUN), industrial service supply (IND), industrial process supply (PROC), and agricultural supply (AGR)

Requirements of this Order implement the Basin Plan and subsequent amendments.

a. **Ammonia WQOs –** Table 3-1 through Table 3-4 of the 1994 Basin Plan provided WQOs for ammonia to protect aquatic life. However, those ammonia WQOs were revised on April 25, 2002, by the Regional Water Board with the adoption of Resolution No. 2002-011, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Update the Ammonia Objectives for Inland Surface Waters (Including Enclosed Bays, Estuaries and Wetlands) with Beneficial Use Designations for Protection of Aquatic Lif*e. The ammonia Basin Plan amendment was approved by the State Water Board, Office of Administrative Law (OAL), and USEPA on April 30, 2003, June 5, 2003, and June 19, 2003, respectively. On December 1, 2005, Resolution No. 2005-014, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Revise the Early Life Stage Implementation Provision of the Freshwater Ammonia Objectives for Inland Surface Waters (including enclosed bays, estuaries and wetlands) for Protection of Aquatic Life,* was adopted by the Regional Water Board. Resolution No. 2005-014 was approved by the State Water Board, OAL, and USEPA on July 19, 2006, August 31, 2006, and April 5, 2007, respectively. On June 7, 2007, the Regional Water Board adopted Resolution No. 2007-005, *Amendments to the Water Quality Control Plan-Los Angeles Region-To Incorporate Site-Specific Objectives for Select Inland Surface Waters in the San Gabriel River, Los Angeles River and Santa Clara River Watersheds.* This amendment to the Basin Plan incorporates site-specific 30-day average objectives for ammonia along with corresponding site-specific early life stage implementation provisions for select waterbody reaches and tributaries in the Santa Clara, Los Angeles, and San Gabriel River watersheds. The State Water Board, OAL, and USEPA approved this Basin Plan amendment on January 15, 2008, May 12, 2008, and March 30, 2009, respectively.

b. **Chloride WQOs** – Table 3-8 of the 1994 Basin Plan contained WQOs for chloride. However, the chloride WQOs for some waterbodies were revised by the Regional Water Board on January 27, 1997, with the adoption of Resolution No. 97-02, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate a Policy for Addressing Levels of Chloride in Discharges of Wastewaters*. Resolution No. 97-02 was approved by the State Water Board, OAL, and USEPA on October 23, 1997, January 9, 1998, and February 5, 1998, respectively, and is now in effect. The chloride WQO was revised from 150 mg/L to 190 mg/L, for the Los Angeles River between Figueroa Street and Los Angeles River Estuary (Willow Street) and between Sepulveda Flood

Control Basin and Figueroa Street (including Burbank Western Channel). The final effluent limitation for chloride prescribed in this Order is based on the revised chloride WQO and is applied at the end of pipe.

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

3. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

4. **Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes (40 CFR part 131.21, 65 Fed. Reg. 24641 (April 27, 2000)). Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

5. **Antidegradation Policy.** 40 CFR part 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 CFR part 131.12 and State Water Board Resolution No. 68-16.

6. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40 CFR part 122.44(l) prohibit backsliding in NPDES

permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. All conventional and non-conventional pollutants effluent limitations in the Order are at least as stringent as the effluent limitations in the previous Order. As discussed in this Fact Sheet, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

D. Integrated Report on Impaired Water Bodies CWA 303(d) List

The State Water Board proposed the California 2008-2010 Integrated Report from a compilation of the adopted Regional Water Boards' Integrated Reports containing 303(d) List of Impaired Waters and 305(b) Reports following recommendations from the Regional Water Boards and information solicited from the public and other interested parties. The Regional Water Boards' Integrated Reports were used to revise their 2006 303(d) List. On August 4, 2010, the State Water Board adopted the California 2008-2010 Integrated Report. On November 12, 2010, the USEPA approved California 2008-2010 Integrated Report Section 303(d) List of Impaired Waters requiring TMDLs for the Los Angeles Region.

Los Angeles River and their tributaries are on California 2008-2010 Integrated Report. The following pollutants were identified as impacting the receiving waters:

a. **Los Angeles River Estuary (Queensway Bay) –** Calwater Watershed 40512000 (Hydro. Unit No. 405.12 in Basin Plan)

   Pollutants – Chlordane (sediment)[5], DDT (sediment)[5], PCBs (sediment)[5], sediment toxicity[5], and trash[6]

b. **Los Angeles River Reach 1 (Estuary to Carson Street) –** Calwater Watershed 40512000 (Hydro. Unit No. 405.12 in Basin Plan)

   Pollutants – Ammonia[6], cadmium[6], coliform bacteria[5], copper[6], cyanide[5], diazinon[5], lead[6], nutrients (algae)[6], trash[6], zinc[6], and pH[6]

c. **Los Angeles River Reach 2 (Carson Street to Figueroa Street) –** Calwater Watershed 40515000 (Hydro. Unit No. 405.15 in Basin Plan)

   Pollutants – Ammonia[6], coliform bacteria[5], copper[6], lead[6], nutrients (algae)[6], oil[5], and trash[6]

d. **Angeles River Reach 3 (Figueroa Street to Riverside Drive) –** Calwater Watershed 40521000 (Hydro. Unit No. 405.21 in Basin Plan)

   Pollutants – Ammonia[6], copper[6], lead[6], nutrients (algae)[6], and trash[6]

[5] This pollutant requires TMDL.
[6] TMDL has been approved for this pollutant, which has being addressed by USEPA.

E. Other Plans, Polices and Regulations

1. **Sources of Drinking Water Policy**. On May 19, 1988, the State Water Board adopted Resolution No. 88-63, *Sources of Drinking Water (SODW) Policy*, which established a policy that all surface and ground waters, with limited exemptions, are suitable or potentially suitable for municipal and domestic supply. To be consistent with State Water Board's SODW policy, on March 27, 1989, the Regional Water Board adopted Resolution No. 89-03, *Incorporation of Sources of Drinking Water Policy into the Water Quality Control Plans (Basin Plans) – Santa Clara River Basin (4A)/ Los Angeles River Basin (4B).*

   Consistent with Regional Water Board Resolution No. 89-03 and State Water Board Resolution No. 88-63, in 1994 the Regional Water Board conditionally designated all inland surface waters in Table 2-1 of the 1994 Basin Plan as existing, intermittent, or potential for Municipal and Domestic Supply (MUN). However, the conditional designation in the 1994 Basin Plan included the following implementation provision: "no new effluent limitations will be placed in Waste Discharge Requirements as a result of these [potential MUN designations made pursuant to the SODW policy and the Regional Water Board's enabling resolution] until the Regional Water Board adopts [a special Basin Plan Amendment that incorporates a detailed review of the waters in the Region that should be exempted from the potential MUN designations arising from SODW policy and the Regional Water Board's enabling resolution]." On February 15, 2002, the USEPA clarified its partial approval (May 26, 2000) of the 1994 Basin Plan amendments and acknowledged that the conditional designations do not currently have a legal effect, do not reflect new water quality standards subject to USEPA review, and do not support new effluent limitations based on the conditional designations stemming from the SODW Policy until a subsequent review by the Regional Water Board finalizes the designations for these waters. This permit is designed to be consistent with the existing Basin Plan.

2. **Secondary Treatment Regulations**. 40 CFR part 133 establishes the minimum levels of effluent quality to be achieved by secondary treatment. These limitations, established by USEPA, are incorporated into this Order, except where more stringent limitations are required by other applicable plans, policies, or regulations or to prevent backsliding.

3. **Storm Water**. CWA section 402(p), as amended by the Water Quality Act of 1987, requires NPDES permits for storm water discharges. Pursuant to this requirement, in 1990, USEPA promulgated 40 CFR part 122.26 that established requirements for storm water discharges under an NPDES program. To facilitate compliance with federal regulations, on November 1991, the State Water Board issued a statewide general permit, *General NPDES Permit No. CAS000001 and Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities.* This permit was amended in September 1992 and reissued on April 17, 1997 in State Water Board Order No. 97-03-DWQ to regulate storm water discharges associated with industrial activity.

General NPDES permit No. CAS000001 is applicable to storm water discharges from the Los Angeles-Glendale WRP's premises. On April 8, 1992, City filed a Notice of Intent to comply with the requirements of the general permit. City developed and currently implements a Storm Water Pollution Prevention Plan (SWPPP), to comply with the State Water Board's (Order No. 97-03-DWQ).

4. **Sanitary Sewer Overflows.** The Clean Water Act prohibits the discharge of pollutants from point sources to surface waters of the United States unless authorized under an NPDES permit (33 U.S.C. §§1311, 1342). The State Water Board adopted Statewide General Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems, Water Quality Order No. 2006-0003 on May 2, 2006, to provide a consistent, statewide regulatory framework to address Sanitary Sewer Overflows (SSOs). The WDR requires public agencies that own or operate sanitary sewer systems to develop and implement sewer system management plans and report all SSOs to the State Water Board's online SSO database.

   The requirements contained in this Order in Sections VI.C.3.b. (Spill Contingency Plan Section), VI.C.4. (Construction, Operation and Maintenance Specifications Section), and VI.C.6. (Spill Reporting Requirements) are intended to be consistent with the requirements of the SSOs WDR. The Regional Water Board recognizes that there may be some overlap between the NPDES permit provisions and SSOs WDR requirements, at least as related to the collection systems. The requirements of the SSOs WDR are considered the minimum thresholds (see Finding 11 of State Board Order No. 2006-0003-DWQ). To encourage efficiency, the Regional Water Board will accept the documentation prepared by the Permittee under the SSOs WDR for compliance purposes, as satisfying the requirements in Sections VI.C.3.b., VI.C.4., and VI.C.6. provided the monitoring requirements contained in this Order in sections IV.9.B.d. and IV.9.B.e. are also addressed. Pursuant to the SSO WDR, State Board Order No. 2006-0003-DWQ, Section D., Provision 2.(iii) and (iv), the provisions of this NPDES permit supercede the SSO WDR, for all purposes, including enforcement, to the extent the requirements may be deemed duplicative.

5. **Watershed Management -** This Regional Water Board has been implementing a Watershed Management Approach (WMA) to address water quality protection in the Los Angeles Region following the USEPA guidance in *Watershed Protection: A Project Focus* (EPA841-R-95-003, August 1995). The objective of the WMA is to provide a more comprehensive and integrated strategy resulting in water resource protection, enhancement, and restoration while balancing economic and environmental impacts within a hydrologically-defined drainage basin or watershed. The WMA emphasizes cooperative relationships between regulatory agencies, the regulated community, environmental groups, and other stakeholders in the watershed to achieve the greatest environmental improvements with the resources available. The accompanying Order fosters the implementation of this approach by protecting beneficial uses in the watershed and requiring the Discharger to participate in the development and implementation of the watershed-wide monitoring program. On August 8, 2008, the Los Angeles River Regional Monitoring Program was approved by this Regional Water Board to implement the goal of the watershed-wide monitoring program.

6. **Relevant TMDLs -** Section 303(d) of the Clean Water Act requires states to identify water bodies that do not meet water quality standards and then to establish TMDLs for each waterbody for each pollutant of concern. TMDLs identify the maximum amount of pollutants that can be discharged to waterbodies without causing violations of water quality standards.

   a. **Nitrogen Compounds TMDL –** On July 10, 2003, the Regional Water Board adopted Resolution No. 2003-009, *Amendment to the Basin Plan for the Los Angeles Region to Include a TMDL for Nitrogen Compounds and Related Effects in the Los Angeles River (Nitrogen Compounds TMDL*). On November 19, 2003, the State Water Board approved the *Nitrogen Compounds TMDL*. However, on December 4, 2003, the Regional Water Board revised the Nitrogen Compound TMDL by adopting Resolution No. 2003-016*, Revision of Interim Effluent Limitations for Ammonia in the Amendment to the Water Quality Control Plan for the Los Angeles Region to Include a TMDL for Nitrogen Compounds and Related Effects in the Los Angeles River*. Resolution No. 2003-016 only revised the portion of the Nitrogen Compounds TMDL containing interim limitations for total ammonia as nitrogen, for the Glendale and Tillman WRPs. All other portions of the TMDL remained unchanged. The *Nitrogen Compounds TMDL* went into effect on March 23, 2004, when the Regional Water Board filed the Certificate of Fee Exemption with the California Department of Fish and Game.

      On June 7, 2007, the Regional Water Board adopted Resolution No. 2007-005, Amendments to the Water Quality Control Plan-Los Angeles Region-To Incorporate Site-Specific Objectives for Select Inland Surface Waters in the San Gabriel River, Los Angeles River and Santa Clara River Watersheds. This amendment to the Basin Plan incorporates site-specific 30-day average objectives for ammonia along with corresponding site-specific early life stage implementation provisions for select waterbody reaches and tributaries in the Santa Clara, Los Angeles, and San Gabriel River watersheds. In accordance with Implementation Table, Task 8 of the LA River Nitrogen Compounds TMDL, "…If a site specific objective is adopted by the Regional Board, and approved by relevant approving agencies, this TMDL will need to be revised, readopted, and reapproved to reflect the revised water quality objectives."

   b. **Trash TMDL –** On September 19, 2001, the Regional Water Board adopted Resolution No. 2001-013, *Amendment to the Basin Plan for the Los Angeles Region to Incorporate a TMDL for Trash in the Los Angeles River (LA River Trash TMDL)*.

      The TMDL was subsequently approved by the State Water Board on February 19, 2002 and by OAL on July 16, 2002. Since the State Water Board and OAL failed to approve the TMDL in time to meet the relevant federal consent decree; therefore, USEPA promulgated its own Trash TMDL in order to meet the consent decree timeline of March 23, 2002. Then, upon approval of the Regional Water Board's TMDL by OAL, USEPA approved the Regional Water Board's LA River Trash TMDL on August 1, 2002, and deemed it to have superseded the TMDL promulgated by USEPA.

The City and the County of Los Angeles both filed petitions and complaints in the Los Angeles Superior Court challenging the *LA* River *Trash TMDL*. Subsequent negotiations led to a settlement agreement, which became effective on September 23, 2003. Twenty-two other cities sued the Regional Water Board to set aside the TMDL, on several grounds. On January 26, 2006, the Court of Appeal rejected the claims litigated by the cities but found that the Regional Water Board did not adequately complete the environmental checklist. The Court therefore affirmed a writ of mandate issued by the trial court ordering the Regional Water Board to set aside and not implement the *LA River Trash TMDL* until it has been brought into compliance with CEQA.

On June 8, 2006, the Regional Water Board set aside the *LA River Trash TMDL* and Resolution No. 01-013 which established it, pursuant to the writ of mandate. On August 9, 2007, the Regional Water Board approved the *LA River Trash TMDL* based on a revised CEQA analysis as Resolution No. 2007-012. The *LA River Trash TMDL* was approved by the State Water Board on April 15, 2008 and USEPA on July 24, 2008. The *LA River Trash TMDL* became effective on September 23, 2008, when the Certificate of Fee Exemption was filed with the California Department of Fish and Game.

c. **Metals TMDL –** On June 2, 2005, the Regional Water Board adopted Resolution No. R05-006, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate a Total Maximum Daily Load for Metals for the Los Angeles River and its Tributaries* (*LA River Metals TMDL*). The *LA River Metals TMDL* contains WLAs for cadmium, copper, lead, and zinc. On October 20, 2005, the State Water Board approved the *LA River Metals TMDL* by adopting Resolution No. 2005-0077. On December 9, 2005 and December 22, 2005, respectively, OAL and USEPA approved the *LA River Metals TMDL*. It went into effect on January 11, 2006, when the Certificate of Fee Exemption was filed with the California Department of Fish and Game.

On February 16, 2006, the cities of Bellflower, Carson, Cerritos, Downey, Paramount, Santa Fe Springs, Signal Hill, and Whittier (Cities) filed a petition for a writ of mandate challenging many aspects of the *LA River Metals TMDL* and the *Ballona Creek Metals TMDL*. (*Cities of Bellflower et al v. SWRCB et al,* Los Angeles Superior Court No. BS101732.) On May 24, 2007, the Los Angeles County Superior Court adopted the third of three rulings with respect to the writ petition. Collectively, all challenges to the *LA River Metals TMDL* were rejected, except for one CEQA claim. The Court ruled that the State and Regional Water Boards (Water Boards) should have adopted and circulated an alternatives analysis that analyzed alternatives to the project. The Court issued its writ of mandate, directing the Water Boards to adopt an alternative analysis and to reconsider the *LA River Metals TMDL* accordingly.

After considering the alternative analysis, the Regional Water Board found that the *LA River Metals TMDL* as originally proposed and adopted was appropriate. The Regional Water Board further found that nothing in the alternatives analysis nor any of the evidence generated, presented basis for the Regional Water Board to conclude that it would have acted differently when it adopted the TMDLs had the alternative analysis been prepared and circulated at that time. Thus, on September 6, 2007, the Regional Water Board adopted Resolution No. R2007-014, which reestablished the *LA River Metals TMDL* in substantially its original form.

On May 7, 2009, the Regional Water Board adopted Resolution No. 09-003, which voided and set aside Resolution Nos. R05-006 as required by the writ of mandate in the matter of *Cities of Bellflower et al v. SWRCB*.

On May 6, 2010, the Regional Water Board adopted Resolution No. R10-003, an amendment to the Basin Plan to revise the *LA River Metals TMDL*. The amendment revises the TMDL to adjust the numeric targets for copper in Reaches 1-4 of the Los Angeles River and the Burbank Western Channel and the corresponding WLAs for the Donald C. Tillman, Los Angeles-Glendale and Burbank WRPs based on a water effect ratio (WER). The revision includes language stating that regardless of the WER, the WRPs must perform at a level that can be attained by existing treatment technologies at the time of permit issuance, reissuance or modification. On April 19, 2011, the State Water Board adopted Resolution No. 2011-0021, approving the revised *LA River Metals TMDL*. At this hearing, the State Water Board made it clear that should the performance of the facility's treatment technologies change for reasons beyond the facility's control, the permit may be reopened to revise the effluent limitations considering the applicability of the copper WER or other performance-based measure such that the effluent limitations ensure that effluent concentrations and mass discharges do not exceed the levels of water quality that can be attained by performance of this facility's treatment technologies existing at the time of permit issuance, reissuance, or modification. On July 27, 2011, the LA River Metals TMDL was approved by OAL. The *LA River Metals TMDL* (Resolution No. R10-003) must still be approved by the OAL and USEPA before it becomes effective.

d. Bacteria TMDL – On July 8, 2010 the Regional Water Board adopted Resolution No. R10-007, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate a Total Maximum Daily Load for Indicator Bacteria in the Los Angeles River Watershed* (*LA River Bacteria TMDL*). The *LA River Bacteria TMDL* contains WLAs for Tillman, Los Angeles-Glendale, and Burbank WRPs, which are set equal to a 7-day median of 2.2 MPN/100 mL of E. coli and/or a daily max of 235 MPN/100mL to ensure zero days of allowable exceedances. No exceedances of the geometric mean TMDL numeric target of 126/100 mL E.coli are permitted. The *LA River Bacteria TMDL* must still be approved by the State Water Board, OAL, and USEPA before it becomes effective.

7. Title 22 of the California Code of Regulations (Title 22). The California Department of Public Health (CDPH) established primary and secondary maximum contaminant levels (MCLs) for inorganic, organic, and radioactive contaminants in drinking water. These MCLs are codified in Title 22. The Basin Plan (Chapter 3) incorporates Title 22 primary MCLs by reference. This incorporation by reference is prospective, including future changes to the incorporated provisions as the changes take effect. Title 22 primary MCLs have been used as bases for effluent limitations in WDRs and NPDES permits to protect groundwater recharge beneficial use when that receiving groundwater is designated as MUN. Also, the Basin Plan specifies that "Ground waters shall not contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses."

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the 40 CFR part 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR part 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

Effluent and receiving water limitations in this Board Order are based on the Federal Clean Water Act, Basin Plan, State Water Board's plans and policies, U. S. Environmental Protection Agency guidance and regulations, and best practicable waste treatment technology. This order authorizes the discharge of tertiary-treated wastewater from Discharge Point 001 only. It does not authorize any other types of discharges.

B. Technology-Based Effluent Limitations (TBELs)

1. Scope and Authority

TBELs require a minimum level of treatment for industrial/municipal point sources based on currently available treatment technologies while allowing the discharger to use any available control techniques to meet the effluent limits. The 1972 CWA required POTWs to meet performance requirements based on available wastewater treatment technology. Section 301 of the CWA established a required performance level--referred to as "secondary treatment" --that all POTWs were required to meet by July 1, 1977. More specifically, Section 301(b)(1)(B) of the CWA required that EPA develop secondary treatment standards for POTWs as defined in Section 304(d)(1). Based on this statutory requirement, EPA developed national secondary treatment regulations which are specified in 40 CFR part 133. These technology-based regulations apply to all POTWs and identify the minimum level of effluent quality to be attained by secondary treatment in terms of five-day biochemical oxygen demand, total suspended solids, and pH.

2. Applicable TBELs

This facility is subject to the technology-based regulations for the minimum level of effluent quality attainable by secondary treatment in terms of $BOD_5 20^oC$, TSS, and pH. However, all TBELs from the previous Order R4-2006-0092 as amended by Order No. R4-2010-0059 are based on tertiary-treated wastewater treatment standards. These effluent limitations have been carried over from the previous Order to avoid backsliding. Further, mass-based effluent limitations are based on a design flow rate of 20 MGD. The following Table summarizes the TBELs applicable to the Facility:

Summary of Technology-based Effluent Limitations
Discharge Point 001

Table 4. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
$BOD_5 20^oC$	mg/L	20	30	45		
	lbs/day[1]	3,340	5,000	7,510		
Total Suspended Solids (TSS)	mg/L	15	40	45		
	lbs/day[1]	2,500	6,680	7,500		
pH	standard units	--	--	--	6.5	8.5
Removal Efficiency for BOD and TSS	%	85	--	--		

However, this Facility is also subject to technology-based effluent limitations contained in similar NPDES permits, for similar facilities, based on the treatment level achievable by tertiary-treated wastewater treatment systems. These effluent limitations are consistent with the State Water Board precedential decision, State Water Board Order No. WQ 2004-0010 for the City of Woodland.

1 The mass emission rates are based on the plant design flow rate of 20 mgd, and are calculated as follows: Flow (MGD) x Concentration (mg/L) x 8.34 (conversion factor) = lbs/day. During wet-weather storm events in which the flow exceeds the design capacity, the mass discharge rate limitations shall not apply, and concentration limitations will provide the only applicable effluent limitations.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

Section 301(b) of the CWA and 40 CFR part 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements or other provisions, is discussed starting from Section IV.C.2.

40 CFR part 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR part 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

a. The Basin Plan establishes the beneficial uses for surface water bodies in the Los Angeles region. The beneficial uses of the Los Angeles River affected by the discharge have been described previously in this Fact Sheet.

b. The Basin Plan also specifies narrative and numeric water quality objectives applicable to surface water as shown in the following discussions.

   i. **$BOD_5 20^oC$ and TSS**

   $BOD_5 20^oC$ is a measure of the quantity of the organic matter in the water and, therefore, the water's potential for becoming depleted in dissolved oxygen. As organic degradation takes place, bacteria and other decomposers use the oxygen in the water for respiration. Unless there is a steady resupply of oxygen to the system, the water will quickly become depleted of oxygen. Adequate dissolved oxygen levels are required to support aquatic life. Depressions of dissolved oxygen can lead to anaerobic conditions resulting in odors, or, in extreme cases, in fish kills.

40 CFR part 133 describes the minimum level of effluent quality attainable by secondary treatment, for $BOD_5 20^oC$ and TSS, as:

- The 30-day average shall not exceed 30 mg/L, and
- The 7-day average shall not exceed 45 mg/L.

Los Angeles-Glendale WRP permit provides tertiary treatment requirements, such as, the $BOD_5 20^oC$ and TSS limits that are more stringent than secondary treatment requirements, based on Best Professional Judgment (BPJ). The Plant achieves solids removal that are better than secondary-treated wastewater by adding a polymer (Alum) to enhance the precipitation of solids, and by filtering the effluent.

The monthly average, the 7-day average, and the daily maximum limits cannot be removed because none of the antibacksliding exceptions apply. Those limits were all included in the previous permit (Order R4-2006-0092 as amended by R4-2010-0059) and the Los Angeles-Glendale WRP has been able to meet all three limits (monthly average, the 7-day average, and the daily maximum) for both $BOD_5 20^oC$ and TSS.

In addition to having mass-based and concentration-based effluent limitations for $BOD_5 20^oC$ and suspended solids, the Order also contains a percent removal requirements for these two constituents. In accordance with 40 CFR parts 133.102(a)(3) and 133.102(b)(3), the 30-day average percent removal shall not be less than 85 percent. Percent removal is defined as a percentage expression of the removal efficiency across a treatment plant for a given pollutant parameter, as determined from the 30-day average values of the raw wastewater influent pollutant concentrations to the facility and the 30-day average values of the effluent pollutant concentrations for a given time period.

ii. **pH**

The hydrogen ion activity of water (pH) is measured on a logarithmic scale, ranging from 0 to 14. Minor changes from natural conditions can harm aquatic life. In accordance with 40 CFR section 133.102(c), the effluent values for pH shall be maintained within the limits of 6.0 to 9.0 unless the POTW demonstrates that: (1) Inorganic chemicals are not added to the waste stream as part of the treatment process; and (2) contributions from industrial sources do not cause the pH of the effluent to be less than 6.0 or greater than 9.0. The effluent limitation for pH in this permit requiring that the wastes discharged shall at all times be within the range of 6.5 to 8.5 is taken from the

Basin Plan (page 3-15) which reads “the pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharge.”

iii. **Settleable solids**

Excessive deposition of sediments can destroy spawning habitat, blanket benthic (bottom dwelling) organisms, and abrade the gills of larval fish. The limits for settleable solids are based on the Basin Plan (page 3-16) narrative, “Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.” The numeric limits are empirically based on results obtained from the settleable solids 1-hour test, using an Imhoff cone.

It is impracticable to use a 7-day average limitation because short-term spikes of settleable solid levels that would be permissible under a 7-day average scheme would not be adequately protective of all beneficial uses. The monthly average and the daily maximum limits cannot be removed because none of the antibacksliding exceptions apply. The monthly average and daily maximum limits were both included in the previous permit (Order R4-2006-0092 as amended by R4-2010-0059) and the Los Angeles-Glendale WRP has been able to meet both limits.

iv. **Oil and grease**

Oil and grease are not readily soluble in water and form a film on the water surface. Oily films can coat birds and aquatic organisms, impacting respiration and thermal regulation, and causing death. Oil and grease can also cause nuisance conditions (odors and taste), are aesthetically unpleasant, and can restrict a wide variety of beneficial uses. The limits for oil and grease are based on the Basin Plan (page 3-11) narrative, “Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.”

The numeric limits are empirically based on concentrations at which an oily sheen becomes visible in water. It is impracticable to use a 7-day average limitation because spikes that occur under a 7-day average scheme could cause a visible oil sheen. A 7-day average scheme would not be sufficiently protective of beneficial uses. The monthly average and the daily maximum limits cannot be removed because none of the antibacksliding exceptions apply. Both limits were included in the previous permit (Order R4-2006-0092 as amended by R4-2010-0059) and the Los Angeles-Glendale WRP has been able to meet both limits.

v. **Residual Chlorine**

Disinfection of wastewaters with chlorine produces a chlorine residual. Chlorine and its reaction products are toxic to aquatic life. The limit for residual chlorine is based on the Basin Plan (page 3-9) narrative, "Chlorine residual shall not be present in surface water discharges at concentrations that exceed 0.1 mg/L and shall not persist in receiving waters at any concentration that causes impairment of beneficial uses."

It is impracticable to use a 7-day average or a 30-day average limitation, because it is not as protective as of beneficial uses as a daily maximum limitation is. Chlorine is very toxic to aquatic life and short term exposures of chlorine may cause fish kills.

vi. **Fluoride**

The existing permit effluent limitation of 2.0 mg/l for fluoride was developed based on the Basin Plan chemical constituent incorporation of Title 22, Drinking Water Standards. Fluoride is not a priority pollutant. The discharge from the Los Angeles-Glendale WRP does not exhibit reasonable potential to exceed the USEPA Quality Criteria for Water 1976 (EPA 440/9-76-023) limit of 2.0 mg/L. Therefore, the accompanying Order will not contain an effluent limitation for fluoride.

vii. **Total Dissolved Solids, Chloride, Sulfate, and Boron**

The limits for total dissolved solids, sulfate, and boron are based on Basin Plan Table 3-8 (page 3-13), for Los Angeles River watershed, above Figueroa Street. TDS is 950 mg/L and sulfate is 300 mg/L. There is no Boron water quality objective for that reach of the Los Angeles River. The chloride limit is no longer 150 mg/L, but 190 mg/L, which resulted from Regional Water Board Resolution No. 97-02, Amendment to the Water Quality Control Plan to incorporate a Policy for Addressing Levels of Chloride in Discharges of Wastewaters. Resolution 97-02 was adopted by Regional Water Board on January 27, 1997; approved by SWRCB (Resolution 97-94); and, approved by OAL on January 8, 1998; and served to revise the chloride water quality objective in the Los Angeles River and other surface waters. It is practicable to express these limits as monthly averages, since they are not expected to cause acute effects on beneficial uses.

Limits based upon the Basin Plan WQOs have been included in this Order because, based upon Best Professional Judgment, these constituents are always present in potable water which is the supply source of the wastewater entering the Treatment Plant. They may be present in concentrations which meet California drinking water standards but exceed the Basin Plan Objectives. Therefore, limitations are warranted to protect the beneficial uses of the receiving water.

viii. **Methylene Blue Activated Substances (MBAS)**

The existing permit effluent limitation of 0.5 mg/l for MBAS was developed based on the Basin Plan incorporation of Title 22, Drinking Water Standards, by reference, to protect the surface water MUN beneficial use. Given the nature of the facility which accepts domestic wastewater into the sewer system and treatment plant, and the characteristics of the wastes discharged, the discharge has reasonable potential to exceed both the numeric MBAS water quality objective (WQO) and the narrative WQO for the prohibition of floating material such as foams and scums. Therefore an effluent limitation is required.

ix. **Nitrogen Compounds/Nutrient Compounds**

(a). **Nitrate Nitrogen (NO_3 –N), Nitrite Nitrogen (NO_2 –N), Total Inorganic Nitrogen (NO_2 + NO_3 as N) –** Total inorganic nitrogen is the sum of Nitrate-nitrogen and Nitrite-nitrogen. High nitrate levels in drinking water can cause health problems in humans. Infants are particularly sensitive and can develop methemoglobinemia (blue-baby syndrome). Nitrogen is also considered a nutrient. Excessive amounts of nutrients can lead to other water quality impairments.

(b). **Algae** - Excessive growth of algae and/or other aquatic plants can degrade water quality. Algal blooms sometimes occur naturally, but they are often the result of excess nutrients (i.e., nitrogen, phosphorus) from waste discharges or nonpoint sources. These algal blooms can lead to problems with tastes, odors, color, and increased turbidity and can depress the dissolved oxygen content of the water, leading to fish kills. Floating algal scum and algal mats are also an aesthetically unpleasant nuisance.

The WQO for biostimulatory substances are based on Basin Plan (page 3-8) narrative, “Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses,” and other relevant information to arrive at a mass based-limit intended to be protective of the beneficial uses, pursuant to 40 CFR part 122.44(d). Total inorganic nitrogen will be the indicator parameter intended to control algae, pursuant to 40 CFR part 122.44(d)(1)(vi)(C).

Nutrients are among 303(d) List in the *California 2008-2010 Integrated Report for the Los Angeles River*. Since nutrients have WLAs in the Los Angeles River Nutrient TMDL, TMDL-based effluent limitations for nutrients are required in order to implement the provisions of the TMDL and to try and restore the water quality in that section of the receiving water.

(c). **Concentration-based limit**. The proposed effluent limitations of 7.2 mg/L, 0.9 mg/L, and 7.2 mg/L for nitrate nitrogen, nitrite nitrogen, and total inorganic nitrogen, respectively, are based on the Nutrient TMDL WLA. However, if the Los Angeles River is de-listed for nutrient, then the permit would be re-opened to include Basin Plan-based effluent limitations.

Watershed-wide monitoring will track concentration levels of phosphorus and all nitrogen series pollutants present in the effluent and receiving waters, pursuant to 40 CFR part 122.44(d)(1)(vi)(C)(3).

(d). **Mass-based limit.** There are no mass emission rates for nitrogen compounds because the Nutrient TMDL did not specify mass-based WLA.

x. **Total Ammonia**

(a). Ammonia is a pollutant routinely found in the wastewater effluent of Publicly Owned Treatment Works (POTWs), in landfill-leachate, as well as in run-off from agricultural fields where commercial fertilizers and animal manure are applied. Ammonia exists in two forms – un-ionized ammonia (NH_3) and the ammonium ion (NH_4^+). They are both toxic, but the neutral, un-ionized ammonia species (NH_3) is much more toxic, because it is able to diffuse across the epithelial membranes of aquatic organisms much more readily than the charged ammonium ion. The form of ammonia is primarily a function of pH, but it is also affected by temperature and other factors. Additional impacts can also occur as the oxidation of ammonia lowers the dissolved oxygen content of the water, further stressing aquatic organisms. Oxidation of ammonia to nitrate may lead to groundwater impacts in areas of recharge. There is groundwater recharge in these reaches. Ammonia also combines with chlorine (often both are present in POTW treated effluent discharges) to form chloramines – persistent toxic compounds that extend the effects of ammonia and chlorine downstream.

(b). Tables 3-1 through Tables 3-4 of the 1994 Basin Plan contain WQOs for ammonia to protect aquatic life. However, those ammonia objectives were revised on April 25, 2002, by the Regional Board, with the adoption of Resolution No. 2002-011, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Update the Ammonia Objectives for Inland Surface Waters (including enclosed bays, estuaries and wetlands) with Beneficial Use designations for protection of Aquatic Life*. Resolution No. 2002-011 was approved by the State Water Board, the Office of Administrative Law, and USEPA on April 30, 2003, June 5, 2003, and June 19, 2003, respectively, and is now in effect. On December 1, 2005, Resolution No. 2005-014, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Revise the Early Life Stage Implementation Provision of the Freshwater Ammonia Objectives for Inland Surface Waters (including enclosed bays, estuaries and wetlands) for Protection of Aquatic Life,* was adopted by the Regional

Water Board. Resolution No. 2005-014 was approved by the State Water Board, the Office of Administrative Law, and USEPA on July 19, 2006, August 31, 2006, and April 5, 2007, respectively. On June 7, 2007, the Regional Water Board adopted Resolution No. 2007-005, *Amendments to the Water Quality Control Plan-Los Angeles Region-To Incorporate Site-Specific Objectives for Select Inland Surface Waters in the San Gabriel River, Los Angeles River and Santa Clara River Watersheds.* This amendment to the Basin Plan incorporates site-specific 30-day average objectives for ammonia along with corresponding site-specific early life stage implementation provisions for select waterbody reaches and tributaries in the Santa Clara, Los Angeles, and San Gabriel River watersheds. The State Water Board, OAL, and USEPA approved this Basin Plan amendment on January 15, 2008, May 12, 2008, and March 30, 2009, respectively.

Ammonia is among 303(d) List in the California 2008-2010 Integrated Report for the Los Angeles River. Since ammonia has a WLA in the Los Angeles River Nutrient TMDL, a TMDL-based effluent limitation for total ammonia as nitrogen is required in order to implement the provisions of the TMDL and to try and restore the water quality in that section of the receiving water.

(c). **Concentration-Based Limit** – The proposed ammonia effluent limitations of 2.2 mg/L for monthly average and 7.8 mg/L for daily maximum are based on the Nutrient TMDL WLA. However, if the Los Angeles River becomes de-listed for ammonia, then the permit would be re-opened to include Basin Plan-based effluent limitations for ammonia.

(d). **Mass-Based Limit** – There is no mass emission rate for total ammonia because the Nutrient TMDL did not specify a mass-based WLA.

xi. **Coliform**

Total and fecal coliform bacteria are used to indicate the likelihood of pathogenic bacteria in surface waters. Given the nature of the facility, a wastewater treatment plant, pathogens are likely to be present in the effluent in cases where the disinfection process is not operating adequately. As such, the permit contains the following filtration and disinfection TBELs for coliform:

(a). Effluent Limitations

- The 7-day median number of total coliform bacteria at some point in the disinfected effluent must not exceed an MPN or CFU of 2.2 per 100 milliliters;

- The number of total coliform bacteria must not exceed an MPN or CFU of 23 per 100 milliliters in more than one sample within any 30-day period; and

- No sample shall exceed an MPN of CFU of 240 total coliform bacteria per 100 milliliters.

These limits for coliform must be met at the point of the treatment train immediately following disinfection. Coliform is 303(d) listed in the Los Angeles River. The disinfection and filtration processes reduce the likelihood of having pathogens in the discharger's effluent. Most of the time the coliform analyses results are reported as less than 1 MPN/100 mL. It is not likely that the 303(d) listing of coliform is due to the discharge of treated effluent from the Discharger. Therefore, the TBEL is also protective of water quality.

(b). Receiving Water Limitations

- Geometric Mean Limitations

  * E.coli density shall not exceed 126/100 mL.

  * Fecal coliform density shall not exceed 200/100 mL.

- Single Sample Limitations

  * E.coli density shall not exceed 235/100 mL.

  * Fecal coliform density shall not exceed 400/100 mL.

These receiving water limitations are based on Resolution No. 01-018, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Update the Bacteria Objectives for Water Bodies Designated for Water Contact Recreation*, adopted by the Regional Board on October 25, 2001. The Resolution was approved by State Water Board, OAL, and USEPA, on July 18, 2002, September 19, 2002, and September 25, 2002, respectively.

xii. **Turbidity**

Turbidity is an expression of the optical property that causes light to be scattered in water due to particulate matter such as clay, silt, organic matter, and microscopic organisms. Turbidity can result in a variety of water quality impairments. The effluent limitation for turbidity which reads, "For the protection of the water contact recreation beneficial use, the wastes discharged to water courses shall have received adequate treatment, so that the turbidity of the wastewater does not exceed: (a) a daily average of 2 Nephelometric turbidity units (NTU); (b) 5 NTU more than 5 percent of the time (72 minutes) during any 24 hour period; and (c) 10 NTU at any time" is based on the Basin Plan (page 3-17) and Section 60301.320 of Title 22, Chapter 3, "Filtered Wastewater" of the California Code of Regulations.

xiii. **Radioactivity**

Radioactive substances are generally present in natural waters in extremely low concentrations. Mining or industrial activities increase the amount of radioactive substances in waters to levels that are harmful to aquatic life, wildlife, or humans. Section 301(f) of the CWA contains the following statement with respect to effluent limitations for radioactive substances: "Notwithstanding any other provisions of this Act it shall be unlawful to discharge any radiological, chemical, or biological warfare agent, any high-level radioactive waste, or any medical waste, into the navigable waters." Chapter 5.5 of the CWC contains a similar prohibition under Section 13375, which reads as follows: "The discharge of any radiological, chemical, or biological warfare agent into the waters of the state is hereby prohibited." However, rather than give a hard and fast absolute prohibition on radioactive substances, Regional Water Board staff have set the following effluent limit for radioactivity: "Radioactivity of the wastes discharged shall not exceed the limits specified in Title 22, Chapter 15, Article 5, Section 64443, of the California Code of Regulations, or subsequent revisions." The limit is based on the Basin Plan incorporation of Title 22, *Drinking Water Standards,* by reference, to protect the surface water MUN beneficial use. However, the Regional Water Board has new information about the appropriate designated uses for the water body, and based on the current designated uses, a limit for Radioactivity is unnecessary and inappropriate unless discharge is to a reach used for groundwater recharge, where Title 22-based limits apply. Therefore, the accompanying Order will contain a limit for radioactivity to protect the GWR beneficial use.

xiv. **Temperature**

USEPA document, *Quality Criteria for Water 1986* [EPA 440/5-86-001, May 1, 1986], also referred to as the *Gold Book*, discusses temperature and its effects on beneficial uses, such as recreation and aquatic life.

(a). The Federal Water Pollution Control Administration in 1967 called temperature "a catalyst, a depressant, an activator, a restrictor, a stimulator, a controller, a killer, and one of the most important water quality characteristics to life in water." The suitability of water for total body immersion is greatly affected by temperature. Depending on the amount of activity by the swimmer, comfortable temperatures range from 20°C to 30°C (68 °F to 86 °F).

(b). Temperature also affects the self-purification phenomenon in water bodies and therefore the aesthetic and sanitary qualities that exist. Increased temperatures accelerate the biodegradation of organic material both in the overlying water and in bottom deposits which makes increased demands on the dissolved oxygen resources of a given system. The typical situation is exacerbated by the fact that oxygen becomes less soluble as water temperature increases. Thus, greater demands are exerted on an increasingly scarce resource which may lead to total oxygen depletion and obnoxious septic conditions. Increased temperature may increase the odor of water because of the increased volatility of odor-causing compounds. Odor problems associated with plankton may also be aggravated.

(c). Temperature changes in water bodies can alter the existing aquatic community. Coutant (1972) has reviewed the effects of temperature on aquatic life reproduction and development. Reproductive elements are noted as perhaps the most thermally restricted of all life phases, assuming other factors are at or near optimum levels. Natural short-term temperature fluctuations appear to cause reduced reproduction of fish and invertebrates.

The Basin Plan lists temperature requirements for the receiving waters. Based on the requirements of the Basin Plan and a white paper developed by Regional Board staff entitled *Temperature and Dissolved Oxygen Impacts on Biota in Tidal Estuaries and Enclosed Bays in the Los Angeles Region*, a maximum effluent temperature limitation of 86 °F is included in the Order. The white paper evaluated the optimum temperatures for steelhead, topsmelt, ghost shrimp, brown rock crab, jackknife clam, and blue mussel. The new temperature effluent limitation is reflective of new information available that indicates that the 100°F temperature is not protective of aquatic organisms. A survey was completed for several kinds of fish and the 86°F temperature was found to be protective. It is impracticable to use a 7-day average or a 30-day average limitation for temperature, because it is not as protective as of beneficial uses as a daily maximum limitation is. A daily maximum limitation is necessary to protect aquatic life and is consistent with the fishable/swimmable goals of the CWA.

Section IV.A.2.b. of the Order contains the following effluent limitation for temperature:

> "The temperature of wastes discharged shall not exceed 86ºF as a result of external ambient temperature."

The above effluent limitation for temperature has been quoted in all recent NPDES permits adopted by this Regional Water Board.

Section V.A.1. of the Order explains how compliance with the receiving water temperature limitation will be determined.

c. **CTR and SIP**

The California Toxic Rule (CTR) and State Implementation Policy (SIP) specify numeric objectives for toxic substances and the procedures whereby these objectives are to be implemented. The procedures include those used to conduct a reasonable potential analysis (RPA) to determine the need for effluent limitations for priority and non-priority pollutants.

3. Determining the Need for WQBELs

The Regional Water Board developed WQBELs for cadmium, copper, lead, and zinc that have available wasteload allocations under a Total Maximum Daily Loads (TMDLs) approved by USEPA on October 29, 2008, that became effective on the same date. The effluent limitations for these pollutants were established regardless of whether or not there is reasonable potential for the pollutants to be present in the discharge at levels that would cause or contribute to a violation of water quality standards. The Regional Water Board developed WQBELs for these four metals in this Order pursuant to the "Implementation" section specified in Page 12 of the *Los Angeles River Metals TMDL.* The "Implementation" states:

> "Permit writers may translate applicable waste load allocations into effluent limits for the major, minor and general NPDES permits by applying the effluent limitation procedures in Section 1.4 of the State Water Resources Control Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000)..."

Therefore, the Regional Water Board calculated final WQBELs for these four metals, based on Section 1.4 of SIP.

In accordance with Section 1.3 of the SIP, the Regional Water Board conducted an RPA for each priority pollutant with an applicable criterion or objective to determine if a WQBEL is required in the permit. The Regional Water Board analyzed effluent data to determine if a pollutant in a discharge has a reasonable potential to cause or contribute to an excursion above a state water quality standard. For all parameters that demonstrate reasonable potential, numeric WQBELs are required. The RPA considers water quality criteria from the CTR and NTR, and when applicable, WQOs specified in the Basin Plan. To conduct the RPA, the Regional Water Board staff identified the maximum effluent concentration (MEC) and maximum background concentration in the receiving water for each constituent, based on data provided by the Discharger. The monitoring data cover the period from July 2007, when the Discharger has completed the NDN process upgrade up to December 2010.

Section 1.3 of the SIP provides the procedures for determining reasonable potential to exceed applicable water quality criteria and objectives. The SIP specifies three triggers to complete a RPA:

Trigger 1 – If the MEC is greater than or equal to the CTR water quality criteria or applicable objective (C), a limitation is needed.

Trigger 2 – If background water quality (B) > C and the pollutant is detected in the effluent, a limitation is needed.

Trigger 3 – If other related information such as CWA 303(d) listing for a pollutant, discharge type, compliance history, then best professional judgment is used to determine that a limit is needed.

Sufficient effluent and ambient data are needed to conduct a complete RPA. If data are not sufficient, the Discharger will be required to gather the appropriate data for the Regional Water Board to conduct the RPA. Upon review of the data, and if the Regional Water Board determines that WQBELs are needed to protect the beneficial uses, the permit will be reopened for appropriate modification.

The RPA was performed for the priority pollutants regulated in the CTR for which data are available. Based on the RPA, pollutants that demonstrate reasonable potential are cadmium, copper, lead, and zinc because TMDLs are adopted for these metals. Copper also shows reasonable potential because the receiving water concentration (B) is greater than the criteria (C) and it was detected in the effluent. Mercury, bis(2-ethylhexyl)phthalate, and dibenzo(a,h)anthracene show reasonable potential because the (MEC) is greater than (C). Cyanide shows reasonable potential because (B) is greater than (C) and it was detected in the effluent. The following Table summarizes results from RPA.

Table 5. Summary of Reasonable Potential Analysis

CTR No.	Constituent	Applicable Water Quality Criteria (C) µg/L	Max Effluent Conc. (MEC) µg/L	Maximum Detected Receiving Water Conc.(B) µg/L	RPA Result - Need Limitation ?	Reason
1	Antimony	4300	0.94	1.99	No	C>B, C>MEC
2	Arsenic	150	2.81	3.29	No	C>B, C>MEC
3	Beryllium	Narrative	0.04	0.20	No	C>B, C>MEC
4	Cadmium	5.3	0.71	0.9	Yes	TMDL
5a	Chromium III	430.5	2.8	2.9	No	C>B, C>MEC
5b	Chromium VI	11	0.9	2.9	No	C>B, C>MEC
6	Copper	26	15.5	36	Yes	TMDL; B>C & detected at effluent
7	Lead	12	2.9	5.7	Yes	TMDL
8	Mercury	0.051	0.16	0.02	Yes	MEC>C
9	Nickel	129.5	6.8	14.2	No	C>B, C>MEC
10	Selenium	5	1.1	3.3	No	C>B, C>MEC
11	Silver	22	0.79	1.2	No	C>B, C>MEC
12	Thallium	6.3	ND	0.57	No	C>B, C>MEC

CTR No.	Constituent	Applicable Water Quality Criteria (C) µg/L	Max Effluent Conc. (MEC) µg/L	Maximum Detected Receiving Water Conc.(B) µg/L	RPA Result - Need Limitation ?	Reason
13	Zinc	253	83	78	Yes	TMDL
14	Cyanide	5.2	5	7	Yes	B>C & detected at effluent
15	Asbestos	7x10^{6} fibers/L	<0.2	No sample	No	N/A
16	2,3,7,8-TCDD (Dioxin)	1.4x10^{-08}	ND	2.44	No	C>MEC
17	Acrolein	780	<1.96	<1.96	No	C>B, C>MEC
18	Acrylonitrile	0.66	<0.27	<0.27	No	C>B, C>MEC
19	Benzene	71	<0.15	<0.12	No	C>B, C>MEC
20	Bromoform	360	1.75	<0.17	No	C>B, C>MEC
21	Carbon Tetrachloride	4.4	<0.45	<0.27	No	C>B, C>MEC
22	Chlorobenzene	21,000	<0.34	<0.15	No	C>B, C>MEC
23	Dibromochloromethane	34	2.83	<0.18	No	C>B, C>MEC
24	Chloroethane	No criteria	<0.28	<0.17	No	No criteria
25	2-chloroethyl vinyl ether	No criteria	<0.48	<0.48	No	No criteria
26	Chloroform	No criteria	12.6	0.76	No	No criteria
27	Dichlorobromomethane	46	7.16	<0.21	No	C>B, C>MEC
28	1,1-dichloroethane	No criteria	<0.36	<0.16	No	No criteria
29	1,2-dichloroethane	99	<0.23	<0.13	No	C>B, C>MEC
30	1,1-dichloroethylene	3.2	<0.41	<0.2	No	C>B, C>MEC
31	1,2-dichloropropane	39	<0.51	<0.13	No	C>B, C>MEC
32	1,3-dichloropropylene	1,700	<0.24	<0.15	No	C>B, C>MEC
33	Ethylbenzene	29,000	<0.39	<0.17	No	C>B, C>MEC
34	Methyl bromide	4,000	3.2	<1.02	No	C>B, C>MEC
35	Methyl chloride	No criteria	<0.33	<0.17	No	No criteria
36	Methylene chloride	1,600	1.49	<0.14	No	C>B, C>MEC
37	1,1,2,2-tetrachloroethane	11	<0.29	<0.19	No	C>B, C>MEC
38	Tetrachloroethylene	8.85	2.26	<0.39	No	C>B, C>MEC
39	Toluene	200,000	0.72	0.44	No	C>B, C>MEC
40	Trans 1,2-Dichloroethylene	140,000	<0.57	<0.2	No	C>B, C>MEC
41	1,1,1-Trichloroethane	No criteria	<0.29	<0.23	No	C>B, C>MEC
42	1,1,2-Trichloroethane	42	<0.31	<0.21	No	C>B, C>MEC
43	Trichloroethylene	81	0.39	<0.17	No	C>B, C>MEC
44	Vinyl Chloride	525	<0.185	<0.22	No	C>B, C>MEC
45	2-chlorophenol	400	<0.26	<0.09	No	C>B, C>MEC
46	2,4-dichlorophenol	790	<0.27	<0.09	No	C>B, C>MEC
47	2,4-dimethylphenol	2,300	<0.24	<0.18	No	C>B, C>MEC
48	4,6-dinitro-o-cresol(aka 2-methyl-		<1.16	<0.4	No	C>B, C>MEC

CTR No.	Constituent	Applicable Water Quality Criteria (C) μg/L	Max Effluent Conc. (MEC) μg/L	Maximum Detected Receiving Water Conc.(B) μg/L	RPA Result - Need Limitation ?	Reason
	4,6-Dinitrophenol)	765				
49	2,4-dinitrophenol	14,000	<0.5	<0.5	No	C>B, C>MEC
50	2-nitrophenol	No criteria	<0.45	<0.23	No	No criteria
51	4-nitrophenol	No criteria	<0.55	<0.55	No	No criteria
52	3-Methyl-4-Chlorophenol (aka P-chloro-m-cresol)	No criteria	<0.45	<0.45	No	No criteria
53	Pentachlorophenol	8.2	<0.94	<0.94	No	C>B, C>MEC
54	Phenol	4,600,000	<1	<0.4	No	C>B, C>MEC
55	2,4,6-trichlorophenol	6.5	0.18	<0.27	No	C>B, C>MEC
56	Acenaphthene	2,700	<0.13	<0.13	No	C>B, C>MEC
57	Acenaphthylene	No criteria	<0.13	<0.13	No	No criteria
58	Anthracene	110,000	<0.11	<0.11	No	C>B, C>MEC
59	Benzidine	0.00054	<5	<5	No	C>B, C>MEC
60	Benzo(a)Anthracene	0.049	<0.14	<0.14	No	C>B, C>MEC
61	Benzo(a)Pyrene	0.049	<0.13	<0.13	No	C>B, C>MEC
62	Benzo(b)Fluoranthene	0.049	<0.14	<0.14	No	C>B, C>MEC
63	Benzo(ghi)Perylene	No criteria	0.07	0.09	No	No criteria
64	Benzo(k)Fluoranthene	0.049	<0.11	<0.11	No	C>B, C>MEC
65	Bis(2-Chloroethoxy) methane	No criteria	<0.05	<0.35	No	No criteria
66	Bis(2-Chloroethyl)Ether	1.4	<0.32	<0.32	No	C>B, C>MEC
67	Bis(2-Chloroisopropyl) Ether	170,000	<0.35	<0.05	No	C>B, C>MEC
68	Bis(2-Ethylhexyl)Phthalate	4.0	7.0	1	Yes	MEC>C
69	4-Bromophenyl Phenyl Ether	No criteria	<0.22	<0.22	No	No criteria
70	Butylbenzyl Phthalate	5,200	<0.26	0.1	No	C>B, C>MEC
71	2-Chloronaphthalene	4,300	<0.3	<0.3	No	C>B, C>MEC
72	4-Chlorophenyl Phenyl Ether	No criteria	<0.28	<0.28	No	No criteria
73	Chrysene	0.049	<0.12	<0.12	No	C>B, C>MEC
74	Dibenzo(a,h) Anthracene	0.049	0.9	0.13	Yes	MEC>C
75	1,2-Dichlorobenzene	17,000	<0.21	0.2	No	C>B, C>MEC
76	1,3-Dichlorobenzene	2,600	<0.23	<0.23	No	C>B, C>MEC
77	1,4-Dichlorobenzene	2,600	<0.24	0.24	No	C>B, C>MEC
78	3-3'-Dichlorobenzidine	0.077	<1.79	<1.79	No	C>B, C>MEC
79	Diethyl Phthalate	120,000	<0.09	0.18	No	C>B, C>MEC
80	Dimethyl Phthalate	2,900,000	<0.27	<0.27	No	C>B, C>MEC

CTR No.	Constituent	Applicable Water Quality Criteria (C) µg/L	Max Effluent Conc. (MEC) µg/L	Maximum Detected Receiving Water Conc.(B) µg/L	RPA Result - Need Limitation ?	Reason
81	Di-n-Butyl Phthalate	12,000	0.5	<0.5	No	C>B, C>MEC
82	2-4-Dinitrotoluene	9.1	<0.21	<0.13	No	C>B, C>MEC
83	2-6-Dinitrotoluene	No criteria	<0.21	<0.21	No	No criteria
84	Di-n-Octyl Phthalate	No criteria	<0.82	<0.5	No	No criteria
85	1,2-Diphenylhydrazine	0.54	<0.5	<0.5	No	C>B, C>MEC
86	Fluoranthene	370	<0.02	<0.02	No	C>B, C>MEC
87	Fluorene	14,000	<0.02	<0.02	No	C>B, C>MEC
88	Hexachlorobenzene	50	<0.23	<0.18	No	C>B, C>MEC
89	Hexachlorobutadiene	50	<0.23	<0.07	No	C>B, C>MEC
90	Hexachlorocyclopentadiene	17,000	<3.83	<2.9	No	C>B, C>MEC
91	Hexachloroethane	8.9	<0.25	<0.07	No	C>B, C>MEC
92	Indeno(1,2,3-cd)Pyrene	0.049	<0.02	<0.02	No	C>B, C>MEC
93	Isophorone	600	<0.3	0.19	No	C>B, C>MEC
94	Naphthalene	No criteria	<0.13	<0.13	No	No criteria
95	Nitrobenzene	1,900	<0.33	<0.33	No	C>B, C>MEC
96	N-Nitrosodimethylamine	8.1	<0.5	<0.17	No	C>B, C>MEC
97	N-Nitrosodi-n-Propylamine	1.4	<0.15	<0.36	No	C>B, C>MEC
98	N-Nitrosodiphenylamine	16	<0.23	<0.86	No	C>B, C>MEC
99	Phenanthrene	No criteria	<0.01	<0.08	No	No criteria
100	Pyrene	11,000	<0.02	<0.02	No	C>B, C>MEC
101	1,2,4-Trichlorobenzene	No criteria	<0.42	<0.27	No	No criteria
102	Aldrin	0.00014	<0.004	<0.003	No	C>B, C>MEC
103	Alpha-BHC	0.013	<0.004	<0.003	No	C>B, C>MEC
104	Beta-BHC	0.046	<0.003	<0.003	No	C>B, C>MEC
105	Gamma-BHC (aka Lindane)	0.063	<0.005	0.003	No	C>B, C>MEC
106	delta-BHC	No criteria	<0.004	<0.003	No	No criteria
107	Chlordane	0.00059	<0.056	<0.033	No	C>B, C>MEC
108	4,4’-DDT	0.00059	<0.007	<0.003	No	C>B, C>MEC
109	4,4’-DDE	0.00059	<0.004	<0.004	No	C>B, C>MEC
110	4,4’-DDD	0.00084	<0.004	<0.004	No	C>B, C>MEC
111	Dieldrin	0.00014	<0.005	<0.005	No	C>B, C>MEC
112	Alpha-Endosulfan	0.056	<0.008	<0.008	No	C>B, C>MEC
113	Beta-Endosulfan	0.056	<0.007	<0.007	No	C>B, C>MEC
114	Endosulfan Sulfate	240	<0.008	<0.003	No	C>B, C>MEC
115	Endrin	0.036	<0.005	<0.005	No	C>B, C>MEC

CTR No.	Constituent	Applicable Water Quality Criteria (C) µg/L	Max Effluent Conc. (MEC) µg/L	Maximum Detected Receiving Water Conc.(B) µg/L	RPA Result - Need Limitation ?	Reason
116	Endrin Aldehyde	0.81	<0.004	<0.002	No	C>B, C>MEC
117	Heptachlor	0.00021	<0.003	<0.003	No	C>B, C>MEC
118	Heptachlor Epoxide	0.00011	<0.003	<0.003	No	C>B, C>MEC
119	PCB 1016	0.00017	<0.06	<0.081	No	C>B, C>MEC
120	PCB 1221	0.00017	<0.49	<0.49	No	C>B, C>MEC
121	PCB 1232	0.00017	<0.1	<0.061	No	C>B, C>MEC
122	PCB 1242	0.00017	<0.2	<0.23	No	C>B, C>MEC
123	PCB 1248	0.00017	<0.1	<0.07	No	C>B, C>MEC
124	PCB 1254	0.00017	<0.2	<0.04	No	C>B, C>MEC
125	PCB 1260	0.00017	<0.07	<0.07	No	C>B, C>MEC
126	Toxaphene	0.0002	<0.1	<0.1	No	C>B, C>MEC

4. WQBEL Calculations

a. **Calculation Options**. Once RPA has been conducted using either the TSD or the SIP methodologies, WQBELs are calculated. Alternative procedures for calculating WQBELs include:

i. Use WLA from applicable TMDL.
ii. Use a steady-state model to derive Maximum Daily Effluent Limits and Average Monthly Effluent Limits.
iii. Where sufficient data exist, use a dynamic model which has been approved by the State Water Board.

b. **Los Angeles River Metals TMDL Calculation Procedure**.

Discharge Point 001 discharges into the Los Angeles River, Reach 3 as described by the *LA River Metals TMDL*. Reach 3 has wet-weather WLAs for cadmium, copper, lead, and zinc (5.3 µg/L, 26 µg/L, 12 µg/L, and 253 µg/L, respectively). Reach 3 has dry-weather WLAs only for copper and lead (26 µg/L and 12 µg/L, respectively). Wet-weather allocations are based on dry-weather in-stream numeric targets because the POTWs exert the greatest influence over in-stream water quality during dry weather, and collectively they contribute minimally to the total wet-weather loading. During dry-weather, the concentration-based and mass-based waste load allocations apply. In wet weather, the mass-based WLAs do not apply when the influent flows exceed the design capacity of the treatment plants.

According to the *LA River Metals TMDL* implementation section, permit writers may translate applicable waste load allocations into effluent limits by applying the effluent limitation procedures in Section 1.4 of the SIP or other applicable engineering practices authorized under federal regulations.

1. Copper: Tier 2 of the SIP Reasonable Potential Analysis (RPA) was triggered for copper because there was an exceedance of water quality objectives in the receiving water and the pollutant is detected in the effluent. Tier 3 of the SIP RPA procedures was also triggered because this constituent has established waste load allocations described in *LA River Metals TMDL*. Therefore, a water quality-based effluent limitation derived using CTR/SIP has been prescribed for copper. In this permit, the TMDL-established WLAs for copper (26 µg/L), the TMDL hardness of 278 mg/L, and a 0.3 coefficient of variation were used to calculate the WQBELs based on SIP/CTR procedures. The TMDL copper criteria were derived by using the site-specific chronic copper conversion factor of 0.80 developed by Larry Walker Associates under contract with the City of Los Angeles. This was explained on page 26-27 of the *LA River Metals TMDL* staff report. The final effluent limitations for copper apply to both wet and dry weather conditions. Therefore, the effluent limitations for copper apply all-year round. In the future, consistent with the *LA River Metals TMDL,* should the performance of the facility's treatment technologies change for reasons beyond the facility's control, the permit may be reopened to revise the effluent limitations considering the applicability of the copper WER or other performance-based measure such that the effluent limitations ensure that effluent concentrations and mass discharges do not exceed the levels of water quality that can be attained by performance of this facility's treatment technologies existing at the time of permit issuance, reissuance, or modification.

2. Lead: Tier 1 and Tier 2 of the SIP RPA procedures were not triggered for lead. However, Tier 3 was triggered because this constituent has established WLAs described in *LA River Metals TMDL*. In this permit, the TMDL-established WLAs for lead (12 µg/L), the USEPA default conversion factors, the TMDL hardness of 278 mg/L, and a 0.6 coefficient of variation were used to calculate the WQBELs based on SIP/CTR procedures. The final effluent limitations for lead apply to both wet and dry weather conditions and shall apply all-year round.

3. Cadmium: Tier 1 and Tier 2 of the SIP RPA procedures were not triggered for cadmium. However, Tier 3 was triggered because this constituent has established WLAs described in *LA River Metals TMDL*. In this permit, the TMDL-established WLA for cadmium (5.3 µg/L), the USEPA default conversion factors, the TMDL hardness of 278 mg/L, and a 0.6 coefficient of variation were used to calculate the WQBELs based on SIP/CTR procedures. The final effluent limitations for cadmium apply to wet weather conditions only.

4. Zinc: Tier 1 and Tier 2 of the SIP RPA procedures were not triggered for zinc. However, Tier 3 was triggered because this constituent has established waste

load allocations described in *LA River Metals TMDL*. In this permit, the TMDL-established WLA for zinc (253 µg/L), the USEPA default conversion factors, the TMDL hardness of 278 mg/L, and a 0.2 coefficient of variation were used to calculate the WQBELs based on SIP/CTR procedures. The final effluent limitations for zinc apply to wet weather conditions only.

The metals effluent limitations prescribed in this Order are consistent with the SIP Procedures and TMDL WLAs.

c. **SIP Calculation Procedure**. Section 1.4 of the SIP (2005) requires the step-by-step procedure to "adjust" or convert CTR numeric criteria into Average Monthly Effluent Limitations (AMELs) and Maximum Daily Effluent Limitations (MDELs), for toxics.

Step 3 of Section 1.4 of the SIP (starting on page 8) lists the statistical equations that adjust CTR criteria for effluent variability.

Step 5 of Section 1.4 of the SIP (starting on page 10) lists the statistical equations that adjust CTR criteria for averaging periods and exceedance frequencies of the criteria/objectives. This section also reads, "For this method only, maximum daily effluent limitations shall be used for publicly-owned treatment works (POTWs) in place of average weekly limitations."

Sample calculation for Mercury:

Step 1: Identify applicable water quality criteria.

From California Toxics Rule (CTR), we can obtain the Criterion Maximum Concentration (CMC) and the Criterion Continuous Concentration (CCC).

Freshwater Aquatic Life Criteria:
CMC = NA µg/L (CTR page 31712, column B1) and
CCC = NA µg/L (CTR page 31712, column B1); and
Human Health Criteria for Organisms only = 0.051 µg/L (CTR page 31712, column D2).

Step 2: Calculate effluent concentration allowance (ECA)

ECA = Criteria in CTR, since no dilution is allowed.

Step 3: Determine long-term average (LTA) discharge condition

i. Calculate CV:

CV = Standard Deviation/Mean
= 0.02402 / 0.00697
= 3.45

Find the ECA Multipliers from SIP Table 1 (page 9), or by calculating them using equations on SIP page 8. When CV = 3.45, then:

ECA Multiplier acute = 0.0871 and
ECA Multiplier chronic = 0.1297

LTA acute = ECA acute x ECA Multiplier acute
= NA µg/L x 0.0871 = NA µg/L

LTA chronic = ECA chronic x ECA Multiplier chronic
= NA µg/L x 0.1297 = NA µg/L

Step 4: Select the lowest LTA

In this case, the lowest LTA is not applicable.

Step 5: Calculate the Average Monthly Effluent Limitation (AMEL) & Maximum Daily Effluent Limitation (MDEL) for AQUATIC LIFE

i. Find the multipliers. You need to know CV and n (frequency of sample collection per month). If effluent samples are collected 4 times a month or less, then n = 4. CV was determined to be 3.45 in the previous step.

AMEL Multiplier = 3.4642
MDEL Multiplier = 11.4847

ii. AMEL aquatic life = lowest LTA (from Step 4) x AMEL Multiplier
= NA µg/L x 3.4642 = NA µg/L

iii. MDEL aquatic life = lowest LTA (from Step 4) x AMEL Multiplier
= NA µg/L x 11.4847 = NA µg/L

Step 6: Find the Average Monthly Effluent Limitation (AMEL) & Maximum Daily Effluent Limitation (MDEL) for HUMAN HEALTH

i. Find factors. Given CV = 3.45 and n = 4.

For AMEL human health limit, there is no factor.
The MDEL/AMEL human health factor = 3.3153

ii. AMEL human health = ECA = 0.051 µg/L

iii. MDEL human health = ECA x MDEL/AMEL factor
= 0.051 µg/L x 3.3153 = 0.169 µg/L

Step 7: Compare the AMELs for Aquatic life and Human health and select the lowest. Compare the MDELs for Aquatic life and Human health and select the lowest

i. Lowest AMEL = 0.051 µg/L (Based on Human Health protection)

ii. Lowest MDEL = 0.17 µg/L (Based on Human Health protection)

d. **Impracticability Analysis**

Federal NPDES regulations contained in 40 CFR part 122.45 continuous dischargers states that all permit limitations, standards, and prohibitions, including those to achieve water quality standards, shall, unless impracticable, be stated as maximum daily and average monthly discharge limitations for all dischargers other than POTWs.

As stated by USEPA in its long-standing guidance for developing WQBELs, average alone limitations are not practical for limiting acute, chronic, and human health toxic affects.

For example, a POTW sampling for a toxicant to evaluate compliance with a 7-day average limitation could fully comply with this average limit but still be discharging toxic effluent on one, two, three, or up to four of these seven days and not be meeting 1-hour average acute criteria or 4-day average chronic criteria. For these reason, USEPA recommends daily maximum and 30-day average limits for regulating toxics in all NPDES discharges. For the purposes of protecting the acute effects of discharges containing toxicants (CTR human health for the ingestion of fish), daily maximum limitations have been established in this NPDES permit for mercury because it is considered to be a carcinogen, endocrine disruptor, and is bioaccumulative.

A 7-day average alone would not protect one, two, three, or four days of discharging pollutants in excess of the acute and chronic criteria. Fish exposed to these endocrine disrupting chemicals will be passed on to the human consumer. Endocrine disrupters alter hormonal functions by several means. These substances can:

- mimic or partly mimic the sex steroid hormones estrogens and androgens (the male sex hormone) by binding to hormone receptors or influencing cell signaling pathways.
- block, prevent and alter hormonal binding to hormone receptors or influencing cell signaling pathways.
- alter production and breakdown of natural hormones.
- modify the making and function of hormone receptors.

e. **Mass based limits**. 40 CFR part 122.45(f)(1) requires that except under certain conditions, all permit limits, standards, or prohibitions be expressed in terms of mass units. 40 CFR part 122.45(f)(2) allows the permit writer, at its discretion, to express limits in additional units (e.g., concentration units). The regulations mandate that, where limits are expressed in more than one unit, the permittee must comply with both.

Generally, mass-based limits ensure that proper treatment, and not dilution, is employed to comply with the final effluent concentration limits. Concentration-based effluent limits, on the other hand, discourage the reduction in treatment efficiency during low-flow periods and require proper operation of the treatment units at all times. In the absence of concentration-based effluent limits, a permittee would be able to increase its effluent concentration (i.e., reduce its level of treatment) during low-flow periods and still meet its mass-based limits. To account for this, this permit includes mass and concentration limits for some constituents.

Summary of Water Quality-based Effluent Limitations
Discharge Point 001

Table 6. Summary of Water Quality-based Effluent Limitations for Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Cadmium (wet-weather)	µg/L	4.3[1]	--	8.9[1]		
	lbs/day[2]	0.72[3]	--	1.5[3]		
Copper (dry- and wet-weather)	µg/L	24[1,4]	--	34[1,4]		
	lbs/day[2]	4.0[3]	--	5.7[3]		
Lead (dry- and wet-weather)	µg/L	10[1,4]	--	20[1,4]		
	lbs/day[2]	1.7[3]	--	3.3[3]		
Zinc (wet-weather)	µg/L	240[1]	--	298[1]		
	lbs/day[2]	40[3]	--	50[3]		
Mercury	µg/L	0.051	--	0.17		

[1] Wet-weather effluent limitations apply when the maximum daily flow at the Los Angeles River Wardlow station is equal to or greater than 500 cubic feet per second.

[2] The mass emission rates are based on the plant design flow rate of 20 mgd, and are calculated as follows: Flow (MGD) x Concentration (mg/L) x 8.34 (conversion factor) = lbs/day, or Flow (MGD) x Concentration (µg/L) x 0.00834 (conversion factor) = lbs/day. During wet-weather storm events in which the flow exceeds the design capacity, the mass discharge rate limitations shall not apply, and concentration limitations will provide the only applicable effluent limitations.

[3] The mass-based effluent limitations for cadmium, copper, lead, and zinc do not apply during wet weather when the influent exceeds the plant design flow rate of 20 mgd.

[4] Dry-weather effluent limitations apply when the maximum daily flow at the Los Angeles River Wardlow station is less than 500 cubic feet per second.

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
	lbs/day[2]	0.0085	--	0.028		
Cyanide	µg/L	4.3	--	8.5		
	lbs/day[2]	0.72	--	1.4		
Bis(2-Ethylhexyl)Phthalate	µg/L	4	--	--		
	lbs/day[2]	0.67	--	--		
Dibenzo(a,h)Anthracene	µg/L	0.049	--	0.098		
	lbs/day[2]	0.0082	--	0.016		

5. Whole Effluent Toxicity (WET)

Because of the nature of industrial discharges into the POTW sewershed, it is possible that other toxic constituents could be present in the Los Angeles-Glendale WRP effluent or could have synergistic or additive effects. Also, because numeric limits for certain toxic constituents that did not show RP have been removed, the acute toxicity limit may provide a backstop to preventing the discharge of toxic pollutants in toxic amounts. In spite of the addition of nitrification/denitrification (NDN) process to the treatment train in June 2007, the chronic toxicity was exceeded in six of the 14 effluent chronic toxicity tests conducted in 2008. Although all acute toxicity testing results reported during the term of the previous Order (post NDN) exhibited survival rates greater than 90% and thus did not exceed any acute toxicity requirements, Regional Water Board staff determined that, pursuant to the SIP, reasonable potential exists for toxicity. As such, the permit contains effluent limitations for toxicity.

The toxicity numeric effluent limitations are based on:

a. 40 CFR part 122.44(d)(v) – limits on whole effluent toxicity are necessary when chemical-specific limits are not sufficient to attain and maintain applicable numeric or narrative water quality standards;

b. 40 CFR part 122.44(d)(vi)(A) – where a State has not developed a water quality criterion for a specific pollutant that is present in the effluent and has reasonable potential, the permitting authority can establish effluent limits using numeric water quality criterion;

c. Basin Plan objectives and implementation provisions for toxicity;

d. Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Programs Final May 31, 1996;

e. Whole Effluent Toxicity (WET) Control Policy July 1994; and,

f. Technical Support Document (several chapters and Appendix B).

The circumstances warranting a numeric chronic toxicity effluent limitation when there is reasonable potential were under review by the State Water Resources Control Board (State Water Board) in SWRCB/OCC Files A-1496 & A-1496(a) [Los Coyotes/Long Beach Petitions]. On September 16, 2003, at a public hearing, the State Water Board adopted Order No. 2003-0012 deferring the issue of numeric chronic toxicity effluent limitations until a subsequent Phase of the SIP is adopted. In the meantime, the State Water Board replaced the numeric chronic toxicity limit with a narrative effluent limitation and a 1.0 TUc trigger, in the Long Beach and Los Coyotes WRP NPDES permits. This permit contains a similar narrative chronic toxicity effluent limitation, with a numeric trigger for accelerated monitoring. Phase II of the SIP has been adopted; however, the toxicity control provisions were not revised.

On January 17, 2006, the State Water Board Division of Water Quality held a CEQA scoping meeting to seek input on the scope and content of the environmental information that should be considered in the planned revisions of the Toxicity Control Provisions of the SIP. However, the Toxicity Control Provisions of the SIP continue unchanged.

This Order contains a reopener to allow the Regional Water Board to modify the permit, if necessary, consistent with any new policy, law, or regulation. Until such time, this Order will have toxicity limitations that are consistent with the State Water Board's precedential decision.

a. Acute Toxicity Limitation:

   The Dischargers may test for acute toxicity by using USEPA's *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, October 2002 (EPA-821-R-02-012). Acute toxicity provisions in the accompanying Order are derived from the Basin Plan's toxicity standards (Basin Plan 3-16 and 3-17). The provisions require the Discharger to accelerate acute toxicity monitoring and take further actions to identify the source of toxicity and to reduce acute toxicity.

b. Chronic Toxicity Limitation and Requirements:

   Chronic toxicity provisions in the accompanying Order are derived from the Basin Plan's toxicity standards (Basin Plan 3-16 and 3-17). The provisions require the Discharger to accelerate chronic toxicity monitoring and take further actions to identify the source of toxicity and to reduce chronic toxicity. The monthly median trigger of 1.0 TU_c for chronic toxicity is based on *USEPA Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity (WET) Programs* Final May 31, 1996 (Chapter 2 – Developing WET Permitting Conditions, page 2-8). In cases where effluent receives no dilution or where mixing zones are not allowed, the 1.0 TU_c chronic criterion should be expressed as a monthly median. The "median" is defined as the middle value in a distribution, above which and below which lie an equal number of values. For example, if the results of the WET testing for a month were 1.5, 1.0, and 1.0 TU_c, the median would be 1.0 TU_c.

The *USEPA Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity (WET) Programs* Final May 31, 1996 (Chapter 2 – Developing WET Permitting Conditions, page 2-8) recommends two alternatives for setting up maximum daily limit: using 2.0 TUc as the maximum daily limit; or using a statistical approach outlined in the TSD to develop a maximum daily effluent limitation. In this permit, a maximum daily limitation is not prescribed. However, a trigger for chronic toxicity is prescribed.

D. Final Effluent Limitations

1. Satisfaction of Anti-Backsliding Requirements

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of effluent limitation for fluoride. The effluent limitation for fluoride was deleted because it did not show reasonable potential to be in the effluent water. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

2. Satisfaction of Antidegradation Policy

On October 28, 1968, the State Water Board adopted Resolution No. 68-16*, Maintaining High Quality Water*, which established an antidegradation policy for State and Regional Water Boards. The State Water Board has, in State Water Board Order No. 86-17 and an October 7, 1987 guidance memorandum, interpreted Resolution No. 68-16 to be fully consistent with the federal antidegradation policy. Similarly, the CWA (section 304(d)(4)(B)) and USEPA regulations (40 CFR part 131.12) require that all permitting actions be consistent with the federal antidegradation policy. Together, the state and federal policies are designed to ensure that a water body will not be degraded resulting from the permitted discharge. Discharges in conformance with the provisions of this Order will not result in a lowering of water quality and therefore conform to the antidegradation policies.

3. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The TBELs consist of restrictions on BOD, TSS, pH, and percent removal of BOD and TSS. Restrictions on BOD, TSS and pH are discussed in Section IV.B. of the Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards.

WQBELs have been scientifically derived to implement WQOs that protect beneficial uses. Both the beneficial uses and the WQOs have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to section 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR-SIP, which was approved by USEPA on May 18, 2000. All beneficial uses and WQOs contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any WQOs and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to section 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA and the applicable water quality standards for purposes of the CWA.

Summary of Final Effluent Limitations
Discharge Point 001

Table 7. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
$BOD_5 20^oC$	mg/L	20	30	45			Existing
	lbs/day[5]	3,340	5,000	7,510			
Total Suspended Solids (TSS)	mg/L	15	40	45			Existing
	lbs/day[5]	2,500	6,680	7,500			
pH	standard units	--	--	--	6.5	8.5	Existing
Removal Efficiency for BOD and TSS	%	85	--	--			Existing
Oil and Grease	mg/L	10	--	15			Existing
	lbs/day[5]	1,670	--	2,500			
Settleable Solids	ml/L	0.1	--	0.3			Existing
Total Residual Chlorine	mg/L	--	--	0.1			Existing
	lbs/day[5]	--	--	17			
Total Dissolved Solids	mg/L	950	--	--			Existing
	lbs/day[5]	158,600	--	--			

5 The mass emission rates are based on the plant design flow rate of 20 mgd, and are calculated as follows: Flow (MGD) x Concentration (mg/L) x 8.34 (conversion factor) = lbs/day, or Flow (MGD) x Concentration (µg/L) x 0.00834 (conversion factor) = lbs/day. During wet-weather storm events in which the flow exceeds the design capacity, the mass discharge rate limitations shall not apply, and concentration limitations will provide the only applicable effluent limitations.

Parameter	Units	Effluent Limitations					Basis
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Sulfate	mg/L	300	--	--			Existing
	lbs/day[5]	50,080	--	--			
Chloride	mg/L	190	--	--			Existing
	lbs/day[5]	31,710	--	--			
MBAS	mg/L	0.5	--	--			Existing
	lbs/day[5]	83	--	--			
Ammonia Nitrogen	mg/L	2.2[6]	--	7.8[6]			TMDL
	lbs/day[5]	--	--	--			
Nitrate + Nitrite (as N)	mg/L	7.2[6]	--	--			TMDL
	lbs/day[5]	--	--	--			
Nitrate (as N)	mg/L	7.2[6]	--	--			TMDL
	lbs/day[5]	--	--	--			
Nitrite (as N)	mg/L	0.9[6]	--	--			TMDL
	lbs/day[5]	--	--	--			
Cadmium (wet-weather)	µg/L	4.3[7]	--	8.9[7]			TMDL
	lbs/day[5]	0.72[8]	--	1.5[8]			
Copper (Dry- and wet-weather)	µg/L	24[7,9]	--	34[7,9]			TMDL
	lbs/day[5]	4.0[8]	--	5.7[8]			
Lead (Dry- and wet-weather)	µg/L	10[7,9]	--	20[7,9]			TMDL
	lbs/day[5]	1.7[8]	--	3.3[8]			
Zinc (wet-weather)	µg/L	240[7]	--	298[7]			TMDL
	lbs/day[5]	40[8]	--	50[8]			
Mercury	µg/L	0.051	--	0.17			SIP/CTR
	lbs/day[5]	0.0085	--	0.028			
Cyanide	µg/L	4.3	--	8.5			SIP/CTR
	lbs/day[5]	0.72	--	1.4			
Bis(2-Ethylhexyl)Phthalate	µg/L	4	--	--			SIP/CTR
	lbs/day[5]	0.67	--	--			
Dibenzo(a,h)Anthracene	µg/L	0.049	--	0.098			SIP/CTR
	lbs/day[5]	0.0082	--	0.016			

6 This is the waste load allocation (WLA), according to the Nitrogen Compounds TMDL Resolution No. 2003-009, adopted by the Regional Board on July 10, 2003. The WLA serves as the effluent limitation for the discharge. It became effective on March 23, 2004.

7 Wet-weather effluent limitations apply when the maximum daily flow measured at the Los Angeles River Wardlow station is equal to or greater than 500 cubic feet per second.

8 The mass-based effluent limitations for cadmium, copper, lead, and zinc do not apply during wet weather when the influent exceeds the plant design flow rate of 20 mgd.

9 Dry-weather effluent limitations apply when the maximum daily flow measured at the Los Angeles River Wardlow station is less than 500 cubic feet per second.

E. Reclamation Specifications

The Discharger currently recycles nearly all of the treated effluent and plans to continue doing so. The production, distribution, and reuse of recycled water for direct, non-potable applications are presently regulated under Water Recycling Requirements contained in Order No. R4-2007-0007 as amended by Order No. R4-2011-0035. The effluent is stored in a 2-million gallon storage tank located across Los Angeles River and Interstate 5 in Griffith Park. The Department of Water and Power for the City of Los Angeles and the Public Service Department for the City of Glendale are the agencies who distribute the recycled water. There are currently over 40 users of the recycled water produced by the Plant. Recycled water is used mainly for irrigation and it is also used in cooling towers at the Glendale Power Plant and for industrial and process at the LAGWRP.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order.

B. Groundwater

Limitations in this Order must protect not only surface receiving water beneficial uses, but also, the beneficial uses of underlying groundwater where there is a recharge beneficial use of the surface water. In addition to a discharge to surface water, there is discharge that can impact groundwater. Sections of the Los Angeles River, near Los Angeles-Glendale WRP discharge points, are designated as GWR beneficial use. Surface water from the Los Angeles River percolates into the Central/West Coast Los Angeles Coastal Plain Groundwater Basins. Since groundwater from these Basins is used to provide drinking water to the community, the groundwater aquifers should be protected.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

40 CFR part 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring

This Order carries forward the treatment plant's influent monitoring requirements with the inclusion of cyanide.

B. Effluent Monitoring

The Discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are given in the proposed Monitoring and Reporting Program (Attachment E). This provision requires compliance with the Monitoring and Reporting Program, and is based on 40 CFR parts 122.44(i), 122.62, 122.63, and 124.5. The Monitoring and Reporting Program is a standard requirement in almost all NPDES permits (including the proposed Order) issued by the Regional Water Board. In addition to containing definition of terms, it specifies general sampling/analytical protocols and the requirements of reporting spills, violation, and routine monitoring data in accordance with NPDES regulations, the CWC, and Regional Water Board policies. The Monitoring and Reporting Program also contains sampling program specific for the Discharger's wastewater treatment plant. It defines the sampling stations and frequency, pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all pollutants for which effluent limitations are specified. Further, in accordance with Section 1.3 of the SIP, a periodic monitoring is required for all priority pollutants defined by the CTR, for which criteria apply and for which no effluent limitations have been established, to evaluate reasonable potential to cause or contribute to an excursion above a water quality standard.

Monitoring for those pollutants expected to be present in the discharge from the facility, will be required as shown on the proposed Monitoring and Reporting Program (Attachment E) and as required in the SIP. Monitoring requirements are largely unchanged from the previous Order. Annual monitoring for priority pollutants in the effluent is required in accordance with the SIP.

The changes in the effluent monitoring are summarized in the following table.

Table 8. Effluent Monitoring Program Comparison Table

Parameter	Monitoring Frequency (2006 Permit)	Monitoring Frequency (2011 Permit)
Chronic Toxicity	monthly	no change
Acute Toxicity	quarterly	no change
Fluoride	monthly	quarterly
Boron	monthly	quarterly
Antimony	quarterly	no change
Arsenic	quarterly	no change
Beryllium	quarterly	no change
Cadmium	monthly	no change
Chromium III	quarterly	no change
Chromium VI	quarterly	no change

Parameter	Monitoring Frequency (2006 Permit)	Monitoring Frequency (2011 Permit)
Copper	monthly	no change
Lead	monthly	no change
Mercury	monthly	no change
Nickel	quarterly	no change
Selenium	quarterly	no change
Silver	quarterly	no change
Thallium	quarterly	no change
Zinc	monthly	no change
Cyanide	quarterly	monthly
2,3,7,8-TCDD (Dioxin)	semiannually	no change
Tetrachloroethylene	quarterly	no change
Benzo(a)anthracene	quarterly	no change
Bis(2-ethylhexyl)phthalate	monthly	no change
Chrysene	quarterly	no change
Dibenzo(a,h)Anthracene	monthly	no change
N-Nitrosodi-n-propylamine	quarterly	no change
Diazinon	--	quarterly
Pesticide	semi-annually	no change
2,4-D	semiannually	no change
2,4,5-TP (Silvex)	semiannually	no change
Perchlorate	semiannually	no change
1,4-Dioxane	semiannually	no change
1,2,3-Trichloropropane	semiannually	no change
Methyl-tert-butyl-ether (MTBE)	semiannually	no change
1,2,3-Trichloropropane	semiannually	no change

The reduction of monitoring frequencies for priority pollutants listed in the above Table is warranted because the previous monitoring data for these pollutants indicate that the discharge did not demonstrate reasonable potential to exceed water quality standards.

C. Whole Effluent Toxicity Testing Requirements

Whole effluent toxicity (WET) protects the receiving water quality from the aggregate toxic effect of a mixture of pollutants in the effluent. An acute toxicity test is conducted over a short time period and measures mortality. A chronic toxicity test is conducted over a longer period of time and may measure mortality, reproduction, and growth.

This requirement establishes conditions and protocol by which compliance with the Basin Plan narrative water quality objective for toxicity will be demonstrated and in accordance with Section 4.0 of the SIP. Conditions include required monitoring and evaluation of the effluent for acute and chronic toxicity and numerical values for chronic toxicity evaluation to be used as ‘triggers’ for initiating accelerated monitoring and toxicity reduction evaluation(s).

D. Receiving Water Monitoring

1. Surface Water

- Receiving water monitoring is required to determine compliance with receiving water limitations and to characterize the water quality of the receiving water. Requirements are based on the Basin Plan. Flow monitoring is required at the Los Angeles River Wardlow station to determine the dry- and wet-weather condition of the receiving water.

- The proposed receiving water monitoring program will improve coordination and efficiency of receiving water monitoring for existing discharges in the Los Angeles River watershed by streamlining monitoring efforts and reducing redundancies throughout the watershed and will provide more useful water quality data on both watershed and site-specific scales.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR part 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR part 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR part 122.42.

40 CFR parts 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. 40 CFR part 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR parts 122.41(j)(5) and (k)(2) because the enforcement authority under the CWC is more stringent. In lieu of these conditions, this Order incorporates by reference CWC section 13387(e).

B. Special Provisions

1. Reopener Provisions

This provision is based on 40 CFR part 123. The Regional Water Board may reopen the permit to modify permit conditions and requirements. Causes for modifications include the promulgation of new regulations, modification in sludge use or disposal practices, or adoption of new regulations by the State Water Board or Regional Water Board, including revisions to the Basin Plan.

2. Special Studies and Additional Monitoring Requirements

a. Special Study – Constituents of Emerging Concern in the Effluent

Background

Advancements in analytical technology over the last decade have dramatically increased the number of chemicals that can be detected and greatly decreased the concentrations at which chemicals can be detected. This new ability to detect trace levels of chemical concentrations has expanded the existing understanding of the kinds of contaminants present in the water and wastewater. Many man-made chemicals, particularly pesticides, pharmaceuticals and personal care products, have been found in waters across the United States.

Collectively, these compounds are referred to as Emerging Constituents (ECs) or Constituents of Emerging Concern (CECs) because their presence is starting to be revealed by rapid advances in analytical technology. Despite recent improvements in analytical science, there is still scarcity of data and lack of robust methodologies for measuring most CECs. CECs are part of the unregulated chemicals, for which no water quality standards have been established.

Recent publications and media reports on CECs have increased public awareness of the issue, providing an impetus for CECs investigations around the country, including local efforts by the City of Los Angeles and Southern California Coastal Water Research Project (SCCWRP). For instance, starting in 2005 the City of Los Angeles has been conducting a special study as part of the Order No. 2005-0020, whose results suggest that the presence of natural and synthetic estrogen hormones has caused feminization of male fish (hornyhead turbot) in Santa Monica Bay, especially near the Hyperion Treatment Plant outfall. In January 2010, SCCWRP convened a workshop where 50 scientists, water quality managers, and stakeholders discussed and collaborated on developing an effective CEC monitoring and management strategy that is protective of water quality. Anticipated outcomes of this workshop include recommended lists of CECs for monitoring in recycled water (for groundwater concerns) and for monitoring in ambient waters, including ocean waters.

In recent years, this Regional Water Board has incorporated monitoring of a select group of CECs into the NPDES permits issued to POTWs.

CEC Special Study Requirements

1. The Discharger shall conduct a special study to investigate the CECs in the effluent discharge. Within six months of the effective date of this Order, the Discharger shall submit to the Executive Officer a CECs Special Study Work Plan (Work Plan) for approval. Upon approval, the Discharger shall implement the Work Plan.

This Special Study Work Plan shall include, but not limited to, the following:

(1) Identification of CECs to be monitored in the effluent, sample type (e.g. 24-hour composite), sampling frequency, proposed sampling month, and sampling methodology. Table 9 identifies the minimum parameters to be monitored.

Table 9. CECs Monitoring in the Effluent

Parameter	Units	Sample Type	Minimum Sampling Frequency	Analytical Test Method and (Minimum Level, units)
17α-Ethinyl Estradiol	ng/L	To be proposed	Annually	To be proposed
17β-Estradiol	ng/L	To be proposed	Annually	To be proposed
Estrone	ng/L	To be proposed	Annually	To be proposed
Bisphenol A	ng/L	To be proposed	Annually	To be proposed
Nonylphenol and nonylphenol polyethoxylates	ng/L	To be proposed	Annually	To be proposed
Octylphenol and octylphenol polyethoxylates	ng/L	To be proposed	Annually	To be proposed
Polybrominated diphenyl ethers	ng/L	To be proposed	Annually	To be proposed
Acetaminophen	ng/L	To be proposed	Annually	To be proposed
Amoxicillin	ng/L	To be proposed	Annually	To be proposed
Azithromycin	ng/L	To be proposed	Annually	To be proposed
Carbamazepine	ng/L	To be proposed	Annually	To be proposed
Caffeine	ng/L	To be proposed	Annually	To be proposed
Ciprofloxacin	ng/L	To be proposed	Annually	To be proposed
DEET	ng/L	To be proposed	Annually	To be proposed
Dilantin	ng/L	To be proposed	Annually	To be proposed
Gemfibrozil	ng/L	To be proposed	Annually	To be proposed
Ibuprofen	ng/L	To be proposed	Annually	To be proposed
Lipitor (Atorvastain)	ng/L	To be proposed	Annually	To be proposed
Iodinated contrast media (i.e., iopromide)	ng/L	To be proposed	Annually	To be proposed
Sulfamethoxazole	ng/L	To be proposed	Annually	To be proposed
Trimethoprim	ng/L	To be proposed	Annually	To be proposed
Salicylic acid	ng/L	To be proposed	Annually	To be proposed
TCEP	ng/L	To be proposed	Annually	To be proposed
Triclosan	ng/L	To be proposed	Annually	To be proposed

Once the SCCWRP's recommended list of CECs monitoring in ambient waters, including ocean waters, is finalized, the above list of minimum parameters to be monitored by the Discharger and the sampling frequency may be re-evaluated and modified by the Executive Officer. At such time, upon request by the Executive Officer, the Discharger shall monitor the requested CECs parameters at the specified frequency. In the Special Study Work Plan, the Discharger may also propose, for consideration and approval by the Executive Officer, surrogate or indicator CECs that may contribute towards a better understanding of CECs in its effluent.

Sample Type– The Discharger shall propose in the Work Plan the appropriate sample type (e.g. grab or composite) for each constituent.

Sampling Period– At minimum, the Discharger shall monitor the specified CECs once per year. The Work Plan shall propose the appropriate sampling month or quarter for each year, consistent with the goals of the analyses. The rationale for selecting the particular sampling month or quarter shall be explained in the Work Plan.

Proposed Sampling Month- The Discharger may choose a fixed month for sampling or vary the sampling month over the duration of the special study in order to examine possible temporal associations.

Analytical Test Methodology – The Discharger shall review and consider all available analytical test methodologies, including but not limited to those listed in USEPA Methods 1694 and 1698, and methodologies approved or utilized by U.S. Geologic Survey, California Department of Public Health, and other federal or State agencies. Based on its review, the Discharger shall propose the most appropriate analytical methodology, considering sensitivity, accuracy, availability, and cost.

(2) Characterization of existing CECs data (data collected previous to Special Study). The Discharger shall propose a characterization of all existing CECs data (associated with its effluent or receiving water) that have been collected for various purposes in the past. At a minimum, the characterization shall include:

- an identification of all CECs monitored to date (outside of this Special Study);
- monitoring duration, frequency, and date(s) (for example, from 2000-present, annually);
- analytical methodologies employed;
- RL, MLs and MDLs achieved for each methodology used; and
- If detected, temporal/seasonal trend analyses (using both statistical and graphical demonstration) of CECs.

(3) Evaluation of CECs data collected as part of this Special Study. The Discharger shall propose an evaluation of CECs data (associated with its effluent) to be collected as part of this special study. At a minimum, the characterization shall include:

- an identification of CECs that have been monitored;
- monitoring duration, frequency, and date(s);
- RL, MLs and MDLs achieved for each methodology used;

- a brief update on any improvements (or change) in the analytical methodologies and associated RL, MLs and MDLs achieved for each methodology used; and
- If detected, temporal/seasonal trend analyses (using both statistical and graphical demonstration) of cumulative CECs data collected as part of this special study.

2. Reporting – By April 15th of each year (starting April 15, 2013), the Discharger shall submit to the Executive Officer of this Regional Water Board, an annual report summarizing the monitoring results from the previous year. For example, the annual report due April 15, 2013, shall include CECs monitoring data from January to December 2012. Each annual report shall include a compilation of effluent monitoring data of CECs listed in the approved Work Plan, MLs, sample type, analytical methodology used, sampling date/time, QA/QC information, and an evaluation of cumulative CECs data collected to date as part of this special study (see above for further details on CECs data evaluation). In addition, the first annual report (due April 15, 2013) shall include a characterization of existing CECs data, i.e., all data collected outside of this special study (see above for further details on existing CECs data characterization).

b. **Antidegredation Analysis and Engineering Report for Proposed Plant Expansion.** This provision is based on the State Water Resources Control Board Resolution No. 68-16, which requires the Regional Water Board in regulation the discharge of waste to maintain high quality waters of the State, the Discharger must demonstrate that it has implemented adequate controls (e.g., adequate treatment capacity) to ensure that high quality waters will be maintained. This provision requires the Discharger to clarify it has increase plant capacity through the addition of new treatment system(s) to obtain alternative effluent limitations for the discharge from the treatment system(s). This provision requires the Discharger to report specific time schedules for the plants projects. This provision requires the Discharger to submit report to the Regional Water Board for approval.

c. **Operations Plan for Proposed Expansion.** This provision is based on Section 13385(j)(1)(D) of the CWC and allows a time period not to exceed 90 days in which the Discharger may adjust and test the treatment system(s). This provision requires the Discharger to submit an Operations Plan describing the actions the Discharger will take during the period of adjusting and testing to prevent violations.

d. **Treatment Plant Capacity.** The treatment plant capacity study required by this Order shall serve as an indicator for the Regional Water Board regarding Facility's increasing hydraulic capacity and growth in the service area.

3. Best Management Practices and Pollution Prevention

a. **Pollutant Minimization Program.** This provision is based on the requirements of section 2.4.5 of the SIP.

4. Construction, Operation, and Maintenance Specifications

This provision is based on the requirements of 40 CFR part 122.41(e) and the previous Order.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. **Biosolids Requirements. (Not Applicable)** The LAGWRP returns the sludge generated by the treatment process back to the sewer for transport and treatment at the Hyperion Treatment Plant.

b. **Pretreatment Requirements.** This permit contains pretreatment requirements consistent with applicable effluent limitations, national standards of performance, and toxic and performance effluent standards established pursuant to sections 208(b), 301, 302, 303(d), 304, 306, 307, 403, 404, 405, and 501 of the CWA, and amendments thereto. This permit contains requirements for the implementation of an effective pretreatment program pursuant to section 307 of the CWA; 40 CFR 35 and 403; and/or section 2233, title 23, California Code of Regulations.

c. **Spill Reporting Requirements.** This Order established a reporting protocol for how different types of spills, overflow or bypasses of raw or partially treated sewage from its collection system or treatment plant covered by this Order shall be reported to regulatory agencies.

The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ (General Order) on May 2, 2006. The General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMPs) and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions.

Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. The Discharger must comply with both the General Order and this Order.

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Los Angeles Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for Los Angeles-Glendale Water Reclamation Plant. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided by posting notices at the Los Angeles-Glendale WRP and at the City's Bureau of Sanitation office.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments only on the changes contained within this revised tentative WDRs. The added text is underlined and the deleted text is in strikethrough. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments must be received at the Regional Water Board offices by **12:00 p.m. (noon) on November 4, 2011**.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: December 8, 2011
Time: 9:00 AM
Location: Metropolitan Water District of Southern California, Board Room
700 N. Alameda Street
Los Angeles, California

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Web address is http://www.waterboards.ca.gov/losangeles/ where you can access the current agenda for changes in dates and locations.

D. Nature of Hearing

This proceeding will be a formal adjudicatory proceeding. For such proceedings, the Regional Water Board follows procedures established by the State Water Resources Control Board. These procedures are set forth in regulations commencing with section 647 of title 23 of CCR, in particular, Article 2, commencing with section 648.

E. Parties to the Hearing

The following are the parties to this proceeding:

- City of Los Angeles/permittee

Any other persons requesting party status must submit a written or electronic request to staff not later than 20 business days before the hearing. All parties will be notified if other persons are so designated.

F. Public Comments and Submittal of Evidence

Persons wishing to comment upon or object to the revised tentative waste discharge requirements, or submit evidence for the Board to consider, are invited to submit them in writing to the above address. To be evaluated and responded to by staff, included in the Board's agenda folder, and fully considered by the Board, written comments regarding the revised Tentative Order dated October 6, 2011, must be received no later than **12:00 p.m. (noon) on November 4, 2011**.

Comments or evidence received after that date will be submitted, ex agenda, to the Board for consideration, but only included in administrative record with express approval of the Chair during the hearing. Additionally, if the Board receives only supportive comments, the permit may be placed on the Board's consent calendar, and approved without an oral testimony.

G. Hearing Procedure

The Board meeting, of which this hearing is a part, will start at 9:00 a.m. Interested persons are invited to attend. When the agenda item is called, staff will present the matter under consideration, after which oral statements from parties or interested persons will be heard. For accuracy of the record, all important testimony should be in writing. The Board will include in the administrative record written transcriptions of oral testimony that is actually presented at the hearing. Oral testimony may be limited to three minutes or less for each interested person, depending on the number of interested persons wishing to be heard.

Parties or interested persons with similar concerns or opinions are encouraged to choose one representative to speak and are encouraged to coordinate their presentations with each other. Parties will be advised after the receipt of public comments, but prior to the date of the hearing, of the amount of time each is allocated for presentations. That decision will be based upon the complexity and number of issues under consideration, the extent to which the parties have coordinated, the number of parties and interested persons anticipated, and the time available for the hearing. The parties are invited to contact staff not later than November 23, 2011, (two weeks prior to the hearing) to discuss how much time they believe is necessary for their presentations, and staff will endeavor to accommodate reasonable requests. At the conclusion of testimony, the Board will deliberate in open or close session, and render a decision.

The Board does not generally require the prior identification of witnesses, the cross examination of witnesses, or other procedures not specified in this notice. Parties or persons with special procedural requests or requests for alternative hearing procedures should contact staff, who will endeavor to accommodate reasonable requests. Objections to any procedure to be used during this hearing must be submitted in writing no later than close of business 15 business days prior to the date of the hearing. (Any objections related to the amount of time allocated for parties' presentations must be submitted within two business days of notice thereof, if that date is less than 15 business days before the hearing.) Absent such objections, any procedure not specified in this hearing notice will be waived pursuant to section 648(d) of title 23 of the CCR. Procedural objections will not be entertained at the hearing.

If there should not be a quorum on the scheduled date of this meeting, this matter will be automatically continued to the next scheduled meeting in February 2012. A continuance will not extend any time set forth herein.

H. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

I. Information and Copying

The ROWD, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (213) 576-6600.

J. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

K. Additional Information

Requests for additional information or questions regarding this order should be directed to Raul B. Medina at (213) 620-2160.

Attachment G, J

ATTACHMENT G

GENERIC TOXICITY REDUCTION EVALUATION (TRE) WORKPLAN POTW

1. Information and Data Acquisition

a. Operations and performance review

i. NPDES permit requirements
   (1) Effluent limitations
   (2) Special conditions
   (3) Monitoring data and compliance history

ii. POTW design criteria
   (1) Hydraulic loading capacities
   (2) Pollutant loading capacities
   (3) Biodegradation kinetics calculations/assumptions

iii. Influent and effluent conventional pollutant data
   (1) Biochemical oxygen demand (BOD_5)
   (2) Chemical oxygen demand (COD)
   (3) Suspended solids (SS)
   (4) Ammonia
   (5) Residual chlorine
   (6) pH

iv. Process control data
   (1) Primary sedimentation - hydraulic loading capacity and BOD and SS removal
   (2) Activated sludge - Food-to-microorganism (F/M) ratio, mean cell residence time (MCRT), mixed liquor suspended solids (MLSS), sludge yield, and BOD and COD removal
   (3) Secondary clarification - hydraulic and solids loading capacity, sludge volume index and sludge blanket depth

v. Operations information
   (1) Operating logs
   (2) Standard operating procedures
   (3) Operations and maintenance practices

vi. Process sidestream characterization data
   (1) Sludge processing sidestreams
   (2) Tertiary filter backwash
   (3) Cooling water

vii. Combined sewer overflow (CSO) bypass data
   (1) Frequency
   (2) Volume

viii. Chemical coagulant usage for wastewater treatment and sludge processing
   (1) Polymer
   (2) Ferric chloride
   (3) Alum

b. POTW influent and effluent characterization data

i. Toxicity

ii. Priority pollutants

iii. Hazardous pollutants

iv. SARA 313 pollutants,

v. Other chemical-specific monitoring results

c. Sewage residuals (raw, digested, thickened and dewatered sludge and incinerator ash) characterization data

i. EP toxicity

ii. Toxicity Characteristic Leaching Procedure (TCLP)

iii. Chemical analysis

d. Industrial waste survey (IWS)

i. Information on lUs with categorical standards or local limits and other significant non-categorical lUs

ii. Number of lUs

iii. Discharge flow

iv. Standard Industrial Classification (SIC) code

v. Wastewater flow
   (1) Types and concentrations of pollutants in the discharge
   (2) Products manufactured

vi. Description of pretreatment facilities and operating practices

vii. Annual pretreatment report

viii. Schematic of sewer collection system

ix. POTW monitoring data
   (1) Discharge characterization data
   (2) Spill prevention and control procedures
   (3) Hazardous waste generation

x. IU self-monitoring data
   (1) Description of operations
   (2) Flow measurements
   (3) Discharge characterization data
   (4) Notice of sludge loading
   (5) Compliance schedule (if out of compliance)

xi. Technically based local limits compliance reports

xii. Waste hauler monitoring data manifests

xiii. Evidence of POTW treatment interferences (i.e., biological process inhibition

ATTACHMENT J

PRETREATMENT REPORTING REQUIREMENTS

The Discharger is required to submit annual and semi-annual Pretreatment Program Compliance Reports (Reports) to the Regional Water Board and submit copies of the Reports to the USEPA Region 9. This Attachment outlines the minimum reporting requirements of the Reports. If there is any conflict between requirements stated in this attachment and provisions stated in the Waste Discharge Requirements (WDR), those contained in the WDR will prevail.

A. ANNUAL REPORTING REQUIREMENTS

The Discharger is required to submit Annual Pretreatment Program Compliance Report (Annual Report). The Annual Report is due by March 1st of each year and must contain, but not be limited to, the following information:

1. A summary of wastewater and sludge monitoring.

   The Discharger is required to monitor pollutants in the influent and the effluent of the POTW(s), as sludge is sent to HTP for processing. The Discharger is required to provide a summary of the monitoring. However, if the POTW does not process sludge/biosolids at the plant, the sludge/biosolids monitoring requirements prescribed in this attachment are not required.

   The Discharger must monitor the priority pollutants that were identified in Section 307(a) of the Clean Water Act (excluding asbestos) and the nonpriority pollutants that may have existed in the wastewater and may be causing, or contributing to Pass-Through and/or Interference as defined in 40 CFR 403.3 (i) & (n), or adversely impacting sludge quality. The sampling and analyses must be performed in accordance with the techniques prescribed in 40 CFR 136 and amendments thereto, unless specified otherwise in this Order. In lieu of duplicative sampling, the Discharger may use one set of sampling and analytical results to fulfill the reporting requirements for both the compliance monitoring program and the Pretreatment Program when the monitoring requirements match. However, pretreatment reports shall be submitted under a separate cover as stated in Section C. of this Attachment.

   Wastewater samples of the POTW's influent and effluent must be obtained from representative, flow proportioned, 24-hour composites (except for constituents that must be taken through grab samples, such as cyanide). A full scan of the priority pollutants must be conducted at least annually in August, when flow is not affected by wet weather. Subsequent quarterly sampling and analysis must be conducted for those pollutants found in the full scan with concentrations higher than the detection limits set forth in 40 CFR 136. Results of any additional quarterly sampling will be included in the following semi-annual or annual report.

   Sludge shall be sampled and analyzed quarterly for the same pollutants that were detected during the annual scan of the priority pollutants for the influent and effluent. Sludge must be taken as composite samples. When the sludge is dewatered onsite and is immediately hauled offsite for disposal, discrete samples from 12 batches of the dewatering operation must be collected and combined as a composite. If the sludge is dried in drying beds prior to its final disposal, samples collected from 12 representative locations in the drying beds must be taken and combined as a composite. Sludge analysis results must be expressed as mg/kg dry sludge, 100% dry weight basis. The Discharger will coordinate its monitoring requirements under this program with the requirements under **Attachment I** (*Biosolids/Sludge Management*) in the Hyperion Treatment Plant NPDES Permit (CA0109991, Order NO. R4-2010-0200).

2. A discussion of Pass-Through and Interference incidents.

   The Discharger is required to report in the Annual Report the Pass-Through and Interference incidents, if any, at the treatment plant, that the Discharger knows, or suspects, were caused by non-domestic discharges to the POTW system. The discussion must include the causes of the incidents, the investigative actions taken to determine the source, the name and address of the party responsible, and the corrective actions taken to overcome and recover from the interference. The discussion must also include a review of the applicable pollutant limitations to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent Pass-Through or Interference.

3. A list of Discharger's industrial users.

   The Discharger is required to update its significant industrial users (SIUs) list annually and to submit the list in the Annual Report. The Discharger is required to report deletions, additions, and name changes in the previously submitted SIU list. The Discharger must provide a brief explanation for each change.

4. A summary of SIU compliance.

   The Discharger is required to provide a summary of SIU compliance in the Annual Report. The Discharger must characterize the compliance status of each SIU by providing a list or table, which includes the following information:

   a. Name of the SIU;
   b. Category, if subject to federal categorical standards, or nature of the wastewater discharge;
   c. Type of wastewater treatment or control processes in place;
   d. Number of monitoring samples taken by the POTW during the year;
   e. Number of monitoring samples taken by the SIU during the year;
   f. Verification that all required certifications were provided for an SIU subject to discharge requirements for total toxic organics;
   g. Standards violated during the year (Federal and local, reported separately);
   h. Description of the significant noncompliance (SNC) if the SIU was in SNC as defined at 40 CFR 403.8(f)(2)(viii) during the year; and
   i. A summary of enforcement or other actions taken during the year to return the SIU in SNC to compliance. Describe the type of action, final compliance date, and the amount of fines and penalties collected, if any. Describe any proposed actions for bringing the SIU in SNC into compliance.

5. A summary of program changes.

   The Discharger is required to report changes of its POTW Pretreatment Program. A description of any significant changes in operating the pretreatment program which differ from the previous year including, but not limited to, changes concerning the program's sewer use ordinances, legal authority, local limits, monitoring program or monitoring frequencies, enforcement policy, administrative structure, funding levels, or staffing levels.

6. A summary of budget.

   The Discharger is required to include annual pretreatment program budgets in the Annual Report. These annual budgets should include a) personnel costs (salaries, benefits, insurance, etc.), b) transportation costs (direct and indirect costs of trucks, gasoline, maintenance, etc.), c) overall laboratory analyses costs (contractor or in-house), d) equipment costs, e) administrative costs (supplies, overhead, secretarial time, attorney costs, copying, etc.), f) training and travel costs, g) contractor assistance, and h) other direct and indirect costs.

7. A summary of public participation.

   The Discharger is required to provide a summary of public participation of pretreatment program in the Annual Report. The summary should describe activities to involve and inform the public of the program, including a copy of the newspaper notice required under 40 CFR 403.8 (f)(2)(viii).

8. A description of sludge disposal methods.

   The Discharger is required to report in the Annual Report the sludge disposal methods and a description of any changes from the previously submitted methods.

9. A description of pollutant reduction efforts.

   The Discharger is required to describe in the Annual Report any programs the POTW implements to reduce pollutants from the non-domestic sources.

B. SEMI-ANNUAL REPORTING REQUIREMENTS

The Discharger is required to submit Semi-Annual Pretreatment Program Compliance Report (Semi-Annual Report). The Semi-Annual Report covers the periods from January 1 to June 30 and is due by September 1st of each year. The Semi-Annual Report must contain, but not be limited to, the following information:

1. A discussion of Pass-Through and Interference incidents as described in Section A.2. of this Requirements.

2. A summary of SIU compliance and enforcement actions as described in Section A. 4. of this Requirements.

C. Local Limits Evaluation

1. In accordance with 40 CFR 122.44(j)(2)(ii), the POTW shall provide a written technical evaluation of the need to revise local limits under 40 CFR 403.5(c)(1), within ninety (90) days of permit issuance or reissuance.

D. SIGNATORY REQUIREMENTS AND REPORT SUBMITTAL

1. Signatory Requirements.

   The annual report, semi-annual report, and local limits evaluation must be signed by a principal executive officer, ranking elected official or other duly authorized employee if such employee is responsible for the overall operation of the POTW. Any person signing these reports must make the following certification [40 CFR 403.6(a)(2)(ii)]:

   I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

2. Report Submittal.

   An original copy of the Annual Report and Semi-Annual Report must be sent to the Pretreatment Program Coordinator of the Regional Board and the duplicate copies of the Reports must be sent to USEPA through the following addresses:

   Information and Technology Unit
   Attn: Pretreatment Program Coordinator
   California Regional Water Quality Control Board, Los Angeles Region
   320 West 4th Street, Suite 200
   Los Angeles, CA 90013

   Pretreatment Program
   CWA Compliance Office (WTR-7)
   Water Division
   U.S. Environmental Protection Agency, Region IX
   75 Hawthorne Street
   San Francisco, CA 94105-3901

Comment & RWQCB Response to Comments

HAND DELIVERED

CITY OF LOS ANGELES

CALIFORNIA

ANTONIO R. VILLARAIGOSA
MAYOR

DEPARTMENT OF
PUBLIC WORKS

BUREAU OF SANITATION

ENRIQUE C. ZALDIVAR
DIRECTOR

TRACI J. MINAMIDE
CHIEF OPERATING OFFICER

VAROUJ S. ABKIAN
ADEL H. HAGEKHALIL
ALEXANDER E. HELOU
ASSISTANT DIRECTORS

1149 SOUTH BROADWAY, 9TH FLOOR
LOS ANGELES, CA 90015
TEL: (213) 485-2210
FAX: (213) 485-2979

September 2, 2011

RECEIVED
2011 SEP 2 PM 2 15
CALIFORNIA REGIONAL WATER
QUALITY CONTROL BOARD
LOS ANGELES REGION

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West Fourth Street
Los Angeles, California 90013

Attention: Brandy Outwin-Beals, Unit Lead
Municipal Permitting Unit (NPDES)

COMMENTS ON TENTATIVE PERMIT – LOS ANGELES GLENDALE WATER RECLAMATION PLANT – NPDES PERMIT NO. CA0053953, Compliance File No. 68-85

Dear Mr. Unger:

On August 4, 2011, the California Regional Water Quality Control Board - Los Angeles Region (Regional Board) released the proposed Los Angeles Glendale Water Reclamation Plant (LAGWRP) Tentative Order (NPDES No.CA 53953), Fact Sheet, and Monitoring and Reporting Program (MRP). The City of Los Angeles, Bureau of Sanitation (Bureau), appreciates the opportunity to provide the following comments and recommendations to the RWQCB regarding the LAGWRP Tentative Order. Bureau staff will also be present to provide oral comments at the RWQCB's public hearing on December 8, 2011. While the Bureau appreciates RWQCB's staff efforts in developing the Tentative Order, there are several areas with which the Bureau has concerns and hopes that these technical comments will result in constructive changes to this Tentative Order prior to final adoption.

Summary of Main Issues with LAGWRP's Tentative Order

The following is a brief summary of the Bureau's major issues with the LAGWRP Tentative Order that are detailed in Attachment A:

- **Ammonia Effluent Limit**
- **Metals Effluent Limits Associated with the Los Angeles River and Tributaries Metals TMDL**

This letter incorporates by reference Attachment A, which details the above comment, and the Comment Matrix included as Attachment 1, which provides additional Bureau comments, proposed revisions, and further details on the above and other issues. The Bureau is committed to protecting and improving the local environment. The Bureau has worked diligently to develop the knowledge necessary to understand and improve the local environment.

The requests made in this letter are based on good science and support the protection of the environment that we all value so greatly. These recommendations will allow the Bureau to continue to operate its facility at LAGWRP efficiently and effectively, while continuing to protect the Los Angeles River and its environment. The Bureau has completed several recent scientific studies on the Los Angeles River to ensure the development of protective and scientifically based water quality objectives and accurate wasteload allocations. The Bureau hopes these recommendations will result in constructive changes to the LAGWRP NPDES Tentative Order.

If you have any questions regarding the Bureau's comments, please contact Mr. H.R. (Omar) Moghaddam of the Regulatory Affairs Division at (310) 648-5423

Sincerely,

Traci J. Minamide for

ENRIQUE C. ZALDIVAR, Director
Bureau of Sanitation

List of Attachments:
Attachment A – Detailed Discussion of Major Issues
Attachment 1 – Bureau of Sanitation's Detailed Comment Matrix
Attachment 2 – Revisions to Monitoring and Reporting Programs – Letter Dated January 12, 2009

w/Attachments

cc: Debbie J. Smith, Regional Water Quality Control Board, Los Angeles Region
David Hung, Regional Water Quality Control Board, Los Angeles Region
Don Tsai, Regional Water Quality Control Board, Los Angeles Region
Anderea A. Alarcon Board President, Board of Public Works
Rafael Prieto, Chief Legislative Analyst Office
Traci Minamide, Bureau of Sanitation/EXEC
Varouj Abkian, Bureau of Sanitation/EXEC
Omar Moghaddam, Bureau of Sanitation/RAD
Mas Dojiri, Bureau of Sanitation/EMD
Hiddo Netto, Bureau of Sanitation/DCT-LAG
Ali Poosti, Bureau of Sanitation/WESD
Barry Berggren, Bureau of Sanitation/WCSD
Shahram Kharghani, Bureau of Sanitation/WPD
Tim Dafeta, Bureau of Sanitation/IWMD
Robert Irvin, Bureau of Sanitation/ICSD

Attachment A- Detailed Discussion of Major Issues
Los Angeles-Glendale Water Reclamation Plant

ATTACHMENT A

Bureau of Sanitation's Detailed Discussion of Major Issues Regarding the August 4, 2011 Tentative Los Angeles-Glendale Water Reclamation Plant NPDES Permit, Fact Sheet, Monitoring and Reporting Program, and Other Attachments

On August 4, 2011, the California Water Quality Control Board Los Angeles Region (Regional Board) released the Los Angeles-Glendale Water Reclamation Plant (LAGWRP) Tentative Order (NPDES No. CA0053953), Fact Sheet, and Monitoring and Reporting Program (MRP). While the Bureau of Sanitation (Bureau) appreciates and thanks the Regional Board's staff for its efforts in developing the Tentative Order, there are two major areas with which the Bureau has concerns and hopes that these technical comments will result in constructive changes to the permit.

<u>1- Ammonia Effluent Limits</u>

The ammonia effluent limits for LAGWRP in the Tentative Order are set equal to the wasteload allocations (WLAs) in the Los Angeles River Nitrogen Compounds TMDL. The Nitrogen Compounds TMDL became effective in March 2004. During TMDL development, the City of Los Angeles in cooperation with the City of Burbank and the Los Angeles County Sanitation District were in the process of developing a site-specific objective (SSO) for ammonia. The TMDL acknowledges the SSO development but did not incorporate the SSO because at the time the TMDL was adopted, the SSO was not effective. In March 2009, the ammonia SSO became effective for the Los Angeles River.

From the time the SSO became the effective Basin Plan ammonia water quality objective for the Los Angeles River, the Bureau has been encouraging Regional Board staff to modify the TMDL targets and allocations to reflect the revised ammonia objectives. Additionally, the Bureau has provided information demonstrating that, using the new Basin Plan objectives, the Los Angeles River is no longer impaired for ammonia and could be delisted in 2012. However, to date, the TMDL revision and/or delisting decision have not been completed. As a result, the ammonia effluent limits in the LAGWRP Tentative Order are currently set equal to the TMDL WLAs without an adjustment for the effective Basin Plan ammonia objectives.

The Bureau is concerned that the currently effective Basin Plan ammonia objectives are not the basis for the effluent limits in the Tentative Order. The proposed effluent limits in the Tentative Order present a compliance risk for the Bureau, and this risk is as a result of an administrative timing issue (i.e., the TMDL was not revised prior to the development of the tentative order and therefore the revised WLAs could not be incorporated) rather than a water quality issue. The Regional Board staff has indicated they will be revising the Los Angeles River Nitrogen Compounds TMDL to incorporate the new Basin Plan ammonia objectives in early to mid-2012. However, even if the TMDL is revised by the Regional Board as planned, it will take approximately a year to become effective and at least several months to revise LAGWRP's permit. Until such time as the effluent limitations are revised, the Bureau will potentially be subject to enforcement liability even though the discharge is meeting limits consistent with current Basin Plan objectives and the receiving water is meeting water quality objectives.

To resolve this administrative issue, the Bureau requests that the Tentative Order be modified to include effluent limitations based on the SSO-adjusted WLAs to be consistent with the Basin Plan objectives. We feel the inclusion of effluent limits based on the SSO-adjusted WLAs is consistent with the intent of the Clean Water Act and the requirements for incorporation of WLAs into NPDES permits. As stated in 40 CFR 122.44(d)(1)(vii)(B):

> "Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, ***are consistent with the assumptions and requirements of any available wasteload allocation*** for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7." (emphasis added)

The wasteload allocations for LAGWRP in the Nitrogen Compounds TMDL are set equal to the TMDL numeric targets minus a 10% margin of safety. The TMDL numeric targets were calculated based on Basin Plan ammonia water quality objectives that were in effect in 2003. The assumption that the WLAs are calculated directly from the Basin Plan water quality objectives are described in the staff report and amendment incorporating the TMDL into the Basin Plan. Some examples describing the assumptions include the following:

In the Numeric Targets Section of Basin Plan Amendment, page 6:

> "Numeric Targets-(Interpretation of the numeric water quality objective, used to calculate the load allocations) …"

In Section 2.1.2 Water Quality Objectives (WQOs) in the Staff Report on page 17:

> "The Basin Plan provides WQOs for nitrogen compounds and their related effects, including numeric and narrative objectives discussed below. Both types of objectives are used in developing numeric targets and wasteload allocations."

In Section 6.1.1 Wasteload Allocations for Major Point Sources in the Staff Report on page 63:

> "WLAs for ammonia are based on Resolution No. 2002-11 which establishes the relationship between water quality objectives and the beneficial uses of inland waterbodies."

Note that Resolution No. 2002-11 establishes the Basin Plan objectives for ammonia that were used to develop the TMDL.

Finally, page 36 of the Staff Report discusses the intent that the adoption of site-specific ammonia objectives would amend both the Basin Plan and the TMDL allocations and be used as the basis for the calculation of effluent limits.

> "At this time, stakeholders have initiated a WER study for ammonia in the Los Angeles River in conformance with a workplan that has been approved by Regional Board staff. It is anticipated that the WER study will serve as the basis for development of a proposed SSO and revised effluent limits, as appropriate, for Regional Board approval. A SSO based on a WER for ammonia would be implemented as a Basin Plan Amendment that, if approved, would amend both the Basin Plan and this TMDL."

These examples clearly demonstrate the WLAs were calculated based on the assumption that utilizing the Basin Plan ammonia water quality objectives would result in attainment of the beneficial uses, and the Basin Plan Amendment approving the ammonia site-specific objectives was also intended to serve as an amendment to the TMDL for the purposes of calculating revised effluent limits. Therefore, it would be consistent with the assumptions of the WLAs to incorporate effluent limits into LAGWRP's permit that were derived using the current Basin Plan ammonia water quality objectives. Because the site-specific objective only modified the chronic ammonia water quality objective, the Bureau requests that the Average Monthly Effluent Limitation (AMEL) for ammonia at LAGWRP be modified as follows:

AMEL = 4.24 mg/L for October 1 through March 31 (ELS-absent)
AMEL = 3.19 mg/L for April 1 through September 30 (ELS-present)

The proposed AMEL was calculated by utilizing the same pH and temperature used to calculate the current WLAs and applying the current ELS-absent Basin Plan objective between October 1 and March 31 and the current ELS-present Basin Plan objective between April 1 and September 30. The ELS-present and ELS-absent objectives are both applicable to Reach 5 (the reach to which LAGWRP discharges) during the respective time periods indicated for the proposed AMELs. Once the objectives were determined, a 10% margin of safety was subtracted from the value to obtain the proposed AMELs.

2- Metals Effluent Limits Associated with the Los Angeles River and Tributaries Metals TMDL

In Table 6 of the Tentative Order for LAGWRP, effluent limits for cadmium, copper, lead, and zinc were calculated based on WLAs established in the Los Angeles River and Tributaries Metals TMDL (Metals TMDL) using the procedures in the SIP. The Bureau feels that the proposed effluent limits are not consistent with the assumptions of the Metals TMDL WLAs or the SIP and should be revised. Language from the LA Metals TMDL states the following:

> "Permit writers may translate applicable waste load allocations into effluent limits for … NPDES permits by applying the effluent limitation procedures in Section 1.4 of the [SIP]."

The Regional Board interpreted this statement to mean that the WLAs would be considered the 'applicable water quality criteria' to be used in the procedure described in Section 1.4.B on p.7 of the SIP (2005). However, Section 1.4.A. of the SIP (p. 7) states "If a TMDL is in effect, assign a portion of the loading capacity of the receiving water" to each identified source. This indicates that the WLA should be assigned directly as the effluent limit instead of the procedure described in the SIP (Section 1.4.B) for determining effluent limits. Furthermore, Section 1.4.A. refers to Appendix 6 of the SIP (Watershed Management and TMDLs) which states on p. 6-2:

> "A TMDL estalishes the amount of a pollutant that may be discharged into a water body and still maintain water quality standards with seasonal variations and a margin of safety that takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality."

Therefore, the WLA provides the margin of safety needed for an effluent limit to be protective and no further adjustment of the WLA should be necessary. Therefore, the City requests that the WLAs shown in **Table 1** below be incorporated directly into the Tentative Order as AMELs for copper and lead. This approach is acknowledged as a calculation option in the Fact Sheet in the Tentative Order for LAGWRP (p. F-40).

Table 1. Revised Copper and Lead Effluent Limits Set Equal to TMDL WLAs

Parameter (µg/L)	AMEL	MDEL
Copper	26	NA
Lead	12	NA

If the Regional Board chooses to not expressely use the WLAs as effluent limits and calculates effluent limits based on the procedure in Section 1.4.B of the SIP, it should be used for all four metals and be consistent with the assumptions used to derive the WLAs. In the determination of effluent limits, the dry weather TMDL WLAs for copper and lead appear to be used as the chronic criteria in the SIP calculation, and the wet weather TMDL WLAs for copper and lead have been used as the acute criteria (In paragraph IV.C.4.b.1 on p. F-46 of the LAGWRP Tentative Order, it states that it states that 'the TMDL-established acute and chronic criteria for copper (26 µg/L) …. Were used to calculate the WQBELs based on SIP/CTR procedures'.. However, the assumptions of the WLAs for copper and lead as presented in the Metals TMDL were as follows:

1. The **chronic** criteria were used to develop the dry weather WLAs (Metals TMDL BPA p. 7).

2. The wet weather allocations were also based on the **chronic**, dry weather targets in the TMDL (Metals TMDL BPA p. 7).

Because the copper and lead WLAs are both based on the chronic criteria, it is inappropriate and inconsistent with the assumptions of the WLAs to use the wet weather allocations as the acute criteria in the SIP calculation process.

Additionally, this approach is inconsistent with the process used to calculate the zinc and cadmium effluent limits. For zinc and cadmium, the wet weather allocations were also based on the chronic criteria (BPA p. 7 states that the wet weather allocations for zinc and cadmium are based on the dry weather targets). For zinc and cadmium, the effluent limits presented in the Tentative Order were calculated based on just using a chronic criteria set equal to the WLA and no acute criteria. To be consistent with the assumptions of the WLAs and to make the calculations consistent across all metals, copper and lead effluent limits should be calculated using only chronic criteria set equal to the dry and wet weather WLAs.

If the effluent limit calculation approach described in Section 1.4.B of the SIP is used, the Bureau requests that the TMDL WLAs be evaluated as chronic criteria in the calculation of effluent limitations for copper and lead and the proposed effluent limits in **Table 2** be included in the Order.

Table 2. Revised Copper and Lead Effluent Limits

Parameter (µg/L)	AMEL	MDEL
Copper	24	34
Lead	10	19

Attachment 1- Bureau of Sanitation's Detailed Comment Matrix
Los Angeles-Glendale Water Reclamation Plant

ATTACHMENT 1- DETAILED COMMENT MATRIX ON LAGWRP TENTATIVE ORDER, SEPTEMBER 2011

Detailed Comment #	Document Reference : (Doc. #, Section #, Page #)	Issue	Comments
1	Tentative Order, List of Attachments, Page 4	Correction (extraneous references)	The Bureau requests that the RWQCB remove the following "Not Applicable" Attachments and remove references to the Attachments within documents. Attachment H Storm Water Pollution Prevention Plan Requirements (Not Applicable) Attachment I Biosolids/sludge Use and Disposal Requirements (Not Applicable) Attachment K TMDL-Related Tasks (Not Applicable)
2	Tentative Order, Section II.F Pages 6 and 7 and Attachment F (Fact Sheet), Section IV.C.2.b.i, Page F-26	BPJ technology-based limits	The permit states that: "The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR part 133 and Best Professional Judgment (BPJ) in accordance with 40 CFR part 125.3. A detailed discussion of the TBELs development is included in the Fact Sheet (Attachment F)." Best Professional Judgment in 40 CFR 123.5 does not apply to POTWs. Please revise the language (and in the Fact Sheet) as follows: The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR part 133 ~~and Best Professional Judgment in accordance with 40 CFR part 125.3~~."
3	Tentative Order, Section IV, Table 6, Page 19	Missing footnotes	Effluent Limit footnotes for Total Dissolved Solids, Sulfate, Chloride, MBAS are missing footnote explanations for origin of effluent limitations. The Bureau request footnotes explaining the basis for the effluent limits.
4	Tentative Order, Section IV.A.1.a Table 6, Page 20	Units/footnote	The mass emissions lbs/day for parameters in units of ug/L refers to Footnote 8 which specifies the calculation for parameters in units of mg/L. Please include a separate footnote for ug/L unit.
5	Tentative Order, Section IV.A.d, Page 21 and Attachment F (Fact Sheet), Section IV.C.2.b.xi.a, Page F-32	Correction to Coliform requirements	The Bureau requests to revise sentence: No sample shall exceed an MPN or CFU of 240 total coliform bacteria per 100 milliliters ~~in more than one sample within any 30-day period~~. The statement is contradictory and not consistent with Title 22 requirements.
6	Tentative Order, Section. V.A.17. c., Page 26 and elsewhere in the document (especially Attachment E, II, Table 1, Page E-5)	Correction	Station RSW-001 should be designated as RSW-LAGT650 and RSW-002 should be RSW-LAGT654 to be consistent with the LARWMP station designations.

ATTACHMENT 1- DETAILED COMMENT MATRIX ON LAGWRP TENTATIVE ORDER, SEPTEMBER 2011

Detailed Comment #	Document Reference : (Doc. #, Section #, Page #)	Issue	Comments
7	Tentative Order, Section VI.C.1.b, Page 30	Re-opener provision	It appears that this provision is related to Section 2.4.5 of the SIP that addresses Pollutant Minimization Programs (PMPs) and the need to collect additional information. In accordance with Section 2.4.5.2b of the SIP "RWQCBs may include special provisions in the permit to require the gathering of evidence to determine whether the constituent of concern is present in the effluent at levels above a calculated effluent limitation." It is not necessary for this permit provision to say that additional requirements may be included as result of the information collected because the other re-opener provisions in the permit are broad enough to allow for any necessary permit modification to take place. Suggested language is as follows: "This Order may be reopened ~~for modification, or revocation and reissuance,~~ based on the results of the Pollutant Minimization Program, pursuant to Permit Section VI.C.3.c, to gather evidence to determine whether a constituent of concern is present in the effluent at levels above a calculated effluent limitation. ~~as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are~~ Evidence may include but is not limited to data such as~~,~~ fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. ~~Additional requirements may be included in this Order as a result of the special condition monitoring the data.~~"
8	Tentative Order, Section VI.C.2.b., Page 32	Changing deadline	The Bureau requests the following change to the work plan approval deadline, to be consistent with other references in the permit: "The Discharger shall update its existing initial investigation Toxicity Reduction Evaluation (TRE) workplan and submit a copy of the revised initial investigation TRE workplan to the Executive Officer of the Regional Water Board for approval within ~~30~~ 90 days of the effective date ~~of adoption~~ of this permit."
9	Tentative Order, Section VI.C.3.a, Page 33	Reference to SWPPP	The Bureau requests the section titled : "Storm Water Pollution Prevention Plan (SWPPP) Not Applicable" be removed from the permit since as stated, it is not applicable.
10	Tentative Order, Section VI.C.5.a., Page 36 Attachment F (Fact Sheet), Section VII.B.5.a., Page F-59	Section not applicable to LAGWRP	Please strike this section because it does not apply to the LAG treatment process. LAG returns the solids generated by the treatment process back to the sewer for transport and treatment at HTP; therefore, this section does not apply to LAG.

ATTACHMENT 1- DETAILED COMMENT MATRIX ON LAGWRP TENTATIVE ORDER, SEPTEMBER 2011

Detailed Comment #	**Document Reference :** (Doc. #, Section #, Page #)	**Issue**	**Comments**
11	Tentative Order, Section VII.C. Page 43, Paragraph 3	Unachievable requirement	In many instances, the following requirement is unachievable and should be modified. “If the analytical result of any single sample, monitored monthly, quarterly, semiannually, or annually, exceeds the AMEL for any parameter, the Discharger shall collect up to four additional samples within the same calendar month.” The organochlorine pesticide (EPA 608) and base/neutral, and acid extractable (EPA 625) analyses have a turn-around time of approximately one month. Additionally, the allowable holding time between sample collection and extraction is 7 days. So, from the time that the analytical result from one of these tests is known there is no time to collect an additional four samples within the same month. Please consider revising the sentence as follow: “If the analytical result of any single sample, monitored monthly, quarterly, semiannually, or annually, exceeds the AMEL for any parameter, the Discharger may collect up to four additional samples within the same calendar month.
12	Tentative Order, Section VII, D, Pages 43 and 44	Reporting period clarification, AWEL consistent with HTP	The Bureau requests that the language reflect the following:” A calendar week will begin on Sunday and end on Saturday. Partial calendar weeks at the end of the calendar month will be carried forward to the next month in order to calculate and report a consecutive seven-day average value on Saturday”. This would be consistent with other Bureau permits.
13	Tentative Order, Section VII.N.1, Page 46	Definition of geometric mean	The Bureau requests the definition of a geometric mean include: “A minimum of 5 data points is needed to conduct a geometric mean that is statistically valid.”
14	Attachment E (MRP), Section I.H, Page E-3	Incorrect Reference	The following text incorrectly references 40 CFR 136 as a source of procedures for establishing Minimum Levels (MLs). Method Detection Limits (MDLs), not MLs are addressed in 40 CFR 136. Please delete the reference.
15	Attachment E (MRP),Section III. A.1, Table 2, Page E-7	“Sample type correction	LAG Influent flow specifies Sample Type as "Calculated." The Bureau request to change it instead to **“Recorder”.**
16	Attachment E (MRP), Section III.A.1, Table 2, Page E-7	Influent monitoring frequencies	The Bureau requests that the influent data monitoring for the “Remaining USEPA priority pollutants excluding asbestos” be reduced from semiannually to annually.

ATTACHMENT 1- DETAILED COMMENT MATRIX ON LAGWRP TENTATIVE ORDER, SEPTEMBER 2011

<table>
<tr><th>Detailed Comment #</th><th>Document Reference : (Doc. #, Section #, Page #)</th><th>Issue</th><th>Comments</th></tr>
<tr><td>17</td><td>Attachment E (MRP), Section IV.A.1 Page E-8
And
Attachment E (MRP), Section II. Table 1. Page E-5</td><td>Sample point nomenclature</td><td>The Bureau requests the constituents monitored at each monitoring location name be applied consistently between LAG and DCT. The following change will reflect that EFF-001A is the main sampling station for everything except Bacteria and Turbidity.
<table>
<tr><th colspan="3">Effluent Monitoring Stations</th></tr>
<tr><th>Discharge Point Name</th><th>Monitoring Location Name</th><th>Monitoring Location Description</th></tr>
<tr><td>001</td><td>EFF-001A</td><td>The effluent sampling station for all constituents (except for bacteria and turbidity) shall be located downstream of the dechlorination process and inside the plant, where representative samples can be obtained.</td></tr>
<tr><td>001</td><td>EFF-001B</td><td>The effluent sampling station for bacteria and turbidity shall be located downstream of any in-plant return flows and after final disinfection process, where representative samples of the effluent can be obtained.</td></tr>
</table></td></tr>
<tr><td>18</td><td>Attachment E (MRP), Section IV.A.1, Table 3, Page E-9</td><td>Missing footnote</td><td>The Bureau requests insertion of a footnote for temperature, pH, settleable solids, and total suspended solids stating that: “Daily grab samples shall be collected Monday through Friday, except, for holidays; and not on weekends.”</td></tr>
<tr><td>19</td><td>Attachment E (MRP) Section IV.A ,Table 3, Page E-9 and Section VII.A. Table 4A, Page E-19</td><td>Requirements to conduct tests for both Fecal coliforms and E. coli</td><td>On July 8, 2010 the Regional Board adopted Resolution R10-005 to amend the Basin Plan to update the bacteria objectives for freshwater designated for water contact recreation by removing the fecal coliform objective. This amendment updates the freshwater bacteria objectives in the Basin Plan to maintain consistency with U.S. EPA’s recommendation that E. coli replace fecal coliform as an indicator of the presence of pathogens in fresh water, and removes unnecessary permitting and monitoring requirements that arise from having water quality objectives for both indicators. The tentative permit contains requirements to test for both fecal coliforms and E. coli as part of the receiving water and effluent monitoring programs. To be consistent with the Basin Plan amendment and eliminate unnecessary monitoring, the Bureau recommends that the Regional Board remove the fecal coliform requirement for testing of the effluent and receiving waters.</td></tr>
<tr><td>20</td><td>Attachment E (MRP), Section IV,A,1, Table 3, Page E-10</td><td>Sample type correction</td><td>The Bureau requests to change the 1,4-Dioxane sample type to 24-hour composite sample. This is consistent with previous permits.</td></tr>
<tr><td>21</td><td>Attachment E (MRP), Section V.E.6.b, Page E-16</td><td>Inconsistent accelerated testing requirements</td><td>This requirement is not consistent with the requirements as found in Attachment E, V.A.2.d Page E-12 and V.B.3 Page E-14. It should be revised as follows: “If the results of any of the six accelerated tests exceed the acute toxicity limitation, or the chronic toxicity trigger, then the Discharger shall <s>continue to monitor weekly until six consecutive weekly tests are in compliance</s> conduct six additional tests, approximately every two weeks, over a 12-week period.”</td></tr>
</table>

ATTACHMENT 1- DETAILED COMMENT MATRIX ON LAGWRP TENTATIVE ORDER, SEPTEMBER 2011

Detailed Comment #	Document Reference : (Doc. #, Section #, Page #)	Issue	Comments
22	Attachment E (MRP), Section IV,A,,Table 3,Pg E-10 and Section VII,A,a, Table 4a, Page E-20	Sampling frequency	The Bureau requests that Benzo(a)Anthracene, Chrysene, N-Nitrosodi-n-propylamine should be monitored annually and be included under "remaining priority pollutants".
23	Attachment E (MRP), Section V.A.2.a, page E-11, and Table 3a, page E-9	Sample type	Acute toxicity is typically tested based on grab samples. The Bureau requests to change acute toxicity sample type from 24 hr composite to grab sample.
24	Attachment E (MRP), Section VII.A.1, Table 4a, Page E-19	Receiving water constituent redundancy	The Bureau requests that the "total flow "requirement be removed from Table 4a for receiving monitoring locations RSW-001and RSW-002. Receiving water flow is reported at station RSW-003D.
25	Attachment E (MRP) Section VII.A 1. Table 4A and B, Pages E-19 to E-23	Sampling parameters: bioassessment and algal biomass testing	The Los Angeles River Regional Monitoring Program (LARRMP); now called the Los Angeles River Watershed Monitoring Program (LARWMP), was submitted to the LARWQCB by the City of Los Angeles and City of Burbank in December 2007 and was approved by the LARWQCB on Janurary 12, 2009. To fund this program some receiving water stations were deleted from the monitoring program, and the remaining stations had their analyzed constituents and frequency changed. One of these approved changes was to remove bioassessment monitoring from the remaining stations and to remove chlorophyll a from the list of monitored constituents. Thus, the requirement in this permit for bioassessment and algal testing at the four receiving stations should be removed. The money saved will be used for bioassessment and algal biomass testing at the 10 annual random sites tested as part of the LARWMP program, as agreed upon by the LARWQCB in January 2009. **Please see Attachment 2 of the Bureau's response packet.**
26	Attachment E (MRP), Section VII.A.1, Table 4a, Page E-20	Receiving water monitoring frequencies	The Bureau request that the receiving water monitoring frequency at surface water stations RSW-001 and RSW-002 for Bis(2-Ethylhexyl)Phthalate, Dibenzo(a,h)Anthracene, Tetrachlorethylene, Benzo(a) anthracene, Chrysene, and N-Nitrosodi-n-propylamine be reduced from quarterly to semiannually since historical receiving water data has been non-detect (ND).
27	Attachment E (MRP), Section VII.A.1 Table 4a, Page E-20	Receiving water monitoring frequencies	The Bureau requests that the receiving monitoring frequency for the "Remaining USEPA priority pollutants excluding asbestos" receiving water RSW-001 and RSW-002 be reduced from semiannually to annually.
28	Attachment E, (MRP), Section VII.A.1 Table 4a, Page E-20	Receiving water monitoring frequencies	The Nitrogen Compounds TMDL only requires weekly monitoring for nitrate, nitrite, and nitrate+nitrite per the starred statement in the Wasteload Allocations section of the Basin Plan Amendment. The note requiring monitoring frequency does not apply to the ammonia allocations. As a result, The Bureau requests that the ammonia, organic nitrogen, and total nitrogen monitoring frequency be change to monthly consistent with the TMDL.
29	Attachment E (MRP), Section VIII.A.1.a, Table 5, Page E-24	Meprobamate	The Bureau requests that meprobamate be deleted from the list of CEC because it is not listed as an analyte in any ASTM, EPA or USGS analytical method.

ATTACHMENT 1- DETAILED COMMENT MATRIX ON LAGWRP TENTATIVE ORDER, SEPTEMBER 2011

Detailed Comment #	Document Reference : (Doc. #, Section #, Page #)	Issue	Comments
30	Attachment E (MRP) Section VIII.B, Page E-25 and throughout permit	Acronym change	The watershed monitoring program submitted to the LARWQCB in Dec 2007 and approved in Jan 2009 was called the Los Angeles River Regional Monitoring Program (LARRMP). It is now called the called the Los Angeles River Watershed Monitoring Program (LARWMP) to avoid confusion with another City program in place with the acronym LARRMP (Los Angeles River Revitalization Master Plan). The Bureau requests to change all references to Los Angeles River Regional Monitoring Program (LARRMP) contained in the permit to Los Angeles River Watershed Monitoring Program (LARWMP).
31	Attachment E (MRP), Section IX.B.3, Table 6, Page E-28	Sampling period modification	The Bureau requests the quarterly monitoring periods to begin February, May, August, and November. This would be consistent with other Bureau permits.
32	Attachment E (MRP), Section IX.B.4, Page E-28	Reporting protocols	The permit contains the following provision for reporting protocols: "Reporting Protocols. The Discharger shall report with each sample result the applicable reported Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136." This language is not consistent with the SIP. We request that this language be replaced with the following: "Reporting Protocols. The Discharger shall report with each sample result the applicable reported Minimum Level (ML), for those constituents where the SIP specifies MLs, and the applicable reported Reporting Limit (RL), for all other constituents as appropriate, and the current Method Detection Limit (MDL), as determined by the procedure in Part 136."
33	Attachment F (Fact Sheet), Section II.E, Page F-12	Wrong word (typo)	The Discharger is planning to: (1) upgrade the existing sand filters, (2) upgrade electrical substation switchgear, and (3) replace water lines and instrument air lines ~~by~~ **with** stainless steel pipes.
34	Attachment F (Fact Sheet) Section IV.C.2.b.ii, Page F-26	Clarification, correction	The Bureau requests the clarification of the word 'basic' in the following paragraph: "The hydrogen ion activity of water (pH) is measured on a logarithmic scale, ranging from 0 to 14. While the pH of "pure" water at 25°C is 7.0, the pH of natural waters is usually slightly basic due to the solubility of carbon dioxide from the atmosphere." If the pH of natural waters is slightly acidic, this statement makes sense because the product of carbon dioxide's interaction with water is carbonic acid. However, if the statement that natural waters pH is as written, natural salts that are alkaline would be a more appropriate basis for this statement.
35	Attachment F (Fact Sheet) Section IV.C.2.ix (c), Page F-30	Request for definition change	The Bureau finds the term 'restored', to be ambiguous and unnecessary. The Bureau request to change the sentence as follows: when the Los Angeles River is ~~eventually~~ ~~**restored**~~ ~~and the Los Angeles River becomes~~ de-listed for nutrient, then the permit would be re-opened to include Basin Plan-based effluent limitations
36	Attachment F (Fact Sheet) Section C 2c, Page F-35	Typo (missing a)	The procedures include those used to conduct **a** reasonable potential analysis (RPA) to determine the need for effluent limitations for priority and non-priority pollutants.
37	Attachment J, Page J-1, Pretreatment reporting	Annual Report Sludge monitoring	Sludge processing is not performed at DCT. Therefore, the Bureau requests that the reference to monitoring sludge from secondary treatment processes be deleted as

Detailed Comment #	**Document Reference :** (Doc. #, Section #, Page #)	**Issue**	**Comments**
			follows: "The Discharger is required to monitor pollutants in the influent and the effluent of the POTW(s~~)"., and in the sludge from the secondary treatment process.~~ , as sludge is sent to HTP for processing."
38	Attachment J, Page J-2	Deletion	Please delete reference to the Joint water pollution control NPDES permit. ~~The Discharger will coordinate its monitoring~~ ~~requirements under this program with the requirements under **Attachment I** (*Biosolids/Sludge Management*) in the Joint Water Pollution Control Plant NPDES Permit (CA0053813, Order NO. R4-2006-0042).~~
39	Attachment J, Section A.4.h, Page J-2	Request for definition changes	Reference to the definition of SNC applicable 40 CFR 403 is not correct. Change from 40 CFR 403.12(f)(2)(vii) to 40 CFR 403.8(f)(2)(viii)
40	Attachment J, Pages J-2-4	Inconsistent footers	Footers on pages 2, 3, and 4 do not have the date "August 4, 2011".
41	Attachment J, Section B, Page J-3	Submittal due date	Semi-Annual Reporting Submission due date is not consistent with other NPDES permits, which is September 1st. The Bureau requests to change the submission due date from August 15th to September 1st.

Attachment 2- Revisions to Monitoring and Reporting Programs - Letter Dated January 12, 2009

California Regional Water Quality Control Board
Los Angeles Region

Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

Linda S. Adams
Agency Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

Arnold Schwarzenegger
Governor

Attachment 2- Revisions to Monitoring and Reporting Programs- Letter Dated January 12, 2009

January 12, 2009

Mr. Enrique C. Zaldivar
Director, Bureau of Sanitation
1149 South Broadway Street, 9th Floor
Los Angeles, CA 90015

LOS ANGELES RIVER REGIONAL MONITORING PROGRAM IMPLEMENTATION - REVISIONS TO MONITORING AND REPORTING PROGRAMS FOR:
LOS ANGELES-GLENDALE WRP (NPDES NO. CA0053953, MRP NO. 5675)
DONALD C. TILLMAN WRP (NPDES NO. CA0056227, MRP NO. 5695)

Dear Mr. Zaldivar:

We have reviewed your letter of December 18, 2008, requesting approval of the proposed revisions to the Monitoring and Reporting Programs for the two water reclamation plants identified above. These revisions will facilitate a resource exchange to provide funding for implementation of the Los Angeles River Regional Monitoring Program (LARRMP). The LARRMP represents a comprehensive watershed-wide plan developed by your agency in cooperation with Regional Board and USEPA staff and several other local stakeholders. This program will improve coordination and efficiency of receiving water monitoring for existing dischargers by streamlining monitoring efforts and reducing redundancies throughout the watershed and will provide more useful water quality data on both watershed and site-specific scales.

The permanent modifications to the two Monitoring and Reporting Programs (MRP) are outlined below:

Los-Angeles Glendale WRP

Existing Stations	Retain	Drop	Move	Change frequency/parameters
R4	X			Drop bioassessment
R5		X		
R7	X			Biannually/quarterly instead of monthly for monitoring program constituents

Donald C. Tillman WRP

Existing Stations	Retain	Drop	Move	Change frequency/parameters
D	X		100 yards downstream	Biannually/quarterly instead of monthly for monitoring program constituents
F		X		
H		X		
I	X			Drop bioassessment
J	X			Biannually/quarterly instead of monthly for monitoring program constituents
K	X			Drop bioasessment
1		X		
4	X			
5		X		
7		X		
WD/R2		X		
WC		X		
WE	X			
W1		X		
W2	X			
W3		X		
R7				Biannually instead of monthly for monitoring program constituents
R8			Relocate	Monitor suite of constituents for watershed stations
R9			Relocate	Monitor suite of constituents for watershed stations

The LARRMP technical workgroup reviewed historical discharger monitoring data and determined that biannual/quarterly data would provide nearly the same trend monitoring information as monthly data at a substantially lower cost, that several receiving water stations were redundant and did not provide any additional useful information to warrant continued monitoring at those locations, and that water column chlorophyll a measurements provide no useful information with respect to tracking benthic algal growth and should be dropped (however, as nutrient TMDLs are developed in our region, Regional Board staff may choose to add some form of chlorophyll measurement to compliance or other types of monitoring programs). To promote consistency with the State's Surface Water Ambient Monitoring Program (SWAMP) and other bioassessment monitoring programs, it is desirable to shift the sampling period from the fall to the spring/summer timeframe and to employ uniform sampling protocols.

The projected savings as a result of the proposed revisions to the two Monitoring and Reporting Programs amounts to $358,806 per year. The City of Los Angeles proposes to provide this amount to the Los Angeles and San Gabriel Rivers Watershed Council (LASGRWC) on an annual basis to cover the costs of the regional monitoring elements identified in the LARRMP. These include 1) water column toxicity and water chemistry (metals, conventional pollutants, nutrients) monitoring at 10 random sites within the watershed; 2) water chemistry (metals, conventional pollutants, nutrients) and water column toxicity at several confluence sites within the watershed; 3) sediment chemistry (metals, pesticides, conventional pollutants), sediment toxicity, benthic infaunal community, bacteriological and water chemistry (conventional pollutants) monitoring at estuary sites at the base of the watershed; 4) bacteriological monitoring at 6-10 freshwater high-use recreational sites and 9 sentinel sites (including 1 estuary site); and 5) fish tissue chemistry monitoring (mercury, DDT, PCBs) at 6 high-use fishing sites.

This letter will serve to approve the revisions described above. The proposed changes are effective January 2009. The City of Los Angeles will continue to conduct routine compliance monitoring as required by the modified Monitoring and Reporting Programs for the two facilities cited above and will report the monitoring results to the Regional Board as required. LASGRWC will be responsible for administering the LARRMP. The City of Los Angeles proposes to conduct in-kind services with an estimated annual value of $115,939, as outlined in the December 18, 2008, letter, to support the LARRMP. The City of Los Angeles also proposes to provide an additional $242,867 to the LASGRWC on an annual basis to further support the LARRMP, which may be used for contracting as needed with outside entities to perform field sampling, laboratory analyses, data management and analysis and report writing. LASGRWC will be responsible for reporting the LARRMP monitoring results to the Regional Board annually. The annual Scope of Work for the LARRMP will be developed in collaboration with the Regional Board, USEPA, City of Los Angeles and the LARRMP technical workgroup. This plan must be submitted to the Executive Officer of the Los Angeles Regional Water Quality Control Board for review and approval each year prior to implementation.

We appreciate the time and effort that City of Los Angeles staff has dedicated to participating in the development of the regional monitoring program for the Los Angeles River Watershed. We believe that this new program will provide a better assessment of water quality conditions throughout the region and allow us to make better management decisions to protect and improve our resources and beneficial uses.

If you have any questions, please contact Michael Lyons at (213) 576-6718, as he is the staff person most familiar with these issues.

Sincerely,

Tracy J. Egoscue
Executive Officer

Cc: Terry Fleming, U.S. Environmental Protection Agency, Region IX
Gerald E. McGowen, Environmental Monitoring Division, City of Los Angeles
Traci Minamide, City of Los Angeles
Mas Dojiri, City of Los Angeles
Kay Yamamoto, City of Los Angeles
Ken Franklin, City of Los Angeles
Rodney Anderson, City of Burbank
Fred Gonzalez, Los Angeles County Department of Public Works
Edward Belden, Los Angeles/San Gabriel Rivers Watershed Council

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TRACI J. MINAMIDE
CHIEF OPERATING OFFICER

VAROUJ S. ABKIAN
ADEL H. HAGEKHALIL
ALEXANDER E. HELOU
ASSISTANT DIRECTORS

1149 SOUTH BROADWAY, 9TH FLOOR
LOS ANGELES, CA 90015
TEL: (213) 485-2210
FAX: (213) 485-2979

November 4, 2011

Mr. Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West Fourth Street
Los Angeles, CA 90013

Attention: Brandy Outwin-Beals, Unit Chief
Municipal Permitting Unit (NPDES)

Dear Mr. Unger:

COMMENTS ON REVISED TENTATIVE ORDER - CITY OF LOS ANGELES DONALD C. TILLMAN AND LOS ANGELES-GLENDALE WATER RECLAMATION PLANTS – NPDES PERMIT NO. CA0056227, AND CA0053953 RESPECTIVELY

On October 6, 2011, the California Water Quality Control Board- Los Angeles Region (Regional Board) released the revised Donald C. Tillman Water Reclamation Plant (DCTWRP) and the Los Angeles-Glendale Water Reclamation Plant (LAGWRP) Tentative Orders (NPDES No. CA0056227 and CA0053953, respectively), Fact Sheet, and Monitoring and Reporting Programs (MRP). The City of Los Angeles, Bureau of Sanitation (Bureau), appreciates the opportunity to provide the following comments and recommendations to the Regional Board. Bureau staff will be present to provide oral comments at the Regional Board public hearing on December 8, 2011. While the Bureau appreciates the Regional Board's staff for its efforts in developing the Revised Tentative Permit, there are several areas with which the Bureau has concerns.

Summary of Main Issues with DCTWRP and LAGWRP Revised Tentative NPDES Permits

The following is a brief summary of the Bureau's major issues with the DCTWRP and LAGWRP Revised Tentative Permits. These are detailed in Attachment A:

- Ammonia Effluent Limits
- Toxicity Reporting Requirements

This letter incorporates by reference Attachment A which provides detailed comments on these issues. The requests made in this letter are based on good science and support the protection of the environment that we all value so greatly. These recommendations will allow the Bureau to continue to operate its facilities efficiently and effectively, while continuing to be protective of the Los Angeles River and its environment. The Bureau hopes these recommendations will result in constructive changes to the DCTWRP and LAGWRP Revised Tentative NPDES Orders.

If you have any questions regarding the Bureau's comments, please contact Mr. H.R. (Omar) Moghaddam of the Regulatory Affairs Division at (310) 648-5493, or Mr. Hassan Rad at (310) 648-5240.

Sincerely,

Traci Minamide, for

ENRIQUE C. ZALDIVAR, Director
Bureau of Sanitation

ECR:HR

Attachments:
Attachment A – Detailed Discussion of Major Issues
Attachment 1 – Bureau's November 9, 2010 Delisting Letter

cc: Debbie J. Smith, Regional Water Quality Control Board, Los Angeles Region
David Hung, Regional Water Quality Control Board, Los Angeles Region
Don Tsai, Regional Water Quality Control Board, Los Angeles Region
Raul Medina, Regional Water Quality Control Board, Los Angeles Region
Andrea A. Alarcon, Board of Public Works
Rafael Prieto, Chief Legislative Analyst Office
Traci Minamide, Bureau of Sanitation/EXEC
Varouj Abkian, Bureau of Sanitation/EXEC
Omar Moghaddam, Bureau of Sanitation/RAD
Masahiro Dojiri, Bureau of Sanitation/EMD
Hiddo Netto, Bureau of Sanitation/DCT-LAG

ATTACHMENT A

Bureau of Sanitation's Detailed Discussion of Issues Regarding the October 6, 2011 Tentative Donald C. Tillman Water Reclamation Plant and Los Angeles-Glendale Water Reclamation Plant NPDES Permits, Fact Sheets, Monitoring and Reporting Programs, and Other Attachments

On October 6, 2011, the California Water Quality Control Board Los Angeles Region (Regional Board) released the revised Donald C. Tillman Water Reclamation Plant (DCTWRP) and Los Angeles-Glendale Water Reclamation Plant (LAGWRP) Tentative Orders (NPDES No. CA0056227 and CA0053953, respectively), Fact Sheets, and Monitoring and Reporting Programs (MR&P) that incorporated changes due to comments received from the City of Los Angeles Bureau of Sanitation (Bureau), Heal the Bay, and USEPA. The Bureau appreciates the Regional Board staff's efforts to address the comments provided on the Tentative Orders. However, issues related to ammonia effluent limits not incorporating the Basin Plan ammonia objectives and the change to the Toxicity Reporting Requirements are of significant concern to the Bureau. As such, the Bureau staffs appreciate that these technical comments will result in constructive changes to the permits.

1 – Ammonia Effluent Limits

The ammonia effluent limits for DCTWRP and LAGWRP in the Revised Tentative Orders are set equal to the wasteload allocations (WLAs) in the Los Angeles River Nitrogen Compounds TMDL. The Nitrogen Compounds TMDL became effective in March 2004. During TMDL development, the City of Los Angeles in cooperation with the City of Burbank and the Los Angeles County Sanitation District were in the process of developing a site-specific objective (SSO) for ammonia, incurring considerable expense. The TMDL acknowledges the SSO development, but did not incorporate the SSO because at the time the TMDL was adopted, the SSO was not effective. In March 2009, the ammonia SSO became effective for the Los Angeles River.

From the time the SSO became the effective Basin Plan ammonia water quality objectives for the Los Angeles River, the Bureau staff has been encouraging Regional Board staff to modify the TMDL targets and allocations to reflect the revised ammonia objectives. Additionally, the Bureau has provided information demonstrating that, using the new Basin Plan objectives, the Los Angeles River is no longer impaired for ammonia and could be delisted (see the attached letter dated November 9, 2010) from City of Los Angeles to the Regional Board. To date, the TMDL revision and/or delisting decision have not been reached. As a result, the ammonia effluent limits in the DCTWRP and LAGWRP Tentative Orders are currently set equal to the TMDL WLAs without an adjustment for the effective Basin Plan ammonia objectives.

The Bureau is concerned that the currently effective Basin Plan ammonia objectives are not the basis for the effluent limits in the Tentative Orders. The proposed effluent limits in the Tentative Orders present a compliance risk for the Bureau and this risk is a result of an administrative timing issue (i.e., the TMDL was not revised prior to the development of the Tentative Orders and therefore the revised WLAs could not be incorporated) rather than a water quality issue. The Regional Board staff has indicated they will be revising the Los Angeles River Nitrogen Compounds TMDL to incorporate the new Basin Plan ammonia objectives in early to mid-2012. However, even if the TMDL is revised by the Regional Board as planned, it will take approximately a year to become effective and at least several months to revise the permits. Until such time as the effluent limitations are revised, the Bureau will potentially be subject to enforcement liability even though the discharges are meeting limits consistent with current Basin Plan objectives and the receiving water is meeting water quality objectives.

To resolve this administrative issue, the Bureau requested in its September 6, 2011 comment letter that the Tentative Orders be modified to include effluent limitations based on the SSO-adjusted WLAs to be consistent with the Basin Plan objectives. We believe the inclusion of effluent limits based on the SSO-adjusted WLAs is consistent with the intent of the Clean Water Act and the requirements for incorporation of WLAs into NPDES permits. As stated in 40 CFR 122.44(d)(1)(vii)(B):

> "Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, ***are consistent with the assumptions and requirements of any available wasteload allocation*** for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7." (emphasis added)

However, revisions were not made to the Tentative Orders. The Bureau understands that Regional Board staff does not believe the effluent limits could be changed in the absence of addressing the TMDL. If this is the case, the Bureau believes that at least two options are available: delisting as supported by the attached November 9, 2010 letter or revising the TMDL. As such, the Bureau requests that Regional Board staff 1) identify the most appropriate and expeditious approach to address this administrative issue, and 2) identify the earliest possible date that the revisions can be completed and brought before the Regional Board for consideration.

2 – Toxicity Reporting Requirements

On page E-10 of the DCTWRP and page E-9 of the LAGWRP Revised MR&Ps, a provision was added to Table 3A to require reporting of compliance with the chronic toxicity narrative effluent limit. The Bureau understands that this provision was added in response to comments from USEPA. While the Bureau acknowledges the desire to have clear information on compliance with effluent limitations, the approach that is proposed with respect to toxicity is neither appropriate nor accurate.

First, it is unclear why this reporting requirement has been deemed to be necessary for the Bureau's water reclamation plants. WQO 2003-0012, which is cited in USEPA's letter as the basis for this request has been in place for eight years, and these types of reporting requirements have not been required for any other dischargers within the Los Angeles region or the State.[1] We are aware of no justification to require the Bureau to be the first and only agency in the State providing this type of information for compliance purposes. Without a clear understanding of the intent and purpose of the reporting and the language, the Bureau is concerned that confusion regarding the intent of the reporting could occur.

Moreover, the State Water Resources Control Board has embarked upon a process to develop a statewide policy for toxicity that includes adoption of a statewide objective and implementation program, including monitoring and reporting requirements. The State Water Board has conducted multiple workshops and released an initial draft for public comment. Upon adoption, which is anticipated in early 2012, the policy will be binding on the Regional Water Boards. The existence of this statewide effort—which is motivated in large part by a desire to bring consistency to the approach to toxicity testing and related permit requirements—is a compelling reason not to depart from the Regional Board's established approach to toxicity on a permit-specific basis.

The Bureau requests that the reporting requirements for the LAGWRP and DCTWRP be consistent with the reporting requirements for other dischargers in the region and State and that the Regional Board remove the added language.

[1] The citation in the letter is to WQO *2002*-0012 but this appears to be a typographical error.

Attachment 1

HAND DELIVERED

CITY OF LOS ANGELES
CALIFORNIA

ANTONIO R. VILLARAIGOSA
MAYOR

DEPARTMENT OF
PUBLIC WORKS
BUREAU OF SANITATION
ENRIQUE C. ZALDIVAR
DIRECTOR
TRACI J. MINAMIDE
CHIEF OPERATING OFFICER
VAROUJ S. ABKIAN
ADEL H. HAGEKHALIL
ALEXANDER E. HELOU
ASSISTANT DIRECTORS
1149 SOUTH BROADWAY, 9TH FLOOR
LOS ANGELES, CA 90015
TEL (213) 485-2210
FAX (213) 485-2979

November 9, 2010

Sam Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street
Los Angeles, CA 90013

Attention: Renee Purdy, Section Chief
Regional Programs

Dear Mr. Unger:

Information to Support Reassessment and Delisting of Ammonia in Los Angeles River Reach 3 and Reach 4

The City of Los Angeles, Bureau of Sanitation (Bureau), appreciates the opportunity to provide information to support the reassessment and delisting of ammonia in the Los Angeles River (LA River), Reach 3 and Reach 4. Reaches 3 and 4 are currently being addressed by a USEPA approved TMDL (Los Angeles River Nitrogen Compounds and Related Effects TMDL), as identified on the 2008 Los Angeles Regional Water Quality Control Board (RWQCB) approved 303(d) list. To meet the wasteload allocations (WLAs) and targets in the TMDL, the Bureau constructed nitrification-denitrification (NDN) facilities at the Los Angeles-Glendale (LAG) and Donald C. Tillman (DCT) Water Reclamation Plants (WRPs). The Bureau also completed with its partners, the City of Burbank and the Los Angeles County Sanitation Districts, the Ammonia Site Specific Objective (SSO) study that was the basis for the adoption of Resolution No. 2007-005 and resulted in a Basin Plan Amendment approved by U.S. EPA on March 30, 2009.

Given the facts that ammonia SSOs are now effective and the NDN facilities have been constructed at LAG and DCT that discharge into the LA River, the Bureau has examined receiving water data to determine if Reaches 3 and 4 could be delisted from the 303(d) list and to address potential discrepancies between current objectives and the now outdated TMDL targets and WLAs. Data collected in receiving waters since the start of the NDN operations at LAG and DCT were reviewed to determine if the site-specific ammonia objectives were being exceeded in Reaches 3 and 4 of the LA River.

Based on the data, the Bureau requests that ammonia be delisted for Reaches 3 and 4 of the LA River earlier than 2012, the next date for the 303d Listing cycle. Although these data have been submitted to the State Board for consideration under the 2012 listing process, the Bureau is requesting this timeline because the NPDES permits for its two WRPs will be considered for renewal by the RWQCB in 2011. Delisting Reaches 3 and 4 for ammonia before the permits are renewed will ensure that the appropriate ammonia effluent limits can be used in the NPDES permits. If the reaches are not delisted before the permits are renewed, the TMDL ammonia effluent limits which were based on outdated WLAs will apply and will impact the two WRPs' ability to comply with the effluent limits.

Attached please find data analysis and a summary of the data reviewed. Thank you for your consideration of these comments. We look forward to working with you to resolve this issue prior to the adoption of the permits in 2011 and would appreciate an opportunity to meet with at your earliest convenience. If you have any questions, please feel free to contact Hassan Rad at (310) 648-5240, or H.R. (Omar) Moghaddam of my staff at (310) 648-5423.

Sincerely,

Traci J. Minamide, for

ENRIQUE C. ZALDIVAR, Director
Bureau of Sanitation

ECZ:HR
w/Attachments:

1. Data Analysis
2. Reach 3-ELS Abs
   Reach 3-ELS Pres
   Cal for Delisting
3. BOS/EMD, Quality Assurance Manual

c: Renee Purdy, RWQCB-LA Region
Traci Minamide, BOS/EXEC
Varouj Abkian, BOS/EXEC
Adel Hagekhalil, BOS/EXEC
Timeyin Dafeta, BOS/IWMD
Hiddo Netto, BOS/ DCT_LAG
Shahram Kharaghani, BOS/WPD
Mas Dojiri, BOS/EMD
H.R. (Omar) Moghaddam, BOS/RAD
Hassan Rad, BOS/RAD

Heal the Bay

1444 9th Street
Santa Monica CA 90401

ph 310 451 1500
fax 310 496 1902

info@healthebay.org
www.healthebay.org

September 6, 2011

Mr. Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

Re: Comments on the Tentative Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System Permit (NPDES) – City of Los Angeles, Donald C. Tillman Water Reclamation Plant (NPDES No. CA0056227, CI No. 5695) and the Tentative WDRs and NPDES Los Angeles-Glendale Water Reclamation Plant (NPDES No. CA0053953, CI No. 5675)

Dear Mr. Unger:

On behalf of Heal the Bay, we submit the following comments on the *Tentative WDRs and NPDES Permit for the Donald C. Tillman Water Reclamation Plant and Tentative WDRs* and *NPDES Permit for the Los Angeles Glendale Water Reclamation Plant ("Permits" or "Revised Permits")*. As the Permits are very similar, we have combined our comments. We appreciate the opportunity to provide these comments.

We support many aspects of the Revised Permits. For instance, we support the inclusion of a reopener provision to revise the chronic toxicity effluent limitation to be consistent with pending State Water Board policy. This provision is critical considering the State Board is in the process of adopting the Policy for Toxicity Assessment and Control. In the Revised Tillman Permit, we are supportive of the increased monitoring frequencies for numerous constituents. We also support the inclusion of the proposed special studies for the plants – *Constituents of Emerging Concern in Effluent*. This is consistent with the special studies for the Hyperion Treatment Plant NPDES Permit adopted by the Los Angeles Regional Water Quality Control Board ("Regional Board") November 2010 and the JWPCP Permit adopted September 1, 2011. This study is important for gathering data that can be used for public assurance purposes in future efforts to expand water reuse for these plants.

However, the Revised Permits have several issues that should be resolved. For instance, in order to be consistent with the State Water Board's Recycled Water Policy and in accordance with the Reasonable Use Doctrine set forth in the State Constitution and California Statutes, the Regional Board should use the NPDES permit process to push the City to reuse significantly more effluent flow from Tillman and Glendale WRPs. Also, we are concerned that a number of effluent limits were dropped in the Revised Permits. In addition, we urge the Regional Board to include year round water quality-based effluent limitations ("WQBELs") for all metals in the Los Angeles River included on the California Clean Water Act Section 303(d) List of Water Quality Limited Segments ("303(d) List") instead of limiting the application of these limits to wet weather. These comments and others are detailed below.

Heal the Bay

1444 9th Street
Santa Monica CA 90401

ph 310 451 1500
fax 310 496 1902

info@healthebay.org
www.healthebay.org

Glendale and Tillman Water Recycling Plants should maximize water recycling in accordance with the Reasonable and Beneficial Use Doctrine and the State Recycled Water Policy.

While we recognize the efforts of City of Los Angeles to recycle water from the Glendale and Tillman plants, there is much more that can and should be done. According to the City of Los Angeles from 2010-2011 81% of the effluent from Donald C. Tillman Treatment Plant was recycled.[1] While this percentage sounds high, only 11% is recycled in a manner that offsets potable water use. The rest is only "reused" once for ornamental purposes as it passes through the Japanese Gardens and Balboa Wildlife lakes before it is discharged directly into the Los Angeles River. Discharging this water to the river is unreasonable after this use because this water is still clean, valuable, and has the potential to be recycled. Only 26% of the effluent from Los Angeles Glendale Water Treatment Plant was reused from 2010 to 2011[2], leaving potential for significant increases in water recycling.

The State Water Board's Recycled Water Policy calls for an increase in the use of recycled water over 2002 levels by one million acre-feet by 2020 and by two million acre-feet by 2030. Other water providers in Southern California, such as West Basin Municipal Water District, Los Angeles County Sanitation Districts, Las Virgenes Municipal Water District, and Orange County Water District are surpassing the City in the efforts to meet this goal. For example, Orange County Water District has created the Groundwater Replenishment System – the world's largest wastewater purification system for indirect potable reuse. This system treats and reuses 70 million gallons per day (MGD) of treated wastewater for a saltwater intrusion barrier and to replenish groundwater basins. In contrast, the City has backpedalled on a goal of increasing the recycled water by 50,000 acre-feet per year by 2019, as stated in the 2008 report *Securing L.A.'s Water Supply* by Mayor Antonio Villaraigosa and the City of Los Angeles Department of Water and Power. The new goal extends this date to 2029. This is unacceptable. Through the NPDES permitting process, the Regional Board should invoke and apply the Reasonable and Beneficial Use Doctrine to move the dischargers towards the recycling of *all* water not needed for Los Angeles River beneficial uses from the Tillman and Glendale WRPs. Collectively, the State Constitution, California Statutes, case law, and administrative decisions give the water boards ample authority to broadly implement the Reasonable Use Doctrine to promote more efficient water use. As discussed in the Delta Watermaster's recent report to the State Water Board, "…[the] failure to employ appropriate water conservation measures or make use of recycled water when available, are at the heart of the Reasonable Use Doctrine…"

Article 10 Water Section 2 of the State Constitution states:

> "It is hereby declared that because of the conditions prevailing in the State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that **the waste or unreasonable use or**

[1] Number acquired from Draft Recycled Water Table 2010-2011 through email communication with City of Los Angeles Staff dated 8-25-2011.
[2] Ibid.

Heal the Bay

1444 9th Street
Santa Monica CA 90401

ph 310 451 1500
fax 310 496 1902

info@healthebay.org
www.healthebay.org

> **unreasonable method of use of water be prevented,** and the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare. The right to water or to the use of flow of water in or from any natural stream or water course in this state is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and **such right does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water.**" (emphasis added).

Water Code Section 275 states:

> "The Department and board shall take all appropriate proceedings or actions before executive, legislative, or judicial agencies to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water in this state."

Because the Doctrine is established in the California Constitution and multiple Sections of the California Water Code, the Regional Board has ample authority to employ this doctrine to require more efficient water use through water recycling.

The City of Los Angeles generates an average of 400 MGD of wastewater, yet less than 20%[3] of this is recycled currently. Obviously, there is huge opportunity to expand water recycling in Los Angeles. There are numerous examples where tertiary treated water should replace precious potable water that is being used unreasonably and inefficiently. Outdoor irrigation constitutes over half of Southern California's water usage, most of which is currently done with potable water. The average household uses four feet of water per year to water lawns in a climate that produces merely 1.2 ft of precipitation per year, on average. Also, potable water is literally flushed down the toilet. Water from Tillman and Glendale WRPs that is not recycled is discharged and ultimately flows to the Pacific Ocean, where it can no longer be beneficially used. In Southern California, an area that constantly faces water shortages and rising water rates, wasting any tertiary treated freshwater into the ocean is an unreasonable and inefficient use of water.

Compounding this concern is the fact that agencies are exploring the use of expensive, energy intensive and resource impactful ocean desalination while precious treated water is constantly wasted to the ocean. Due to higher levels of salinity, it takes multiple times the amount of energy to treat ocean water to advanced levels as it does to treat tertiary effluent via reverse osmosis. These proposed desalination processes are often co-located with once-through cooling power plants that would otherwise be decommissioned or forced to repower to dry or recycled cooling. These plants have been shown to impact marine life through entrainment and impingement. While we appreciate that the City of Los Angeles is not pursuing this practice, we believe the

[3]Ibid. This number includes water that passes through lakes for ornamental purposes and then is discharged to the Los Angeles River.

Heal the Bay
1444 9th Street
Santa Monica CA 90401
ph 310 451 1500
fax 310 496 1902
info@healthebay.org
www.healthebay.org

city should more aggressively pursue water recycling to set an example showing a better alternative for other areas that are looking into desalination.

To avoid this waste of water and energy resources, the Permit should require the development of a workplan to determine the minimum flow needed to protect and sustain the Los Angeles River's beneficial uses, then maximize recycling of the effluent from Tillman and Glendale WRPs by a specified date. Any discharge to the Los Angeles River over and above the minimum flow needed to protect beneficial uses is an unreasonable use. Such a goal would be consistent with the Reasonable and Beneficial Use Doctrine, the cornerstone of California's water rights laws, and the State Board's Recycled Water Policy.

The WQBEL for metals from the Los Angeles River Metals TMDL should apply in both wet and dry weather.

The Tillman and Glendale Revised Permits include numeric effluent limits for cadmium and zinc based on the assigned wasteload allocations only during wet weather. This approach is inappropriate as the 303(d) list does not distinguish between impairments occurring in dry weather and wet weather. Plainly, the effluent limits for cadmium and zinc set in the Revised Permits should apply in both wet and dry weather, as the WRPs' discharges occur regardless of weather and flow conditions in their respective reaches and could contribute to impairments throughout the year. If monitoring efforts show that the permittee already meets the numeric targets and allocations under certain flow regimes, they will be in compliance with the Permits. Thus we urge the Regional Board to address this general deficiency by including a year-round effluent limit for cadmium and zinc in the Revised Permits.

The Regional Board should <u>not</u> remove WQBELs for constituents in the Permits based on results of the calculated reasonable potential analyses ("RPA").

While we support the inclusion of WQBELs for diazinon and cyanide, we are concerned that WQBELs for other pollutants have been removed from the Permits. The Regional Board utilized the calculated RPA approach to determine which constituents should have effluent limitations included in the Permit. As we have commented many times in the past, this approach is bad public policy for several reasons. The RPA approach never strengthens a permit. In fact, the RPA approach typically greatly reduces the number of WQBELs and the monitoring frequency of constituents in an NPDES permit. In this case, effluent limitations for tetrachloroethylene, bis(2-ethylhexyl)phthalate, and gamma-BHC have been dropped in the Revised Tillman Permit from the current permit. Effluent limitations for cyanide, tetrachloroethylene, benzo(a)anthracene, chrysene, and N-Nitrosodi-n-Propylamine are removed from the Revised Glendale Permit for constituents that no longer have "reasonable potential" as determined by the RPA approach. This is cause for major concern. While we understand the need for adapting permits to account for changes that occur between permit cycles, we also see that the current practice of the RPA approach favors dropping constituents and weakening the monitoring programs from the current permits, creating progressively less protective permits with every permitting cycle.

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1444 9th Street
Santa Monica CA 90401

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Even if the Permittee does not have a problem meeting the remaining effluent limits, the Regional Board should include these limits in the Permit as a safety net to ensure that objectives are met in the future. This is particularly important because the Permits lack a hard toxicity limit, which would have provided a safety net capturing potential impacts from the synergistic effects of low concentrations of multiple contaminants and impacts of contaminants that are not given limitations in this permit. The RPA approach should not grant dischargers "free exceedances" of the priority pollutants and other constituents without a risk of enforcement. Further, including additional WQBELs in the Revised Permits would provide no additional burden to the Permittee, as they would only need to maintain current wastewater performance.

To summarize, we have several issues with the Revised Permits as currently written. The Regional Board should require the permittees to work toward a goal of 100% beneficial and reasonable reuse of treated effluent from Tillman and Glendale WRPs in accordance with the Reasonable Use Doctrine. Also, the Regional Board should use Best Professional Judgment to restore dropped effluent limitations and decreased monitoring within the Permits. The Permits should be strengthened as outlined above.

If you have any questions or would like to discuss any of these comments, please feel free to contact us at (310) 451-1500. Thank you for your consideration of these comments.

Sincerely,

Kirsten James

W. Santilena

Kirsten James, MESM
Water Quality Director
Heal the Bay

W. Susie Santilena, MS, EIT
Environmental Engineer
Heal the Bay

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

SEP 06 2011

Reply to:
WTR-5

Ms. Brandi Outwin-Beals
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Re.: Los Angeles-Glendale Water Reclamation Plant (Order No. R4-2011-XXXX, NPDES No. CA0053953) and Donald C. Tillman Water Reclamation Plant (Order No. R4-2011-XXXX, NPDES No. CA0056227)

Dear Ms. Outwin-Beals:

We have reviewed the subject draft NPDES permits for Los Angeles-Glendale Water Reclamation Plant and Donald C. Tillman Water Reclamation Plant. We appreciate the considerable effort by Regional Water Board staff in developing the draft permits and supporting documentation. We commend the Regional Water Board's ongoing effort to reissue permits with up-to-date requirements in a timely manner. Our comments on the draft permits are limited to chronic toxicity reporting and TMDL implementation, as detailed below.

Chronic Toxicity Reporting

We request clarifying revisions to compliance reporting requirements for the proposed narrative chronic toxicity effluent limit implementing WQO 2002-0012. WQO 2002-0012 requires the enforceable narrative effluent limit to be the following: "There shall be no chronic toxicity in the effluent discharge." While the existing and draft permits require the discharger to report chronic toxicity monitoring results (in chronic toxic units, TUc), they do not require compliance reporting for the narrative chronic toxicity effluent limit.

To correct this omission and provide for our mutual compliance tracking of the narrative chronic toxicity effluent limit required by WQO 2002-0012, the permits should be revised to require a report of "pass" or "fail", on submitted Discharge Monitoring Reports/State Monitoring Reports, when accelerated testing is triggered by monitoring results greater than the numeric accelerated monitoring trigger specified in the permit (i.e., monthly median of 1 TUc = 100/NOEC). This reporting requirement is important to ensure the State and EPA receive evidence when chronic toxicity is present in the discharge at levels higher than the allowable narrative limit of no chronic toxicity in discharged 100 percent effluent.

This reporting requirement can be easily incorporated into each permit by adding the following underlined text to Monitoring and Reporting Table 3, for effluent monitoring:

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Chronic toxicity	TUc	24-hr composite	monthly	5
Chronic toxicity (narrative effluent limit reporting)[Footnote x]	Pass/Fail	24-hr composite	monthly	5

[Footnote x] For narrative chronic toxicity effluent limit reporting, "Pass" is reported when chronic toxicity effluent results do not trigger accelerated testing by exceeding the monthly median trigger of 1.0 TUc = 100/NOEC. "Fail" is reported when chronic toxicity effluent results trigger accelerated testing by exceeding the monthly median trigger of 1.0 TUc = 100/NOEC.

TMDL Implementation

We have reviewed TMDL implementation requirements in the draft permits and support the application of statistical procedures in section 1.4 of the State Implementation Policy (SIP) for TMDL wasteload allocation-to-WQBEL calculations, rather than direct implementation of wasteload allocations as WQBELs. Use of the SIP's statistical procedures ensures that calculated toxics WQBELs for discharges to impaired receiving waters with TMDL wasteload allocations based on CTR criteria are as stringent as the toxics WQBELs calculated for discharges to unimpaired receiving waters.

In 2009, EPA approved a site-specific objective (SSO) for ammonia that could result in less stringent permit limits than those based on current wasteload allocations in the Nitrogen TMDL. As a result, prior to permit implementation, the SSO must be incorporated into the Nitrogen TMDL to ensure that impaired receiving waters will achieve water quality standards for ammonia.

Our endorsement of the final permits is contingent upon inclusion of the requested chronic toxicity reporting revision in the final permits. If you have questions regarding our comments, please contact Robyn Stuber, of my staff, at (415) 972-3524 or stuber.robyn@epa.gov.

Sincerely,

David W. Smith

David W. Smith, Manager
NPDES Permits Office

WATER RECLAMATION
SOLID WASTE MANAGEMENT

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

STEPHEN R. MAGUIN
Chief Engineer and General Manager

November 4, 2011
File No. 31.370-40.4A

Via Electronic Mail

Ms. Brandi Outwin-Beals
California Regional Water Quality Control Board,
Los Angeles Region
320 W. Fourth Street, Suite 200
Los Angeles, CA 90013

Dear Ms. Outwin-Beals:

Comments on the Revised Tentative Waste Discharge Retirements ("WDRs") and NPDES Permit, City of Los Angeles Donald C. Tillman and Los Angeles-Glendale Water Reclamation Plants

The Joint Outfall System[1] and the Santa Clarita Valley Sanitation District of Los Angeles County (Sanitation Districts) appreciate the opportunity to provide comments on the Revised Tentative Waste Discharge Requirements and National Pollutant Discharge Elimination System (NPDES) Permits for the Donald C. Tillman and Los-Angeles Glendale Water Reclamation Plants dated October 6, 2011 (Revised Tentative Permits). The Sanitation Districts' comments are regarding the proposed new reporting requirements for compliance with the narrative effluent limits for chronic toxicity in the Revised Tentative Permits. While we do not routinely comment on NPDES permits proposed by the California Regional Water Quality Control Board, Los Angeles Region (Regional Board) for other dischargers, in this case comments are appropriate because the proposed new requirements would establish a precedent that could impact future NPDES permits issued to the Sanitation Districts.

The Sanitation Districts have considerable experience and expertise in chronic toxicity testing, including owning and operating a toxicology lab employing twenty biologists who perform over 500 Whole Effluent Toxicity (WET) tests per year. We believe that the new reporting requirements are problematic for numerous reasons, and therefore request that the Regional Board delete them from the Revised Tentative Permits. In particular, the Revised Tentative Permits would require the Discharger to make a determination as to whether "Chronic toxicity (narrative effluent limit reporting)" is "Absent" or "Present" each month, based on whether the monthly median trigger of 1.0 TUc = 100/NOEC has been exceeded. The proposed requirements additionally state, ""Absent" does not imply the complete absence of chronic toxicity effects." According to a letter from U.S. EPA to the Regional Board,[2] the purpose of the requirements is, "to ensure that the State and EPA receive *evidence* when chronic toxicity is present in

[1] Ownership and operation of the Joint Outfall System is proportionally shared among the signatory parties to the amended Joint Outfall Agreement effective July 1, 1995. These parties include County Sanitation Districts of Los Angeles County Nos. 1, 2, 3, 5, 8, 15, 16,17, 18, 19, 21, 22, 23, 28, 29, and 34, and South Bay Cities Sanitation District of Los Angeles County.

[2] "Re: Los Angele-Glendale Water Reclamation Plant (Order No. R4-2011-XXXX, NPDES No. CA0053953) and Donald C. Tillman Water Reclamation Plant (Order No. R4-2011-XXX, NPDES No. CA 0056227), from David W. Smith, Manager, NPDES Permits Office, U.S. EPA to Brandi Outwin-Beals, Regional Board, dated September 6, 2011.

the discharge at levels higher than the allowable narrative limit of no chronic toxicity in discharged 100 percent effluent." (Emphasis added.)

The Sanitation Districts strongly object to inclusion of the new reporting requirements in the Revised Tentative Permits. Detailed comments are included in Attachment A, but the primary reasons for this objection are:

- A monthly median of 1.0 TUc is not an approved water quality standard or approved regulatory benchmark to establish the presence or absence of chronic toxicity.
- A discharger should not be compelled to report under penalty of perjury chronic toxicity as "Present" or "Absent" in a discharge based on comparisons to an accelerated monitoring trigger that does not provide conclusive results upon which to base such a determination;
- The proposed requirement is not supported by adequate findings or evidence, and would not provide new "evidence" of the presence or absence of chronic toxicity;
- The accelerated monitoring trigger would improperly operate like a final numeric effluent limitation for chronic toxicity;
- The State Water Resources Control Board has determined that Regional Boards shall not impose final numeric effluent limitations for chronic toxicity before adoption of a statewide policy on toxicity, which is currently under development and likely to be scheduled for board consideration in 2012; and
- After a statewide policy is adopted, if the Regional Board determines that changes to the permits are appropriate, the permits may be reopened pursuant to a reopener clause already included in each permit.

The Sanitation Districts request that the Revised Tentative Permits be amended to remove the requirement to make an "Absent/Present" compliance determination each month for the narrative effluent limit for chronic toxicity. If you have any questions concerning this letter or require additional information, please contact Ann Heil at (562) 908-4288, extension 2803.

Very truly yours,

Stephen R. Maguin

Philip L. Friess

Philip L. Friess
Department Head
Technical Services

PLF:ATH:lmb
Attachment

cc: Don Tsai, Los Angeles Regional Board
Raul Medina, Los Angeles Regional Board
Hassan Rad, City of Los Angeles

ATTACHMENT A

Comments on Proposed Monitoring and Reporting Requirements for Chronic Toxicity
Revised Tentative Order No. R4-2011-XXXX, NPDES No. CA0053953
City of Los Angeles/Los Angeles-Glendale Water Reclamation Plant and
Revised Tentative Order No. R4-2011-XXXX, NPDES No. CA0056227
City of Los Angeles/Donald C. Tillman Water Reclamation Plant

Introduction

On October 6, 2011, the California Regional Water Quality Control Board, Los Angeles Region (Regional Board) proposed the following new monitoring and reporting requirement for the City of Los Angeles' (City) Los Angeles-Glendale Water Reclamation Plant (LA-G) and Donald C. Tillman (Tillman) Water Reclamation Plant via Revised Tentative Order No. R4-2011-XXXX, NPDES No. CA 0053953 (Revised Tentative Order) and Revised Tentative Order No. R4-2011-XXXX, NPDES No. CA0056227:[3]

"Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Chronic Toxicity (narrative effluent limit reporting)[10]	Absent/ Present	24-hour composite	Monthly	5

[5] Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136; where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or State Water Resources Control Board. For any pollutant whose effluent limitation is lower than all the minimum levels (MLs) specified in Attachment 4 of the SIP, the analytical method with the lowest ML must be selected.
[10] For narrative chronic toxicity effluent reporting, "Absent" is reported when chronic toxicity effluent results do not trigger accelerated testing by exceeding the monthly median trigger of 1.0 TUc = 100/NOEC. "Absent" does not imply the complete absence of chronic toxicity effects. "Present" is reported when chronic toxicity effluent results trigger accelerated testing by exceeding the monthly median trigger of 1.0 TUc = 100/NOEC."[4]

The proposed monitoring and reporting requirement is especially significant because the new provision and Footnote 10 focus entirely on compliance with the narrative effluent limitation set forth in Section IV.A. 2.h(b) of the Revised Tentative Order, and require the City to report chronic toxicity as either conclusively "Absent" or "Present" based on the results of routine chronic toxicity effluent testing as compared to the monthly median accelerated monitoring trigger of 1.0 TUc = 100/NOEC. The Sanitation Districts object to inclusion of the proposed monitoring and reporting provision, as detailed below, and request that it be removed prior to the adoption of the Revised Tentative Orders. The remaining permit requirements for chronic toxicity are amply sufficient to allow the Regional Board and the City to assess and control chronic toxicity. These permit requirements include monthly chronic toxicity testing, reporting

[3] For the purposes of these comments, all references will be to the LA-G Revised Tentative Order. However, precisely the same requirements are proposed in the Tillman Revised Tentative Order, and all comments herein apply equally to both Revised Tentative Orders.
[4] Revised Tentative Order No. R4-2011-XXXX, NPDES No. CA 0053953 at Attachment E, Monitoring and Reporting Program (MRP), Section IV.A.1, Table 3, page E-9.

of the results in TUc, accelerated testing when the chronic toxicity monthly median TUc value is greater than 1.0, and investigation of the source of toxicity if warranted by the results of the accelerated testing.

The City Cannot be Compelled to Report Chronic Toxicity as "Present" or "Absent" in Discharge Based on Comparisons to An Accelerated Monitoring Trigger

The City's Revised Tentative Orders and applicable federal regulations require the City to submit monthly Self-Monitoring Reports (SMRs) certifying under penalty of law that the information required to be submitted is "true, accurate, and complete."[5] Liability for submitting false information under these provisions can be significant.[6] The Revised Tentative Orders require that chronic toxicity be reported as being "Absent" or "Present" based on whether the monthly median chronic toxicity result is greater than 1.0 TUc. The 1.0 TUc value is not an approved water quality standard or other approved regulatory benchmark for the presence or absence of chronic toxicity. Regional Board staff is aware that chronic toxicity sampling is an imprecise science, and can suffer from laboratory interference and false positive and negative results.[7] The 1.0 TUc monthly median value serves in the Revised Tentative Orders as a trigger for accelerated monitoring, not a hard and fast determination as to whether chronic toxicity is present. Using a 1.0 TUc monthly median threshold to distinguish between chronic toxicity being present or absent is neither "true," "accurate," nor "complete," and should be discouraged.[8]

Under the Revised Tentative Orders, exceedance of the monthly trigger median value of 1.0 TUc indicates that accelerated monitoring is required to be performed, pursuant to Section V.B.3 of the MRP, for the purpose of further investigating the initial sample result to both determine veracity and scope.[9] Even after such accelerated monitoring is performed, the results can be ambiguous and inconclusive, which explains why the Revised Tentative Orders require the City to initiate Toxicity Identification Evaluation (TIE) and/or Toxicity Evaluation Reduction (TRE) studies if multiple, subsequent accelerated tests exceed the value of 1.0 TUc.[10] Only at that time can chronic toxicity be truly confirmed or eliminated as a concern (and sometimes, not even then, in certain factual circumstances). Requiring the City to now conclusively report the presence or absence of chronic toxicity prior to completing the carefully constructed monitoring process, designed to determine whether chronic toxicity is, in fact, present or absent, is unreasonable and contrary to the remaining provisions of the Revised Tentative Orders.

The Proposed Requirement is Not Supported by Adequate Findings or Evidence, Nor Will it Provide New Evidence of the Presence or Absence of Chronic Toxicity

The Regional Board included the proposed requirement after receiving comments from U.S. EPA, who alleges that the provision's purpose is to facilitate "mutual compliance tracking of the narrative chronic toxicity effluent limitation." [11] This justification is neither compelling nor binding on the Regional Board. The Revised Tentative Orders' existing requirements for chronic toxicity, <u>without</u> the newly proposed monitoring and reporting provision, are consistent with the Regional Board's Water Quality Control Plan (Basin Plan) provisions regarding chronic toxicity (Basin Plan page 3-17) and applicable state and federal law, and provide data needed to track compliance with the narrative chronic toxicity effluent limitation. U.S. EPA further states that the "reporting requirement is important to ensure that the State and EPA receive evidence when chronic toxicity is present in the discharge . . . ."[12] However, the reporting

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[5] Revised Tentative Order at Attachment D, Section V.B.5. at pg. D-7; *see also* 40 C.F.R. §122.22(d).
[6] *Id.*
[7] Federal Register, Volume 67, No. 223, November 19, 2002, p. 69955.
[8] *Accord*, *Systech Environmental Corp v. EPA*, 555 Fed.3d 1466 (1995) (landowner not required to execute penalty of law certification in RCRA permit for information he could not verify).
[9] Revised Tentative Order at Section IV.A.2.h(c), page 22.
[10] Revised Tentative Order at Attachment E, MRP, Section V.E. at pages E-15-17.
[11] September 6, 2011 letter from U.S. EPA to the Regional Board.
[12] *Id.*

requirement does not actually involve the collection and submittal of any additional test results that could be determined to be "evidence" of the presence or absence of toxicity. Rather, the required reporting of "Present" or "Absent" is an interpretive statement based on the same test results that will be available to the State and U.S. EPA regardless of whether or not the proposed adjectives are included in a self-monitoring report. The State and U.S. EPA will <u>not</u> receive any further evidence of the presence or absence of toxicity that they would not already have received. Therefore, requiring the City to make a conclusive monthly determination regarding the "absence" or "presence" of chronic toxicity is unreasonable and unsupported by findings and evidence in the record.[13]

Compliance with the Narrative Effluent Limitation for Chronic Toxicity Should Be Unambiguous

If the proposed requirement is adopted, the City would be required to report chronic toxicity in the discharge as either "Absent" or "Present" in its monthly SMRs for purposes of compliance with the narrative effluent limitation. However, the Revised Tentative Orders' own terms state that reporting "Absent" "*does not imply the complete absence of chronic toxicity effect*."[14] (Emphasis added.) Thus, even if samples do not exceed the monthly median trigger of 1.0 TUc = 100/NOEC, and the SMR reports "Absent" for chronic toxicity, some question remains whether the City will be considered in compliance with the narrative effluent limitation for chronic toxicity, since Footnote 10 implies that any given test result demonstrating the absence of toxicity may in fact be false or at least inconclusive. However, the reverse statement is also true (i.e., exceedance of the monthly median trigger of 1.0 TUc = 100/NOEC does not necessarily imply the actual presence of a chronic toxicity effect), based on studies used in support of promulgation of the chronic toxicity testing methods by U.S. EPA.[15] In other words, "absent" does not definitively mean "absent" and "present" does not definitively mean "present," which illustrates the difficulty of making a true and reliable statement about the presence or absence of toxicity in this circumstance that can be relied upon for the purpose of determining compliance. This level of compliance uncertainty is unreasonable to impose given the significant and strict civil and criminal liability authorized under the Porter-Cologne Water Quality Control Act and the Clean Water Act, and the potential for the filing of third party citizen suits under the Clean Water Act, for alleged non-compliance.

The Accelerated Monitoring Trigger Will Improperly Operate Like a Final Numeric Effluent Limitation for Chronic Toxicity

Another concern of the Sanitation Districts is the implication that via the "Absent"/ "Present" reporting system described above, the monthly median accelerated monitoring trigger of 1.0 TUc = 100/NOEC will inappropriately operate as if it were a final numeric effluent limitation for chronic toxicity. The determination whether chronic toxicity is "Absent" or "Present" for reporting purposes rests entirely on that value, and reporting "Present" will call into question, by Regional Board staff or the public, compliance with the existing narrative effluent limitation, which states, "There shall be no chronic toxicity in the effluent discharge."[16] Thus, by requiring the new "Present"/ "Absent" reporting scheme in the MRP, the Regional Board is improperly performing a modification of the final narrative effluent limitation for chronic toxicity in violation of substantive and procedural requirements contained in 40 C.F.R. Parts 122 and 124 applicable to the imposition and modification of final effluent limits, and without first undertaking the necessary basin planning efforts pursuant to Water Code sections 13240 *et seq.* to justify the change in regulatory approach to controlling chronic toxicity.

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[13] Orders adopted by the Regional Water Board not supported by the findings, or findings not supported by the evidence, constitute an abuse of discretion. (*See Topanga Association for a Scenic Community v. County of Los Angeles*, 11 Cal.3d 506, 514-5 (1974); *California Edison v. SWRCB*, 116 Cal. App.3d 751, 761 (4th Dt. 1981); *see also In the Matter of the Petition of City and County of San Francisco, et al.*, State Board Order No. WQ-95-4 at 10 (Sept. 21, 1995).

[14] Revised Tentative Order at Attachment E, MRP Section IV.A.1, Table 3, page E-9.

[15] Federal Register, Volume 67, No. 223, November 19, 2002, p. 69955.

[16] Revised Tentative Order at Section IV.A. 2.h(b) at page 22.

The State Water Board Opined that Regional Boards Should Not Impose Final Numeric Effluent Limitations for Chronic Toxicity before Adoption of a Statewide Policy on Toxicity

In 2003, the State Water Resources Control Board (State Water Board) opined, in a precedential Water Quality Order, that final numeric effluent limitations for chronic toxicity are premature to impose absent formal adoption of a statewide policy on this issue, including specific modification of the State Implementation Plan (SIP).[17] In lieu of final numeric effluent limitations, the State Water Board instead endorsed the accelerated monitoring trigger of 1 TUc with rigorous TIE/TRE conditions, as is currently imposed upon the City.[18]

As the Regional Board is probably aware, the State Water Board is currently in the process of developing a comprehensive, statewide policy for toxicity assessment and control. A draft policy was issued by the State Water Board in 2010, public comments were submitted in January 2011, and a workshop held in August 2011 to discuss stakeholder comments, questions, and concerns. The Sanitation Districts expect that policy to be considered for adoption in 2012. For this reason, the Regional Board should refrain from imposing new, significant chronic toxicity requirements in NPDES permits until a new statewide policy is adopted by the State Water Board. If new toxicity-related requirements are appropriate based on the adopted statewide policy, the Regional Board may re-evaluate and modify permit terms in accordance with the reopener clauses included in the Revised Tentative Orders.

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[17] *In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 and R4-2002-0123 and Time Schedule Order Nos. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants,* SWRCB/OCC Files A-1496 and 1496(a) at pages 8-10.

[18] *Id.*

Tri-TAC
Jointly Sponsored by:
League of California Cities
California Association of Sanitation Agencies
California Water Environment Association

November 4, 2011

Reply to: 500 Capitol Mall, Suite 1000
Sacramento, CA 95814
(916) 446-7979
blarson@somachlaw.com

Via Electronic Mail
Mr. Samuel Unger, Executive Officer
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

c/o Brandi Outwin-Beals: boutwin@waterboards.ca.gov

SUBJECT: **Tentative Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System Permit (NPDES) – City of Los Angeles, Donald C. Tillman Water Reclamation Plant (NPDES No. CA0056227, CI No. 5695) and Los Angeles-Glendale Water Reclamation Plant (NPDES No. CA0053953, CI No. 5675)**

Dear Mr. Unger:

The California Association of Sanitation Agencies (CASA) and Tri-TAC appreciate the opportunity to provide comments on the Tentative Waste Discharge Requirements (WDRs) for the City of Los Angeles' Donald C. Tillman and Los Angeles-Glendale Water Reclamation Plants (WRPs). CASA and Tri-TAC are statewide organizations comprised of members from public agencies and other professionals responsible for wastewater treatment. Tri-TAC is sponsored jointly by CASA, the California Water Environment Association, and the League of California Cities. The constituency base for CASA and Tri-TAC collects, treats and reclaims more than two billion gallons of wastewater each day and serves most of the sewered population of California.

CASA and Tri-TAC do not routinely comment on individual WDRs proposed by the regional water boards. The exception to this practice is when a draft permit would establish a precedent or conflict with efforts to ensure consistent statewide approaches to important regulatory and technical issues. The latest drafts of the WDRs for the City of Los Angeles' WRPs include new language related to whole effluent toxicity monitoring, reporting, and compliance that we believe is inappropriate, technically flawed and at best premature, given the State Water Resources Control Board's (State Water Board) ongoing process to develop statewide policy governing toxicity testing and permitting. Specifically, apparently in response to comments from United States Environmental Protection Agency (U.S. EPA), both draft WDRs would require a novel manner of reporting of "compliance" with the chronic toxicity narrative effluent limit.[1]

U.S. EPA's comments provide no legal authority supporting the proposed change, and CASA and Tri-TAC do not agree that this reporting requirement is appropriate for wastewater treatment plants. To our knowledge, this requirement has not been imposed on any other discharger within the Los Angeles region or the rest of the state. The revision was not justified by any findings setting forth the need for the proposed requirement.

As acknowledged by many experts, chronic toxicity testing is inherently uncertain. According to studies used in the support of promulgation of the chronic toxicity testing methods, the false positive rate for the *Ceriodaphnia dubia* and fathead minnow chronic toxicity tests are each 4%.[2] Due to this uncertainty, it is not possible to conclusively demonstrate the presence of chronic toxicity using a numeric effluent limit such as 1.0 TUc=100/NOEC, even if it is based on multiple test results (e.g. a monthly median). Instead, conclusive demonstration of chronic toxicity must be determined using multiple test results, followed by accelerated testing, which is why current implementation requirements include a trigger for further accelerated testing, which can be (though is not always) more conclusive. It is not correct to state that chronic toxicity is "Present' when a 1.0 TUc monthly median has been exceeded. For instance, if the discharger is unable to conduct three tests to calculate a monthly median, due to control failure in a test or other reasons, the exceedance of a 1.0 TUc=100/NOEC could simply be due to the inherent false positive rate of the test methods.

The Regional Water Board acknowledged this uncertainty by including language stating that an "Absent" determination "does not imply the complete absence of chronic toxicity effect."[3] However, the reverse statement is also true (i.e., "Present" does not necessarily imply the actual presence of chronic toxicity effect). Due to this uncertainty, the discharger cannot accurately state in a monitoring report, under penalty of perjury, that chronic toxicity is "Present" or "Absent." Requiring a discharger to do so would put the discharger in the untenable position of having to submit incomplete monitoring reports to avoid potentially perjuring him or herself.

[1] Table 3A of the draft Monitoring and Reporting Programs for the Donald C. Tillman WRP (p. E-10) and of the Los Angeles Glendale WRP (p. E-9).

[2] Federal Register, Volume 67, No. 223, November 19, 2002, p. 69955.

[3] Draft Monitoring and Reporting Programs for the Donald C. Tillman WRP (p. E-10) and for the Los Angeles Glendale WRP (p. E-9).

Furthermore, a requirement for the discharger to report chronic toxicity as "Present" or "Absent" based on whether monthly median chronic toxicity results are above or below 1.0 TUc could be interpreted as if it were a final numeric effluent limitation for chronic toxicity. Reporting "Present" does not, however, signify a violation of the narrative chronic toxicity effluent limit due to uncertainty in the chronic toxicity test. In 2003, the State Water Board issued a precedential Water Quality Order indicating that it is premature to impose numeric effluent limitations for chronic toxicity absent formal adoption of a statewide policy on this issue.[4]

The State Water Board has embarked upon a process to develop such a statewide policy for toxicity, including adoption of a statewide objective and implementation program with monitoring and reporting requirements. The State Water Board has conducted multiple workshops and released an initial draft for public comment. Upon adoption, which is anticipated in 2012, the policy will be binding on the regional water boards. This statewide policy is nearing completion, and is intended to bring consistency to the approach to toxicity testing and related permit requirements. We urge the Regional Water Board not to depart from its established approach to toxicity in these permits, but rather to allow the state process to proceed before making substantive changes in the regional approach that has been working well for many years.

CASA and Tri-TAC join the City of Los Angeles Bureau of Sanitation in requesting that the reporting requirements for these WRPs be consistent with the reporting requirements for other dischargers in the region and State, and that the Regional Water Board remove the added language from Table 3A.

Sincerely,

Terrie L Mitchell

Terrie Mitchell, Chair
Tri-TAC

Roberta L Larson

Roberta L. Larson, Director, Legal and
Regulatory Affairs
CASA

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[4] WQO 2003-0012.

Response to Comments

City of Los Angeles
Los Angeles-Glendale Water Reclamation Plant
Tentative NPDES Permit

(This Table summarizes the comments received from interested parties with regard to the above-mentioned Tentative Permit. Each comment presented in this Table has corresponding Regional Water Board's response and/or action taken.)

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
City of Los Angeles, Bureau of Sanitation's (Bureau) Comments Regarding the Tentative NPDES Permit dated August 4, 2011						
Revision of Ammonia Effluent Limitations	C1	**Ammonia Effluent Limits** The ammonia effluent limits for LAGWRP in the Tentative Order are set equal to the wasteload allocations (WLAs) in the Los Angeles River Nitrogen Compounds TMDL. The Nitrogen Compounds TMDL became effective in March 2004. During TMDL development, the City of Los Angeles in cooperation with the City of Burbank and the Los Angeles County Sanitation District were in the process of developing a site-specific objective (SSO) for ammonia. The TMDL acknowledges the SSO development but did not incorporate the SSO because at the time the TMDL was adopted, the SSO was not effective. In March 2009, the ammonia SSO became effective for the Los Angeles River. From the time the SSO became the effective Basin Plan ammonia water quality objective for the Los Angeles River, the Bureau has been encouraging Regional Board staff to modify the TMDL targets and allocations to reflect the revised ammonia objectives.		X	The Nitrogen Compounds TMDL has been in effect since March 23, 2004. While the Nitrogen Compounds TMDL is in effect, the permit writers cannot revise the ammonia effluent limitation. This TMDL established the waste load allocations for ammonia. On March 30, 2009, a Basin Plan amendment incorporating the site specific objectives for ammonia 30-day average objective (SS0) was approved by USEPA. However, the Implementation schedule of the Nitrogen Compounds TMDL specifies that, "If a site specific objective is adopted by this Regional Board, and approved by relevant approving agencies, this TMDL will need to be revised, readopted, and reapproved to reflect the revised water quality objectives." The Nitrogen Compounds TMDL has not yet been revised. Once the Nitrogen Compounds TMDL is revised to incorporate the ammonia SSO and reapproved, staff will revise this NPDES permit. Regional Water Board staff reviewed the LAGWRPs ammonia's compliance with the ammonia TMDL effluent limitations. Since	None necessary.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
		Additionally, the Bureau has provided information demonstrating that, using the new Basin Plan objectives, the Los Angeles River is no longer impaired for ammonia and could be delisted in 2012. However, to date, the TMDL revision and/or delisting decision have not been completed. As a result, the ammonia effluent limits in the LAGWRP Tentative Order are currently set equal to the TMDL WLAs without an adjustment for the effective Basin Plan ammonia objectives. The Bureau is concerned that the currently effective Basin Plan ammonia objectives are not the basis for the effluent limits in the Tentative Order. The proposed effluent limits in the Tentative Order present a compliance risk for the Bureau, and this risk is as a result of an administrative timing issue (i.e., the TMDL was not revised prior to the development of the tentative order and therefore the revised WLAs could not be incorporated) rather than a water quality issue. The Regional Board staff has indicated they will be revising the Los Angeles River Nitrogen Compounds TMDL to incorporate the new Basin Plan ammonia objectives in early to mid-2012. However, even if the TMDL is revised by the Regional Board as planned, it will take approximately a year to become effective and at least several months to revise LAGWRP's permit. Until such time as the effluent limitations are revised, the Bureau will potentially be subject to enforcement liability even though the discharge is meeting limits consistent with current Basin Plan objectives and the receiving water is meeting water quality objectives. To resolve this administrative issue, the Bureau requests that the Tentative Order be modified to include effluent limitations based on the SSO-adjusted WLAs to be consistent with the Basin Plan objectives.			the nitrification/denitritication process became operational in June 2007, the average monthly effluent limitations of 2.2 mg/L has never been exceeded. The maximum ammonia concentration ever detected as of July 2011 was 1.65 mg/L. The Bureau has always been in compliance with the ammonia effluent limitations.	

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
		The Bureau requests that the Average Monthly Effluent Limitation (AMEL) for ammonia at LAGWRP be modified as follows: AMEL = 4.24 mg/L for October 1 through March 31 (ELS-absent) AMEL = 3.19 mg/L for April 1 through September 30 (ELS-present) The proposed AMEL was calculated by utilizing the same pH and temperature used to calculate the current WLAs and applying the current ELS-absent Basin Plan objective between October 1 and March 31 and the current ELS-present Basin Plan objective between April 1 and September 30. The ELS-present and ELS-absent objectives are both applicable to Reach 5 (the reach to which LAGWRP discharges) during the respective time periods indicated for the proposed AMELs. Once the objectives were determined, a 10% margin of safety was subtracted from the value to obtain the proposed AMELs.				
Metals Effluent Limitations	C2	**Metals TMDL** In Table 6 of the Tentative Order for LAGWRP, effluent limits for cadmium, copper, lead, and zinc were calculated based on WLAs established in the Los Angeles River and Tributaries Metals TMDL (Metals TMDL) using the procedures in the SIP. The Bureau feels that the proposed effluent limits are not consistent with the assumptions of the Metals TMDL WLAs or the SIP and should be revised.	X		Regional Water Board staff revisited this issue with the TMDL staff. TMDL staff stated that the intent of the Metals TMDL is to provide only the chronic criteria for dry weather. Therefore, there will be no assigned acute criteria in the calculation using SIP procedure. The revised calculated effluent limitations for copper and lead are now in agreement with the Bureau's proposed effluent limitations. Please see attached revised Reasonable Potential Analysis Table.	Changes have been made.
Tentative Order, List of Attachments, Page 4	1	The Bureau requests that the RWQCB remove the following "Not Applicable" Attachments and remove references to the Attachments within documents. Attachment H Storm Water Pollution Prevention Plan Requirements (Not Applicable)		X	Regional Water Board staff does not agree with the request to remove Attachments H, I, and K. The text in each of those attachments was removed, but the topic header was retained. This is necessary to retain the format consistent with Statewide NPDES template and so that it is clear that the issue has been	None necessary.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
		Attachment I Biosolids/sludge Use and Disposal Requirements (Not Applicable) Attachment K TMDL-Related Tasks (Not Applicable)			addressed.	
Tentative Order, Section II.F Pages 6 and 7 and Attachment F (Fact Sheet), Section IV.C.2.b.i, Page F-26	2	The permit states that: "The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR part 133 and Best Professional Judgment (BPJ) in accordance with 40 CFR part 125.3. A detailed discussion of the TBELs development is included in the Fact Sheet (Attachment F)." Best Professional Judgment in 40 CFR 123.5 does not apply to POTWs. Please revise the language (and in the Fact Sheet) as follows: The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR part 133 ~~and Best Professional Judgment in accordance with 40 CFR part 125.3~~."		X	Regional Water Board staff disagree. 40 CFR part 123.5 describes the Technology-based treatment requirements for POTWs. However, the Best Professional Judgment was used in connection with the discharges **other than POTWs**. The revised language shall read: "The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR part 133 and ~~Best Professional Judgment in accordance with~~ 40 CFR part 125.3."	Changes have been made.
Tentative Order, Section IV, Table 6, Page 19	3	Effluent Limit footnotes for Total Dissolved Solids, Sulfate, Chloride, MBAS are missing footnote explanations for origin of effluent limitations. The Bureau request footnotes explaining the basis for the effluent limits.		X	Regional Water Board staff disagree. There are no missing footnotes. The detailed discussions of effluent limitation derivation are found on pages F-15 and F-28 for chloride, F-28 for Total Dissolved Solids, F-28 for Sulfate, F-29 for MBAS. Since the origin of these effluent limitations are fully discussed in the referenced pages of the Fact Sheet, adding a footnote is not necessary.	None necessary.
Tentative Order, Section IV.A.1.a Table 6, Page 20	4	The mass emissions lbs/day for parameters in units of ug/L refers to Footnote 8 which specifies the calculation for parameters in units of mg/L. Please include a separate footnote for ug/L unit.	X		Regional Water Board staff agree. The footnote on mass emission rate calculation is provided as a guide in calculating the mass emission in lbs/day. To provide guidance to the Bureau in converting from mg/L to µg/L, a new conversion factor of 0.00834 is provided in the revised footnote.	Changes have been made as appropriate.
Tentative Order, Section	5	The Bureau requests to revise sentence: No sample shall exceed an MPN or CFU of 240 total coliform bacteria per 100 milliliters ~~in more than one sample~~	X		After review of CDPH Title 22 requirements, staff agree with the Bureau's comment. The suggested changes will be reflected in the cited sections of the permit.	Changes have been made.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
IV.A.d, Page 21 and Attachment F (Fact Sheet), Section IV.C.2.b.xi.a, Page F-32		~~within any 30-day period~~. The statement is contradictory and not consistent with Title 22 requirements.				
Tentative Order, Section. V.A.17. c., Page 26 and elsewhere in the document (especially Attachment E, II, Table 1, Page E-5)	6	Station RSW-001 should be designated as RSW-LAGT650 and RSW-002 should be RSW-LAGT654 to be consistent with the LARWMP station designations.	X		Regional Water Board staff agree. To be consistent with the Los Angeles Regional Watershed Monitoring Program (LARWMP), the receiving water monitoring station numbering nomenclature in this permit will be identical to LARWMP.	Changes have been made as appropriate.
Tentative Order, Section VI.C.1.b, Page 30	7	It appears that this provision is related to Section 2.4.5 of the SIP that addresses Pollutant Minimization Programs (PMPs) and the need to collect additional information. In accordance with Section 2.4.5.2b of the SIP "RWQCBs may include special provisions in the permit to require the gathering of evidence to determine whether the constituent of concern is present in the effluent at levels above a calculated effluent limitation." It is not necessary for this permit provision to say that additional requirements may be included as result of the information collected because the other re-opener provisions in the permit are broad enough to allow for any necessary permit modification to take place. Suggested language is as follows: "This Order may be reopened ~~for modification, or revocation and reissuance,~~ based on the results of the Pollutant Minimization Program, pursuant to Permit Section VI.C.3.c, to gather evidence to determine whether a constituent of concern is		X	Regional Water Board staff disagree. Section VI.C.1.b. of the Reopener Provisions is a standard language for all POTWs and it is verbatim language from section 2.4.5.1 Pollutant Minimization Program of the SIP. The reopener language shall stay as written.	None necessary.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
		present in the effluent at levels above a calculated effluent limitation. ~~as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are~~ Evidence may include but is not limited to data such as~~,~~ fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. ~~Additional requirements may be included in this Order as a result of the special condition monitoring the data.~~"				
Tentative Order, Section VI.C.2.b., Page 32	8	The Bureau requests the following change to the work plan approval deadline, to be consistent with other references in the permit: "The Discharger shall update its existing initial investigation Toxicity Reduction Evaluation (TRE) workplan and submit a copy of the revised initial investigation TRE workplan to the Executive Officer of the Regional Water Board for approval within ~~30~~ 90 days of the effective date ~~of adoption~~ of this permit."	X		Regional Water Board staff agree. The TRE workplan approval deadline was changed from 30 days to 90 days.	Changes have been made.
Tentative Order, Section VI.C.3.a, Page 33	9	The Bureau requests the section titled: "Storm Water Pollution Prevention Plan (SWPPP) Not Applicable" be removed from the permit since as stated, it is not applicable.	X		Regional Water Board staff agree. The foregoing texts of the SWPPP discussion were deleted but the topic header was retained. See also response #1.	Changes have been made.
Tentative Order, Section VI.C.5.a., Page 36 Attachment F (Fact Sheet), Section VII.B.5.a.,	10	Please strike this section because it does not apply to the LAG treatment process. LAG returns the solids generated by the treatment process back to the sewer for transport and treatment at HTP; therefore, this section does not apply to LAG.	X		Regional Water Board staff agree. The section on sludge disposal requirements does not apply to LAGWRP. Solids generated by the treatment process at the plant are sent to the Hyperion Treatment Plant.	Changes have been made.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
Page F-59						
Tentative Order, Section VII.C. Page 43, Paragraph 3	11	In many instances, the following requirement is unachievable and should be modified. “If the analytical result of any single sample, monitored monthly, quarterly, semiannually, or annually, exceeds the AMEL for any parameter, the Discharger shall collect up to four additional samples within the same calendar month.” The organochlorine pesticide (EPA 608) and base/neutral, and acid extractable (EPA 625) analyses have a turn-around time of approximately one month. Additionally, the allowable holding time between sample collection and extraction is 7 days. So, from the time that the analytical result from one of these tests is known there is no time to collect an additional four samples within the same month. Please consider revising the sentence as follow: “If the analytical result of any single sample, monitored monthly, quarterly, semiannually, or annually, exceeds the AMEL for any parameter, the Discharger may collect up to four additional samples within the same calendar month.	X		Regional Water Board staff agree. To be consistent with the recently adopted POTW permits, the suggested language replaced the tentative permit’s language.	Changes have been made.
Tentative Order, Section VII, D, Pages 43 and 44	12	The Bureau requests that the language reflect the following:” A calendar week will begin on Sunday and end on Saturday. Partial calendar weeks at the end of the calendar month will be carried forward to the next month in order to calculate and report a consecutive seven-day average value on Saturday”. This would be consistent with other Bureau permits.	X		Regional Water Board staff agree. For consistency among other permits, the suggested language was used.	Changes have been made.
Tentative Order, Section VII.N.1, Page 46	13	The Bureau requests the definition of a geometric mean include: “A minimum of 5 data points is needed to conduct a geometric mean that is statistically valid.”		X	Regional Water Board staff disagree. The intent of the Basin Plan in calculating the geometric mean for bacteria is to have a minimum of 5 samples per month. However, it also allows for a lower number if it is deemed statistically valid. Basically, weekly sampling is accepted to be statistically valid, so a geometric mean can and should be calculated with only 4 weekly samples in a 30-day period.	None necessary

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
Attachment E (MRP), Section I.H, Page E-3	14	The following text incorrectly references 40 CFR 136 as a source of procedures for establishing Minimum Levels (MLs). Method Detection Limits (MDLs), not MLs are addressed in 40 CFR 136. Please delete the reference.	X		Regional Water Board staff agree. MDLs are discussed in 40 CFR part 136. Staff deleted the reference to 40 CFR part 136.	Changes have been made.
Attachment E (MRP),Section III. A.1, Table 2, Page E-7	15	LAG Influent flow specifies Sample Type as "Calculated." The Bureau request to change it instead to **"Recorder".**	X		Regional Water Board staff agree. The sample type was changed from "Calculated" to "Recorder."	Changes have been made.
Attachment E (MRP), Section III.A.1, Table 2, Page E-7	16	The Bureau requests that the influent data monitoring for the "Remaining USEPA priority pollutants excluding asbestos" be reduced from semiannually to annually.		X	Regional Water Board staff disagree. This influent data monitoring frequency is standard to all POTWs. In addition, the data collected is useful in determining pretreatment standards and limitations.	None necessary.
Attachment E (MRP), Section IV.A.1 Page E-8 And Attachment E (MRP), Section II. Table 1. Page E-5	17	The Bureau requests the constituents monitored at each monitoring location name be applied consistently between LAG and DCT. The following change will reflect that EFF-001A is the main sampling station for everything except Bacteria and Turbidity.	X		Regional Water Board staff agree. To be consistent with the DCT permit, the sampling station numbering was revised as suggested by the Bureau.	Changes have been made.
Attachment E (MRP), Section IV.A.1, Table 3, Page E-9	18	The Bureau requests insertion of a footnote for temperature, pH, settleable solids, and total suspended solids stating that: "Daily grab samples shall be collected Monday through Friday, except, for holidays; and not on weekends."	X		Regional Water Board staff agree. The suggested footnote was added.	Changes have been made.
Attachment E (MRP) Section IV.A ,Table 3,	19	On July 8, 2010 the Regional Board adopted Resolution R10-005 to amend the Basin Plan to update the bacteria objectives for freshwater designated for water contact recreation by removing		X	Regional Water Board staff disagree. Resolution R10-005 has not been approved by the State Board, OAL, and USEPA. As written, the tentative permit contains effluent limitation for fecal coliform, therefore, fecal coliform must be monitored to verify	None necessary.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
Page E-9 and Section VII.A. Table 4A, Page E-19		the fecal coliform objective. This amendment updates the freshwater bacteria objectives in the Basin Plan to maintain consistency with U.S. EPA's recommendation that *E. coli* replace fecal coliform as an indicator of the presence of pathogens in fresh water, and removes unnecessary permitting and monitoring requirements that arise from having water quality objectives for both indicators. The tentative permit contains requirements to test for both fecal coliforms and *E. coli* as part of the receiving water and effluent monitoring programs. To be consistent with the Basin Plan amendment and eliminate unnecessary monitoring, the Bureau recommends that the Regional Board remove the fecal coliform requirement for testing of the effluent and receiving waters.			facility's compliance.	
Attachment E (MRP), Section IV,A,1, Table 3, Page E-10	20	The Bureau requests to change the 1,4-Dioxane sample type to 24-hour composite sample. This is consistent with previous permits.		X	Regional Water Board staff disagree. USEPA SW-846 listed 1,4-Dioxane as volatile organic compounds. Therefore, the sample type for 1,4-Dioxane shall be "grab". In addition, previous LAGWRP permit indicates sample type as "grab".	None necessary.
Attachment E (MRP), Section V.E.6.b, Page E-16	21	This requirement is not consistent with the requirements as found in Attachment E, V.A.2.d Page E-12 and V.B.3 Page E-14. It should be revised as follows: "If the results of any of the six accelerated tests exceed the acute toxicity limitation, or the chronic toxicity trigger, then the Discharger shall ~~continue to monitor weekly until six consecutive weekly tests are in compliance~~ <u>conduct six additional tests, approximately every two weeks, over a 12-week period</u>."	X		Regional Water Board staff agree. For consistency, the suggested language, modified by the staff, was used.	Changes have been made.
Attachment E (MRP), Section IV,A.,Table 3,Pg E-10 and Section VII,A,a, Table 4a, Page E-	22	The Bureau requests that Benzo(a)Anthracene, Chrysene, N-Nitrosodi-n-propylamine should be monitored annually and be included under "remaining priority pollutants".		X	Regional Water Board staff disagree. These constituents bear effluent limitations in the previous permit. These constituents currently do not show reasonable potential; hence, the frequency was dropped from monthly to quarterly. Regional Water Board staff use a matrix of criteria, based upon Best Professional Judgment, to set the effluent and receiving monitoring frequencies for regulating the myriad of pollutants.	None necessary.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
20					The monitoring frequencies for these pollutants, which vary from monthly, to quarterly, to semiannually, are generally set based on the following three criteria: Criterion 1: Monitoring frequency will be monthly, for those pollutants with reasonable potential to exceed water quality objectives (i.e. monitoring has shown exceedances of the objectives); or, Criterion 2: Monitoring frequency will be quarterly, for those pollutants in which some or all of the historic effluent monitoring data detected the pollutants, but without reasonable potential to exceed water quality objectives; or, Criterion 3: Monitoring frequency will be semiannually, for those pollutants in which all of the historic effluent monitoring data have had non-detected concentrations of the pollutants and without current reasonable potential to exceed water quality objectives.	
Attachment E (MRP), Section V.A.2.a, page E-11, and Table 3a, page E-9	23	Acute toxicity is typically tested based on grab samples. The Bureau requests to change acute toxicity sample type from 24 hr composite to grab sample.		X	Regional Water Board disagree. Acute toxicity testing based on grab sample is applicable to receiving water monitoring only. For effluent monitoring, 24-hour composite sample is required.	None necessary.
Attachment E (MRP), Section VII.A.1, Table 4a, Page E-19	24	The Bureau requests that the "total flow "requirement be removed from Table 4a for receiving monitoring locations RSW-001and RSW-002. Receiving water flow is reported at station RSW-003D.		X	Regional Water Board staff disagree. Receiving water flow measured at station RSW-003D is several miles downstream of RSW-001 and RSW-002. Therefore, the flow measured at RSW-003D will not be a representative of the flow near the facility's outfall.	None necessary.
Attachment E (MRP) Section VII.A 1. Table 4A and B, Pages E-19 to E-23	25	The Los Angeles River Regional Monitoring Program (LARRMP); now called the Los Angeles River Watershed Monitoring Program (LARWMP), was submitted to the LARWQCB by the City of Los Angeles and City of Burbank in December 2007 and was approved by the LARWQCB on Janurary 12,	X		Regional Water Board staff agree. The City of Los Angeles' contribution to fund bioassessment monitoring at 10 random sites, in conjunction with bioassessment monitoring at several targeted sites conducted by the LARWMP program, will provide the information needed to assess the overall health of Los Angeles River watershed receiving waters.	Algal biomass was removed from the MRP

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
		2009. To fund this program some receiving water stations were deleted from the monitoring program, and the remaining stations had their analyzed constituents and frequency changed. One of these approved changes was to remove bioassessment monitoring from the remaining stations and to remove chlorophyll a from the list of monitored constituents. Thus, the requirement in this permit for bioassessment and algal testing at the four receiving stations should be removed. The money saved will be used for bioassessment and algal biomass testing at the 10 annual random sites tested as part of the LARWMP program, as agreed upon by the LARWQCB in January 2009.				
Attachment E (MRP), Section VII.A.1, Table 4a, Page E-20	26	The Bureau request that the receiving water monitoring frequency at surface water stations RSW-001 and RSW-002 for Bis(2-Ethylhexyl)Phthalate, Dibenzo(a,h)Anthracene, Tetrachlorethylene, Benzo(a) anthracene, Chrysene, and N-Nitrosodi-n-propylamine be reduced from quarterly to semiannually since historical receiving water data has been non-detect (ND).		X	Regional Water Board staff disagree. Please see response #22.	None necessary.
Attachment E (MRP), Section VII.A.1 Table 4a, Page E-20	27	The Bureau requests that the receiving monitoring frequency for the “Remaining USEPA priority pollutants excluding asbestos” receiving water RSW-001 and RSW-002 be reduced from semiannually to annually.		X	Regional Water Board staff disagree. The minimum required monitoring frequency for priority pollutants is semi-annually. See also response #22.	None necessary.
Attachment E, (MRP), Section VII.A.1 Table 4a, Page E-20	28	The Nitrogen Compounds TMDL only requires weekly monitoring for nitrate, nitrite, and nitrate+nitrite per the starred statement in the Wasteload Allocations section of the Basin Plan Amendment. The note requiring monitoring frequency does not apply to the ammonia allocations. As a result, The Bureau requests that the ammonia, organic nitrogen, and total nitrogen monitoring frequency be change to monthly consistent with the TMDL.		X	Regional Water Board staff disagree. The objectives of monitoring nitrogen compounds in the receiving water are to assess compliance with in-stream targets, to evaluate effectiveness of the TMDL, and to determine if additional WLAs are required for other constituents. This TMDL document also recommended monitoring for organic nitrogen in order to keep track of total nitrogen loadings.	None necessary.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
Attachment E (MRP), Section VIII.A.1.a, Table 5, Page E-24	29	The Bureau requests that meprobamate be deleted from the list of CEC because it is not listed as an analyte in any ASTM, EPA or USGS analytical method.	X		Regional Water Board staff agree. However, to be consistent with recently adopted POTW permit, iodinated contrast media (i.e., iopromide) will be added to the list of CECs.	Changes have been made as appropriate.
Attachment E (MRP) Section VIII.B, Page E-25 and throughout permit	30	The watershed monitoring program submitted to the LARWQCB in Dec 2007 and approved in Jan 2009 was called the Los Angeles River Regional Monitoring Program (LARRMP). It is now called the called the Los Angeles River Watershed Monitoring Program (LARWMP) to avoid confusion with another City program in place with the acronym LARRMP (Los Angeles River Revitalization Master Plan). The Bureau requests to change all references to Los Angeles River Regional Monitoring Program (LARRMP) contained in the permit to Los Angeles River Watershed Monitoring Program (LARWMP).	X		Regional Water Board staff agree. LARRMP was changed to LARWMP (Los Angeles River Watershed Monitoring Program).	Changes have been made.
Attachment E (MRP), Section IX.B.3, Table 6, Page E-28	31	The Bureau requests the quarterly monitoring periods to begin February, May, August, and November. This would be consistent with other Bureau permits.		X	Regional Water Board staff disagree. The monitoring period specified on Table 6 of the MRP shall stay the same. Monitoring period follows calendar month that starts, e.g., January 1 to March 31 as first quarter. This is standard for all NPDES permits.	None necessary.
Attachment E (MRP), Section IX.B.4, Page E-28	32	The permit contains the following provision for reporting protocols: "Reporting Protocols. The Discharger shall report with each sample result the applicable reported Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136." This language is not consistent with the SIP. We request that this language be replaced with the following: "Reporting Protocols. The Discharger shall report with each sample result the applicable reported Minimum Level (ML), for those constituents where the SIP specifies MLs, and the applicable reported Reporting Limit (RL), for all other constituents as	X		Regional Water Board staff agree. The paragraph was revised to include the Bureau's suggested language.	Changes have been made.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
		appropriate, and the current Method Detection Limit (MDL), as determined by the procedure in Part 136."				
Attachment F (Fact Sheet), Section II.E, Page F-12	33	The Discharger is planning to: (1) upgrade the existing sand filters, (2) upgrade electrical substation switchgear, and (3) replace water lines and instrument air lines ~~by~~ **with** stainless steel pipes.	X		Regional Water Board staff agree. The typographical error has been corrected.	Changes have been made.
Attachment F (Fact Sheet) Section IV.C.2.b.ii, Page F-26	34	The Bureau requests the clarification of the word 'basic' in the following paragraph: "The hydrogen ion activity of water (pH) is measured on a logarithmic scale, ranging from 0 to 14. While the pH of "pure" water at 25°C is 7.0, the pH of natural waters is usually slightly basic due to the solubility of carbon dioxide from the atmosphere." If the pH of natural waters is slightly acidic, this statement makes sense because the product of carbon dioxide's interaction with water is carbonic acid. However, if the statement that natural waters pH is as written, natural salts that are alkaline would be a more appropriate basis for this statement.	X		Regional Water Board staff agree. The second sentence was deleted in the paragraph to avoid contradicting statement.	Changes have been made.
Attachment F (Fact Sheet) Section IV.C.2.ix (c), Page F-30	35	The Bureau finds the term 'restored', to be ambiguous and unnecessary. The Bureau request to change the sentence as follows: when the Los Angeles River is ~~eventually **restored** and the Los Angeles River becomes~~ de-listed for nutrient, then the permit would be re-opened to include Basin Plan-based effluent limitations	X		Regional Water Board staff agree. The sentence was revised as suggested by the Bureau.	Changes have been made.
Attachment F (Fact Sheet) Section C 2c, Page F-35	36	The procedures include those used to conduct **a** reasonable potential analysis (RPA) to determine the need for effluent limitations for priority and non-priority pollutants.	X		Regional Water Board staff agree. The typographical error has been corrected.	Changes have been made.
Attachment J, Page J-1, Pretreatment reporting	37	Sludge processing is not performed at LAG/DCT. Therefore, the Bureau requests that the reference to monitoring sludge from secondary treatment processes be deleted as follows: "The Discharger is required to monitor pollutants in the influent and the effluent of the POTW(s~~)"., and in the sludge from the secondary treatment process.~~ , as sludge is sent to HTP for processing."	X		Regional Water Board staff agree. Sludge is not processed at LAGWRP.	Changes have been made.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
Attachment J, Page J-2	38	Please delete reference to the Joint water pollution control NPDES permit. ~~The Discharger will coordinate its monitoring requirements under this program with the requirements under **Attachment I** (*Biosolids/Sludge Management*) in the Joint Water Pollution Control Plant NPDES Permit (CA0053813, Order NO. R4-2006-0042).~~	X		Regional Water Board staff agree. Staff revised the paragraph to include the applicable Hyperion Treatment Plant NPDES permit and Order number.	Changes have been made as appropriate.
Attachment J, Section A.4.h, Page J-2	39	Reference to the definition of SNC applicable 40 CFR 403 is not correct. Change from 40 CFR 403.12(f)(2)(vii) to 40 CFR 403.8(f)(2)(viii)	X		Regional Water Board staff agree. 40 CFR 403.12(f)(2)(vii) was changed to 40 CFR 403.8(f)(2)(viii).	Changes have been made.
Attachment J, Pages J-2-4	40	Footers on pages 2, 3, and 4 do not have the date "August 4, 2011".	X		Regional Water Board staff agree. The dates were inserted on the pages where it is needed.	Changes have been made.
Attachment J, Section B, Page J-3	41	Semi-Annual Reporting Submission due date is not consistent with other NPDES permits, which is September 1st. The Bureau requests to change the submission due date from August 15th to September 1st.	X		Regional Water Board staff agree. The submission due date was changed to September 1st.	Changes have been made.
Heal the Bay's Comments Regarding the Tentative NPDES Permit dated August 4, 2011						
Heal the Bay		Heal the Bay is in general support of this tentative permit.	X		We thank the Heal the Bay for their comments in support of the permit.	Comment noted.
Heal the Bay	1	Glendale and Tillman Water Recycling Plants should maximize water recycling in accordance with the Reasonable and Beneficial Use Doctrine and the State Recycled Water Policy. The permit should require the development of a workplan to determine the minimum flow needed to protect and sustain the Los Angeles River's beneficial uses, then maximize recycling of the		X	We agree with Heal the Bay that the LAG and DCT WRPs should maximize water recycling. The City of Los Angeles' responded to Heal the Bay's comments on September 23, 2011, by stating that the City also supports water recycling to offset potable demand and for other beneficial uses. The Los Angeles Department of Water and Power (LADWP) and the Bureau of Sanitation (BOS) are working together to expand recycled water usage that will	None necessary.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
		effluent from Tillman and Glendale WRPs by a specified date.			reduce reliance on imported water. To this end, the City of Los Angeles has been developing Recycled Water Master Planning (RWMP) documents since 2009, a process in which Heal the Bay has been involved as a founding participant of the Recycled Water Advisory Group. The RWMP effort is scheduled to be concluded in 2012. The proposed permit is an NPDES permit that regulates the discharges of waste. Water reclamation is addressed in separate Waste Discharge Requirements (Order No. R4-2007-0008 (as amended by R4-2008-0040, adopted on July 10, 2008)) and Water Recycling Requirements (Order No. R4-2007-0009 (as amended by R4-2011-0032, adopted on February 3, 2011)). Both Orders were adopted by this Regional Water Board on January 11, 2007. The State Water Board's Recycled Water Policy directs the Regional Water Boards to encourage the use of recycled water. The State Water Board addressed waste and unreasonable use in the Recycled Water Policy as follows: "The State Water Board hereby declares that, pursuant to Water Code sections 13550 *et seq.*, it is a waste and unreasonable use of water for water agencies not to use recycled water when recycled water of adequate quality is available and is not being put to beneficial use, subject to the conditions established in sections 13550 *et seq*. The State Water Board shall exercise its authority pursuant to Water Code section 275 to the fullest extent possible to enforce the mandates of this subparagraph."	
Heal the Bay	2	The WQBEL for metals from the Los Angeles River Metals TMDL should apply in both wet and dry weather. The Tillman and Glendale Revised Permits include numeric effluent limits for cadmium and zinc based on the assigned wasteload allocations only during wet weather. This approach is inappropriate as the 303(d) list does not distinguish between impairments occurring in dry weather and wet weather. Plainly, the effluent limits for cadmium and zinc set in the		X	The WQBELs for cadmium and zinc are consistent with the Los Angeles River Metals TMDL. TMDLs cannot be modified through a permitting action, but instead must go through a separate public hearing process. If in the future the TMDL is modified, to specify that the WLAs should be applied all year round, then the NPDES permit may be modified, consistent with reopener provision in section VI.C.1. of the Order. TMDL stated that impairments related to cadmium and zinc only occur during wet weather. Therefore, the TMDL has established	None necessary.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
		Revised Permits should apply in both wet and dry weather, as the WRPs' discharges occur regardless of weather and flow conditions in their respective reaches and could contribute to impairments throughout the year. If monitoring efforts show that the permittee already meets the numeric targets and allocations under certain flow regimes, they will be in compliance with the Permits. Thus we urge the Regional Board to address this general deficiency by including a year-round effluent limit for cadmium and zinc in the Revised Permits.			WLAs for cadmium and zinc during wet-weather conditions only.	
Heal the Bay	3	The Regional Board should not remove WQBELs for constituents in the Permits based on results of the calculated reasonable potential analyses ("RPA"). While we support the inclusion of WQBELs for diazinon and cyanide, we are concerned that WQBELs for other pollutants have been removed from the Permits. The Regional Board utilized the calculated RPA approach to determine which constituents should have effluent limitations included in the Permit. As we have commented many times in the past, this approach is bad public policy for several reasons. The RPA approach never strengthens a permit. In fact, the RPA approach typically greatly reduces the number of WQBELs and the monitoring frequency of constituents in an NPDES permit. In this case, ~~effluent limitations for tetrachloroethylene, bis(2-ethylhexyl)phthalate, and gamma-BHC have been dropped in the Revised Tillman Permit from the current permit~~. Effluent limitations for cyanide, tetrachloroethylene, benzo(a)anthracene, chrysene, and N-Nitrosodi-n-Propylamine are removed from the Revised Glendale Permit for constituents that no longer have "reasonable potential" as determined by the RPA approach. This is cause for major concern. While we understand the need for adapting permits to account for changes that occur between permit cycles, we		X	The RPA method is based on State Water Board policy and has been used in all the development of all adopted permits since 2000. The removal of effluent limitations for constituents that no longer show reasonable potential is consistent with the State Water Board's Precedential Order WQO 2003-0009. Regional Water Board staff use a matrix of criteria, based upon Best Professional Judgment, to set the effluent and receiving monitoring frequencies for regulating the myriad pollutants. The monitoring frequencies for these pollutants, which vary from monthly, to quarterly, to semiannually, are generally set based on the following three criteria: Criterion 1: Monitoring frequency will be monthly, for those pollutants with reasonable potential to exceed water quality objectives (i.e. monitoring has shown exceedances of the objectives); or, Criterion 2: Monitoring frequency will be quarterly, for those pollutants in which some or all of the historic effluent monitoring data detected the pollutants, but without reasonable potential to exceed water quality objectives; or, Criterion 3: Monitoring frequency will be semiannually, for those pollutants in which all of the historic effluent monitoring data have had non-detected concentrations of the pollutants and without current reasonable potential to exceed water quality objectives.	None necessary.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
		also see that the current practice of the RPA approach favors dropping constituents and weakening the monitoring programs from the current permits, creating progressively less protective permits with every permitting cycle. Even if the Permittee does not have a problem meeting the remaining effluent limits, the Regional Board should include these limits in the Permit as a safety net to ensure that objectives are met in the future. This is particularly important because the Permits lack a hard toxicity limit, which would have provided a safety net capturing potential impacts from the synergistic effects of low concentrations of multiple contaminants and impacts of contaminants that are not given limitations in this permit. The RPA approach should not grant dischargers "free exceedances" of the priority pollutants and other constituents without a risk of enforcement. Further, including additional WQBELs in the Revised Permits would provide no additional burden to the Permittee, as they would only need to maintain current wastewater performance.				
United States Environmental Protection Agency's (USEPA) Comments Regarding the Tentative NPDES Permit dated August 4, 2011						
USEPA	1	Chronic Toxicity Reporting We request clarifying revisions to compliance reporting requirements' for the proposed narrative chronic toxicity effluent limit implementing WQO 2002-0012. WQO 2002-0012 requires the enforceable narrative effluent limit to be the following: "There shall be no chronic toxicity in the effluent discharge." While the existing and draft permits require the discharger to report chronic toxicity	X		1. The suggested language and footnote (both modified) were incorporated into the Monitoring and Reporting Program (MRP). Based on discussions with USEPA, the reporting of "Pass" / "Fail" were replaced with "Absent" / "Present" to indicate that the accelerated monitoring for chronic toxicity was triggered. The modified footnote now reads: "For narrative chronic toxicity effluent limit reporting, <u>"Absent"</u> is	Changes have been made.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
		monitoring results (in chronic toxic units, TUc), they do not require compliance reporting for the narrative chronic toxicity effluent limit. To correct this omission and provide for our mutual compliance tracking of the narrative chronic toxicity effluent limit required by WQO 2002-0012, the permits should be revised to require a report of "pass" or "fail", on submitted Discharge Monitoring Reports/State Monitoring Reports, when accelerated testing is triggered by monitoring results greater than the numeric accelerated monitoring trigger specified in the permit (i.e., monthly median of 1 TUc = 100/NOEC). This reporting requirement is important to ensure the State and EPA receive evidence when chronic toxicity is present in the discharge at levels higher than the allowable narrative limit of no chronic toxicity in discharged 100 percent effluent. This reporting requirement can be easily incorporated into each permit by adding the following underlined text to Monitoring and Reporting Table 3, for effluent monitoring:			reported when chronic toxicity effluent results do not trigger accelerated testing by exceeding the monthly median trigger of 1.0 TU_c = 100/NOEC. <u>“Absent” does not imply the complete absence of chronic toxicity effects.</u> <u>“Present”</u> is reported when chronic toxicity effluent results trigger accelerated testing by exceeding the monthly median trigger of 1.0 TU_c = 100/NOEC.”	
USEPA	2	TMDL Implementation We have reviewed TMDL implementation requirements in the draft permits and support the application of statistical procedures in section 1.4 of the State Implementation Policy (SIP) for TMDL wasteload allocation-to-WQBEL calculations, rather than direct implementation of wasteload allocations as WQBELs. Use of the SIP's statistical procedures ensures that calculated toxics WQBELs for discharges to impaired receiving waters with TMDL wasteload allocations based on CTR criteria are as stringent as the toxics WQBELs calculated for discharges to unimpaired receiving waters. In 2009, EPA approved a site-specific objective	X		2. Thank you for your comment in support of the permits’ derivation of WLA- WQBELs and the ammonia SSO implementation schedule.	

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
		(SSO) for ammonia that could result in less stringent permit limits than those based on current wasteload allocations in the Nitrogen TMDL. As a result, prior to permit implementation, the SSO must be incorporated into the Nitrogen TMDL to ensure that impaired receiving waters will achieve water quality standards for ammonia.				
City of Los Angeles, Bureau of Sanitation's (Bureau) Comments Regarding the Revised Tentative NPDES Permit dated October 6, 2011						
Ammonia Effluent Limitations	1	**Ammonia Effluent Limits** The Bureau repeated their comment submitted on September 2, 2011. (Please see comment C1 on page 1.) The Bureau's comment letter dated October 6, 2011, added the following paragraph: However, revisions were not made to the Tentative Orders. The Bureau understands that Regional Board staff does not believe the effluent limits could be changed in the absence of addressing the TMDL. If this is the case, the Bureau believes that at least two options are available: delisting as supported by the attached November 9, 2010 letter or revising the TMDL. As such, the Bureau requests that Regional Board staff 1) identify the most appropriate and expeditious approach to address this administrative issue, and 2) identify the earliest possible date that the revisions can be completed and brought before the Regional Board for consideration.		X	As indicated in the previous response on page 1, once the Nitrogen Compounds TMDL is revised to incorporate the ammonia SSO and reapproved, staff will revise this NPDES permit. However, the Regional Water Board staff are exploring options on how to incorporate the 30-day objective SSO in the calculation of ammonia effluent limitations.	None necessary.
Toxicity Reporting Requirements	2	On page E-10 of the DCTWRP and page E-9 of the LAGWRP Revised MR&Ps, a provision was added to Table 3A to require reporting of compliance with the		X	After receiving the comments from interested parties that includes, City of Los Angeles, Joint Outfall System, CASA/Tri-	The chronic toxicity

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
		chronic toxicity narrative effluent limit. The Bureau understands that this provision was added in response to comments from USEPA. While the Bureau acknowledges the desire to have clear information on compliance with effluent limitations, the approach that is proposed with respect to toxicity is neither appropriate nor accurate. First, it is unclear why this reporting requirement has been deemed to be necessary for the Bureau's water reclamation plants. WQO 2003-0012, which is cited in USEPA's letter as the basis for this request has been in place for eight years, and these types of reporting requirements have not been required for any other dischargers within the Los Angeles region or the State. We are aware of no justification to require the Bureau to be the first and only agency in the State providing this type of information for compliance purposes. Without a clear understanding of the intent and purpose of the reporting and the language, the Bureau is concerned that confusion regarding the intent of the reporting could occur. Moreover, the State Water Resources Control Board has embarked upon a process to develop a statewide policy for toxicity that includes adoption of a statewide objective and implementation program, including monitoring and reporting requirements. The State Water Board has conducted multiple workshops and released.an initial draft for public comment. Upon adoption, which is anticipated in early 2012, the policy will be binding on the Regional Water Boards. The existence of this statewide effort-which is motivated in large part by a desire to bring consistency to the approach to toxicity testing and related permit requirements-is a compelling reason not to depart from the Regional Board's established approach to toxicity on a permit specific basis. . The Bureau requests that the reporting requirements for the LAGWRP and DCTWRP be consistent with			TAC, reiterating similar concerns regarding chronic toxicity issue, the Regional Water Board staff confer with the USEPA on possible revision to the previously suggested chronic toxicity monitoring requirement. Based on discussions with the USEPA, the reporting of "Absent" / "Present" were replaced with "Passed" / "Triggered" to indicate whether accelerated monitoring for chronic toxicity was triggered or not. The revised footnote now reads: "For narrative chronic toxicity effluent limit reporting, <u>"Passed"</u> is reported when chronic toxicity effluent results do not trigger accelerated testing by exceeding the monthly median trigger of 1.0 TU_c = 100/NOEC. <u>"Triggered"</u> is reported when chronic toxicity effluent results trigger accelerated testing by exceeding the monthly median trigger of 1.0 TU_c = 100/NOEC." Please also see the response to CASA below.	language was revised as indicated in the revised tentative permit.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
		the reporting requirements for other dischargers in the region and State and that the Regional Board remove the added language.				
California Association of Sanitation Agencies (CASA) and Tri-TAC Comments Regarding the Revised Tentative NPDES Permit dated October 6, 2011						
	1	CASA and Tri-TAC join the City of Los Angeles Bureau of Sanitation in requesting that the reporting requirements for these WRPs be consistent with the reporting requirements for other dischargers in the region and State, and that the Regional Water Board remove the added language from Table 3A.		X	It appears the commenter misunderstands the intent of the proposed chronic toxicity reporting requirement. It is not the Water Board's intent to create a numeric effluent limit for chronic toxicity at this time, or to create new requirements for monitoring chronic toxicity or interpreting test results. Rather, the proposed change simply requires actual chronic toxicity test results to be compared with the permit's existing monitoring threshold, and reported in a narrative manner indicating whether test results are above or below the existing monitoring threshold. This type of reporting is needed by the Water Board because the existing monitoring and reporting approach does not provide clear information that can be efficiently reviewed or coded in State and EPA databases. As DMRs tend to be very lengthy, it is infeasible for State or EPA staff to review every reported data value to determine whether reporting thresholds or permit limits are met or exceeded. With respect to the permit's narrative chronic toxicity effluent limit and associated monitoring requirements, the Water Board believes it is necessary to incorporate a summary of monitoring results for permit requirements that can be efficiently reviewed and coded in State and EPA databases. With respect to the comment that the proposed chronic toxicity reporting requirement might require a permittee to draw conclusions about underlying toxicity, the commenter misunderstands the representation that a permittee would be required to make in reporting whether a chronic toxicity test result is higher than, or lower than, a specified threshold. While the State and EPA continue to believe chronic and acute toxicity	The chronic toxicity language was revised as indicated in the revised tentative permit.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
					testing methods do reliably indicate the presence of toxicity, the proposed reporting requirement simply requires the permittee to report test results in comparison with the existing monitoring threshold, not to evaluate whether the test results are reliable indicators of actual underlying toxicity.	
Joint Outfall System (County Sanitation Districts of Los Angeles County) Comments Regarding the Revised Tentative NPDES Permit dated October 6, 2011						
	1	The Sanitation Districts object to inclusion of the proposed monitoring and reporting provision, as detailed below, and request that it be removed prior to the adoption of the Revised Tentative Orders. The remaining permit requirements for chronic toxicity are amply sufficient to allow the Regional Board and the City to assess and control chronic toxicity. These permit requirements include monthly chronic toxicity testing, reporting of the results in TUc, accelerated testing when the chronic toxicity monthly median TUc value is greater than 1.0, and investigation of the source of toxicity if warranted by the results of the accelerated testing. 1. A monthly median of 1.0 TUc is not an approved water quality standard or approved regulatory benchmark to establish the presence or absence of chronic toxicity. 2. The City Cannot be Compelled to Report Chronic Toxicity as “Present” or “Absent” in Discharge Based on Comparisons to An Accelerated Monitoring Trigger 3. The Proposed Requirement is Not Supported by Adequate Findings or Evidence, Nor Will it Provide New Evidence of the Presence or		X	Please see response above.	The chronic toxicity language was revised as indicated in the revised tentative permit.

Issue/ Document Reference	#	Comment	Agree	Disagree	Response to Comment	Action Taken
		Absence of Chronic Toxicity 4. Compliance with the Narrative Effluent Limitation for Chronic Toxicity Should Be Unambiguous 5. The Accelerated Monitoring Trigger Will Improperly Operate Like a Final Numeric Effluent Limitation for Chronic Toxicity 6. The State Water Board Opined that Regional Boards Should Not Impose Final Numeric Effluent Limitations for Chronic Toxicity before Adoption of a Statewide Policy on Toxicity				

Permit Due Dates and Deliverables

Los Angeles-Glendale Water Reclamation Plant

NPDES Dates to Remember

Effective dates for the monitoring program

Sampling Frequency	**Monitoring Period Begins On…**
Continuous and Daily	January 27, 2012
Weekly	January 29, 2012
Monthly	Feb 1, 2012
Quarterly	May, 2012
Semiannually	August, 2012

Reference:
Page E-28, Table 6

Los Angeles-Glendale Water Reclamation Plant

NPDES Dates to Remember

One Time Dates

Item/Location	Due Date	Action	Division
Permit Adopted (WDR-1)	12/8/11		-
Permit Effective (WDR-1)	1/27/12		-
Permit Expire (WDR-1)	11/10/16		-
File RWD/NPDES Permit Renewal Application (WDR-1)	5/14/16	File Application	RAD
CEC Special Study Work plan (WDR-32 E-23)	7/27/12	Within 6 months of the effective date, submit CEC Special Study work plan. Upon approval implement the work plan	EMD
Initial Investigation TRE Work plan (WDR-32 E-15)	4/26/12	Within 90 days of effective date, submit Initial Investigation TRE Work plan	EMD
Spill Clean-up Contingency Plan (WDR-33)	4/26/12	Within 90 days of effective date, submit SCCP describing activities and protocols to address clean up of spills, overflows, and bypasses	WCSD
A list of all chemicals and proprietary additives (E-31)	4/15/12	Submit together with the first monitoring report to RWQCB	LAG
A technical report on the preventive and contingency plans for controlling accidental discharges, and for minimizing the effect of such events (E-31)	4/26/12	Within 90 days after effective date, submit the technical report	LAG

Los Angeles-Glendale Water Reclamation Plant

NPDES Dates to Remember

Routine Reporting Dates

Area	Report	Due Date(s)	Division
Spill Clean-up Contingency Plan (WDR-34)	Annual Report – Include discussion in annual report of any modifications to the SCCP and the application of the SCCP to all spills during the year	April 15	WCSD
PMP Report (WDR-35)	Annual Report: Status report to RWQCB including all PMP monitoring results from previous year; a list of potential sources of reportable priority pollutants; a summary of all actions undertaken pursuant to the control strategy; and a description of actions to be taken in the following year	April 15 (To be determined on case by case basis with approval of RWQCB)	EMD IWMD
Pretreatment Program (WDR-36, Attachment P)	Annual Report: Submit Annual Pretreatment Program Compliance Report to the Regional Water Board and to the USEPA Region 9.	March 1 of every year	IWMD
Pretreatment Program (WDR-36, Attachment P)	Semiannual Report: Submit Semiannual Pretreatment Program Compliance Report to the Regional Water Board and to the USEPA Region 9.	September 1 of every year covering the periods from January 1 to June 30	IWMD
Spill Certification (WDR 39)	Include certification in annual summary report stating that sewer system emergency equipment are maintained and tested in accordance with the Preventative Maintenance Plan.	April 15	WCSD
Spill Records (WDR-40)	Develop and maintain a record of all spills, overflows, or bypasses and include in annual summary report	April 15	WCSD
Toxicity Test Results (E-18)	Include any accelerated testing conducted during the month	By the 15th day of the third month following sampling	EMD
Bioassessment Monitoring Program (E-22)	Annual Report: Include analyses of the results of the bioassessment monitoring program, along with photographs	April 15	EMD
CEC Special Study (E-25)	Annual Report: submit to the EO of RWQCB summarizing the monitoring	April 15 starting 2013	EMD

	results from the previous year		
Annual Summary Report (E-30)	Annual Report: Include a discussion of the previous year's influent/effluent analytical results and receiving water bacterial monitoring data; an overview of any plans for upgrades to the treatment facility's collection system, the treatment processes, or the outfall system. Sent hard copy to RWQCB.	April 15	EMD
Reasonable Potential Analysis (E-30)	Annual Report: Discuss whether or not reasonable potential was triggered for pollutants which do not have a final effluent limitation in the NPDES permit.	April 15	EMD RAD

Los Angeles-Glendale Water Reclamation Plant
NPDES Dates to Remember
Response Procedures

Item	Page#	Required Action by City	Division
Acute Toxicity: Survival in any 3 consecutive 96 hr static renewal bioassay tests <90% or 1 test <70% survival	WDR-21 WDR-32	If either test fails, conduct 6 more tests every 2 weeks over a 12 week period. Results required within 24 hrs of completion. Additional tests must begin within 5 business days of receipt	EMD
Acute Toxicity: Results of 2 of 6 of accelerated tests <90% survival	WDR-21 WDR-32	Begin TIE	EMD
Acute Toxicity: Results of initial test and any additional of the 6 accelerated tests <70% survival	WDR-22	Immediately implement initial investigation TRE workplan	EMD
Chronic Toxicity: Result > monthly median of 1.0 Tuc trigger	WDR-22 WDR-26	Immediately implement accelerated testing.	EMD
Chronic Toxicity: If any 3 from the initial test and the 6 accelerated tests >1.0 TUc	WDR-23 WDR-26	Initiate TIE and implement the initial investigation TRE workplan.	EMD
Any toxicity exceedance	E-19	Notify Regional Water Board immediately and in writing 14 days after the receipt of the results of any effluent limit	EMD
Material change in character, location, or volume of discharge	WDR-28	File a ROWD report with the RWQCB within 120 days of making a material or proposed change in character, location, or volume of the discharge.	RAD
Planned discharge of chemical toxic to aquatic life not previously reported	WDR-29	Notify EO in writing within 6 months of the planned discharge	DCT
Noncompliance or unable to comply with any prohibition, effluent limit, or	WDR-29	Notify RWQCB Watershed Regulatory Section Chief by phone (213) 576-6616 or electronically within 24 hrs of knowledge and confirm in writing	EMD

receiving water limit		within 5 days unless waived.	
Change in point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse	WDR-30	Prior to making change, file a petition with the SWRCB Division of Water Rights and receive approval	DCT
Toxicity Reduction Requirements: Results of initial investigation TRE work plan indicate the need to continue the TRE/TRI	WDR-33	Expeditiously develop a more detailed TRE work plan within 15 days of completion of the initial investigation TRE and submit to EO	EMD
Treatment Plant Capacity: Average Daily dry-weather flow equals or exceeds 75 % of design capacity	WDR-33	Within 90 days after the 30-day monthly average dry-weather flow equals or exceeds 75% of the design capacity, submit a written report to RWQCB, signed by the senior administrative officer, with information regarding flow characteristics and studies, if any, to review plant capacity requirements	DCT
Spill Clean-up Contingency Plan: After every spill from facility or collection system servicing the facility	WDR-33	Review and amend SCCP as appropriate	WCSD
Pollutant Minimization Program	WDR-34	Develop a PMP when evidence that a priority pollutant is present above the effluent limitation and either the concentration is reported as DNQ and the effluent limit is less than the ML; or the concentration is reported as ND and the effluent limit is less than the MDL	EMD
Pretreatment: Changes to pretreatment regulations 40 CFR 403	WDR-36	Within 6 months of pretreatment regulation (40 CFR 403) revisions with no timetable specified, complete the required actions	IWMD

Spills: Local Health Agency Initial Notification	WDR-37	Notify local health officer of any unauthorized release of sewage or other waste that causes or likely will cause a discharge to water of the State within 2 hours of knowledge of spill	WCSD
Spills: Cal EMA Notification	WDR-37	Notify Cal EMA of reportable Quantity of sewage or hazardous waste (>1,000 gal) that enters or is likely to enter waters of the state within 2 hours of knowledge of the release (800) 852-7550	WCSD
Spills: RWQCB Notification	WDR-37	Notify RWQCB of any unauthorized release of sewage or other waste that causes or likely will cause a discharge to water of the State within 2 hours of knowledge of spill (213) 576-6657	WCSD
Spills Monitoring	WDR-38	Take a grab sample of all SSOs that reach a water of the State of any volume and take a grab sample of all SSOs greater than 1,000 gallons.	WPD EMD
Spills Monitoring	WDR-38	Take daily grab samples upstream and downstream of SSO entry point until two consecutive sets indicate return to background levels	WPD EMD
Spills: RWQCB USEPA 24 hour Reporting	WDR-38	Submit a report to RWQCB via email (aanijielo@waterboards.ca.gov) and to the USEPA by phone (415 972 3577) or by facsimile (415 947 3545) for spills reaching waters of the State or if spill is >1,000 gallons as soon as possible but within 24 hours of knowledge of spill	WPD EMD
Spills: RWQCB USEPA Preliminary Reporting	WDR-39	Submit a preliminary written report to RWQCB and to the USEPA for spills reaching waters of the State or if spill is >1,000 gallons within 5 working days after disclosure of the spill	WPD EMD
Spills: RWQCB USEPA Final Reporting	WDR-39	Submit final written report to RWQCB and to the USEPA for spills reaching waters of the State or if spill is >1,000 gallons within 30 days after submittal of preliminary report	WPD EMD
Noncompliance with AMEL	WDR-44	In the event of noncompliance with AMELs, the sampling frequency shall be increased to weekly and shall continue until compliance with the AMEL is demonstrated	EMD

Bypassed Filters	E-26	Monitor the receiving water downstream of the discharge for BOD5, inform RWQCB by telephone within 24 hrs of the event, submit a written report to the RWQCB according to the corresponding monthly self-monitoring report schedule	EMD

Presentations

Los Angeles–Glendale and Donald C. Tillman Water Reclamation Plant

Presentation to the
Los Angeles
Regional Water Quality Control Board

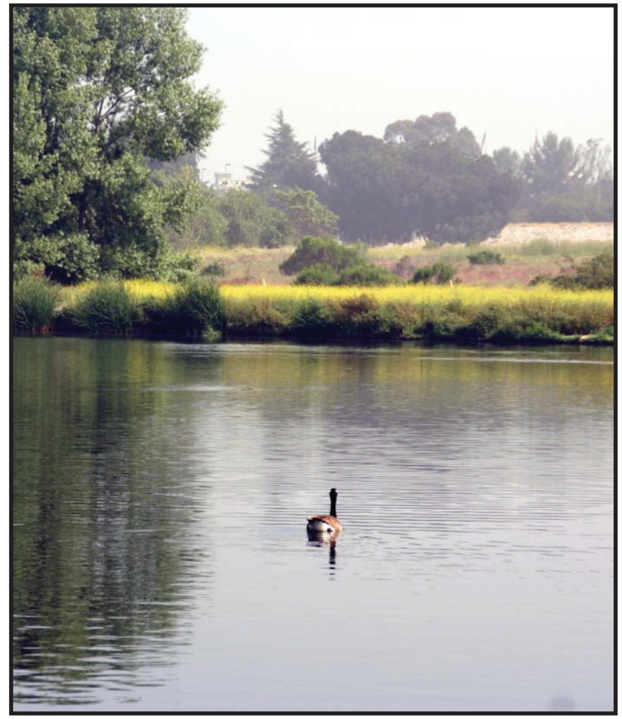
Presented By:

Hassan Rad
City of Los Angeles
Department of Public Works
Bureau of Sanitation

December 08, 2011

Presentation Outline

- Introduction
- LAG and DCT's Accomplishments
- Water Recycling Program
- Summary



Introduction

- Donald C. Tillman
  - Design Capacity 80 MGD
  - Serves West San Fernando Valley
  - Tertiary Treated, NDN, Chlorinated/ Dechlorinated
  - Discharge flow to Japanese Garden, Balboa Lake, Wildlife Lake, and LA River
- Los Angeles-Glendale
  - Design capacity 20 MGD
  - Tertiary Treated, NDN, Chlorinated/ Dechlorinated
  - Discharges flow to LA River

Plants' Accomplishments

- 2007- Completed $61 million Nitrification-Denitrification projects
- 2013- $10 million wet weather emergency storage tank (DCT)
- Excellent effluent quality

Current Water Recycling Program

- 31 million gallons per day of recycled water from DCTWRP and LAGWRP is used for beneficial reuse.

- DCTWRP Usage
  - Irrigation, Balboa Lake, Wildlife Lake, Japanese Garden, Los Angeles River, and In plant usage

- LAGWRP Usage
  - Irrigation, Industrial Cooling Water, and In plant usage

Future Water Recycling Program

- In partnership with LADWP to expand water recycling usage
- Recycled Water Master Plan
  - Provide up to an additional 50,000 AFY of Recycled Water including Ground Water Replenishment (GWR).
  - Completed a pilot study to evaluate the proposed GWR treatment process.
  - Implementation of additional non-potable reuse projects (i.e., irrigation and industrial process).
  - Maximize Reuse

Summary

- LAG and DCT are exceptional wastewater treatment plants with excellent performance.
- The Bureau supports water recycling programs in the Los Angeles Region.
- **The Bureau supports RWQCB's staff recommendation for the adoption of the proposed revised tentative permits for both DCTWRP and LAGWRP.**

Thank You

Hassan Rad, PE
Acting Senior Environmental Engineer
12000 Vista Del Mar M.S. 535
Playa Del Rey, CA 90293
(310) 648-5240
hassan.rad@lacity.org

DCT & LAG 2011 Permits

DCT & LAG 2011 NPDES Permit Workshop

Changes, Responsibilities, & Requirements

Regulatory Affairs Division
February 8, 2012

CITY OF LOS ANGELES
SANITATION
DEPARTMENT OF
PUBLIC WORKS

Overview

- DCT/LAG Permit History
- Effluent Limits and Changes
- Monitoring Requirements and Changes
- Ammonia History
- DCT TSO Requirements
- Chronic Toxicity Narrative
- Alternative Power Source Requirement
- Grab Schedule Change
- CEC Special Study
- Sanitary Sewer Overflows Requirements
- Deliverables
- Questions/Comments

DCT/LAG Permit History

Milestone	DCT	LAG
2006 NPDES Permit Adopted	December 14, 2006	December 14, 2006
Modified NPDES Permit	April 1, 2010	April 1, 2010
2006 NPDES Permit Expired	November 10, 2011	November 13, 2011
New NPDES Application Submitted	April 19, 2011	April 19, 2011
New NPDES Permit Adopted	December 8, 2011	December 8, 2011
New NPDES Effective Date	February 3, 2012	January 27, 2012
New NPDES Expiration Date	November 10, 2016	November 10, 2016
Application Renewal Deadline	May 14, 2016	May 14, 2016

DCT Effluent Limits- Sample Point 001A

Parameter SP 001	Units	Ave Monthly	Ave Weekly	Daily Maximum
BOD5	mg/l	20	30	45
TSS	mg/l	15	40	45
O&G	mg/l	10	--	15
Settleable Solids	ml/L	0.1	--	0.3
Total Residual Chlorine	mg/l	--	--	0.1
Chloride	mg/l	190	--	--
TDS	mg/l	950	--	--
Sulfate	mg/l	300	--	--
MBAS	mg/l	0.5	--	--
Nitrate	mg/l	7.2	--	--
Nitrite	mg/l	0.9	--	--
Nitrate+Nitrite	mg/l	7.2	--	--
Ammonia	mg/l	2.2*	--	4.2
Cd (Wet Weather)	ug/l	3.4	--	8.4
Copper (Dry & Wet)	ug/l	25	--	31
Lead (Dry & Wet)	ug/l	9	--	14
Mercury	ug/l	0.051	--	0.15
Selenium	ug/l	4.2	--	7.8
Zinc (Wet Weather)	ug/l	194	--	277
CN	ug/l	4.3	--	8.5

* Interim TSO Limit

DCT Effluent Limits Changes

DCT Old vs. New NPDES						
		Daily Max			Monthly Ave	
Parameter SP 001	**Units**	**Old**	**New**		**Old**	**New**
Cadmium	µg/L	8.2	8.4		4.1	3.4
Copper	µg/L	34	31		23	25
Lead	µg/L	18	14		7.3	9
Mercury	µg/L	0.12	0.15		0.051	0.051
Selenium	µg/L	9.2	7.8		3.6	4.2
Zinc	µg/L	257	277		193	194
CN	µg/L	--	8.5		--	4.3
Ammonia	mg/L	4.2	4.2		1.4	2.2*

* Interim TSO Limit

LAG Effluent Limits- Sample Point 001

Parameter SP 001	Units	Ave Monthly	Ave Weekly	Daily Maximum
BOD5	mg/l	20	30	45
TSS	mg/l	15	40	45
O&G	mg/l	10	--	15
Settleable Solids	ml/L	0.1 ml/L	--	0.3ml/L
Total Residual Chlorine	mg/l	--	--	0.1
Chloride	mg/l	190	--	--
TDS	mg/l	950	--	--
Sulfate	mg/l	300	--	--
MBAS	mg/l	0.5	--	--
Nitrate	mg/l	7.2	--	--
Nitrite	mg/l	0.9	--	--
Nitrate+Nitrite	mg/l	7.2	--	--
Ammonia	mg/l	2.2	--	7.8
Cd (Wet Weather)	ug/l	4.3	--	8.9
Copper (Dry & Wet)	ug/l	24	--	34
Lead (Dry & Wet)	ug/l	10	--	20
Mercury	ug/l	0.051	--	0.17
Zinc (Wet Weather)	ug/l	240	--	298
CN	ug/l	4.3	--	8.5
Bis(2-Ethylhexyl)Phthalate	ug/l	4	--	--
Dibenzo(a,h)Anthracene	ug/l	0.049	--	0.098

LAG Effluent Limits Changes

LAG Old vs New NPDES						
		Daily Max		Monthly Ave		
Parameter SP 01	**Units**	**Old**	**New**	**Old**	**New**
Cadmium	µg/L	9.2	8.9	4.6	4.3
Copper	µg/L	40	34	22	24
Lead	µg/L	22	20	8.8	10
Mercury	µg/L	0.13	0.17	0.051	0.051
Zinc	µg/L	288	298	217	240
Dibenzo(a,h)Anthracene	µg/L	0.11	0.098	0.049	0.049
Cyanide	µg/L	--	8.5	--	4.3

DCT Monitoring Requirements Changes

Parameter SP001	Old Monitoring Frequency	New Monitoring Frequency
Boron	Monthly	Quarterly
Fluoride	Monthly	Quarterly
Zinc	Quarterly	Monthly
CN	Quarterly	Monthly
Tetrachlorethylene	Quarterly	Semiannually
Bis(2-ethylhexyl)phthalate	Quarterly	Semiannually
Gamma-BHC	Quarterly	Semiannually
Diazinon	NA	Quarterly

LAG Monitoring Requirements Changes

Parameter SP001	Old Monitoring Frequency	New Monitoring Frequency
Boron	Monthly	Quarterly
Fluoride	Monthly	Quarterly
CN	Quarterly	Monthly
Diazinon	NA	Quarterly

Effective Dates For Changes to Monitoring Program

Date	Sample Type		Date	Sample Type
2/3/2012	DCT Continuous and Daily		1/27/2012	LAG Continuous and Daily
2/5/2012	DCT Weekly		1/29/2012	LAG Weekly
3/1/2012	DCT Monthly		2/1/2012	LAG Monthly
May 2012	DCT Quarterly		May 2012	LAG Quarterly
August 2012	DCT Semiannual		August 2012	LAG Semiannual

Reference:
LAG, Page E-28, Table 6
DCT, Page E-34, Table 11

Ammonia History

- **7/9/07 -** NDN pilot start up at DCT
- **10/1/07** – DCT incorporated N TMDL ammonia WLAs
- **3/30/09** – Ammonia SSO Approved by USEPA
- **11/9/11** - BOS submits request for TSO
- **12/8/11** – RWQCB adopts DCT/LAG NPDES permits
- **2/2/12** – RWQCB adopts Ammonia TSO for DCT

DCT TSO Requirements

- Effluent Limit Change for Ammonia

	Old Limit	New Limit
Monthly Average	1.4 mg/l	2.2 mg/l*
Daily Maximum	4.2 mg/L	4.2 mg/l

* TSO Interim Limit

- Expires October 2012
- May apply for 5 year extension
- SWRCB planning to revise Ammonia TMDL to incorporate SSOs
- Once TMDL is revised, new Ammonia Limits
- TSO Update

Chronic Toxicity Narrative

- Proposed permit contained “Absent” or “Present” Compliance Reporting
- Violation of Narrative Toxicity Standard “There shall be no toxicity present”
- Final permit contains “Passed” or “Triggered” language

DCT Alternative Power Source Requirement

- Must maintain a sufficient alternate power source
- Must provide standby or emergency power and/or storage capacity to prevent sewage spill due to plant upset or power failure

Grab Schedule Change

- New Grab Sample Schedule requirements for pH, temp, settleable solids, TSS which provides:
- “Daily grab samples shall be collected Monday through Friday, except for holidays; and not on weekends.”

CEC Special Study

- Bureau must develop a CEC special study work plan within 6 months of effective date of permit (8/3/12 DCT, 7/27/12 LAG)
- Fully implement the special study upon RWQCB & US EPA approval of the work plan
- Annual report due each year by April 15th (Starting 4/15/13)

SSO Requirements

Sewage Spills Requirements

- Notification Requirements
- Reporting Requirements
- Monitoring Requirements

Sewage Spills

	EVENT #1	EVENT #2	EVENT #3
EVENT TYPE	1000 GAL SPILL ENTERING REC'G WATER	1000 GAL SPILL	1000 GAL SPILL & REC'G WATER, OR GROUND WATER, OR PUBLIC EXPOSURE
STEP 1	DAILY GRAB REC'G WATER (UPSTREAM & DOWNSTREAM)	"GOOD FAITH EFFORT" TO COLLECT GRAB SAMPLE OF SPILL, OVERFLOW, OR BYPASS	
STEP 2	NOTIFY RWQCB BY ELECTRONIC MEANS WITHIN 24 HOURS		
STEP 3	SUBMIT PRELIMINARY WRITTEN REPORT WITHIN 5 DAYS		
STEP 4	SUBMIT FINAL WRITTEN REPORT WITHIN 10 DAYS		

SSO Notification Requirements

LA RWQCB

LA RWQCB – NPDES

- Unauthorized SSO that enters or is likely to enter a water of the state or if public contact likely
- NPDES - notification ASAP within 2 hrs after knowledge
- Unauthorized release of any volume of sewage
- Daytime phone (213) 576-6657
- Weekends (213) 305-2253
- After Hours (213) 305-2284

SSO Notification Requirements

Cal EMA/OES

Cal EMA/OES – NPDES & CWC 13271

- Reportable Quantity of sewage or hazardous waste that enters or is likely to enter waters of the state
- CWC 13271 requires “Immediate” notification as soon as:

  1) knowledge of the discharge

  2) notification is possible, and

  3) notification can be provided without substantially impeding cleanup or other emergency measures
- NPDES - notification ASAP within 2 hrs after knowledge
- Reportable Quantity > 1,000 gal
- 24 hr reporting (800) 852-7550

SSO Notification Requirements
LACDPH

LACDPH – NPDES & CA HSC 5415.5

- Unauthorized release of sewage, effluent, or other waste that causes or likely will cause a release to waters of the state
- NPDES requires notification within 2 hrs after knowledge
- CA HSC 5415.5 requires “Immediate” notification as soon as knowledge of release
- “Immediately” interpreted by LACDPH to be within 15 minutes after knowledge of the release
- Unauthorized release (sewage, effluent, waste) of any volume
- Daytime phone (626) 430-5420
- Weekend/After Hours (213) 974-1234

SSO Reporting Requirements
NPDES

Sewage Spills Reporting Requirements

- RWQCB/US EPA - Surface Waters or > 1,000 gal

  - ASAP within 24 hours of knowledge

  - Preliminary Written Rpt - 5 days after disclosure

  - Final Written Rpt - 30 days of preliminary report

  - Annual Summary Report – Yearly PMP/O&M Certification & Record of spills

SSO Reporting Requirements
SSO WDR

Sewage Spills Reporting Requirements

- SSO WDR
  - Category 1 – 1,000 gal or more - SSO dbase
    - Initial Reporting ASAP but within 3 days of knowledge
    - Final Certified Reporting – Within 15 days of SSO response and remediation
  - Category 2 – All other spills - SSO dbase
    - Within 30 days after the end of calendar month in which the SSO occurs
  - Private Laterals – Discretionary

SSO Monitoring Requirements

- Grabs for all SSOs that reach a water of the State of any volume
- Grabs for all SSOs greater than 1,000 gallons
- Daily grabs upstream and downstream of SSO entry point until two consecutive sets indicate return to background levels

DCT One-Time Submittals

Item/Pg	Due Date	Action	Division
Permit Adopted (WDR-2)	12/8/11		-
Permit Effective (WDR-2)	2/3/12		-
Permit Expires (WDR-2)	11/10/16		-
File RWD/NPDES Permit Renewal Application (WDR-2)	5/14/16	File Application	RAD
CEC Special Study Work plan (WDR-32 E-28)	8/3/12	Within 6 months of the effective date, submit CEC Special Study work plan. Upon approval implement the work plan	EMD
Initial Investigation TRE Work plan (WDR-32 E-15)	5/3/12	Within 90 days of effective date, submit Initial Investigation TRE Work plan	EMD
Spill Clean-up Contingency Plan (WDR-34)	5/3/12	Within 90 days of effective date, submit SCCP describing activities and protocols to address clean up of spills, overflows, and bypasses	WCSD
A list of all chemicals and proprietary additives (E-37)	4/15/12	Submit together with the first monitoring report to RWQCB	DCT
A technical report on the preventive and contingency plans for controlling accidental discharges, and for minimizing the effect of such events (E-37)	4/26/12	Within 90 days after effective date, submit the technical report	DCT

LAG One-Time Submittals

Item/Pg	Due Date	Action	Division
Permit Adopted (WDR-1)	12/8/11		-
Permit Effective (WDR-1)	1/27/12		-
Permit Expire (WDR-1)	11/10/16		-
File RWD/NPDES Permit Renewal Application (WDR-1)	5/14/16	File Application	RAD
CEC Special Study Work plan (WDR-32 E-23)	7/27/12	Within 6 months of the effective date, submit CEC Special Study work plan. Upon approval implement the work plan	EMD
Initial Investigation TRE Work plan (WDR-32 E-15)	4/26/12	Within 90 days of effective date, submit Initial Investigation TRE Work plan	EMD
Spill Clean-up Contingency Plan (WDR-33)	4/26/12	Within 90 days of effective date, submit SCCP describing activities and protocols to address clean up of spills, overflows, and bypasses	WCSD
A list of all chemicals and proprietary additives (E-31)	4/15/12	Submit together with the first monitoring report to RWQCB	LAG
A technical report on the preventive and contingency plans for controlling accidental discharges, and for minimizing the effect of such events (E-31)	4/26/12	Within 90 days after effective date, submit the technical report	LAG

DCT Routine Reporting

Area	Report	Due Date(s)	Division
Spill Clean-up Contingency Plan (WDR-34)	Annual Report – Include discussion in annual report of any modifications to the SCCP and the application of the SCCP to all spills during the year	April 15th	WCSD
PMP Report (WDR-35)	Annual Report: Status report to RWQCB including all PMP monitoring results from previous year; a list of potential sources of reportable priority pollutants; a summary of all actions undertaken pursuant to the control strategy; and a description of actions to be taken in the following year	April 15th (To be determined on case by case basis with approval of RWQCB)	EMD IWMD
Pretreatment Program (WDR-37, Attachment P)	Annual Report: Submit Annual Pretreatment Program Compliance Report to the Regional Water Board and to the USEPA Region 9.	March 1 of every year	IWMD
Pretreatment Program (WDR-37, Attachment P)	Semiannual Report: Submit Semiannual Pretreatment Program Compliance Report to the Regional Water Board and to the USEPA Region 9.	September 1 of every year covering the periods from January 1 to June 30	IWMD
Spill Certification (WDR-40)	Include certification in annual summary report stating that sewer system emergency equipment are maintained and tested in accordance with the Preventative Maintenance Plan.	April 15th	WCSD
Spill Records (WDR-41)	Develop and maintain a record of all spills, overflows, or bypasses and include in annual summary report	April 15th	WCSD

DCT Routine Reporting (Continued)

Area	Report	Due Date(s)	Division
Toxicity Test Results (E-18)	Include any accelerated testing conducted during the month	By the 15th day of the third month following sampling	EMD
Bioassessment Monitoring Program (E-25)	Annual Report: Include analyses of the results of the bioassessment monitoring program, along with photographs	April 15th	EMD
CEC Special Study (E-31)	Annual Report: submit to the EO of RWQCB summarizing the monitoring results from the previous year	April 15th starting 2013	EMD
Annual Summary Report (E-36)	Annual Report: Include a discussion of the previous year's influent/effluent analytical results and receiving water bacterial monitoring data; an overview of any plans for upgrades to the treatment facility's collection system, the treatment processes, or the outfall system. Sent hard copy to RWQCB.	April 15th	EMD
Reasonable Potential Analysis (E-36)	Annual Report: Discuss whether or not reasonable potential was triggered for pollutants which do not have a final effluent limitation in the NPDES permit.	April 15th	EMD RAD
TSO updates (correspondence)	Quarterly Report on status of activities to meet final ammonia effluent limit.	March 1st	DCT

LAG Routine Reporting

Area	Report	Due Date(s)	Division
Spill Clean-up Contingency Plan (WDR-34)	Annual Report – Include discussion in annual report of any modifications to the SCCP and the application of the SCCP to all spills during the year	April 15th	EMD
PMP Report (WDR-35)	Annual Report: Status report to RWQCB including all PMP monitoring results from previous year; a list of potential sources of reportable priority pollutants; a summary of all actions undertaken pursuant to the control strategy; and a description of actions to be taken in the following year	April 15th (To be determined on case by case basis with approval of RWQCB)	EMD IWMD
Pretreatment Program (WDR-36, Attachment P)	Annual Report: Submit Annual Pretreatment Program Compliance Report to the Regional Water Board and to the USEPA Region 9.	March 1 of every year	IWMD
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Spill Certification (WDR 39)	Include certification in annual summary report stating that sewer system emergency equipment are maintained and tested in accordance with the Preventative Maintenance Plan.	April 15th	WCSD
Spill Records (WDR-40)	Develop and maintain a record of all spills, overflows, or bypasses and include in annual summary report	April 15th	WCSD

LAG Routine Reporting (Continued)

Area	Report	Due Date(s)	Division
Toxicity Test Results (E-18)	Include any accelerated testing conducted during the month	By the 15th day of the third month following sampling	EMD
Bioassessment Monitoring Program (E-22)	Annual Report: Include analyses of the results of the bioassessment monitoring program, along with photographs	April 15th	EMD
CEC Special Study (E-25)	Annual Report: submit to the EO of RWQCB summarizing the monitoring results from the previous year	April 15th starting 2013	EMD
Annual Summary Report (E-30)	Annual Report: Include a discussion of the previous year's influent/effluent analytical results and receiving water bacterial monitoring data; an overview of any plans for upgrades to the treatment facility's collection system, the treatment processes, or the outfall system. Sent hard copy to RWQCB.	April 15th	EMD
Reasonable Potential Analysis (E-30)	Annual Report: Discuss whether or not reasonable potential was triggered for pollutants which do not have a final effluent limitation in the NPDES permit.	April 15th	EMD RAD

DCT Response Procedures

Item	Page#	Required Action by City	Division
Acute Toxicity: Survival in any 3 consecutive 96 hr static renewal bioassay tests <90% or 1 test <70% survival	WDR-22 WDR-33	If either test fails, conduct 6 more tests every 2 weeks over a 12 week period. Results required within 24 hrs of completion. Additional tests must begin within 5 business days of receipt	EMD
Acute Toxicity: Results of 2 of 6 of accelerated tests <90% survival	WDR-22 WDR-33	Begin TIE	EMD
Acute Toxicity: Results of initial test and any additional of the 6 accelerated tests <70% survival	WDR-22	Immediately implement initial investigation TRE workplan	EMD
Chronic Toxicity: Result > monthly median of 1.0 TU_c trigger	WDR-23	Immediately implement accelerated testing.	EMD
Chronic Toxicity: If any 3 from the initial test and the 6 accelerated tests >1.0 TU_c	WDR-23 WDR-26	Initiate TIE and implement the initial investigation TRE workplan.	EMD
Any toxicity exceedance	E-19	Notify Regional Water Board immediately and in writing 14 days after the receipt of the results of any effluent limit	EMD
Material change in character, location, or volume of discharge	WDR-29	File a ROWD report with the RWQCB within 120 days of making a material or proposed change in character, location, or volume of the discharge.	RAD
Planned discharge of chemical toxic to aquatic life not previously reported	WDR-29	Notify EO in writing within 6 months of the planned discharge	DCT

DCT Response Procedures (Continued)

Item	Page#	Required Action by City	Division
Noncompliance or unable to comply with any prohibition, effluent limit, or receiving water limit	WDR-30	Notify RWQCB Watershed Regulatory Section Chief by phone (213) 576-6616 or electronically within 24 hrs of knowledge and confirm in writing within 5 days unless waived.	EMD
Change in point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse	WDR-30	Prior to making change, file a petition with the SWRCB Division of Water Rights and receive approval	DCT RAD
Toxicity Reduction Requirements: Results of initial investigation TRE work plan indicate the need to continue the TRE/TRI	WDR-33	Expeditiously develop a more detailed TRE work plan within 15 days of completion of the initial investigation TRE and submit to EO	EMD
Treatment Plant Capacity: Average Daily dry-weather flow equals or exceeds 75 % of design capacity	WDR-33	Within 90 days after the 30-day monthly average dry-weather flow equals or exceeds 75% of the design capacity, submit a written report to RWQCB, signed by the senior administrative officer, with information regarding flow characteristics and studies, if any, to review plant capacity requirements	DCT
Spill Clean-up Contingency Plan: After every spill from facility or collection system servicing the facility	WDR-34	Review and amend SCCP as appropriate	WCSD
Pollutant Minimization Program	WDR-34	Develop a PMP when evidence that a priority pollutant is present above the effluent limitation and either the concentration is reported as DNQ and the effluent limit is less than the ML; or the concentration is reported as ND and the effluent limit is less than the MDL	EMD

DCT Response Procedures (Continued)

Item	Page#	Required Action by City	Division
Pretreatment: Changes to pretreatment regulations 40 CFR 403	WDR-37	Within 6 months of pretreatment regulation (40 CFR 403) revisions with no timetable specified, complete the required actions	IWMD
Spills: Local Health Agency Initial Notification	WDR-37	Notify local health officer of any unauthorized release of sewage or other waste that causes or likely will cause a discharge to water of the State within 2 hours of knowledge of spill	WCSD
Spills: Cal EMA Notification	WDR-38	Notify Cal EMA of reportable Quantity of sewage or hazardous waste (>1,000 gal) that enters or is likely to enter waters of the state within 2 hours of knowledge of the release (800) 852-7550	WCSD
Spills: RWQCB Notification	WDR-38	Notify RWQCB of any unauthorized release of sewage or other waste that causes or likely will cause a discharge to water of the State within 2 hours of knowledge of spill (213) 576-6657	WCSD
Spills Monitoring	WDR-39	Take a grab sample of all SSOs that reach a water of the State of any volume and take a grab sample of all SSOs greater than 1,000 gallons.	WPD EMD
Spills Monitoring	WDR-39	Take daily grab samples upstream and downstream of SSO entry point until two consecutive sets indicate return to background levels	WPD EMD

DCT Response Procedures (Continued)

Item	Page#	Required Action by City	Division
Spills: RWQCB USEPA 24 hour Reporting	WDR-39	Submit a report to RWQCB via email (aanijielo@waterboards.ca.gov) and to the USEPA by phone (415 972 3577) or by facsimile (415 947 3545) for spills reaching waters of the State or if spill is >1,000 gallons as soon as possible but within 24 hours of knowledge of spill	WPD EMD
Spills: RWQCB USEPA Preliminary Reporting	WDR-40	Submit a preliminary written report to RWQCB and to the USEPA for spills reaching waters of the State or if spill is >1,000 gallons within 5 working days after disclosure of the spill	WPD EMD
Spills: RWQCB USEPA Final Reporting	WDR-40	Submit final written report to RWQCB and to the USEPA for spills reaching waters of the State or if spill is >1,000 gallons within 30 days after submittal of preliminary report	WPD EMD
Noncompliance with AMEL	WDR-44	In the event of noncompliance with AMELs, the sampling frequency shall be increased to weekly and shall continue until compliance with the AMEL is demonstrated	EMD
Bypassed Filters	E-27 E-32	Monitor the receiving water downstream of the discharge for BOD5, inform RWQCB by telephone within 24 hrs of the event, submit a written report to the RWQCB according to the corresponding monthly self-monitoring report schedule	EMD

LAG Response Procedures

Item	Page#	Required Action by City	Division
Acute Toxicity: Survival in any 3 consecutive 96 hr static renewal bioassay tests <90% or 1 test <70% survival	WDR-21 WDR-32	If either test fails, conduct 6 more tests every 2 weeks over a 12 week period. Results required within 24 hrs of completion. Additional tests must begin within 5 business days of receipt	EMD
Acute Toxicity: Results of 2 of 6 of accelerated tests <90% survival	WDR-21 WDR-32	Begin TIE	EMD
Acute Toxicity: Results of initial test and any additional of the 6 accelerated tests <70% survival	WDR-22	Immediately implement initial investigation TRE workplan	EMD
Chronic Toxicity: Result > monthly median of 1.0 Tu_c trigger	WDR-22 WDR-26	Immediately implement accelerated testing.	EMD
Chronic Toxicity: If any 3 from the initial test and the 6 accelerated tests >1.0 TU_c	WDR-23 WDR-26	Initiate TIE and implement the initial investigation TRE workplan.	EMD
Any toxicity exceedance	E-19	Notify Regional Water Board immediately and in writing 14 days after the receipt of the results of any effluent limit	EMD
Material change in character, location, or volume of discharge	WDR-28	File a ROWD report with the RWQCB within 120 days of making a material or proposed change in character, location, or volume of the discharge.	RAD
Planned discharge of chemical toxic to aquatic life not previously reported	WDR-29	Notify EO in writing within 6 months of the planned discharge	LAG

LAG Response Procedures (Continued)

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Noncompliance or unable to comply with any prohibition, effluent limit, or receiving water limit	WDR-29	Notify RWQCB Watershed Regulatory Section Chief by phone or electronically within 24 hrs of knowledge and confirm in writing within 5 days unless waived.	EMD
Change in point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse	WDR-30	Prior to making change, file a petition with the SWRCB Division of Water Rights and receive approval	LAG RAD
Toxicity Reduction Requirements: Results of initial investigation TRE work plan indicate the need to continue the TRE/TRI	WDR-33	Expeditiously develop a more detailed TRE work plan within 15 days of completion of the initial investigation TRE and submit to EO	EMD
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LAG Response Procedures (Continued)

Item	Page#	Required Action by City	Division
Pretreatment: Changes to pretreatment regulations 40 CFR 403	WDR-36	Within 6 months of pretreatment regulation (40 CFR 403) revisions with no timetable specified, complete the required actions	IWMD
Spills: Local Health Agency Initial Notification	WDR-37	Notify local health officer of any unauthorized release of sewage or other waste that causes or likely will cause a discharge to water of the State within 2 hours of knowledge of spill	WCSD
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Noncompliance with AMEL	WDR-44	In the event of noncompliance with AMELs, the sampling frequency shall be increased to weekly and shall continue until compliance with the AMEL is demonstrated	EMD
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QUESTIONS / COMMENTS

NPDES Permits - HWRP

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
320 West 4th Street, Suite 200, Los Angeles, CA 90013
(213) 576-6600 • Fax (213) 576-6660
http://www.waterboards.ca.gov/losangeles/

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street, San Francisco, California 94105-3901
Phone (415) 947-8707 • Fax (415) 947-3545
http://www.epa.gov/region09/

ORDER NO. R4-2010-0200
NPDES NO. CA0109991

WASTE DISCHARGE REQUIREMENTS AND NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FOR THE CITY OF LOS ANGELES, HYPERION TREATMENT PLANT DISCHARGE TO THE PACIFIC OCEAN

The following Discharger is subject to State waste discharge requirements and federal NPDES permit requirements, as set forth in this Order/Permit:

Table 1. Discharger Information

Discharger	City of Los Angeles
Name of Facility (and POTW)	Hyperion Treatment Plant
Facility (and POTW) Address	12000 Vista del Mar Boulevard
	Playa del Rey, CA 90293
	Los Angeles County
The U.S. Environmental Protection Agency and the Los Angeles Regional Water Quality Control Board have classified this discharge as a major discharge.	

The discharge by the City of Los Angeles from the discharge points identified below is subject to State waste discharge requirements and federal NPDES permit requirements, as set forth in this Order/Permit:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Secondary treated wastewater	33º 55' 06" N	118º 26' 51" W	Pacific Ocean
002 (Y-shaped diffuser)	Secondary treated wastewater	33º 54' 43" N 33º 54' 02" N	118º 31' 17" W 118º 31' 38" W	Pacific Ocean

Table 3. Administrative Information for State Order

This Order was adopted by the Los Angeles Regional Water Quality Control Board on:	**November 4, 2010**
This Order shall become effective on:	**December 24, 2010**
This Order shall expire on:	**December 23, 2015**
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	180 days prior to the Order expiration date (Title 40, Code of Federal Regulations, part 122.21(d))

I, Samuel Unger, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on **November 4, 2010**.

Samuel Unger

Samuel Unger, Executive Officer

Table 4. Administrative Information for Federal Permit

This Permit was issued by the U.S. Environmental Protection Agency, Region IX on:	
This Permit shall become effective on:	DECEMBER 24, 2010
This Permit shall expire on:	DECEMBER 23, 2015
The Discharger shall submit, in accordance with 40 CFR 122.21(d), a new application at least 180 days before:	180 days prior to the Order expiration date (Title 40, Code of Federal Regulations, part 122.21(d))

I, Alexis Strauss, do hereby certify that this Permit with all attachments is a full, true, and correct copy of an NPDES permit issued by the U.S. Environmental Protection Agency, Region IX, on 22 November 2010.

Alexis Strauss

Alexis Strauss, Water Division Director

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I. FACILITY INFORMATION

The following Discharger is subject to the waste discharge requirements set forth in this Order/Permit:

Table 5. Facility Information

Discharger	City of Los Angeles
Name of Facility	Hyperion Treatment Plant
Facility Address	12000 Vista del Mar Boulevard
	Playa del Rey, CA 90293
	Los Angeles County
Facility Contact, Title, and Phone	Steven Fan, Sanitation Wastewater Manager III, (310) 648-5168
Mailing Address	Same as the Facility Address
Type of Facility	Publicly Owned Treatment Works
Facility Design Flow	450 Million Gallons per Day (MGD) 30-day (monthly) average daily dry weather design capacity for secondary treatment and 850 MGD wet weather peak hydraulic capacity

II. FINDINGS

The California Regional Water Quality Control Board, Los Angeles Region (hereinafter Regional Water Board) and U.S. Environmental Protection Agency, Region IX (hereinafter USEPA), find:

A. Consent Decree and Legal Issues

1. The operations and discharges from the Hyperion Treatment Plant and Hyperion collection system are also regulated under the following enforcement actions:

   a. Amended Consent Decree entered on February 19, 1987, in United States and State of California v. City of Los Angeles, No. CV 77-3047-HP (C.D. Cal.);

   b. Settlement Agreement, Los Angeles Superior Court Case No. C 665238, dated January 29, 1990, in State of California v. City of Los Angeles; and

   c. Regional Water Board Cease and Desist Order 98-073 adopted on September 14, 1998, amended by Order No. 00-128 adopted on August 31, 2000.

2. In 1987, the City entered into an Amended Consent Decree (No. CV 77-3047-HP) with USEPA and the Regional Water Board. The Amended Consent Decree required the City under time schedules to undertake the following:

   a. Eliminate the discharge of sewage sludge into the Pacific Ocean from Hyperion Treatment Plant by December 31, 1987 (status: completed);

   b. Comply with interim effluent limits (status: interim limits are not applicable as of January 1, 1999);

   c. Complete construction and begin operation of the Hyperion Energy Recovery System by June 30, 1989 (status: completed, but determined to be a technological failure and abandoned);

   d. Achieve and thereafter maintain compliance with full secondary treatment at Hyperion Treatment Plant by December 31, 1998 (status: completed and achieved compliance before the deadline);

   e. Prepare a storm water pollution reduction study and implement the recommended measures thereof (status: completed).

3. On June 7, 1991, the United States and the State of California filed a supplemental complaint under the existing Consent Decree CV 77-3047-HP (C.D. Cal.) for alleged pretreatment violations against the City. Settlement of the complaint had been concluded and modification to the Consent Decree was

entered into court records on August 7, 2000. The settlement requires the City to implement the Westside Water Recycling Extension Project and the Santa Monica Bay Storm Drain Low-Flow Diversion Project. The Santa Monica Urban Runoff Recycling Facility (SMURRF), completed in 2000, is owned and operated by the City of Santa Monica. As the first full-scale, dry-weather runoff recycling facility in the U.S., SMURRF reclaims dry-weather run-off from storm drains and treats the water for reuse in landscape irrigation and toilet flushing. Since the City of Los Angeles contributes about half of the runoff treated at SMURRF, the City of Los Angeles pays for half of the capital and operations and maintenance costs of SMURRF, pursuant to an agreement with the City of Santa Monica.

4. In October 1987, the California Attorney General, on behalf of the Regional Water Board, filed a complaint with the Los Angeles Superior Court (Case No. C 665238) for civil penalties regarding unpermitted discharges to Discharge Point 001 and raw sewage overflows to surface waters from the Hyperion collection system. A settlement agreement was entered into on January 29, 1990. In lieu of civil penalties, the City was required to implement 23 projects to improve and enhance its collection system and benefit the waters in the Greater Los Angeles Area. Twenty two of the 23 Settlement Agreement projects were completed. The remaining project deals with the Los Angeles Zoo Wastewater Treatment Facility. Two of the original three elements of the Zoo project (construction of the retention basin and pump station for collection of the Zoo's wastewater and diversion to the North Outfall Sewer force main) were completed in 1995. The City proposes to substitute Best Management Practices (BMPs) for the storm water peripheral drainage system, the third element of the original design concept. After reviewing the study, the Regional Water Board rejected the City's proposal because the proposed BMPs cannot achieve the objectives of the original Settlement Agreement. In a letter dated November 5, 2008, the Regional Water Board approved the Fremont High School Stormwater Improvements Project (Freemont Project) as a substitute for the remaining project, the Los Angeles Zoo Perimeter Drain System (PDS). The Regional Water Board agreed that the PDS has ceased to be necessary due to the completion of the North East interceptor Sewer and East Central Interceptor Sewer. The Freemont Project includes the implementation of the following five BMPs- Stormwater Diversion, Pollutant Settlement, Sediment Forebay, Dry Extended Detention/Retention Basin, and "Smart" (programmable) Irrigation System.

5. Sanitary sewer overflows (SSO) have been a recurring problem in certain areas of the City; in particular, in the South Central area, where sewers do not have adequate capacity to absorb inflow and infiltration that occurs during wet weather. For the entire City, between the wet weather period of February 3, 1998 through May 14, 1998, there were 99 separate sanitary overflows resulting in 44 million gallons of raw sewage released. On September 14, 1998, the Regional Water Board issued Cease and Desist Order (CDO) No. 98-073 to the City, amended by CDO No. 00-128 adopted on August 31, 2000. The CDO requires the City to provide adequate capacity to its wastewater collection system by constructing

additional sewer alignments and/or upgrading the existing sewer system over a seven-year period (1998 to 2005). Additionally, on August 5, 2004, the United States, the State of California, Santa Monica Baykeeper, a coalition of community groups and the City of Los Angeles lodged a settlement that would resolve the parties' Clean Water Act and Porter-Cologne Act litigation regarding the City of Los Angeles' SSOs and sewage odors. This settlement underwent public review and comment. The Settlement Agreement and Final Order were filed on October 28, 2004, entered by the District Court on October 29, 2004, and are now being implemented. The Settlement Agreement and Final Order establish a ten-year program designed to reduce SSOs and sewage odors to the maximum extent feasible.

B. Background. The City of Los Angeles (hereinafter Discharger) is currently discharging pursuant to Order No. 2005-0020 and National Pollutant Discharge Elimination System (NPDES) Permit (CA0109991), which was adopted on April 7, 2005. The Discharger submitted a Report of Waste Discharge, dated October 27, 2009**,** and applied for an NPDES permit renewal to discharge up to 450 MGD of disinfected (Discharge Point 001) and undisinfected (Discharge Point 002) secondary-treated municipal wastewater from Hyperion Treatment Plant (hereinafter, HTP or Facility and its appurtenances), to the Pacific Ocean within Santa Monica Bay, a water of the United States. The application for the NPDES permit renewal and Report of Waste Discharge was deemed complete on December 23, 2009.

For the purposes of this Order/Permit, references to the "discharger" or "permittee" in applicable federal and State laws, regulations, plans, or policies are held to be equivalent to references to the Discharger herein.

C. Facility Description. The Discharger owns and operates its regional collection system and treatment facilities, the Hyperion Treatment Plant, and outfalls. The HTP is a publicly owned treatment works (POTW). In 2009, the HTP treated an average inflow of 312 MGD and discharged an average effluent flow of 275 MGD. Approximately 37 MGD of the secondary effluent was sent to West Basin Water Recycling Facility for advanced treatment and reuse.

The treatment system consists of primary and secondary treatments. Preliminary and primary wastewater treatments consist of screening, grit removal, and primary sedimentation with coagulation and flocculation. In secondary treatment, the primary effluent is biologically treated in a high purity oxygen-activated sludge process comprised of a cryogenic oxygen plant, nine secondary reactor modules and 36 secondary clarifiers. Each secondary reactor module is designed to handle 50 MGD of flow, which results in a total treatment capacity of 450 MGD producing secondary effluent. After clarification, secondary effluent is discharged into Santa Monica Bay. Discharge up to 325 MGD flows by gravity to the outfall, or is pumped at the Effluent Pumping Plant when flows exceed 325 MGD.

Solid fractions recovered from wastewater treatment processes include grit, primary screenings, primary sludge and skimmings, thickened waste activated sludge, digested sludge screenings and digester cleaning solids. The fine solids (grit, primary screenings, digested sludge screenings, digester cleaning solids) that consist of primary inorganic materials are hauled away to landfills. The remaining solid fractions (primary sludge and skimmings, thickened waste activated sludge) are anaerobically digested onsite. The digested solids are screened and dewatered using centrifuges. Since January 1, 2003, the Hyperion Treatment Plant has implemented full thermophilic digestion to generate Class A "EQ" biosolids. The biosolids (treated sewage sludge) are beneficially reused offsite for land application and composting projects. The digester gas is cleaned and a major part of the gas is currently exported to the Los Angeles Department of Water and Power's Scattergood Steam Generating Plant, located immediately adjacent to the Hyperion Treatment Plant. The exported digester gas is used as fuel in the generation of electricity. In return, the generating plant provides steam for digester heating for the Hyperion Treatment Plant. During interruption in the export of steam from the Scattergood Steam Generation Plant, digester gas can be used as fuel for in-plant boilers that provide steam to heat the anaerobic digesters. Any remaining non-exported digester gas may be flared, if necessary, and is regulated under a flare operation permit from the South Coast Air Quality Management District (AQMD). Attachment B provides a map of the area around the facility.

A schematic of the Hyperion Treatment Plant's wastewater flow is presented in Attachment C-1.

The HTP is part of a joint outfall system commonly known as the Hyperion Treatment System, which consists of the wastewater collection system, the Hyperion Treatment Plant and three upstream wastewater treatment plants: Donald C. Tillman Water Reclamation Plant (Tillman WRP), Los Angeles-Glendale Water Reclamation Plant (LAGWRP), and Burbank Water Reclamation Plant (Burbank WRP) (owned and operated by a contract city), and outfalls. The Hyperion Treatment System collects, treats, and disposes of sewage from the entire City (except the Wilmington-San Pedro Area, the strip north of San Pedro, and Watts) and from a number of cities and agencies (see Contract Cities and Agencies) under contractual agreements. The Contract Cities and Agencies operate their respective collection systems that are tributary to the City's main trunk lines. Some Contract Cities and Agencies also perform nondomestic source control activities. Approximately, 85% of the sewage and commercial/industrial wastewater comes from the City of Los Angeles. The remaining 15% comes from the Contract Cities and Agencies. The Hyperion Treatment System Service Area includes 6,138 miles of public sewers, 24 pump stations, 18 miles of force mains, 141,357 maintenance holes and serves a population of 3,954,000 in the City of Los Angeles and other Contract Agencies (see Attachment C-2, Map of Hyperion Treatment System Service Area).

Contract Cities and Agencies

a. Aneta Street Tax Zone
b. Army Reserve Center
c. Army Reserve Training
d. Barrington Post Office
e. City of Beverly Hills
f. City of Burbank
g. California National Guard (Federal Avenue Armory)
h. L.A. County Sanitation District #4 (W. Hollywood)
i. L.A. County Sanitation District #5 (Inglewood)
j. L.A. County Sanitation District #16 (Alhambra, Pasadena, S. Pasadena)
k. L.A. County Sanitation District 27 (Sunset Mesa)
l. City of Culver City
m. City of El Segundo
n. Federal Office Building
o. City of Glendale
p. Karl Holton Camp
q. Las Virgenes Municipal Water District
r. Marina Del Rey
s. City of San Fernando
t. City of Santa Monica
u. Terminal Island Treatment Service Area
v. Triunfo County Sanitation District
w. Universal City
x. Veterans Memorial Park
y. Veterans Administration - Sawtelle
z. West Los Angeles Community College

Sludge from the City's two upstream plants (i.e., Tillman WRP and LAGWRP) is returned to the wastewater collection system and flows to the Hyperion Treatment Plant for treatment. Discharges from Tillman WRP and LAGWRP are regulated by Order No. R4-2010-0060 (NPDES No. CA0056227) and Order No. R4-2010-0059 (NPDES No. CA0053953), respectively. In addition, sludge generated from the Burbank WRP is returned to the City of Burbank sewer system for treatment at the Hyperion Treatment Plant. The influent to the Burbank WRP can be diverted/bypassed to the Hyperion Treatment Plant during periods of emergency. Discharges from the Burbank WRP are regulated under Order No. R4-2010-0058 (NPDES No. CA0055531).

Currently, the HTP accepts dry weather urban runoff that is diverted from storm drains into the City's collection system year-round via the low flow diversion (LFD) facilities except for storm events that generate greater than 0.1 inch of storm runoff and three days following the storm event, during which time LFD facilities are turned off. The City is currently upgrading the eight LFD facilities to equip the facilities with the necessary back up electrical, mechanical, telemetry, and the required pumping capacity to minimize down-time. The LFD facilities' operation are in accordance with the six-year schedule for bacteria concentration during winter dry weather, contained in the Santa Monica Bay Beaches Dry-weather Bacteria TMDL (Resolution No. 02-004 and Resolution No. 2002-022) adopted by the Regional Water Board.

Water Reclamation. A small fraction (approximately 37 MGD in 2009) of the HTP's secondary effluent is sent to West Basin Water Recycling Facility (West Basin Facility) for advanced treatment and reuse. The West Basin Municipal Water District (West Basin) operates the West Basin Facility in El Segundo. West Basin is contractually entitled to receive up to 70 MGD of secondary effluent from HTP. West Basin Facility provides tertiary treatment and/or advanced treatments such as microfiltration and reverse osmosis (RO) to the Hyperion secondary effluent to produce Title 22 high purity recycled water. Title 22 recycled water is used for beneficial irrigation, industrial applications including cooling water and boiler feed water, and other purposes. The RO-treated recycled water is primarily injected into the West Coast Basin Barrier Project to control seawater intrusion.

The waste brine from West Basin Facility is discharged to the ocean through Hyperion's five-mile outfall (Discharge Point 002) via a waste brine line from West Basin Facility. Although the waste brine is discharged through Hyperion's outfall, it is regulated under separate waste discharge requirements and NPDES permit.

The Hyperion Treatment Plant ceased the irrigation use of in-plant chlorinated secondary treated wastewater in January 1999. Instead, the plant started using tertiary recycled water from West Basin Facility in August 1999.

Description of Outfalls. The Hyperion Treatment Plan has three ocean outfalls. However, only two outfall points (i.e., 001 and 002) are authorized discharge points for treated wastes to the Pacific Ocean. The three ocean outfalls are described as follows:

<u>Discharge Point 001</u>. This is commonly referred to as the "one-mile outfall". It is a 12-foot diameter outfall terminating approximately 5,364 feet (1.6 kilometers (km)) west-southwest of the treatment plant at a depth of approximately 50 feet (15 meters (m)) below the ocean surface (Latitude 33° 55.06', Longitude 118° 26.51'). This outfall is permitted for emergency discharge of chlorinated secondary treated effluent during extremely high flows, and preventative maintenance, such as routine opening and closing the outfall gate valve(s) for exercising and lubrication. However, during intense storms or storms associated with plant power outages, direct discharge of undisinfected storm water overflow from the HTP is also permitted at this outfall. This Order/Permit requires the City to notify the Regional Water Board and USEPA in advance of any planned preventative maintenance that results in discharges through Discharge Point 001.

<u>Discharge Point 002</u>. This is commonly referred to as the "five-mile outfall". It is a 12-foot diameter outfall terminating approximately 26,525 feet (8.1 km) west-southwest of the treatment plant at a depth of approximately 187 feet (57 m) below the ocean surface. This outfall is located north of Discharge Point 001 and ends in a "Y" shaped diffuser consisting of two 3,840-foot legs (Latitude 33° 54.72', Longitude 118° 31.29') (North terminus of wye structure – Latitude 33° 54.43', Longitude 118° 31.17'; South terminus of wye structure – Latitude 33° 54.02', Longitude 118° 31.38'). This is the only outfall permitted for the routine discharge of undisinfected secondary treated effluent.

<u>Outfall No. 003</u>. This is a 20-inch diameter outfall terminating approximately 35,572 feet (10.8 km) west of the treatment plant, at the head of a submarine canyon at a

depth of approximately 300 feet (91m) below the ocean surface (Latitude 33° 55.62' N, Longitude 118° 33.18' W). This outfall had been used to discharge sludge. Under the 1987 amended Consent Decree No. CV77-3047-HP, this outfall was deactivated in November 1987 when sludge discharge to the ocean was terminated. Near the head of this outfall, a spool piece was removed and the discharge pipe was blind-flanged to prevent any possible discharge of sewage or sludge into the Pacific Ocean. This outfall has not been maintained since it was taken out of service. Any discharge from this outfall is prohibited.

D. Legal Authorities. This Order/Permit is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by USEPA and Chapter 5.5, Division 7 of the California Water Code (commencing with Section 13370). This Order shall serve as a jointly issued NPDES permit for point source discharges from this POTW to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). Although Discharge Point 002 is beyond the limit of State-regulated ocean waters, effluent plume migration into State waters warrants joint regulation of the discharge by USEPA and the Regional Water Board.

E. Background and Rationale for Requirements. The Regional Water Board and USEPA developed the requirements in this Order/Permit based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order/Permit requirements, is hereby incorporated into this Order/Permit and constitutes part of the Findings for this Order/Permit. Attachments A through I are also incorporated into this Order/Permit.

F. California Environmental Quality Act (CEQA). Under California Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of the CEQA, Public Resources Code sections 21100-21177.

G. Technology-based Effluent Limitations*.* Section 301(b) of the CWA and implementing regulations at part 125.3, title 40 of the Code of Federal Regulations[1] (hereinafter 40 CFR), require that NPDES permits include limitations which meet applicable technology-based requirements, at minimum. The discharge authorized by this Order/Permit must meet minimum federal technology-based requirements for POTWs at 40 CFR 133. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

H. Water Quality-Based Effluent Limitations. Section 301(b) of the CWA and 40 CFR part 122.44(d) require that permits include limitations more stringent than applicable technology-based requirements where necessary to achieve water quality standards and State requirements. 40 CFR part 122.44(d)(1)(i) requires that permits

[1] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated and will be abbreviated as "40 CFR part number".

include water quality-based effluent limitations (WQBELs) for all pollutants, which are or may be discharged at levels having the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives or criteria within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric objective or criterion for the pollutants, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed State criterion or policy interpreting the State's narrative criterion, supplemented with other relevant information, as provided in 40 CFR part 122.44(d)(1)(vi). USEPA has applied CWA section 403(c) and 40 CFR part 125, Subpart M, following 40 CFR 122.

I. **Los Angeles Water Quality Control Plan.** On June 13, 1994, the Regional Water Board adopted a water quality control plan for the Los Angeles Region (hereinafter Basin Plan), as amended, that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for the Pacific Ocean. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Basin Plan beneficial uses applicable to the Pacific Ocean are shown in Table 6:

Table 6. Basin Plan Beneficial Uses

Discharge Point	Receiving Water	Beneficial Use(s)
001	Dockweiler Beach (Hydrologic Unit 405.12)	Existing: Industrial service supply (IND), navigation (NAV), water contact recreation (REC-1), non-contact water recreation (REC-2), commercial and sport fishing (COMM), marine habitat (MAR), and wildlife habitat (WILD). Potential: Spawning, reproduction, and/or early development (SPWN).
	Pacific Ocean Nearshore Zone	Existing: IND, NAV, REC-1, REC-2, COMM, MAR, WILD, preservation of biological habitats (BIOL), RARE, migration of aquatic organisms (MIGR), SPWN, and SHELL. Potential: None.
001, 002	Pacific Ocean Offshore Zone	Existing: IND, NAV, REC-1, REC-2, COMM, MAR, WILD, RARE, MIGR, SPWN, and SHELL. Potential: None.

Requirements of this Order/Permit implement the Basin Plan.

J. **Impaired Water Bodies on CWA 303(d) List.** On June 28, 2007, USEPA approved California's 2006 section 303(d) List of Water Quality Limited Segments. The list (hereinafter referred to as the 303(d) list) identifies water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations by point sources (water quality-limited water bodies).

Santa Monica Bay (Offshore and Nearshore) is on the 303(d) list for the following pollutants/stressors, from point and non-point sources: DDT (dichlorodiphenyltrichloroethane) (tissue & sediment), debris, fish consumption advisory, PCBs (polychlorinated biphenyls) (tissue & sediment), and sediment toxicity. This Order/Permit continues to prescribe WQBELS for DDT and PCBs, as described in Finding 54 of the 2005 Order/Permit.

K. **California Thermal Plan.** In 1972, the State Water Board adopted the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (hereinafter Thermal Plan), as amended. This plan contains temperature objectives for coastal and inland surface waters. Requirements of this Order/Permit implement the Thermal Plan.

L. **California Ocean Plan.** In 1972, the State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California, California Ocean Plan* (hereinafter Ocean Plan), as amended. The latest amendment became effective on February 14, 2006. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean waters of the State. Ocean Plan beneficial uses applicable to ocean waters of the State are shown in Table 7.

Table 7. Ocean Plan Beneficial Uses

Discharge Point	Receiving Water	Beneficial Use(s)
001, 002	Pacific Ocean	IND, REC-1, REC-2, NAV, COMM, mariculture, preservation and enhancement of designated Areas of Special Biological Significance (ASBS), RARE, MAR, MIGR, SPWN, and SHELL.

To protect the beneficial uses in ocean water, the Ocean Plan establishes water quality objectives and a program implementation. Requirements of this Order/Permit implement the Ocean Plan.

M. **Santa Monica Bay Restoration Plan.** The Hyperion Treatment Plant discharges to Santa Monica Bay, one of the most heavily used recreational areas in California. Recognizing the importance of the Bay as a national resource, the State of California and USEPA nominated and Congress included Santa Monica Bay in the National Estuary Program. This led to the formation of the Santa Monica Bay Restoration Project (currently named Santa Monica Bay Restoration Commission) that developed the Bay Restoration Plan (BRP), which serves as a blueprint for restoring and enhancing the Bay. The Regional Water Board plays a lead role in the implementation of the BRP. Three of the proposed priorities of the BRP are reduction of pollutants of concern at the source (including municipal wastewater treatment plants), attainment of full secondary treatment at the City of Los Angeles' Hyperion Treatment Plant and the County Sanitation Districts of Los Angeles County's Joint Water Pollution Control Plant, and implementation of the mass emission approach for discharges of pollutants to the Bay.

N. Alaska Rule. USEPA has revised its regulation that specifies when new and revised State and Tribal water quality standards (WQS) become effective for CWA purposes (40 CFR part 131.21; 65 Fed. Reg. 24641 (April 27, 2000)). Under the revised regulation (hereinafter Alaska Rule), new and revised standards submitted to USEPA after May 30, 2000 must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000 may be used for CWA purposes, whether or not approved by USEPA.

O. Stringency of Requirements for Individual Pollutants. This Order/Permit contains restrictions on individual pollutants that are no more stringent than required by the federal CWA. Individual pollutant restrictions consist of technology-based effluent limitations and water quality-based effluent limitations. The technology-based effluent limitations consist of restrictions on biochemical oxygen demand (5-day) (BOD_5), total suspended solids (TSS), and pH, and percent removal of BOD_5 and TSS, which implement the minimum, applicable federal technology-based requirements for POTWs. Also, effluent limitations consisting of restrictions on oil and grease, settleable solids, and turbidity more stringent than federal technology-based requirements are necessary to implement State treatment standards in Table A of the Ocean Plan. Water quality-based effluent limitations consisting of restrictions on copper, chlorine residual, ammonia (as nitrogen), acute toxicity, chronic toxicity, beryllium, chlordane, DDT, PAHs, PCBs, and TCDD equivalents have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. Collectively, restrictions on individual pollutants in this Order/Permit are no more stringent than required by the CWA.

P. Antidegradation Policy. 40 CFR part 131.12 requires that the State water quality standards include an antidegradation policy consistent with the federal antidegradation policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. This resolution incorporates the federal antidegradation policy, where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. As discussed in detail in the Fact Sheet (Attachment F), the permitted discharge is consistent with the antidegradation provisions of 40 CFR part 131.12 and State Water Board Resolution No. 68-16.

Q. **Anti-Backsliding Requirements.** CWA sections 402(o)/303(d) and 40 CFR part 122.44(l) prohibit backsliding and require effluent limitations, permit conditions, and standards in a reissued NPDES permit to be as stringent as those in the previous permit, with some exceptions where limitations and conditions may be relaxed. Some effluent limitations in this Order/Permit are less stringent that those in the previous Order/Permit. As discussed in detail in the Fact Sheet (Attachment F), this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

This Order/Permit is consistent with State and federal antidegradation policies in that it does not authorize a change in pollutant mass emission rates, nor does it authorize a relaxation in the manner of treatment of the discharge. Pollutant limit mass emission rates continue to be based on the design flow rate of the treatment plant under the 1994 permit of 420 MGD. Although the design flow rate of the treatment plant has increased to 450 MGD, this increase has been accompanied by a significant improvement in the level of treatment necessary to achieve full secondary treatment. As a result, both the quantity of discharged pollutants and quality of the discharge are expected to remain relatively constant or improve during this permit term, consistent with antidegradation policies. In conformance with reasonable potential analysis procedures identified in State Water Board and USEPA documents, effluent limitations for some constituents are not carried forward in this Order/Permit because there is not presently reasonable potential for the constituents to cause or contribute to an exceedance of water quality standards. Without reasonable potential, there is no longer a need to maintain prior WQBELs under NPDES regulations, antibacksliding provisions, and antidegradation policies. The accompanying monitoring and reporting program requires continued data collection and if monitoring data show reasonable potential for a constituent to cause or contribute to an exceedance of water quality standards, the Order/Permit will be reopened to incorporate WQBELs. Such an approach ensures that the discharge will adequately protect water quality standards for designated beneficial uses and conform with antidegradation policies and antibacksliding provisions.

R. **Endangered Species Act.** This Order/Permit does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C. sections 1531 to 1544). This Order/Permit requires compliance with effluent limitations, receiving water limitations, and other requirements to protect the beneficial uses of waters of the State. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

S. **Monitoring and Reporting.** 40 CFR part 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. California Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program

(Attachment E) establishes monitoring and reporting requirements to implement federal and State requirements.

T. Standard and Special Conditions. Standard Provisions that apply to all NPDES permits, in accordance with 40 CFR part 122.41, and additional provisions that apply to POTWs, in accordance with 40 CFR part 122.42, are provided in Attachment D. The Regional Water Board and USEPA have also included in this Order/Permit special provisions applicable to the Discharger. The rationale for the special provisions contained in this Order/Permit is provided in the Fact Sheet (Attachment F).

U. Sanitary Sewer Overflows. The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ (General Order) on May 2, 2006, as amended. The General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions. Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating SSOs. The Discharger's collection system is part of the POTW that is subject to this Order/Permit. The Discharger must comply with both the General Order and this Order/Permit.

V. Sewage Sludge/Biosolids Requirements. Section 405 of the CWA and implementing regulations at 40 CFR 503 require that producers of sewage sludge/biosolids meet certain reporting, handling, and use or disposal requirements. The State has not been delegated the authority to implement this program; therefore, USEPA is the implementing agency. This Order/Permit contains sewage sludge/biosolids requirements pursuant to 40 CFR 503 that are applicable to the Discharger.

W. Pretreatment. In compliance with 40 CFR 403, the City developed a Pretreatment Program for POTWs owned and operated by the City. The City's Pretreatment Program was approved by USEPA on June 30, 1983. In 1989, USEPA delegated the authority to administer pretreatment programs in California to the State and Regional Water Boards. Thus, this Regional Water Board became the approval authority for pretreatment programs in Los Angeles and Ventura Counties.

This Order/Permit includes the City's approved Pretreatment Program and requires the City to continue implementation and control of the Program throughout the Hyperion Treatment Plant's service area, including contributing jurisdictions. The POTW, as Control Authority, may exercise its authority over the entire service area directly, as provided by state law, or may elect to enter into contracts or other multi-jurisdictional agreements with the contributing jurisdictions. In case the POTW elects to enter into inter-jurisdictional agreements, the POTW must ensure that discharges received from entities outside of its political boundaries are regulated to the same extent as are the discharges from within its political boundaries.

The City applies one set of local limits to all discharges from the Hyperion Treatment Plant, Tillman WRP, and LAG WRP to the Hyperion Treatment System. Burbank WRP is also part of the Hyperion Treatment System.

X. **Federal Permit Renewal Contingency.** The Discharger's federal permit renewal is contingent upon determination by the U.S. Fish and Wildlife Service and NOAA National Marine Fisheries Service that the proposed discharge is consistent with the: (1) federal Endangered Species Act; (2) Magnuson-Stevens Fishery Conservation and Management Act (MSA); and (3) the Regional Water Board's certification/concurrence that the discharge will comply with applicable State water quality standards.

USEPA's reissuance of NPDES permit No. CA0109991 to the City of Los Angeles for Hyperion Treatment Plant is subject to requirements of MSA and ESA. In May 2010, USEPA requested updated information related to: (1) essential fish habitat and managed and associated species, and (2) threatened and endangered species and their designated critical habitats, in the vicinity of the Hyperion outfalls from the National Marine Fisheries Service and the U.S. Fish and Wildlife Service (collectively, the Services). Based on this and other relevant information, USEPA is currently evaluating whether there are effects on essential fish habitat and managed and associated species protected under the MSA or on threatened and endangered species and their designated critical habitats protected under the ESA. Based on the outcome of this analysis, USEPA may engage in consultation with the Services during, and subsequent to, this permit reissuance. USEPA may decide that changes to this permit are warranted based on the results of the completed consultation, and a reopener provision to this effect has been included in the Order/Permit.

Joint issuance of an NPDES permit which incorporates both federal requirements and State waste discharge requirements will serve as the State's concurrence that the discharge complied with State water quality standards. The California Coastal Commission has indicated that it is not necessary to obtain a consistency certification pursuant to the Coastal Zone Management Act for the issuance of a federal NPDES permit containing secondary treatment standards.

Y. **Performance Goals.** Chapter III, section F.2, of the 2005 Ocean Plan allows the Regional Water Board to establish more restrictive water quality objectives and effluent limitations than those set forth in the Ocean Plan as necessary for the protection of the beneficial uses of ocean waters.

Pursuant to this provision and to implement the recommendation of the Water Quality Advisory Task Force (*Working Together for an Affordable Clean Water Environment, A final report presented to the California Water Quality Control Board, Los Angeles Region by Water Quality Advisory Task Force, September 30, 1993)* that was adopted by the Regional Water Board on November 1, 1993, performance goals that are more stringent than those based on Ocean Plan objectives are prescribed in this Order/Permit. This approach is consistent with the antidegradation policy in that it requires the Discharger to maintain its treatment level and effluent quality, recognizing normal variations in treatment efficiency and sampling and analytical techniques. However, this approach does not address substantial changes in treatment plant operations that could significantly affect the quality of the treated effluent.

The performance goals are based upon the actual performance of the HTP and are specified only as an indication of the treatment efficiency of the Facility. Performance goals are intended to minimize pollutant loading (primarily for toxics) while maintaining the incentive for future voluntary improvement of water quality, whenever feasible, without the imposition of more stringent limits based on improved performance. They are not considered as limitations or standards for the regulation of the discharge from the treatment facility. The Executive Officer may modify any of the performance goals if the Discharger requests and has demonstrated that the change is warranted. The methodology for calculating performance goals is described in the Fact Sheet (Attachment F).

Z. **Mass Emission Benchmarks.** To address the uncertainty due to potential increases in toxic pollutant loadings from the Hyperion Treatment Plant discharge to the marine environment during the five-year permit term and to establish a framework for evaluating the need for an antidegradation analysis to determine compliance with State and federal antidegradation requirements at the time of permit reissuance, 12-month average mass emission benchmarks have been established for effluent discharged through the 5-mile outfall (Discharge Point 002). These mass emission benchmarks are not enforceable water quality based effluent limitations. They may be re-evaluated and revised during the five-year permit term. The mass emission benchmarks (in metric tons per year; MT/yr) for the Hyperion Treatment Plant discharge were determined using January 1999 through June 2004 effluent concentrations and the Discharger's projected end-of-permit flow of 400 MGD. If only one effluent data point was detected or if all effluent data points were nondetect, the pollutant concentration associated with the maximum method detection limit from January 2003 to June 2004 was used to calculate the mass emission benchmark. If two or more effluent data points were detected, the pollutant concentration associated with the 95th percentile (calculated in accordance with Regional Water Board procedures) was used to calculate the mass emission benchmark. Exceptions to this are mass emission benchmarks for copper, lead, silver and zinc which are based directly on Mass Emission Caps for these pollutants of concern in Santa Monica Bay, established by the Regional Water Board. The methodology for calculating mass emission benchmarks is described in the Fact Sheet (Attachment F).

AA. **Notification of Interested Parties.** The Regional Water Board and USEPA have notified the Discharger and interested agencies and persons of their intent to jointly issue State Waste Discharge Requirements and a federal NPDES permit for the discharge and have provided an opportunity to submit their written comments and recommendations by the close of the Regional Water Board/USEPA joint public hearing during the regularly scheduled Regional Water Board meeting on July 8th and 9th, 2010. Also, the Regional Water Board and USEPA have provided an opportunity to submit oral comments and recommendations at this joint public hearing. Details of these notifications are provided in the Fact Sheet and the joint public notice for this Order/Permit.

BB. Consideration of Public Comment. The Regional Water Board and USEPA heard and considered all written and oral comments pertaining to the discharge.

THEREFORE, IT IS HEREBY ORDERED that this Order/Permit supersedes Order No. R4-2005-0020, except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order/Permit.

III. DISCHARGE PROHIBITIONS

A. Ocean Plan Discharge Prohibitions

1. Discharge of any radiological, chemical or biological warfare agent or high-level radioactive waste into the ocean is prohibited.

2. Waste shall not be discharged to designated Areas of Special Biological Significance.

3. Pipeline discharge of sludge to the ocean is prohibited by federal law; the discharge of municipal and industrial waste sludge directly to the ocean, or into waste stream that discharges to the ocean is prohibited by the Ocean Plan. Discharge of sludge digester supernatant directly to the ocean, or to a waste stream that discharges to the ocean without further treatment, is prohibited. The treatment, use and disposal of sewage sludge shall be carried out in the manner found to have the least adverse impact on the total natural and human environment.

4. The bypassing of untreated wastes containing concentrations of pollutants in excess of those of Table A or Table B of the Ocean Plan to the ocean is prohibited.

B. The bypassing of untreated or partially treated wastes to the ocean is prohibited.

IV. EFFLUENT LIMITATIONS, PERFORMANCE GOALS, AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations and Performance Goals – Discharge Points 002 and 001

Effluent limitations for Discharge Points 002 and 001 are specified below. The discharge of an effluent with constituents in excess of effluent limitations is prohibited.

Performance goals for Discharge Point 002 are prescribed below. The listed performance goals are not enforceable effluent limitations or standards. The Discharger shall maintain, if not improve, its treatment efficiency. Any exceedance of the performance goals shall trigger an investigation into the cause of the exceedance. If the exceedance persists in three successive monitoring periods, the Discharger shall submit a written report to the Regional Water Board and USEPA on the nature of the exceedance, the results of the investigation as to the cause of the exceedance, and the corrective actions taken or proposed corrective measures with timetable for implementation, if necessary.

1. Final Effluent Limitations and Performance Goals – Discharge Point 002

The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 002, with compliance measured at Monitoring Location EFF-002 as described in the attached MRP.

Table 8. Effluent Limitations and Performance Goals for Discharge Point 002
(Footnotes are specified on pages 29 and 30 of this Order/Permit.)

Parameter	Units	Effluent Limitations[1,3]					Performance Goals[2]
		Average Monthly	Average Weekly	Maximum Daily[4]	Instan-taneous Minimum	Instan-taneous Maximum[5]	Average Monthly
Major Wastewater Constituents							
Biochemical Oxygen Demand 5-day @ 20°C[6]	mg/L	30	45	--	--	--	--
	lbs/day	113,000	169,000	--	--	--	--
Total Suspended Solids[6]	mg/L	30	45	--	--	--	--
	lbs/day	113,000	169,000	--	--	--	--
pH[5,6 7]	standard units	--	--	--	6.0	9.0	--
Oil and Grease[7]	mg/L	25	40	--	--	75	--
	lbs/day	93,800	150,000	--	--	--	--
Settleable Solids[7]	ml/L	1.0	1.5	--	--	3.0	--
Turbidity[7]	NTU	75	100	--	--	225	--
Marine Aquatic Life Toxicants[8]							
Arsenic[9,10]	µg/L	--	--	--	--	--	3.5
Cadmium[9,10]	µg/L	--	--	--	--	--	2.0
Chromium (VI)[9,10]	µg/L	--	--	--	--	--	2.5
Copper[9,10]	µg/L	--	--	--	--	--	25
Lead[9,10]	µg/L	--	--	--	--	--	10
Mercury[9,10]	µg/L	--	--	--	--	--	0.02
Nickel[9,10]	µg/L	--	--	--	--	--	3
Selenium[9,10]	µg/L	--	--	--	--	--	1.6
Silver[9,10]	µg/L	--	--	--	--	--	2.2
Zinc[9,10]	µg/L	--	--	--	--	--	31
Cyanide[10]	µg/L	--	--	--	--	--	5
Chlorine Residual[10]	µg/L	--	--	--	--	--	--
Ammonia as N[10]	mg/L	--	--	--	--	--	44.1

Parameter	Units	Effluent Limitations[1,3]					Performance Goals[2]
		Average Monthly	Average Weekly	Maximum Daily[4]	Instan-taneous Minimum	Instan-taneous Maximum[5]	Average Monthly
Phenolic compounds (non-chlorinated)[10]	µg/L	--	--	--	--	--	2
Phenolic compounds (chlorinated)[10]	µg/L	--	--	--	--	--	2
Endosulfan[10]	µg/L	--	--	--	--	--	0.04
HCH[10]	µg/L	--	--	--	--	--	0.015
Endrin[10]	µg/L	--	--	--	--	--	0.025
Acute toxicity	TUa	--	--	2.8	--	--	--
Chronic toxicity	TUc	--	--	84	--	--	--
Radioactivity							
Gross alpha	pCi/L	--	--	--	--	--	9.72
Gross beta	pCi/L	--	--	--	--	--	27.5
Combined Radium 226 & Radium-228	pCi/L	--	--	--	--	--	--
Tritium	pCi/L	--	--	--	--	--	--
Strontium-90	pCi/L	--	--	--	--	--	--
Uranium	pCi/L	--	--	--	--	--	--
Human Health Toxicants – Non Carcinogens[8]							
Acrolein[10]	µg/L	--	--	--	--	--	20
Antimony[9,10]	µg/L	--	--	--	--	--	1.5
Bis(2-chloroethoxy) methane[10]	µg/L	--	--	--	--	--	0.5
Bis(2-chloroisopropyl) ether[10]	µg/L	--	--	--	--	--	0.5
Chlorobenzene[10]	µg/L	--	--	--	--	--	0.6
Chromium (III)[10]	µg/L	--	--	--	--	--	1
Di-n-butyl-phthalate[10]	µg/L	--	--	--	--	--	5
Dichlorobenzenes[10]	µg/L	--	--	--	--	--	0.6
Diethyl phthalate[10]	µg/L	--	--	--	--	--	0.6
Dimethyl phthalate[10]	µg/L	--	--	--	--	--	2.7
2-Methyl-4,6-dinitrophenol[10]	µg/L	--	--	--	--	--	4
2,4-Dinitrophenol[10]	µg/L	--	--	--	--	--	2.1
Ethyl benzene[10]	µg/L	--	--	--	--	--	0.8
Fluoranthene[10]	µg/L	--	--	--	--	--	0.2
Hexachlorocyclopentadiene[10]	µg/L	--	--	--	--	--	29
Nitrobenzene[10]	µg/L	--	--	--	--	--	0.5
Thallium[9,10]	µg/L	--	--	--	--	--	0.1
Toluene[10]	µg/L	--	--	--	--	--	0.6
Tributyltin[10]	ng/L	--	--	--	--	--	9.6

Parameter	Units	Effluent Limitations[1,3]					Performance Goals[2]
		Average Monthly	Average Weekly	Maximum Daily[4]	Instantaneous Minimum	Instantaneous Maximum[5]	Average Monthly
1,1,1-Trichloroethane[10]	µg/L	--	--	--	--	--	0.5
Human Health Toxicants – Carcinogens[8]							
Acrylonitrile[10]	µg/L	--	--	--	--	--	0.4
Aldrin[10]	µg/L	--	--	--	--	--	0.0019
Benzene[10]	µg/L	--	--	--	--	--	0.35
Benzidine[10]	µg/L	--	--	--	--	--	0.0059
Beryllium[10]	µg/L	--	--	--	--	--	1
Bis(2-chloroethyl) ether[10]	µg/L	--	--	--	--	--	0.45
	lbs/day	--	--	--	--	--	1.6
Bis(2-ethylhexyl) phthalate[10]	µg/L	--	--	--	--	--	5
Carbon tetrachloride[10]	µg/L	--	--	--	--	--	0.45
Chlordane	µg/L	0.0019	--	--	--	--	--
	lbs/day	0.0067	--	--	--	--	
Chlorodibromomethane[10]	µg/L	--	--	--	--	--	0.25
Chloroform[10]	µg/L	--	--	--	--	--	8.7
DDT	µg/L	0.014	--	--	--	--	--
	lbs/day	0.049	--	--	--	--	--
1,4-Dichlorobenzene[10]	µg/L	--	--	--	--	--	2.0
3,3'-Dichlorobenzidine[10]	µg/L	--	--	--	--	--	0.55
1,2-Dichloroethane[10]	µg/L	--	--	--	--	--	0.5
1,1-Dichloroethylene[10]	µg/L	--	--	--	--	--	0.6
Bromodichloromethane[10]	µg/L	--	--	--	--	--	0.3
Dichloromethane[10]	µg/L	--	--	--	--	--	6.5
1,3-Dichloropropene[10]	µg/L	--	--	--	--	--	0.45
Dieldrin[10]	µg/L	--	--	--	--	--	0.0034
2,4-Dinitrotoluene[10]	µg/L	--	--	--	--	--	0.4
1,2-Diphenylhydrazine[10]	µg/L	--	--	--	--	--	0.3
Halomethanes[10]	µg/L	--	--	--	--	--	1.05
Heptachlor[10]	µg/L	--	--	--	--	--	0.0043
Heptachlor epoxide[10]	µg/L	--	--	--	--	--	0.0017
Hexachlorobenzene[10]	µg/L	--	--	--	--	--	0.018
Hexachlorobutadiene[10]	µg/L	--	--	--	--	--	0.35
Hexachloroethane[10]	µg/L	--	--	--	--	--	0.35
Isophorone[10]	µg/L	--	--	--	--	--	0.35
N-Nitrosodimethylamine[10]	µg/L	--	--	--	--	--	0.85

Parameter	Units	Effluent Limitations[1,3]					Performance Goals[2]
		Average Monthly	Average Weekly	Maximum Daily[4]	Instan-taneous Minimum	Instan-taneous Maximum[5]	Average Monthly
N-Nitrosodi-N-propylamine[10]	µg/L	--	--	--	--	--	0.65
N-Nitrosodiphenylamine[10]	µg/L	--	--	--	--	--	0.45
PAHs[10]	µg/L	--	--	--	--	--	0.70
PCBs	µg/L	0.0020	--	--	--	--	--
	lbs/day	0.0070	--	--	--	--	--
TCDD equivalents	pg/L	0.33	--	--	--	--	--
	lbs/day	1.2x E-6	--	--	--	--	--
1,1,2,2-Tetrachloroethane[10]	µg/L	--	--	--	--	--	0.55
Tetrachloroethylene[10]	µg/L	--	--	--	--	--	0.5
Toxaphene[10]	µg/L	--	--	--	--	--	0.018
Trichloroethylene[10]	µg/L	--	--	--	--	--	0.4
1,1,2-Trichloroethane[10]	µg/L	--	--	--	--	--	0.25
2,4,6-Trichlorophenol[10]	µg/L	--	--	--	--	--	0.45
Vinyl chloride[10]	µg/L	--	--	--	--	--	0.35

2. Final Effluent Limitations – Discharge Point 001

The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001, as described in the attached MRP.

Table 9. Effluent Limitations for Discharge Point 001
(Footnotes are specified on pages 29 and 30 of this Order/Permit.)

Parameter	Units	Effluent Limitations[1,3]					Performance Goals[2]
		Average Monthly	Average Weekly	Maximum Daily[4]	Instan-taneous Minimum	Instan-taneous Maximum[5]	Average Monthly
Major Wastewater Constituents							
Biochemical Oxygen Demand 5-day @ 20°C[6]	mg/L	30	45	--	--	--	--
	lbs/day	113,000	169,000	--	--	--	--
Total Suspended Solids[6]	mg/L	30	45	--	--	--	--
	lbs/day	113,000	169,000	--	--	--	--
pH[5,6,7]	standard units	--	--	--	6.0	9.0	--
Oil and Grease[7]	mg/L	25	40	--	--	75	--
	lbs/day	93,800	150,000	--	--	--	--

Parameter	Units	Effluent Limitations[1,3]					Performance Goals[2]
		Average Monthly	Average Weekly	Maximum Daily[4]	Instan-taneous Minimum	Instan-taneous Maximum[5]	Average Monthly
Settleable Solids[7]	ml/L	1.0	1.5	--	--	3.0	--
Turbidity[7]	NTU	75	100	--	--	225	--
Marine Aquatic Life Toxicants[8]							
Arsenic[9,10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Cadmium[9,10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Chromium (VI)[9,10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Copper[9,10]	µg/L	16	--	140	--	160	--
	lbs/day	56	--	490	--	560	--
Lead[9,10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Mercury[9,10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Nickel[9,10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Selenium[9,10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Silver[9,10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Zinc[9,10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Cyanide[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Chlorine Residual	µg/L	28	--	112	--	840	--
	lbs/day	98	--	320	--	2900	--
Ammonia as N	mg/L	8.4	--	34	--	84	--
	lbs/day	29,000	--	120,000	--	290,000	--
Phenolic compounds (non-chlorinated)[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Phenolic compounds (chlorinated)[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Endosulfan[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
HCH[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Endrin[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Acute toxicity	TUa	--	--	--	--	--	--

Parameter	Units	Effluent Limitations[1,3]					Performance Goals[2]
		Average Monthly	Average Weekly	Maximum Daily[4]	Instan-taneous Minimum	Instan-taneous Maximum[5]	Average Monthly
Chronic toxicity	TUc	--	--	13	--	--	--
Radioactivity							
Gross alpha	pCi/L	--	--	--	--	--	--
Gross beta	pCi/L	--	--	--	--	--	--
Combined Radium 226 & Radium-228	pCi/L	--	--	--	--	--	--
Tritium	pCi/L	--	--	--	--	--	--
Strontium-90	pCi/L	--	--	--	--	--	--
Uranium	pCi/L	--	--	--	--	--	--
Human Health Toxicants – Non Carcinogens[8]							
Acrolein[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Antimony[9,10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Bis(2-chloroethoxy) methane[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Chlorobenzene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Chromium (III)[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Di-n-butyl-phthalate[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Dichlorobenzenes[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Diethyl phthalate[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Dimethyl phthalate[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
2-Methyl-4,6-dinitrophenol[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
2,4-Dinitrophenol[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Ethyl benzene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Fluoranthene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Hexachlorocyclopentadiene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--

Parameter	Units	Effluent Limitations[1,3]					Performance Goals[2]
		Average Monthly	Average Weekly	Maximum Daily[4]	Instantaneous Minimum	Instantaneous Maximum[5]	Average Monthly
Nitrobenzene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Thallium[9,10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Toluene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Tributyltin[10]	ng/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
1,1,1-Trichloroethane[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Human Health Toxicants – Carcinogens[8]							
Acrylonitrile[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Aldrin[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Benzene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Benzidine[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Beryllium	µg/L	0.46	--	--	--	--	--
	lbs/day	1.6	--	--	--	--	--
Bis(2-chloroethyl) ether[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Bis(2-ethylhexyl) phthalate[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Carbon tetrachloride[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Chlordane	µg/L	0.0003	--	--	--	--	--
	lbs/day	0.0011	--	--	--	--	--
Chlorodibromomethane[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Chloroform[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
DDT	µg/L	0.0024	--	--	--	--	--
	lbs/day	0.0084	--	--	--	--	--
1,4-Dichlorobenzene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
3,3'-Dichlorobenzidine[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
1,2-Dichloroethane[10]	µg/L	--	--	--	--	--	--

Parameter	Units	Effluent Limitations[1,3]					Performance Goals[2]
		Average Monthly	Average Weekly	Maximum Daily[4]	Instan-taneous Minimum	Instan-taneous Maximum[5]	Average Monthly
	lbs/day	--	--	--	--	--	--
1,1-Dichloroethylene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Bromodichloromethane[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Dichloromethane[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
1,3-Dichloropropene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Dieldrin[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
2,4-Dinitrotoluene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
1,2-Diphenylhydrazine[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Halomethanes[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Heptachlor[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Heptachlor epoxide[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Hexachlorobenzene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Hexachlorobutadiene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Hexachloroethane[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Isophorone[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
N-Nitrosodimethylamine[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
N-Nitrosodi-N-propylamine[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
N-Nitrosodiphenylamine[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
PAHs	µg/L	0.12	--	--	--	--	--
	lbs/day	0.43	--	--	--	--	--
PCBs	µg/L	0.00030	--	--	--	--	--
	lbs/day	0.0084	--	--	--	--	--
TCDD equivalents	pg/L	0.055	--	--	--	--	--
	lbs/day	1.93xE-7	--	--	--	--	--

Parameter	Units	Effluent Limitations[1,3]					Performance Goals[2]
		Average Monthly	Average Weekly	Maximum Daily[4]	Instantaneous Minimum	Instantaneous Maximum[5]	Average Monthly
1,1,2,2-Tetrachloroethane[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Tetrachloroethylene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Toxaphene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Trichloroethylene[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
1,1,2-Trichloroethane[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
2,4,6-Trichlorophenol[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--
Vinyl chloride[10]	µg/L	--	--	--	--	--	--
	lbs/day	--	--	--	--	--	--

Footnotes:

1. Effluent limitations for conventional, nonconventional, and toxic pollutants were calculated based on effluent limitations in *Table A* and water quality objectives in *Table B* of the Ocean Plan. The minimum dilution ratios used to calculate effluent limitations for nonconventional and toxic pollutants based on water quality objectives in *Table B* of the Ocean Plan are 84:1 (i.e., 84 parts seawater to one part effluent) and 13:1 for Discharge Points 002 and 001, respectively. The calculations of mass emission rates are shown in the accompanying Fact Sheet.

   The mass emission rates are based on the average design flow rate (420 MGD) of the Hyperion Treatment Plant in the 1994 permit: lbs/day = 0.00834 x Ce (effluent concentration in ug/L) x Q (flow rate in MGD). During storm events when flow exceeds the dry weather design capacity, the mass emission rate limitations shall not apply.

2. The performance goals are based upon the actual performance data of Hyperion Treatment Plant and are specified only as an indication of the treatment efficiency of the plant. They are not considered effluent limitations or standards for the treatment plant. Hyperion Treatment Plant shall make best efforts to maintain, if not improve, the effluent quality at the level of these performance goals. The Executive Officer and USEPA may modify any of the performance goals if the City requests and has demonstrated that the change is warranted.

3. See section VIII of this Order/Permit and Attachment A for definition of terms.

4. The maximum daily effluent concentration limitation shall apply to flow-weighted 24-hour composite samples. It may apply to grab samples if the collection of composite samples for those constituents is not appropriate because of the instability of the constituents.

5. The instantaneous maximum effluent limitations shall apply to grab sample results.

6. The effluent limitations are based on secondary treatment standards, 40 CFR 133.102.

7. Based on Ocean Plan Table A effluent limitations.

[8] Effluent limitations for these constituents are based on Ocean Plan Table B objectives using initial dilution ratios of 84 and 13 parts of seawater to 1 part effluent for Discharge Points 002 and 001, respectively.

[9] Represents total recoverable metal value.

[10] These constituents did not show reasonable potential to exceed Ocean Plan Table B objectives; therefore, no numerical water quality-based effluent limits are prescribed.

3. Percent Removal: For $BOD_5 20°C$ and total suspended solids, the arithmetic mean values, by weight, for effluent samples collected in a period of 30 consecutive calendar days shall not exceed 15 percent of the arithmetic mean of values, by weight, for influent samples collected at approximately the same time during the same period.

4. The temperature of wastes discharged shall not exceed 100°F.

5. Radioactivity: Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30253 of the California Code of Regulations. Reference to section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.

6. The Discharger shall ensure that bacterial concentrations in the effluent discharged from Discharge Points 001 and 002 do not result in an exceedance of the Hyperion Treatment Plant's waste load allocation of zero (0) days exceedance of single sample numeric limits or geometric mean limits (based on Basin Plan bacteria objectives for marine waters designated REC-1, see Section VI.A.1.b) at shoreline compliance points, as specified in Regional Water Board Resolution Nos. 2002-004 and 2002-022.

7. Waste discharged to the ocean must be essentially free of:

   a. Material that is floatable or will become floatable upon discharge.

   b. Settleable material or substances that may form sediments which will degrade benthic communities or other aquatic life.

   c. Substances that will accumulate to toxic levels in marine waters, sediments or biota.

   d. Substances that significantly decrease the natural light to benthic communities and other marine life.

   e. Materials that result in aesthetically undesirable discoloration of the ocean surface.

8. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications – Not Applicable

C. Reclamation Specifications – Not Applicable

V. MASS EMISSION CAPS

A comprehensive plan of action for the protection and management of Santa Monica Bay, known as the Santa Monica Bay Restoration Plan (SMBRP), was approved by Governor Pete Wilson in December 1994 and USEPA Administrator Carol Browner in 1995. Since that time, mass emission caps have been applied to four pollutants of concern identified by the SMBRP (copper, lead, silver, and zinc) that are causing or could cause deterioration of designated beneficial uses in Santa Monica Bay. Caps are set at 1995 allowable mass emission rates. The Discharger should make best efforts to discharge these pollutants of concern below cap values. The Executive Officer and USEPA may modify any of the mass emission cap values if the City requests and demonstrates that the change is warranted.

The mass emission caps are based on an average flow rate of 347 MGD and the average concentration of the pollutant of concern in 1995. If performance data showed nondetectable levels, one half of the detection limit was used to calculate an average concentration. Mass emission cap calculations are shown in the Fact Sheet.

Parameter	Mass Emission Cap (lbs/year)
Copper	41,100
Lead	2,700
Silver	5,500
Zinc	59,100

VI. RECEIVING WATER LIMITATIONS

The Discharger shall not cause a violation of the following water quality objectives. Compliance with these water quality objectives shall be determined by samples collected at stations representative of the area within the waste field where initial dilution is completed.

A. Surface Water Limitations

1. Bacterial Characteristics

   a. USEPA Primary Recreation Criteria in Federal Waters

      Ocean waters beyond the outer limit of the territorial sea shall not exceed the following 304(a)(1) criteria for *Enterococcus* density beyond the zone of initial dilution in areas where primary contact recreation, as defined in

USEPA guidance, occurs. USEPA describes the “primary contact recreation” use as protective when the potential for ingestion of, or immersion in, water is likely. Activities usually include swimming, water-skiing, skin-diving, surfing, and other activities likely to result in immersion. (Water Quality Standards Handbook, EPA-823-B-94-005a, 1994, p. 2-2.)

30-day Geometric Mean (per 100 ml): 35.

Single Sample Maximum (per 100 ml): 104 for designated bathing beach; 158 for moderate use; 276 for light use; and 501 for infrequent use.

b. State/Regional Water Boards Water Contact Standards

i. Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Water Board (i.e., waters designated as REC-1), but including all kelp beds, the following bacterial objectives shall be maintained throughout the water column.

30-day Geometric Mean Limits

a. Total coliform density shall not exceed 1,000/100 ml.

b. Fecal coliform density shall not exceed 200/100 ml.

c. *Enterococcus* density shall not exceed 35/100 ml.

Single Sample Maximum Limits (SSM)

a. Total coliform density shall not exceed 10,000/100 ml.

b. Fecal coliform density shall not exceed 400/100 ml.

c. *Enterococcus* density shall not exceed 104/100 ml.

d. Total coliform density shall not exceed 1,000/100 ml, when the fecal coliform/total coliform ratio exceeds 0.1.

If any of the single sample limits are exceeded, the Regional Water Board may require repeat sampling on a daily basis until the sample falls below the single sample limit in order to determine the persistence of the exceedance. When repeat sampling is required because of an exceedance of any single sample limit, values from all samples collected during that 30-day period will be used to calculate the geometric mean.

c. The Initial Dilution Zone for any wastewater outfall shall be excluded from designation as kelp beds for purposes of bacterial standards. Adventitious assemblages of kelp plants on waste discharge structures (e.g., outfall pipes and diffusers) do not constitute kelp beds for purposes of bacterial standards.

d. California Department of Public Health[2] (CDPH) Standards

California Department of Public Health (CDPH) has established minimum protective bacteriological standards for coastal waters adjacent to public beaches and for public water-contact sports areas in ocean waters. These standards are found in the California Code of Regulations, title 17, section 7958, and they are identical to the objectives contained in subsection b, above. When a public beach or public water-contact sports area fails to meet these standards, CDPH or the local public health officer may post with warning signs or otherwise restrict use of the public beach or public water-contact sports area until the standards are met. The CDPH regulations impose more frequent monitoring and more stringent posting and closure requirements on certain high-use public beaches that are located adjacent to a storm drain that flows in the summer.

For beaches not covered under AB 411 regulations (this incorporation by reference is prospective including future changes to the incorporated provisions as changes take effect), CDPH imposes the same standards as contained in title 17, California Code of Regulations, and requires weekly sampling but allows the county health officer more discretion in making posting and closure decisions.

e. Shellfish Harvesting Standards. At all areas where shellfish may be harvested for human consumption, as determined by the Regional Water Board, the following bacterial objectives shall be maintained throughout the water column: The median total coliform density shall not exceed 70 per 100 ml, and not more than 10 percent of the samples shall exceed 230 per 100 ml.

2. Physical Characteristics

The waste discharged shall not:

a. Cause floating particulates and oil and grease to be visible;

b. Cause aesthetically undesirable discoloration of the ocean surface;

[2] Formerly, California Department of Health Services.

c. Significantly reduce the transmittance of natural light at any point outside the initial dilution zone; and

d. Change the rate of deposition of inert solids and the characteristics of inert solids in ocean sediments such that benthic communities are degraded.

3. Chemical Characteristics

The waste discharged shall not:

a. Cause the dissolved oxygen concentration at any time to be depressed more than 10 percent from that which occurs naturally, as a result of the discharge of oxygen demanding waste materials;

b. Change the pH of the receiving waters at any time more than 0.2 units from that which occurs naturally as a result of the discharge pH;

c. Cause the dissolved sulfide concentration of waters in and near sediments to be significantly increased above that present under natural conditions;

d. Cause the concentration of substances set forth in Chapter II, Table B of the Ocean Plan, in marine sediments to be increased to levels that would degrade indigenous biota;

e. Cause the concentration of organic materials in marine sediments to be increased to levels that would degrade marine life; and

f. Contain nutrients at levels that will cause objectionable aquatic growth or degrade indigenous biota.

4. Biological Characteristics

The waste discharged shall not:

a. Degrade marine communities, including vertebrate, invertebrate, and plant species;

b. Alter the natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption; and

c. Cause the concentration of organic materials in fish, shellfish, or other marine resources used for human consumption to bioaccumulate to levels that are harmful to human health.

5. Radioactivity

Discharge of radioactive waste shall not degrade marine life.

VII. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D of this Order/Permit.

2. The Discharger shall comply with the following Regional Water Board provisions:

   a. Neither the treatment nor the discharge of pollutants shall create pollution, contamination, or nuisance as defined by section 13050 of the California Water Code.

   b. Odors, vectors, and other nuisances of sewage or sludge origin beyond the limits of the treatment plant site or the sewage collection system due to improper operation of facilities, as determined by the Regional Water Board, are prohibited.

   c. All facilities used for collection, transport, treatment, or disposal of wastes shall be adequately protected against damage resulting from overflow, washout, or inundation from a storm or flood having a recurrence interval of once in 100 years.

   d. Collection, treatment, and disposal systems shall be operated in a manner that precludes public contact with wastewater.

   e. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer of the Regional Water Board and USEPA.

   f. The provisions of this Order/Permit are severable. If any provision of this order is found invalid, the remainder of this Order shall not be affected.

   g. Nothing in this Order/Permit shall be construed to preclude the institution of any legal action or relieve the Discharger from any responsibilities, liabilities or penalties established pursuant to any applicable State law or regulation under authority preserved by section 510 of the CWA.

   h. Nothing in this Order/Permit shall be construed to preclude the institution of any legal action or relieve the Discharger from any responsibilities, liabilities or penalties to which the discharger is or may be subject to under section 311 of the CWA.

i. The Discharger must comply with the lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding discharges of storm water to storm drain systems or other water courses under their jurisdiction; including applicable requirements in municipal storm water management program developed to comply with NPDES permits issued by the Regional Water Board to local agencies.

j. Discharge of wastes to any point other than specifically described in this Order/Permit is prohibited, and constitutes a violation thereof.

k. The Discharger shall comply with all applicable effluent limitations, national standards of performance, toxic effluent standards, and all federal regulations established pursuant to sections 301, 302, 303(d), 304, 306, 307, 316, 403, and 405 of the Federal CWA and amendments thereto.

l. These requirements do not exempt the operator of the waste disposal facility from compliance with any other laws, regulations, or ordinances which may be applicable; they do not legalize this waste disposal facility, and they leave unaffected any further restraints on the disposal of wastes at this site which may be contained in other statutes or required by other agencies.

m. Oil or oily material, chemicals, refuse, or other pollutionable materials shall not be stored or deposited in areas where they may be picked up by rainfall and carried off of the property and/or discharged to surface waters. Any such spill of such materials shall be contained and removed immediately.

n. A copy of these waste discharge specifications shall be maintained at the discharge facility so as to be available at all times to operating personnel.

o. If there is any storage of hazardous or toxic materials or hydrocarbons at this facility and if the facility is not manned at all times, a 24-hour emergency response telephone number shall be prominently posted where it can easily be read from the outside.

p. The Discharger shall file with the Regional Water Board a report of waste discharge at least 120 days before making any material change or proposed change in the character, location or volume of the discharge.

q. In the event of any change in name, ownership, or control of these waste disposal facilities, the discharger shall notify the Regional Water Board and USEPA of such change and shall notify the succeeding owner or operator of the existence of this Order/Permit by letter, copy of which shall be forwarded to the Regional Water Board and USEPA.

r. The California Water Code (CWC) provides that any person who violates a waste discharge requirement or a provision of the CWC is subject to civil penalties of up to $5,000 per day, $10,000 per day, or $25,000 per day of violation, or when the violation involves the discharge of pollutants, is subject to civil penalties of up to $10 per gallon per day or $25 per gallon per day of violation; or some combination thereof, depending on the violation, or upon the combination of violations.

   Violation of any of the provisions of the NPDES program or of any of the provisions of this Order/Permit may subject the violator to any of the penalties described herein, or any combination thereof, at the discretion of the prosecuting authority; except that only one kind of penalty may be for each kind of violation.

s. Under CWC section 13387, any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this order, including monitoring reports or reports of compliance or noncompliance, or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required to be maintained in this order is subject to a fine of not more than $25,000 or imprisonment of not more than two years, or both. For a second conviction, such a person shall be punished by a fine of not more than $25,000 per day of violation, or by imprisonment of not more than four years, or by both.

t. The discharge of any waste resulting from the combustion of toxic or hazardous wastes to any waste stream that ultimately discharges to waters of the United States is prohibited, unless specifically authorized elsewhere in this Order/Permit.

u. The Discharger shall notify the Executive Officer and USEPA in writing no later than 6 months prior to planned discharge of any chemical, other than the products previously reported to the Executive Officer and USEPA, which may be toxic to aquatic life. Such notification shall include:

   1. Name and general composition of the chemical,

   2. Frequency of use,

   3. Quantities to be used,

   4. Proposed discharge concentrations, and

   5. USEPA registration number, if applicable.

3. The Discharger shall comply with the following USEPA Region 9 Standard Provisions:

   a. The following condition has been established to enforce applicable requirements of the Resource Conservation and Recovery Act. POTWs may not receive hazardous waste by truck, rail, or dedicated pipe except as provided under 40 CFR 270. Hazardous wastes are defined at 40 CFR 261 and include any mixture containing any waste listed under 40 CFR 261.31 through 261.33. The Domestic Sewage Exclusion (40 CFR 261.4) applies only to wastes mixed with domestic sewage in a sewer leading to a POTW and not to mixtures of hazardous wastes and sewage or septage delivered to the treatment plant by truck.

   b. Transfers by Modification: Except as provided in 40 CFR 122.61(b), this Permit may be transferred by the Discharger to a new owner or operator only if the Permit has been modified or revoked and reissued (under 40 CFR 122.62(b)(2)), or a minor modification made (under 40 CFR 122.63(d)), to identify the new permittee and incorporate such other requirements as may be necessary under the CWA. (40 CFR 122.61(a).)

   c. Automatic Transfers: As an alternative to transfers under 40 CFR 122.61(a), this Permit may be automatically transferred to a new permittee if: the notice includes a written agreement between the Discharger and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them; and the Water Division Director does not notify the Discharger and the proposed new permittee of his/her intent to modify or revoke and reissue the Permit. A modification under this paragraph may also be a minor modification under 40 CFR 122.63. If this notice is not received, the transfer is effective on the date specified in the written agreement between the Discharger and the new permittee. (40 CFR 122.61(b).)

   d. Minor Modification of Permits: Upon the consent of the Discharger, the Water Division Director may modify the Permit to make the corrections or allowances for changes in the permitted activity listed under 40 CFR 122.63(a) through (g), without following the procedures of 40 CFR 124. Any permit modification not processed as a minor modification under 40 CFR 122.63 must be made for cause and with 40 CFR 124 draft permit and public notice as required in 40 CFR 122.62. (40 CFR 122.63.)

   e. Termination of Permits: The causes for terminating a permit during its term, or for denying a permit renewal application are found at 40 CFR 122.64(a)(1) through (4). (40 CFR 122.64.)

   f. Availability of Reports: Except for data determined to be confidential under 40 CFR 2, all reports prepared in accordance with the terms of this Order/Permit shall be available for public inspection at the offices of the Regional Water Board and USEPA. As required by the CWA, permit applications, permits, and effluent data shall not be considered confidential. (Pursuant to CWA section 308.)

g. Removed Substances: Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering navigable waters. (Pursuant to CWA section 301.)

h. Severability: The provisions of this Order/Permit are severable, and if any provision of this Order/Permit or the application of any provision of this Order/Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Order/Permit shall not be affected thereby. (Pursuant to CWA section 512.)

i. Civil and Criminal Liability: Except as provided in standard conditions on Bypass and Upset, nothing in this Order/Permit shall be construed to relieve the Discharger from civil or criminal penalties for noncompliance. (Pursuant to CWA section 309.)

j. Oil and Hazardous Substances Liability: Nothing in this Order/Permit shall be construed to preclude the institution of any legal action or relieve the Discharger from any responsibilities, liabilities, or penalties to which the Discharger is or may be subject under CWA section 311.

k. State or Tribal Law: Nothing in this Order/Permit shall be construed to preclude the institution of any legal action or relive the operator from any responsibilities, liabilities, or penalties established pursuant to any applicable State or Tribal law or regulation under authority preserved by CWA section 510.

B. Monitoring and Reporting Program (MRP) Requirements

1. The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order/Permit.

2. Reports required to be submitted to the Regional Water Board and USEPA shall be sent to:

   California Regional Water Quality Control Board
   Los Angeles Region
   320 West 4th Street, Suite 200
   Los Angeles, CA 90013
   Attention: Information Technology Unit

   U.S. EPA, Region 9
   ATTN: NPDES Data Team (WTR-1)
   75 Hawthorne Street

San Francisco, CA 94105-3901

Notifications and report required to be provided to the Regional Water Board shall be made to:

Telephone – (213) 576-6616
Facsimile – (213) 576-6660

Notifications and report required to be provided to USEPA shall be made to:

Telephone – (415) 972-3577
Facsimile – (415) 947-3545

3. After notification by the State or Regional Water Board or USEPA, the Discharger may be required to electronically submit self-monitoring reports. Until such time as electronic submissions of self-monitoring reports is required, the Discharger shall submit discharge monitoring reports (DMRs) in accordance with the requirements described in this Order/Permit.

   DMRs must be signed and certified as required by the Standard Provisions of this Order/Permit (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to:

Standard Mail	**FedEx/UPS/ Other Private Carriers**
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

   The Discharger shall submit one copy of the DMR to:

U.S. EPA, Region 9
ATTN: NPDES Data Team (WTR-1)
75 Hawthorne Street
San Francisco, CA 94105-3901

   All discharge monitoring results should be reported on the official USEPA pre-printed DMR forms (USEPA Form 3320-1). Forms that are self-generated must be approved by USEPA.

C. Special Provisions

1. Reopener Provisions

   a. This Order/Permit may be reopened and modified to incorporate new limits based on future reasonable potential analyses to be conducted based on on-going monitoring data collected by the Discharger and evaluated by the Regional Water Board and USEPA.

b. This Order/Permit may be reopened and modified to incorporate new mass emission rates based on the current Hyperion Treatment Plant's design capacity of 450 MGD provided that the Discharger requests and conducts an antidegradation analysis to demonstrate that the change is warranted.

c. This Order/Permit may be reopened and modified, in accordance with the provisions set forth in 40 CFR 122 and 124, to incorporate requirements for the implementation of the watershed protection management approach.

d. This Order/Permit may be modified, in accordance with the provisions set forth in 40 CFR 122 and 124, to include new MLs.

e. This Order/Permit may be reopened and modified to revise effluent limitations as a result of future Basin Plan Amendments or the adoption of a TMDL for Santa Monica Bay Watershed Management Areas.

f. The Regional Water Board or USEPA may modify or revoke and reissue this Order/Permit if present or future investigations demonstrate that the discharge(s) governed by this Order/Permit will cause, have the potential to cause, or will contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters.

g. This Order/Permit may be modified, revoked, and reissued or terminated in accordance with the provisions of 40 CFR 122.44, 122.62 to 122.64, 125.62, and 125.64. Causes for taking such actions include, but are not limited to, failure to comply with any condition of this Order/Permit, endangerment to human health or the environment resulting from the permitted activity, or acquisition of newly obtained information which would have justified the application of different conditions if known at the time of Order/Permit adoption and issuance. The filing of a request by the Discharger for an Order/Permit modification, revocation, and issuance or termination, or a notification of planned changes or anticipated noncompliances does not stay any condition of this Order/Permit.

h. This Order/Permit may be modified, or revoked and reissued, based on the results of Magnuson-Stevens Fishery Conservation and Management Act and/or Endangered Species Act section 7 consultation(s) with the National Marine Fisheries Service and/or the U.S. Fish and Wildlife Service.

i. This Order/Permit may be reopened and modified by the Regional Water Board and USEPA to incorporate conforming monitoring requirements and schedule dates for implementation of the Comprehensive Monitoring Program for Santa Monica Bay (Santa Monica Bay Restoration Commission, January 2007).

j. The Regional Water Board may reopen this Order to consider making conforming changes to Order No. R4-2010-XXXX in the event the USEPA issues a version of NPDES Permit No. CA0109991 that contains revisions based on its consideration of comments which are timely submitted.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Treatment Plant Capacity

The Discharger shall submit a written report to the Regional Water Board Executive Officer and USEPA Director within 90 days after the “30-day (monthly) average” daily dry-weather flow equals or exceeds 75 percent of the 30-day (monthly) average daily dry weather design capacity (i.e., 450 MGD) of waste treatment and/or disposal facilities subject to this Order/Permit. The Discharger’s senior administrative officer shall sign a letter, which transmits the report and certifies that the Discharger’s policy-making body is adequately informed of the report contents. The report shall include the following:

1. Daily average flow for the calendar month, the date on which the maximum daily flow (peak flow) occurred, and the rate of that maximum flow.

2. The Discharger’s best estimate of when the monthly average daily dry-weather flow will equal or exceed the design capacity of the POTW.

3. The Discharger’s plans to provide additional capacity for waste treatment and/or disposal facilities before the waste flow exceeds the capacity of the POTW. This requirement can be satisfied by referencing and attaching to the report relevant portions of the wastewater planning documents developed in response to this requirement that provide a roadmap for infrastructure and program upgrades and strategies to meet projected increases in the Discharger’s wastewater treatment capacity.

3. Best Management Practices and Pollution Prevention

a. Storm Water Pollution Prevention Plan (SWPPP) – The HTP is regulated under the State Water Board Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001 (General Permit), WDRs for Discharge of Storm Water Associated with Industrial Activities Excluding Construction Activities.

b. Spill Clean-Up Contingency Plan (SCCP)

The Discharger shall maintain an SCCP for Hyperion Treatment Plant and its sanitary sewage collection system in an up-to-date condition and shall amend the SCCP whenever there is a change (e.g., in the design, construction, operation, or maintenance of the sewage system or sewage facilities) which materially affects the potential for spills. The Discharger shall review and amend the SCCP as appropriate after each spill from Hyperion Treatment Plant or in the service area of the Facility. Upon request of the Regional Water Board or USEPA, the Discharge shall submit the SCCP and any amendments to the Regional Water Board and USEPA. The Discharger shall ensure that the up-to-date SCCP is readily available to the sewage system personnel at all times and that the sewage system personnel are familiar with it.

Within six months of the adoption of this Order/Permit, the Discharger shall submit an SCCP, which provides the most applicable containment, cleanup and monitoring of sewer spills or overflows that reach water bodies, including dry channels and beach sands, that considers the information developed by the Sanitation Districts of Los Angeles County's efforts to develop a statewide approach, to the Regional Water Board Executive Officer and USEPA.

c. Pollutant Minimization Program

Reporting protocols in the Monitoring and Reporting Program, Attachment E, describe sample results that are to be reported as Detected but Not Quantified (DNQ) or Not Detected (ND). Definitions for a reported Minimum Level (ML) and Method Detection Limit (MDL) are provided in the Ocean Plan. These reporting protocols and definitions are used in determining the need to conduct a Pollution Minimization Program, as follows:

The Discharger shall develop and conduct a Pollutant Minimization Program (PMP) as further described below when there is evidence (e.g., sample results reported as DNQ when the effluent limitation is less than the MDL, sample results from analytical methods more sensitive than those methods required by this Order/Permit, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a pollutant is present in the effluent above an effluent limitation and either:

1. The concentration of the pollutant is reported as DNQ and the effluent limitation is less than the reported ML; or

2. The concentration of the pollutant is reported as ND and the effluent limitation is less than the MDL.

The goal of the PMP shall be to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost-effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to California Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

The PMP shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board and USEPA:

1. An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling;

2. Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system;

3. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation;

4. Implementation of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and

5. An annual status report that shall be sent to the Regional Water Board and USEPA including:

    a. All PMP monitoring results for the previous year;

    b. A list of potential sources of the reportable pollutant(s);

    c. A summary of all actions undertaken pursuant to the control strategy; and

    d. A description of actions to be taken in the following year.

4. Construction, Operation and Maintenance Specifications

   a. Wastewater treatment facilities subject to this Order/Permit shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Chapter 3, Subchapter 14, Title 23 of the California Code of Regulations (section 13625 of the California Water Code).

   b. The Discharger shall maintain in good working order a sufficient alternate power source for operating the wastewater treatment and disposal facilities. All equipment shall be located to minimize failure due to moisture, liquid spray, flooding, and other physical phenomena. The alternate power source shall be designed to permit inspection and maintenance and shall provide for periodic testing. If such alternate power source is not in existence, the Discharger shall halt, reduce, or otherwise control all discharges upon the reduction, loss, or failure of the primary source of power.

   c. Emergency Power Facilities

      The Discharger shall provide standby or emergency power facilities and/or storage capacity or other means so that in the event of plant upset or outage due to power failure or other cause, discharge of raw or inadequately treated sewage does not occur.

5. Special Provisions for Municipal Facilities (POTWs Only)

   a. Sludge (Biosolids) Requirements – Refer to Attachment H

   b. Pretreatment Program Requirements – Refer to Attachment I

   c. Spill Reporting Requirements for POTWs

      1. Initial Notification

         This requirement is an appropriate mechanism to ensure that the agencies that have first responder duties are notified in a timely manner in order to protect public health and beneficial uses. For spills, overflows, and bypasses from its POTW, the Discharger shall make notifications as required below:

         a. In accordance with the requirements of Health and Safety Code section 5411.5, the Discharger shall provide notification to the local health officer or the director of environmental health with jurisdiction over the affected water body of any unauthorized release of sewage or other waste that causes, or probably will cause, a discharge to any waters of the State as soon as possible, but not later than two (2) hours after becoming aware of the release.

b. In accordance with the requirements of Water Code section 13271, the Discharger shall provide notification to the California Emergency Management Agency (Cal EMA) of the release of reportable amounts of hazardous substances or sewage that causes, or probably will cause, a discharge to any waters of the State as soon as possible, but not later than two (2) hours after becoming aware of the release. The California Code of Regulations, Title 23, section 2250, defines a reportable amount of sewage as being 1,000 gallons. The phone number for reporting releases to Cal EMA is (800) 852-7550.

c. The Discharger shall notify the Regional Water Board of any unauthorized release of sewage from its POTW that causes, or probably will cause, a discharge to any waters of the State as soon as possible, but not later than ***two (2)*** hours after becoming aware of the release. This initial notification does not need to be made if the Discharger has notified Cal EMA and the local health officer or the director of environmental health with jurisdiction over the affected water body. The phone number for reporting releases of sewage to the Regional Water Board is (213) 576-6657. The phone numbers for after hours and weekend reporting of releases of sewage to the Regional Water Board are (213) 305-2284 and (213) 305-2253.

At a minimum the following information shall be provided to the Regional Water Board:

1. The location, date and time of the release.

2. The waters of the State that received or will receive the discharge.

3. An estimate of the amount of sewage or other waste released and the amount that reached waters of the State at the time of notification.

4. If ongoing, the estimated flow rate of the release at the time of the notification.

5. The name, organization, phone number, and email address of the reporting representative.

2. Monitoring

For spills, overflows, and bypasses reported under section VII.C.5.c.1, the Discharger shall monitor as required below:

To define the geographical extent of the impact, the Discharger shall obtain grab samples (if feasible, accessible, and safe): (1) for all spills, overflows, or bypasses of any volume that reach any waters of the State; and (2) for all spills, overflows, or bypasses of 1,000 gallons or more. The Discharger shall analyze the samples for total and fecal coliforms or *E. coli*, *Enterococcus*, and relevant pollutants of concern, upstream and downstream of the point of entry of the spill (if feasible, accessible, and safe). This monitoring shall be done on a daily basis from time the spill is known until the results of two consecutive sets of bacteriological monitoring indicate the return to the background level or the County Department of Public Health authorizes cessation of monitoring.

3. Twenty-four (24) Hour Reporting

The Regional Water Board initial notification required under section VII.C.5.c.1, above shall be followed by:

a. As soon as possible, but not later than **twenty-four (24) hours** after becoming aware of an unauthorized discharge of sewage or other waste from its POTW to any waters of the State or of 1,000 gallons or more, the Discharger shall submit a report to the Regional Water Board by email at aanijielo@waterboards.ca.gov and the USEPA by telephone at (415) 972-3577 or facsimile at (415) 947-3545. If the discharge is 1,000 gallons or more, this report shall certify that the Cal EMA has been notified of the discharge in accordance with Water Code section 13271 and section VII.C.5.c.1. This report shall also certify that the local health officer or director of environmental health with jurisdiction over the affected water body has been notified of the discharge in accordance with Health and Safety Code section 5411.5 and section VII.C.5.c.1. This report shall also include at a minimum the following information:

   (i) Agency, NPDES No., Order No., and MRP CI No., if applicable.

   (ii) The location, date and time of the discharge.

   (iii) The waters of the State that received the discharge.

(iv) A description of the level of treatment of the sewage or other waste discharged.

(v) An initial estimate of the amount of sewage or other waste released and the amount that reached waters of the State.

(vi) The Cal EMA control number and the date and time that notification of the incident was provided to the Cal EMA.

(vii) The name of the local health officer or director of environmental health notified (if contacted directly), the date and time of notification, and the method of notification (e.g., phone, fax, email).

b. A preliminary written report is due five (5) working days after disclosure of the incident reported under section VII.C.5.c.3.a (submission to the Regional Water Board and USEPA of the log number of the SSO Database entry shall satisfy this requirement for a preliminary written report). Within 30 days after submitting this preliminary written report, the Discharger shall submit the final written report to the Regional Water Board and USEPA. The final written report shall document the information required in section VII.C.5.c.4, below, and in the Standard Provisions of this Order/Permit. The Executive Officer for just cause can grant an extension for submittal of the final written report to the Regional Water Board.

c. The Discharger shall include a certification in the annual summary report (due according to the schedule in the Monitoring and Reporting Program) stating that the sewer system emergency equipment, including alarm systems, backup pumps, standby power generators, and other critical emergency pump station components are maintained and tested in accordance with the Discharger's Preventative Maintenance Plan (PMP). Any deviations from or modifications to the PMP shall be discussed.

4. Records

The Discharger shall develop and maintain a record of all spills, overflows, or bypasses of raw or partially treated sewage from its POTW. This record shall be made available to the Regional Water Board and USEPA upon request and a summary shall be included in the annual summary report. The records shall contain:

a. The date and time of each spill, overflow, or bypass;

b. The location of each spill, overflow, or bypass (including latitude and longitude);

c. The estimated volume of each spill, overflow, or bypass including gross volume, amount recovered and not recovered, and monitoring results required by section VII.C.5.c.2;

d. The cause of each spill, overflow, or bypass;

e. Whether each spill, overflow, or bypass entered a waters of the State and, if so, the name of the water body and whether it entered via a storm drain or other man-made conveyance;

f. Mitigation measures implemented;

g. Corrective measures implemented or proposed to be implemented to prevent/minimize future occurrences; and

h. The mandatory information included in SSO online reporting for finalizing and certifying the SSO report for each spill, overflow, or bypass under the SSO WDR.

5. Activities Coordination

In addition, the Regional Water Board and USEPA expect that the POTW will coordinate its compliance activities for consistency and efficiency with other entities that have responsibilities under: this NPDES permit, including the Pretreatment Program; an MS4 NPDES permit that may contain spill prevention, sewer maintenance and reporting requirements; or the SSO WDR.

6. Consistency with Statewide General Waste Discharge Requirements For Sanitary Sewer Systems (SSO WDR)

The Clean Water Act prohibits the discharge of pollutants from a point source to waters of the United States unless authorized under a NPDES permit. (33 U.S.C. §§1311, 1342.). The State Water Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, (Order No. 2006-0003-DWQ) on May 2, 2006, to provide a consistent, Statewide regulatory approach to address Sanitary Sewer Overflows (SSOs). The SSO WDR requires public agencies that own or operate sanitary sewer systems to develop and implement sewer system management plans and report all SSOs to the State Water Board's online SSO Database.

The requirements contained in this Order/Permit in Sections VII.C.3.b (Spill Clean-Up Contingency Plan), VII.C.4 (Construction, Operation and Maintenance Specifications), and VI.C.5.c (Spill Reporting Requirements for POTWs) are intended to be consistent with the requirements of the SSO WDR and as outlined in the State Water Board letter dated September 9, 2008 (Modification to Monitoring and Reporting Program). The Regional Water Board recognizes that there may be some overlap between the provisions of this Order/Permit and SSO WDR requirements. The requirements of the SSO WDR are considered the minimum thresholds (see Finding 11 of Order No. 2006-0003-DWQ). The Regional Water Board will accept the documentation prepared by the Discharger under the SSO WDR for compliance purposes as satisfying the requirements in sections VII.C.3.b, VII.C.4, and VII.C.5.c provided that any additional or more stringent provisions enumerated in this Order/Permit are addressed.

Regardless of the coverage obtained under the SSO WDR, the Discharger's collection system is part of the Publicly Owned Treatment Works that is subject to this Order/Permit. As such, pursuant to federal regulations, the Discharger must properly operate and maintain its collection system (40 CFR 122.41(e)), report any non-compliance (40 CFR 122.41(l)(6) and (7), and mitigate any discharge from the collection system in violation of this Order/Permit (40 CFR 122.41(d)).

6. Other Special Provisions – Not Applicable

7. Compliance Schedules – Not Applicable

VIII. COMPLIANCE DETERMINATION

Compliance with effluent limitations for reportable pollutants shall be determined using sample reporting protocols defined in the MRP.

A. General

Compliance with effluent limitations for reportable pollutants shall be determined using sample reporting protocols defined in the MRP.

1. Compliance with Effluent Limitations expressed as Single Constituents

   Dischargers are out of compliance with the effluent limitation if the concentration of the pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level.

2. Compliance with Effluent Limitations expressed as Sum of Several Constituents

   Dischargers are out of compliance with an effluent limitation which applies to the sum of a group of chemicals (e.g., PCB's) if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as "Not Detected" (ND) or "Detected, but Not Quantified" (DNQ).

3. Multiple Sample Data Reduction

   The concentration of the pollutant in the effluent may be estimated from the result of a single sample analysis or by a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses when all sample results are quantifiable (i.e., greater than or equal to the reported Minimum Level). When one or more sample results are reported as ND or DNQ, the central tendency concentration of the pollutant shall be the median (middle) value of the multiple samples, where DNQ is lower than a quantified value and ND is lower than DNQ. If, in an even number of samples, one or both of the middle values is ND or DNQ, the median will be the lower of the two middle values.

4. Sufficient sampling and analysis shall be required to determine compliance with the effluent limitation. If the analytical result of any single sample (daily discharge) monitored monthly, quarterly, semiannually, or annually, exceeds the AMEL, the Discharger shall increase sampling frequency to weekly until compliance with the AMEL is demonstrated. All analytical results shall be reported as specified in Section VIII—Compliance Determination.

5. Average Monthly Effluent Limitation (AMEL)

   If the average (or when applicable, the median determined by subsection 3 above for multiple sample data reduction) of daily discharges over a calendar month exceeds the AMEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month). However, an alleged violation of the AMEL will be considered one violation for the purpose of assessing mandatory minimum penalties. The average of daily discharges over a calendar month that exceeds the AMEL for a parameter will be considered out of compliance for that month only. If only a single sample (daily discharge) is taken over a calendar month and the analytical result for that sample exceeds the AMEL, the Discharger will be considered out of compliance for that month. If no sample (daily discharge) is taken over a calendar month, no compliance determination can be made for that month with respect to effluent violation determination, but compliance determination can be made for that month with respect to reporting violation determination.

6. Average Weekly Effluent Limitation (AWEL)

If the average of daily discharges over a calendar week exceeds the AWEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for each day of that week for that parameter (e.g., resulting in seven days of non-compliance). However, an alleged violation of the AWEL will be considered one violation for the purpose of assessing mandatory minimum penalties. The average of daily discharges over a calendar week that exceeds the AWEL for a parameter will be considered out of compliance for that week only. If only a single sample (daily discharge) is taken over a calendar week and the analytical result for that sample exceeds the AWEL, the Discharger will be considered out of compliance for that week. If no sample (daily discharge) is taken over a calendar week, no compliance determination can be made for that week with respect to effluent violation determination, but compliance determination can be made for that week with respect to reporting violation determination.

A calendar week will begin on Sunday and end on Saturday. Partial calendar weeks at the end of the calendar month will be carried forward to the next month in order to calculate and report a consecutive seven-day average value on Saturday.

7. Maximum Daily Effluent Limitation (MDEL)

If a daily discharge on a calendar day exceeds the MDEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for that day for that parameter. If no sample (daily discharge) is taken over a calendar day, no compliance determination can be made for that day with respect to effluent violation determination, but compliance determination can be made for that day with respect to reporting violation determination.

8. Instantaneous Minimum Effluent Limitation

   If the analytical result of a single grab sample exceeds (is lower than) the instantaneous minimum effluent limitation for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for that single sample for that parameter. Non-compliance for each single grab sample will be considered separately (e.g., the analytical results of two grab samples taken over a calendar day that are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

9. Instantaneous Maximum Effluent Limitation

   If the analytical result of a single grab sample exceeds (is higher than) the instantaneous maximum effluent limitation for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for that single sample for that parameter. Non-compliance for each single grab sample will be considered separately (e.g., the analytical results of two grab samples taken over a calendar day that both are higher than the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

10. Percent Removal

   A percentage expression of the removal efficiency across a treatment plant for a given pollutant parameter, as determined from the 30-day average values of the raw wastewater influent pollutant concentrations to the facility and the 30-day average values of the effluent pollutant concentrations for a given time period.

   Daily discharge percent removal is calculated using the following equation: Percent Removal (%) = $[1 - (C_{Effluent} \div C_{Influent})] \times 100\%$

11. Mass and Concentration Limitations

   Compliance with mass effluent limitations and concentration effluent limitations for the same parameter shall be determined separately. When the concentration for a parameter in a sample is reported as ND or DNQ, the corresponding mass emission rate determined using that sample concentration shall also be reported as ND or DNQ.

12. Mass Emission Rate

   The daily discharge mass emission rate for any calendar day is calculated using the following equations:

Daily Discharge mass emission rate (lb/day) = $\frac{8.337}{N}\sum_{i=1}^{N} Q_i C_i$

Daily Discharge mass emission rate (kg/day) = $\frac{3.785}{N}\sum_{i=1}^{N} Q_i C_i$

in which "N" is the number of samples taken over any calendar day. If grab samples are taken, "Ci" is the constituent concentration (mg/L) and "Qi" is the flow rate (MGD) associated with each "N" grab sample. If composite samples are taken, "Ci" is the constituent concentration (mg/L) in each composite sample and "Qi" is the average flow rate (MGD) during the period over which sample compositing occurs.

The daily discharge concentration of a constituent shall be determined from the flow-weighted average of the same constituent in the combined waste stream using the following equations:

Daily discharge concentration = $\frac{1}{Q_t}\sum_{i=1}^{N} Q_i C_i$

in which "N" is the number of component waste streams. "Ci" is the constituent concentration (mg/L) and "Qi" is the flow rate (MGD) associated with each "N" component waste stream. "Qt" is the total flow rate of the combined waste stream.

13. Bacterial Standards and Analyses

The geometric mean used for determining compliance with bacterial standards is calculated using the following equation:

Geometric Mean = $(C_1 \times C_2 \times \ldots \times C_n)^{1/n}$

where n is the number of days samples were collected during the period and C is the concentration of bacteria (MPN/100 mL or CFU/100 mL) found on each day of sampling.

For bacterial analyses, sample dilutions should be performed so the expected range of values is bracketed (for example, with multiple tube fermentation method or membrane filtration method, 2 to 16,000 per 100 ml for total and fecal coliform, at a minimum, and 1 to 1000 per 100 ml for *Enterococcus*). The detection method used for each analysis shall be reported with the results of the analysis.

Detection methods used for coliforms (total and fecal) and *Enterococcus* shall be those presented in Table 1A of 40 CFR 136 (revised revised July 1, 2009), unless alternate methods have been approved by USEPA pursuant to 40 CFR 136 or improved methods have been determined by the Executive Officer and/or USEPA.

14. Single Operational Upset

A single operational upset (SOU) that leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation and limits the Discharger's liability in accordance with the following conditions:

A single operational upset is broadly defined as a single unusual event that temporarily disrupts the usually satisfactory operation of a system in such a way that it results in violation of multiple pollutant parameters.

A Discharger may assert SOU to limit liability only for those violations which the Discharger submitted notice of the upset as required in Attachment D – Standard Provisions.

For purpose outside of CWC section 13385(h) and (i), determination of compliance and civil liability (including any more specific definition of SOU, the requirements for Dischargers to assert the SOU limitation of liability, and the manner of counting violations) shall be in accordance with USEPA Memorandum "Issuance of Guidance Interpreting Single Operational Upset" (September 27, 1989).

For purpose of CWC section 13385(h) and (i), determination of compliance and civil liability (including any more specific definition of SOU, the requirements for Dischargers to assert the SOU limitation of liability, and the manner of counting violations) shall be in accordance with CWC section 13385(f)(2).

ATTACHMENT A – DEFINITIONS

Acute Toxicity:

a. Acute Toxicity (TUa)

Expressed in Toxic Units Acute (TUa)

$$TUa = \frac{100}{\text{96-hr LC 50\%}}$$

b. Lethal Concentration 50% (LC 50)

LC 50 (percent waste giving 50% survival of test organisms) shall be determined by static or continuous flow bioassay techniques using standard marine test species as specified in Ocean Plan Appendix III, Chapter II. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC 50 may be determined after the test samples are adjusted to remove the influence of those substances.

When it is not possible to measure the 96-hour LC 50 due to greater than 50 percent survival of the test species in 100 percent waste, the toxicity concentration shall be calculated by the expression:

$$TUa = \frac{\log(100 - S)}{1.7}$$

where:

S = percentage survival in 100% waste. If S > 99, TUa shall be reported as zero.

Areas of Special Biological Significance (ASBS): are those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable. All Areas of Special Biological Significance are also classified as a subset of STATE WATER QUALITY PROTECTION AREAS.

Average Monthly Effluent Limitation (AMEL) means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month. (40 CFR 122.2.)

Average Weekly Effluent Limitation (AWEL) means the highest allowable average of "daily discharges" over a calendar week (Sunday through Saturday), calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week. (40 CFR 122.2.)

Chlordane shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

Chronic Toxicity: This parameter shall be used to measure the acceptability of waters for supporting a healthy marine biota until improved methods are developed to evaluate biological response.

a. Chronic Toxicity (TUc)

Expressed as Toxic Units Chronic (TUc)

$$TUc = \frac{100}{NOEL}$$

b. No Observed Effect Level (NOEL)

The NOEL is expressed as the maximum percent effluent or receiving water that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed in Ocean Plan Appendix III.

Composite Sample, for flow rate measurements, means the arithmetic mean of no fewer than eight individual measurements taken at equal intervals for 24 hours or for the duration of discharge, whichever is shorter.

Composite sample, for other than flow rate measurements, means:

a. No fewer than eight individual sample portions taken at equal time intervals for 24 hours, or the duration of the discharge, whichever is shorter. The volume of each individual sample portion shall be directly proportional to the discharge flow rate at the time of sampling; or,

b. No fewer than eight individual sample portions taken of equal time volume taken over a 24 hour period. The time interval between each individual sample portion shall vary such that the volume of the discharge between each individual sample portion remains constant.

The compositing period shall equal the specified sampling period, or 24 hours, if no period is specified.

For a composite sample, if the duration of the discharge is less than 24 hours but greater than 8 hours, at least eight flow-weighted individual sample portions shall be taken during the duration of the discharge and composited. For a discharge duration of 8 hours or less, eight individual “grab samples” may be substituted and composited.

The composite sample result shall be reported for the calendar day during which composite sampling ends.

Daily Discharge means the "discharge of a pollutant" measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day. (40 CFR 122.2.)

DDT shall mean the sum of 4,4'DDT, 2,4'DDT, 4,4'DDE, 2,4'DDE, 4,4'DDD, and 2,4'DDD.

Degrade. Degradation shall be determined by comparison of the waste field and reference site(s) for characteristic species diversity, population density, contamination, growth anomalies, debility, or supplanting of normal species by undesirable plant and animal species. Degradation occurs if there are significant differences in any of three major biotic groups, namely, demersal fish, benthic invertebrates, or attached algae. Other groups may be evaluated where benthic species are not affected, or are not the only ones affected.

Detected, but Not Quantified (DNQ) means sample results less than the reported Minimum Level, but greater than or equal to the laboratory's MDL.

Dichlorobenzenes shall mean the sum of 1,2- and 1,3-dichlorobenzene.

Downstream Ocean Waters shall mean waters downstream with respect to ocean currents.

Dredged Material: Any material excavated or dredged from the navigable waters of the United States, including material otherwise referred to as "spoil".

Enclosed Bays are indentations along the coast, which enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. This definition includes but is not limited to: Humboldt Bay, Bodega Harbor, Tomales Bay, Drakes Estero, San Francisco Bay, Morro Bay, Los Angeles Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay.

Endosulfan shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.

Estuaries and Coastal Lagoons are waters at the mouths of streams that serve as mixing zones for fresh and ocean waters during a major portion of the year. Mouths of streams that are temporarily separated from the ocean by sandbars shall be considered as estuaries. Estuarine waters will generally be considered to extend from a bay or the open ocean to the upstream limit of tidal action but may be considered to extend seaward if significant mixing of fresh and salt water occurs in the open coastal waters. The waters described by this definition include but are not limited to the Sacramento-San Joaquin Delta as defined by section 12220 of the California Water Code, Suisun Bay, Carquinez Strait downstream to Carquinez Bridge, and appropriate areas of the Smith, Klamath, Mad, Eel, Noyo, and Russian Rivers.

Grab Sample means an individual sample collected during a period of time not to exceed 15 minutes. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may or may not occur during hydraulic peaks.

Halomethanes shall mean the sum of bromoform, bromomethane (methyl bromide) and chloromethane (methyl chloride).

HCH shall mean the sum of the alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane.

Initial Dilution is the process that results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and non-buoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Regional Water Board, whichever results in the lower estimate for initial dilution.

Instantaneous Maximum Effluent Limitation: the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum effluent limitation).

Instantaneous Minimum Effluent Limitation: the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum effluent limitation).

Kelp Beds, for purposes of the bacteriological standards of the Ocean Plan, are significant aggregations of marine algae of the genera Macrocystis and Nereocystis. Kelp beds include the total foliage canopy of Macrocystis and Nereocystis plants throughout the water column.

Mariculture is the culture of plants and animals in marine waters independent of any pollution source.

Material: (a) In common usage: (1) the substance or substances of which a thing is made or composed (2) substantial; (b) For purposes of the Ocean Plan relating to waste disposal, dredging and the disposal of dredged material and fill, MATERIAL means matter of any kind or description which is subject to regulation as waste, or any material dredged from the navigable waters of the United States. See also, DREDGED MATERIAL.

Maximum Daily Effluent Limitation (MDEL) means the highest allowable “daily discharge”. (40 CFR Part 122.2.)

MDL (Method Detection Limit) is the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero, as defined in 40 CFR part 136, Appendix B.

Minimum Level (ML) is the concentrations at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes and processing steps have been followed.

Natural Light: Reduction of natural light may be determined by the Regional Water Board by measurement of light transmissivity or total irradiance, or both, according to the monitoring needs of the Regional Water Board.

Not Detected (ND) means those sample results less than the laboratory’s MDL.

Ocean Waters are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters.

PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene (benzo[a]anthracene), 3,4-benzofluoranthene (benzo[b] fluoranthene), benzo[k]fluoranthene, 1,12-benzoperylene (benzo[ghi]perylene), benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene and pyrene.

PCBs (polychlorinated biphenyls) shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254 and Aroclor-1260.

Pollutant Minimization Program (PMP) means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, in order to maintain the effluent concentration at or below the effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to

California Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements in Ocean Plan section III.C.9.

Publicly Owned Treatment Works. The term Publicly Owned Treatment Works or POTW means a treatment works as defined by section 212 of the Act, which is owned by a State or municipality (as defined by section 502(4) of the Act). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality which has jurisdiction over the Indirect Discharges to and the discharges from such treatment works. (40 CFR 403.3(q).)

Reported Minimum Level is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in their permit. The MLs included in this permit correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board in accordance with Ocean Plan section III.C.5. The ML is based on the proper application of method-specific analytical procedures and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the reported ML. (See Ocean Plan section III.C.6.)

Shellfish are organisms identified by the California Department of Health Services as shellfish for public health purposes (i.e., mussels, clams and oysters).

Significant Difference is defined as a statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level.

Six-month Median Effluent Limitation: the highest allowable moving median of all "daily discharges" for any 180-day period.

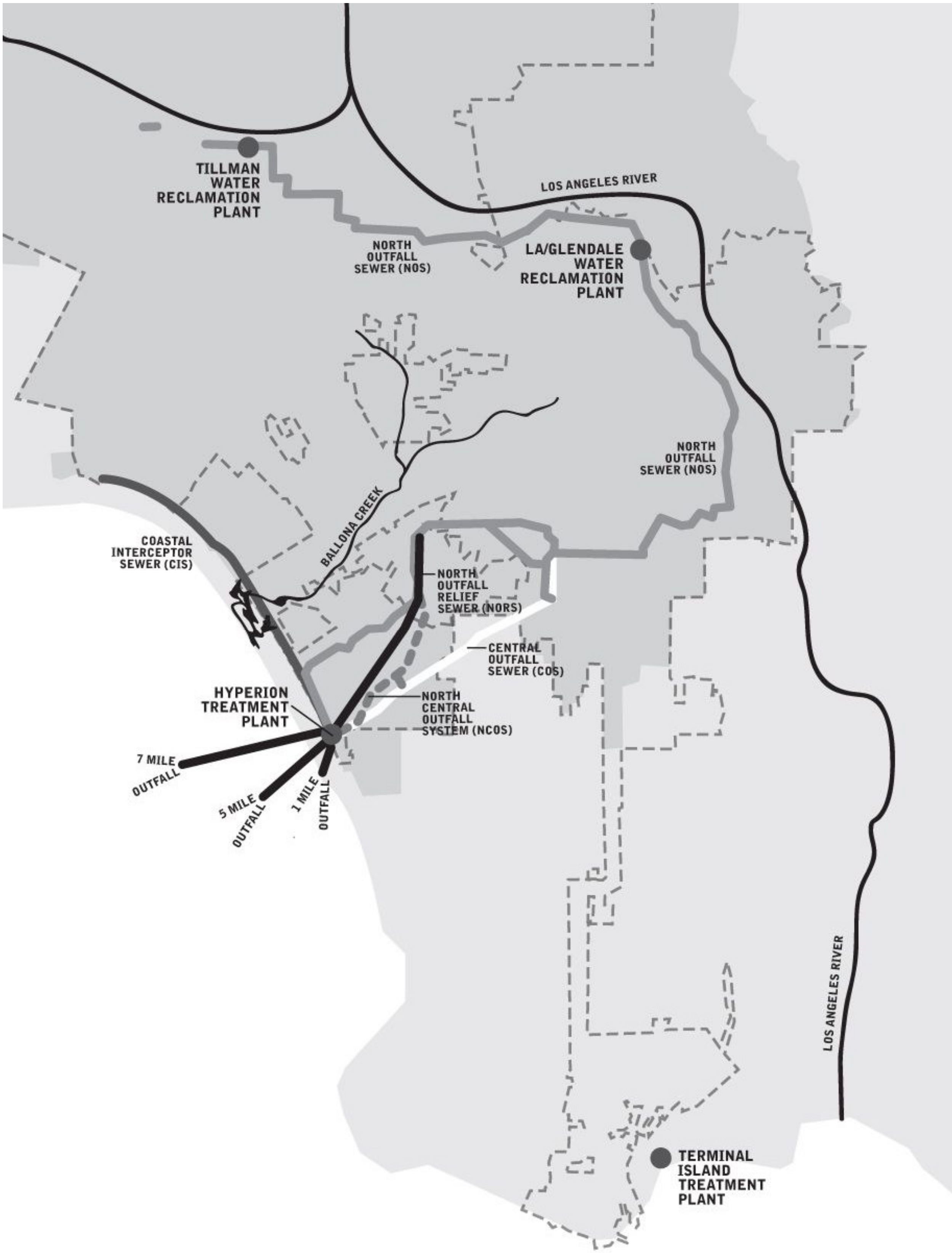
State Water Quality Protection Areas (SWQPAs) are non-terrestrial marine or estuarine areas designated to protect marine species or biological communities from an undesirable alteration in natural water quality. All AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS) that were previously designated by the State Water Board in Resolutions 74-28, 74-32, and 75-61 are now also classified as a subset of State Water Quality Protection Areas and require special protections afforded by the Ocean Plan.

TCDD Equivalents shall mean the sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors, as shown in the table below.

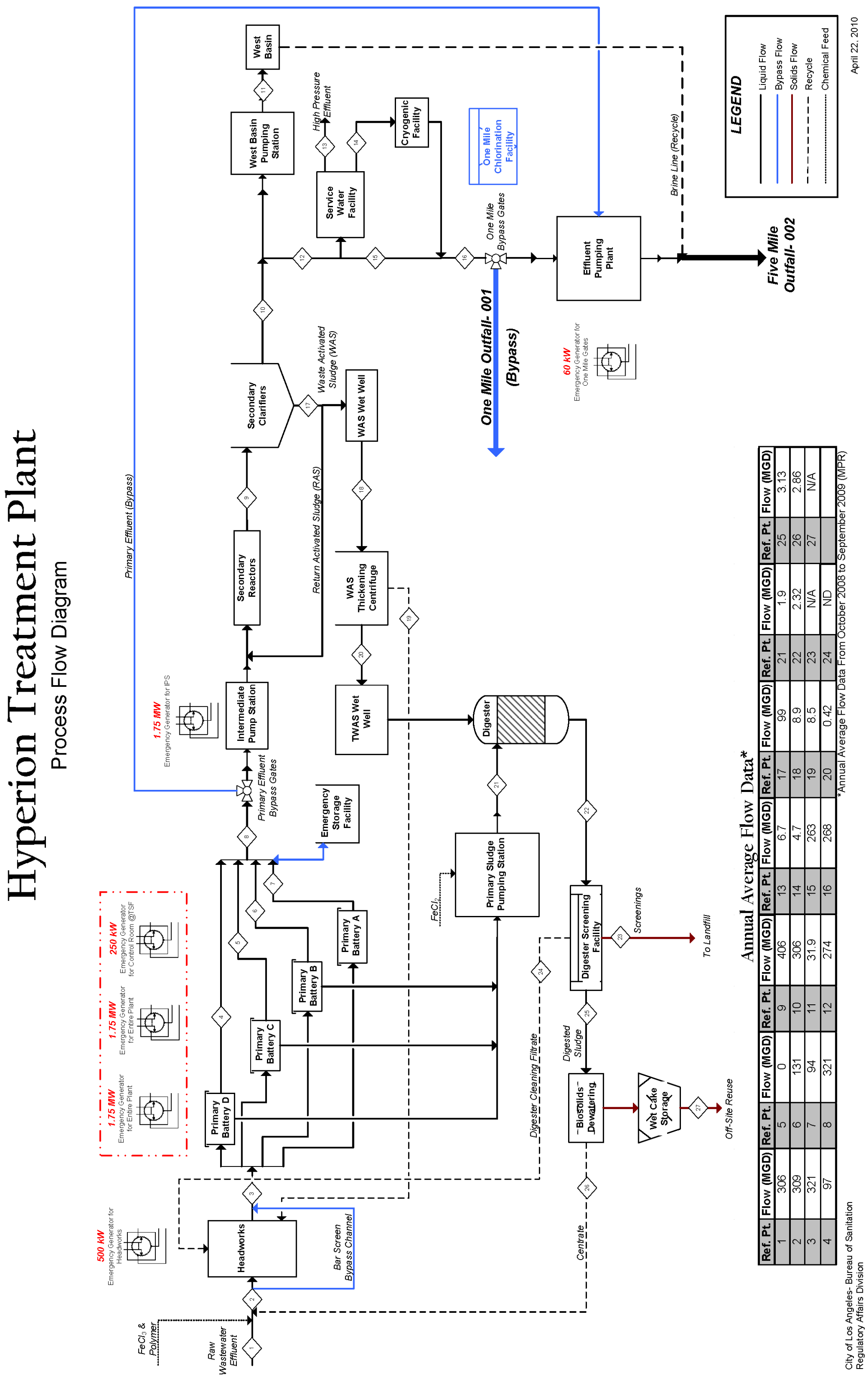
Isomer Group	Toxicity Equivalence Factor
2,3,7,8-tetra CDD	1.0
2,3,7,8-penta CDD	0.5
2,3,7,8-hexa CDDs	0.1
2,3,7,8-hepta CDD	0.01
octa CDD	0.001
2,3,7,8 tetra CDF	0.1
1,2,3,7,8 penta CDF	0.05
2,3,4,7,8 penta CDF	0.5
2,3,7,8 hexa CDFs	0.1
2,3,7,8 hepta CDFs	0.01
octa CDF	0.001

Water Reclamation: The treatment of wastewater to render it suitable for reuse, the transportation of treated wastewater to the place of use, and the actual use of treated wastewater for a direct beneficial use or controlled use that would not otherwise occur.

ATTACHMENT B – MAP



ATTACHMENT C-1 – FLOW SCHEMATIC



Annual Average Flow Data*

Ref. Pt.	Flow (MGD)	Ref. Pt.	Flow (MGD)	Ref. Pt.	Flow (MGD)	Ref. Pt.	Flow (MGD)	Ref. Pt.	Flow (MGD)	Ref. Pt.	Flow (MGD)	Ref. Pt.	Flow (MGD)
1	306	5	0	9	406	13	6.7	17	99	21	1.9	25	3.13
2	309	6	131	10	306	14	4.7	18	8.9	22	2.32	26	2.86
3	321	7	94	11	31.9	15	263	19	8.5	23	NA	27	NA
4	97	8	321	12	274	16	268	20	0.42	24	ND		

*Annual Average Flow Data From October 2008 to September 2009 (MPR)

Attachment C-2 – MAP OF HYPERION SERVICE AREA

ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order/Permit. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR part 122.41(a))

2. The Discharger shall comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order/Permit has not yet been modified to incorporate the requirement. (40 CFR part 122.41(a)(1))

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order/Permit. (40 CFR part 122.41(c))

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order/Permit that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR part 122.41(d))

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order/Permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order/Permit. (40 CFR part 122.41(e))

E. Property Rights

1. This Order/Permit does not convey any property rights of any sort or any exclusive privileges. (40 CFR part 122.41(g))

2. The issuance of this Order/Permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations. (40 CFR part 122.5(c))

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR part 122.41(i); California Water Code (CWC) § 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order/Permit (40 CFR part 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order/Permit (40 CFR part 122.41(i)(2));

3. Inspect and photograph at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order/Permit (40 CFR part 122.41(i)(3)); and

4. Sample or monitor at reasonable times for the purposes of assuring Order/Permit compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location. (40 CFR part 122.41(i)(4))

G. Bypass

1. Definitions

   a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR part 122.41(m)(1)(i))

   b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR part 122.41(m)(1)(ii))

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5. (40 CFR part 122.41(m)(2))

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board and USEPA may take enforcement action against a Discharger for bypass, unless (40 CFR part 122.41(m)(4)(i)):

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR part 122.41(m)(4)(i)(A));

   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass, which occurred during normal periods of equipment downtime or preventive maintenance (40 CFR part 122.41(m)(4)(i)(B)); and

   c. The Discharger submitted notice to the Regional Water Board and USEPA as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR part 122.41(m)(4)(i)(C))

4. The Regional Water Board and USEPA may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board and USEPA determine that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3. (40 CFR part 122.41(m)(4)(ii))

5. Notice

   a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 CFR part 122.41(m)(3)(i))

   b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E (24-hour notice). (40 CFR part 122.41(m)(3)(ii))

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 CFR part 122.41(n)(1))

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR part 122.41(n)(2))

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR part 122.41(n)(3)):

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR part 122.41(n)(3)(i));

   b. The permitted facility was, at the time, being properly operated (40 CFR part 122.41(n)(3)(ii));

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR part 122.41(n)(3)(iii)); and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR part 122.41(n)(3)(iv))

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR part 122.41(n)(4))

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order/Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order/Permit condition. (40 CFR part 122.41(f))

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order/Permit after the expiration date of this Order/Permit, the Discharger must apply for and obtain a new Order/Permit. (40 CFR part 122.41(b))

C. Transfers

This Order/Permit is not transferable to any person except after notice to the Regional Water Board and USEPA. The Regional Water Board and USEPA may require modification or revocation and reissuance of the Order/Permit to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and CWC. (See 40 CFR part 122.61; in some cases, modification or revocation and reissuance is mandatory.) (40 CFR part 122.41(l)(3).)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR part 122.41(j)(1))

B. Monitoring results must be conducted according to test procedures under 40 CFR part 136 or, in the case of sludge use or disposal, approved under 40 CFR part 136 unless otherwise specified in 40 CFR part 503 unless other test procedures have been specified in the Order/Permit. (40 CFR part 122.41(j)(4))

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order/Permit related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order/Permit, and records of all data used to complete the application for this Order/Permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer or USEPA Water Division Director at any time. (40 CFR part 122.41(j)(2).) It is recommended that the Discharger maintain the results of all analyses indefinitely.

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR part 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 CFR part 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 CFR part 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 CFR part 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 CFR part 122.41(j)(3)(v)); and

6. The results of such analyses. (40 CFR part 122.41(j)(3)(vi))

C. Claims of confidentiality for the following information will be denied (40 CFR part 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 CFR part 122.7(b)(1)); and

2. Permit applications, permits and effluent data. (40 CFR part 122.7(b)(2))

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA, within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order/Permit or to determine compliance with this Order/Permit. The Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA, upon request, copies of records required to be kept by this Order/Permit. (40 CFR part 122.41(h); CWC § 13267)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5. See 40 CFR § 122.22.

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR part 122.22(a)(3))

3. All reports required by this Order/Permit and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2, or by a duly authorized representative of that person. A person is a duly authorized representative only if (40 CFR §122.22(b):

   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 (40 CFR part 122.22(b)(1));

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR part 122.22(b)(2)); and

   c. The written authorization is submitted to the Regional Water Board, State Water Board, and USEPA. (40 CFR part 122.22(b)(3))

4. If an authorization under Standard Provisions – Reporting V.B.3 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 must be submitted to the Regional Water Board, State Water Board, and USEPA prior to or together with any reports, information, or applications to be signed by an authorized representative. (40 CFR part 122.22(c))

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 CFR part 122.22(d))

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified elsewhere in this Order/Permit. (40 CFR part 122.41(l)(4))

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board, State Water Board, or USEPA for reporting results of monitoring of sludge use or disposal practices. (40 CFR part 122.41(l)(4)(i))

3. If the Discharger monitors any pollutant more frequently than required by this Order/Permit using test procedures approved under 40 CFR part 136 or, in the case of sludge use or disposal, approved under 40 CFR part 136 unless otherwise specified in 40 CFR part 503, or as specified in this Order/Permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board or USEPA. (40 CFR part 122.41(l)(4)(ii))

4. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this Order/Permit. (40 CFR part 122.41(l)(4)(iii))

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order/Permit, shall be submitted no later than 14 days following each schedule date. (40 CFR part 122.41(l)(5))

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided to the Regional Water Board within 5 days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR § 122.41(l)(6)(i))

2. The following shall be included as information that must be reported within 24 hours under this paragraph (See 40 CFR § 122.41(g)) (40 CFR part 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in the Order/Permit (See 40 CFR part 122.41(g))

   b. Any upset that exceeds any effluent limitation in this Order/Permit. (40 CFR part 122.41(l)(6)(ii)(B))

c. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the Order/Permit to be reported within 24 hours (See 40 CFR 122.44(g).) (40 CFR 122.41(6)(ii)(C).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours (40 CFR part 122.41(l)(6)(iii)).

F. Planned Changes

The Discharger shall give notice to the Regional Water Board and USEPA as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when (40 CFR part 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR part 122.29(b) (40 CFR part 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in the Order/Permit, nor to notification requirements under 40 CFR § 122.42(a)(1) (see Additional Provisions — Notification Levels VII.A.1). (40 CFR part 122.41(l)(1)(ii))

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of Order/Permit conditions that are different from or absent in the Order/Permit, including notification of additional use or disposal sites not reported during the Order/Permit application process or not reported pursuant to an approved land application plan. (40 CFR part 122.41(l)(1)(iii))

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board and USEPA of any planned changes in the permitted facility or activity that may result in noncompliance with General Order/Permit requirements. (40 CFR part 122.41(l)(2))

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E, at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 CFR part 122.41(l)(7))

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in an Order/Permit application, or submitted incorrect information in an Order/Permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 CFR part 122.41(l)(8))

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this Order/Permit under provisions of the California Water Code including, but not limited to, sections 13385, 13386, and 13387.

B. The CWA provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The CWA provides that any person who *negligently* violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than 2 years, or both. Any person who *knowingly* violates such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions (40 CFR 122.41(a)(2)).

C. Any person may be assessed an administrative penalty by the Administrator for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000. (40 CFR 122.41(a)(3)).

D. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both. (40 CFR 122.41(j)(5))

E. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both. (40 CFR 122.41(k)(2)).

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board and USEPA of the following (40 CFR part 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to section 301 or 306 of the CWA if it were directly discharging those pollutants (40 CFR part 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order/Permit. (40 CFR part 122.42(b)(2))

3. For the purposes of this paragraph, adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 CFR part 122.42(b)(3))

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations[1] (CFR) at 40 CFR 122.48 requires that all NPDES permits specify monitoring and reporting requirements. CWC sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. NPDES compliance monitoring focuses on the effects of a specific point source discharge. Generally, it is not designed to assess impacts from other sources of pollution (e.g., nonpoint source runoff, aerial fallout) or to evaluate the current status of important ecological resources in the water body. The scale of existing compliance monitoring programs does not match the spatial and, to some extent, temporal boundaries of the important physical and biological processes in the ocean. In addition, the spatial coverage provided by compliance monitoring programs is less than ten percent of the nearshore ocean environment. Better technical information is needed about status and trends in ocean waters to guide management and regulatory decisions, to verify the effectiveness of existing programs, and to shape policy on marine environmental protection.

B. The Regional Water Board and USEPA, working with other groups, have developed a comprehensive basis for effluent and receiving water monitoring appropriate to large publicly owned treatment works (POTWs) discharging to waters of the Southern California Bight. This effort has culminated in the publication by the Southern California Coastal Water Research Project (SCCWRP) of the Model Monitoring Program guidance document (Schiff, K.C., J.S. Brown and S.B. Weisberg. 2001. *Model Monitoring Program for Large Ocean Dischargers in Southern California*. SCCWRP Tech. Rep. #357. Southern California Coastal Water Research Project, Westminster, CA. 101 pp.). This guidance provides the principles, framework and recommended design for effluent and receiving water monitoring elements that have guided development of the monitoring program described below.

C. In July 2000, the Santa Monica Bay Restoration Project (SMBRP) published "An Assessment of the Compliance Monitoring System in Santa Monica Bay" to set forth recommendations and priorities for compliance monitoring in Santa Monica Bay. This report reasoned that a reduced level of receiving water monitoring is justified for large POTWs discharging to Santa Monica Bay due to improvements in effluent quality and associated decreases in receiving water impacts. Like the Model Monitoring Plan developed by SCCWRP, SMBRP recommendations are focused on

[1] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated and will be abbreviated as "40 CFR part number".

providing answers to management questions and allowing a reduction in POTW receiving water monitoring where discharge effects are well understood. The monitoring plan set forth here has been guided by SMBRP recommendations.

D. The conceptual framework for the Model Monitoring Program has three components that comprise a range of spatial and temporal scales: (1) core monitoring; (2) regional monitoring; and (3) special studies.

1. Core monitoring is local in nature and focused on monitoring trends in quality and effects of the point source discharge. This includes effluent monitoring as well as some aspects of receiving water monitoring. In the monitoring program described below, these core components are typically referred to as local monitoring.

2. Regional monitoring is focused on questions that are best answered by a region-wide approach that incorporates coordinated survey design and sampling techniques. The major objective of regional monitoring is to collect information required to assess how safe it is to swim in the ocean, how safe it is to eat seafood from the ocean, and whether the marine ecosystem is being protected. Key components of regional monitoring include elements to address pollutant mass emission estimations, public health concerns, monitoring of trends in natural resources, assessment of regional impacts from all contaminant sources, and protection of beneficial uses. The final design of regional monitoring programs is developed by means of steering committees and technical committees comprised of participating agencies and organizations and is not specified in this Order/Permit. Instead, for each regional component, the degree and nature of participation of the Discharger is specified. For this Order/Permit, these levels of effort are based upon past participation of the Discharger in regional monitoring programs.

   The Discharger shall participate in regional monitoring activities coordinated by the SCCWRP or any other appropriate agency approved by the Regional Water Board and USEPA. The procedures and time lines for the Regional Water Board and USEPA approval shall be the same as detailed for special studies, below.

3. Special studies are focused on refined questions regarding specific effects or development of monitoring techniques and are anticipated to be of short duration and/or small scale, although multiyear studies also may be needed. Questions regarding effluent or receiving water quality, discharge impacts, ocean processes in the area of the discharge, or development of techniques for monitoring the same, arising out of the results of core or regional monitoring, may be pursued through special studies. These studies are by nature ad hoc and cannot be typically anticipated in advance of the five-year permit cycle.

   The Discharger, the Regional Water Board and USEPA shall consult annually to determine the need for special studies. Each year, the Discharger shall submit proposals for any proposed special studies to the Regional Water Board and USEPA by December 31st for the following year's monitoring effort (July through June). The following year, detailed scopes of work for proposals, including reporting schedules, shall be presented by the Discharger at a Spring Regional Water Board meeting, to obtain the Regional Water Board approval and to inform the public. Upon approval by the Regional Water Board and USEPA, the Discharger shall implement its special study or studies.

E. Bight Regional Monitoring. Regular regional monitoring for the Southern California Bight has been established, occurring at five-year intervals, and is coordinated through SCCWRP with discharger agencies and numerous other entities. The fourth regional monitoring program (Bight '08) occurred primarily during summer 2008. The next (fifth) regional monitoring program (Bight '13) is expected to take place during 2013. While participation in regional monitoring programs is required under this Order/Permit, revisions to the Discharger's monitoring program at the direction of the Regional Water Board and USEPA may be necessary to accomplish the goals of regional monitoring or to allow the performance of special studies to investigate regional or site-specific water issues of concern. These revisions may include a reduction or increase in the number of parameters to be monitored, the frequency of monitoring, or the number and size of samples to be collected. Such changes may be authorized by the Regional Water Board Executive Officer and USEPA Director upon written notification to the Discharger.

Discharger participation in regional monitoring programs is required as a condition of this Order/Permit. The Discharger shall complete collection and analysis of samples in accordance with the schedule established by the Steering Committee directing the Bight-wide regional monitoring surveys. The level of participation shall be similar to that provided by the Discharger in previous regional surveys conducted in 1994, 1998, 2003, and 2008.

F. Bay Comprehensive Monitoring Program. The Santa Monica Bay Restoration Commission adopted a new comprehensive monitoring program for Santa Monica Bay in April 2007. This new monitoring program, developed by the Commission's Technical Advisory Committee, culminates efforts that began in the mid 1990s with the identification of key management questions and monitoring priorities. It lays out new monitoring designs for five major habitats within the Bay:

- Pelagic Ecosystem
- Soft Bottom Ecosystem
- Hard Bottom Ecosystem
- Rocky and Sandy Intertidal
- and Wetlands.

Design for each habitat includes a core motivating question, a number of related objectives, specific monitoring approaches, indicators, data products, and sampling designs detailing number and locations of stations, sampling frequency, and measurements to be collected. The Bay Monitoring Program also includes an implementation plan that includes a detailed schedule, cost estimates for individual Program elements, and recommendations on the Program's management structure, including data management and assessment strategies.

The Bay Monitoring Program is designed to be implemented in part through modifications to existing receiving water monitoring programs for major NPDES dischargers into coastal ocean waters. Some elements of this monitoring program already have been implemented, for example, through establishment of periodic Bight-wide regional monitoring surveys (Southern California Bight Pilot Project '94, Bight '98, Bight '03, and Bight '08) and kelp bed monitoring. However, other elements of the program have yet to be implemented.

SMBRC, USEPA, the Regional Water Board, the Discharger, affected NPDES permit holders, and other interested agencies and stakeholders will develop plans to collaboratively fund these elements of the program and determine each party's level of participation. It is anticipated that funding for the program from the City of Los Angeles will be supplied through a combination of modifications to the Hyperion Treatment Plant's Monitoring and Reporting Program, including redirection of existing effort and new monitoring efforts relevant to the Hyperion Treatment Plant's discharge. Redirection of existing monitoring requirements and/or the imposition of additional monitoring efforts conducted under the terms of this Order/Permit are subject to a public hearing before the Regional Water Board and public notice by USEPA. This Order/Permit may be reopened and modified by the Regional Water Board and USEPA to incorporate conforming monitoring requirements and schedule dates for implementation of the Comprehensive Monitoring Program for Santa Monica Bay (Santa Monica Bay Restoration Commission, January 2007).

Each year, at a Spring Regional Water Board meeting, the Discharger shall provide an informational report summarizing to date its contributing activities towards coordinated implementation of the Comprehensive Monitoring Program for Santa Monica Bay (SMBRC, January 2007).

G. This monitoring program for Hyperion Treatment Plant is comprised of requirements to demonstrate compliance with the conditions of the NPDES permit, ensure compliance with State water quality standards, and mandate participation in regional monitoring and/or area-wide studies.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order/Permit:

Table 1. Monitoring Station Locations

Influent and Effluent Monitoring Stations		
Discharge Point Name	**Monitoring Location Name**	**Monitoring Location Description**
Influent Monitoring Station		
--	**INF-001**	North Outfall Relief Sewer - Sampling stations shall be established at each point of inflow to the sewage treatment plant and shall be located upstream of any in-plant return flows and where representative samples of the influent can be obtained. (33.93061°N, 118.43317°W)
--	**INF-002**	North Central Outfall Sewer - Sampling stations shall be established at each point of inflow to the sewage treatment plant and shall be located upstream of any in-plant return flows and where representative samples of the influent can be obtained. (33.9306°N, 118.43326°W)
--	**INF-003**	Central Outfall Sewer - Sampling stations shall be established at each point of inflow to the sewage treatment plant and shall be located upstream of any in-plant return flows and where representative samples of the influent can be obtained. (33.93033°N, 118.43353°W)
--	**INF-004**	North Outfall Sewer - Sampling stations shall be established at each point of inflow to the sewage treatment plant and shall be located upstream of any in-plant return flows and where representative samples of the influent can be obtained. (33.92782°N, 118.43331°W)
--	**INF-005**	Coastal Interceptor Sewer - Sampling stations shall be established at each point of inflow to the sewage treatment plant and shall be located upstream of any in-plant return flows and where representative samples of the influent can be obtained. (33.92746°N, 118.44318°W)
Effluent Monitoring Station		
001	**EFF-001**	Sampling station shall be located downstream of any in-plant return flows but before entering the discharge tunnel where representative samples of the effluent discharged through Discharge Point 001 can be obtained. (33.92417°N, 118.4314°W)
002	**EFF-002**	Sampling station shall be located downstream of any in-plant return flows but before entering the discharge tunnel where representative samples of the effluent discharged through Discharge Point 002 can be obtained. (33.92527°N, 118.43195°W)

Receiving Water Monitoring Stations

Inshore Water Quality Monitoring Stations

Station	Latitude*	Longitude*		Station	Latitude*	Longitude*
RW-IS-01	33 59.833	118 48.067		RW-IS-07	33 58.550	118 28.317
RW-IS-02	34 00.950	118 46.967		RW-IS-08	33 57.567	118 27.583
RW-IS-03	34 01.717	118 44.117		RW-IS-09	33 56.900	118 27.133
RW-IS-04	34 01.833	118 40.383		RW-IS-10	33 56.283	118 26.817
RW-IS-05	34 02.050	118 34.833		RW-IS-11	33 50.000	118 23.850
RW-IS-06	34 00.201	118 29.923				

Note: IS-01 to IS-11 shall be sampled at a distance of 100 ft from the shoreline or at the 30-ft depth contour, whichever is further from shore (except that station IS-11 is located at King Harbor in Redondo Beach).

* Given in decimal minutes.

Offshore Water Quality Monitoring Stations

Station	Latitude*		Longitude*		Station	Latitude*		Longitude*	
RW-OS-3201	33	51.250	118	24.367	RW-OS-3604**	33	56.416	118	30.586
RW-OS-3202	33	50.917	118	25.067	RW-OS-3605**	33	55.666	118	32.133
RW-OS-3203	33	50.717	118	25.583	RW-OS-3606**	33	55.000	118	33.500
RW-OS-3204**	33	50.217	118	26.433	RW-OS-3701	33	59.166	118	29.166
RW-OS-3205**	33	49.433	118	27.817	RW-OS-3702	33	58.800	118	30.000
RW-OS-3206	33	49.666	118	29.567	RW-OS-3703	33	58.450	118	30.600
RW-OS-3301	33	53.583	118	25.633	RW-OS-3704**	33	58.000	118	31.533
RW-OS-3302	33	53.350	118	26.183	RW-OS-3705**	33	57.216	118	33.216
RW-OS-3303	33	53.133	118	26.800	RW-OS-3706**	33	56.550	118	34.500
RW-OS-3304**	33	52.767	118	27.417	RW-OS-3801	34	2.000	118	35.000
RW-OS-3305**	33	52.100	118	29.600	RW-OS-3802	34	1.550	118	35.250
RW-OS-3306**	33	51.067	118	31.633	RW-OS-3803	34	0.350	118	35.833
RW-OS-3401	33	54.150	118	25.950	RW-OS-3804**	33	59.600	118	36.250
RW-OS-3402	33	54.000	118	26.833	RW-OS-3805**	33	58.333	118	36.850
RW-OS-3403	33	54.066	118	27.600	RW-OS-3806	33	57.366	118	37.416
RW-OS-3404**	33	53.816	118	28.116	RW-OS-3901	34	1.650	118	43.000
RW-OS-3405**	33	53.233	118	30.383	RW-OS-3902	34	1.166	118	43.000
RW-OS-3406**	33	52.750	118	32.133	RW-OS-3903	34	0.666	118	43.000
RW-OS-3501	33	55.883	118	26.883	RW-OS-3904**	33	59.850	118	43.000
RW-OS-3502	33	55.666	118	27.616	RW-OS-3905	33	57.616	118	43.000
RW-OS-3503	33	55.433	118	28.350	RW-OS-3906	33	56.566	118	43.000
RW-OS-3504**	33	55.000	118	29.650	RW-OS-4001	33	59.716	118	48.316
RW-OS-3505**	33	54.550	118	31.516	RW-OS-4002	33	59.300	118	48.316
RW-OS-3506**	33	54.000	118	32.983	RW-OS-4003**	33	58.833	118	48.316
RW-OS-3601	33	57.584	118	27.975	RW-OS-4004	33	57.500	118	48.316
RW-OS-3602	33	57.333	118	28.666	RW-OS-4005	33	55.683	118	48.316
RW-OS-3603	33	56.966	118	29.416	RW-OS-4006	33	54.750	118	48.316

* Given in decimal minutes.

** Discrete stations of the Central Bight Cooperative Water Quality Survey.

Benthic and Trawl Monitoring Stations

Station	Latitude*		Longitude*	
FIXED GRID STATIONS				
RW-A-1 (T)	33	59.183	118	30.117
RW-A-2	33	55.117	118	26.883
RW-A-3 (T)	33	52.050	118	25.000
RW-B-1	34	00.417	118	42.933
RW-B-3	34	00.350	118	35.833
RW-B-5	33	57.983	118	31.533
RW-B-6	33	56.467	118	30.567
RW-B-7	33	55.283	118	29.500
RW-B-8	33	53.800	118	28.450
RW-B-10	33	50.483	118	24.940
RW-C-1 (T)	33	59.833	118	43.050
RW-C-3 (T)	33	59.383	118	36.033
RW-C-5	33	57.167	118	33.233
RW-C-6 (T)	33	55.683	118	32.083
RW-C-7	33	53.583	118	32.250
RW-C-8	33	52.750	118	31.417
RW-D-1 (Benthic)	33	54.700	118	33.000
RW-D-1T (T)**	33	54.805	118	32.215
RW-E-1	33	59.057	118	42.867
RW-E-3	33	58.317	118	36.867
RW-E-6	33	55.700	118	33.417
RW-E-10	33	49.405	118	27.880
RW-Z-1	33	54.883	118	31.500
RW-Z-2 (T)	33	54.450	118	31.467
RW-Z-3 (T)**	33	54.005	118	30.395
RW-Z-4 (T)**	33	55.282	118	30.579
YEAR 1 RANDOM STATIONS				
RW-NA-1	33	53.396	118	31.190
RW-NA-2	33	54.054	118	30.907
RW-NA-3	33	54.199	118	32.025
RW-NA-4	33	55.061	118	30.380
RW-NA-5	33	55.167	118	31.114
RW-NA-6	33	56.041	118	31.636
RW-FA-7	33	52.397	118	29.837
RW-FA-8	33	52.675	118	32.650
RW-FA-9	33	52.981	118	29.263
RW-FA-10	33	53.132	118	30.983
RW-FA-11	33	53.594	118	30.105
RW-FA-12	33	53.870	118	29.438
RW-FA-13	33	54.398	118	34.130
RW-FA-14	33	54.874	118	28.602
RW-FA-15	33	55.073	118	33.387
RW-FA-16	33	55.966	118	30.050
RW-FA-17	33	56.086	118	33.208
RW-FA-18	33	56.612	118	29.351
RW-FA-19	33	56.671	118	32.167
RW-FA-20	33	57.157	118	31.470
RW-Random1A (T)**	33	54.874	118	28.602
RW-Random2A (T)**	33	52.397	118	29.837
RW-Random3A (T)**	33	51.451	118	28.185
YEAR 2 RANDOM STATIONS				
RW-NB-1	33	54.325	118	33.022
RW-NB-2	33	54.490	118	30.105
RW-NB-3	33	54.883	118	32.057
RW-NB-4	33	54.905	118	30.594
RW-NB-5	33	55.261	118	32.981
RW-NB-6	33	55.620	118	29.888
RW-NB-7	33	55.670	118	31.887
RW-NB-8	33	56.212	118	30.826
RW-FB-9	33	52.493	118	31.105
RW-FB-10	33	53.017	118	29.854
RW-FB-11	33	53.087	118	33.191
RW-FB-12	33	53.249	118	30.759
RW-FB-13	33	53.282	118	29.015
RW-FB-14	33	53.616	118	33.900
RW-FB-15	33	54.194	118	28.841
RW-FB-16	33	55.102	118	29.375
RW-FB-17	33	56.220	118	33.825
RW-FB-18	33	56.407	118	29.231
RW-FB-19	33	56.690	118	31.871
RW-FB-20	33	56.858	118	30.287
RW-Random1B (T)**	33	56.220	118	33.825
RW-Random2B (T)**	33	56.407	118	29.231
RW-Random3B (T)**	33	53.017	118	29.854

* Given in decimal minutes.
** Trawl site only.
(T) Trawl stations.

III. INFLUENT MONITORING REQUIREMENTS

(Footnotes are specified on pages E-15 and E-16 of this Order/Permit.)

Influent monitoring is required to:

- Determine compliance with NPDES permit conditions.
- Assess treatment plant performance.
- Assess effectiveness of the Pretreatment Program.

A. Monitoring Locations INF-001, INF-002, INF-003, INF-004, and INF-005

1. The Discharger shall monitor influent to the Facility at INF-001, INF-002, INF-003, INF-004, and INF-005 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table 2. Influent Monitoring

Influent Monitoring Program				
Parameter	**Units**	**Sample Type**[1]	**Minimum Sampling Frequency**[2]	**Required Analytical Test Method**
Flow	MGD	Recorder/totalizer	Continuous[3]	[4]
$BOD_5 20^0C$	mg/L	24-hr composite	Daily	[4]
Suspended solids	mg/L	24-hr composite	Daily	[4]
pH	pH units	Grab	Weekly	[4]
Oil and grease	mg/L	Grab[5]	Weekly	[4]
TOC (total organic carbon)	mg/L	24-hr composite	Monthly	[4]
Cyanide	µg/L	Grab	Monthly	[4]
Organic nitrogen	mg/L	24-hr composite	Quarterly	[4]
Radioactivity (including gross alpha, gross, beta, combined radium-226 & radium-228, tritium, strontium-90 and uranium)[6]	pCi/L	24-hr composite	Monthly	[4]
Total phosphorus (as P)	mg/L	24-hr composite	Quarterly	[4]
Tributyltin	ng/L	24-hr composite	Quarterly	[4]
Aldrin	µg/L	24-hr composite	Quarterly	[4]
Chlordane and related compounds[7]	µg/L	24-hr composite	Quarterly	[4]
DDT[7]	µg/L	24-hr composite	Quarterly	[4]
Dieldrin	µg/L	24-hr composite	Quarterly	[4]
Endosulfan[7]	µg/L	24-hr composite	Quarterly	[4]
Endrin	µg/L	24-hr composite	Quarterly	[4]
HCH[7]	µg/L	24-hr composite	Quarterly	[4]
Heptachlor	µg/L	24-hr composite	Quarterly	[4]
Heptachlor epoxide	µg/L	24-hr composite	Quarterly	[4]
PCBs[7]	µg/L	24-hr composite	Quarterly	[4]

Influent Monitoring Program				
Parameter	**Units**	**Sample Type**[1]	**Minimum Sampling Frequency**[2]	**Required Analytical Test Method**
Toxaphene	µg/L	24-hr composite	Quarterly	[4]
2,4-Dinitrophenol	µg/L	24-hr composite	Quarterly	[4]
2,4,6-Trichlorophenol	µg/L	24-hr composite	Quarterly	[4]
4,6-Dinitro-2-methylphenol	µg/L	24-hr composite	Quarterly	[4]
Phenolic compounds (chlorinated)[7]	µg/L	24-hr composite	Quarterly	[4]
Phenolic compounds (non-chlorinated)[7]	µg/L	24-hr composite	Quarterly	[4]
Bis(2-chloro-ethoxy) methane	µg/L	24-hr composite	Quarterly	[4]
Bis(2-chloro-isopropyl) ether	µg/L	24-hr composite	Quarterly	[4]
Di-n-butylphthalate	µg/L	24-hr composite	Quarterly	[4]
Dichlorobenzenes[7]	µg/L	24-hr composite	Quarterly	[4]
Diethylphthalate	µg/L	24-hr composite	Quarterly	[4]
Dimethylphthalate	µg/L	24-hr composite	Quarterly	[4]
Fluoranthene	µg/L	24-hr composite	Quarterly	[4]
Hexachlorocyclopentadiene	µg/L	24-hr composite	Quarterly	[4]
Isophorone	µg/L	24-hr composite	Quarterly	[4]
Nitrobenzene	µg/L	24-hr composite	Quarterly	[4]
Benzidine	µg/L	24-hr composite	Quarterly	[4]
Bis(2-chloroethyl) ether	µg/L	24-hr composite	Quarterly	[4]
Bis(2-ethylhexyl) phthalate	µg/L	24-hr composite	Quarterly	[4]
1,4-Dichlorobenzene	µg/L	24-hr composite	Quarterly	[4]
3,3-Dichlorobenzidine	µg/L	24-hr composite	Quarterly	[4]
2,4-Dinitrotoluene	µg/L	24-hr composite	Quarterly	[4]
1,2-Diphenylhydrazine	µg/L	24-hr composite	Quarterly	[4]
Hexachlorobenzene	µg/L	24-hr composite	Quarterly	[4]
Hexachlorobutadiene	µg/L	24-hr composite	Quarterly	[4]
Hexachloroethane	µg/L	24-hr composite	Quarterly	[4]
N-Nitrosodimethylamine	µg/L	24-hr composite	Quarterly	[4]
N-Nitrosodi-n-propylamine	µg/L	24-hr composite	Quarterly	[4]
N-Nitrosodiphenylamine	µg/L	24-hr composite	Quarterly	[4]
PAHs[7]	µg/L	24-hr composite	Quarterly	[4]
TCDD equivalents[7, 12]	pg/L	24-hr composite	Quarterly	[4]
Acrolein	µg/L	Grab	Quarterly	[4]
Acrylonitrile	µg/L	Grab	Quarterly	[4]
Benzene	µg/L	Grab	Quarterly	[4]
Carbon tetrachloride	µg/L	Grab	Quarterly	[4]
Chlorobenzene	µg/L	Grab	Quarterly	[4]
Chlorodibromomethane	µg/L	Grab	Quarterly	[4]
Chloroform	µg/L	Grab	Quarterly	[4]
Dichlorobromomethane	µg/L	Grab	Quarterly	[4]
Dichloromethane	µg/L	Grab	Quarterly	[4]
1,1-Dichloroethylene	µg/L	Grab	Quarterly	[4]

Influent Monitoring Program				
Parameter	**Units**	**Sample Type**[1]	**Minimum Sampling Frequency**[2]	**Required Analytical Test Method**
1,2-Dichloroethane	µg/L	Grab	Quarterly	[4]
1,3-Dichloropropene	µg/L	Grab	Quarterly	[4]
Ethylbenzene	µg/L	Grab	Quarterly	[4]
Halomethanes[7]	µg/L	Grab	Quarterly	[4]
Methyl-tert-butyl-ether	µg/L	Grab	Quarterly	[4]
Toluene	µg/L	Grab	Quarterly	[4]
1,1,2,2-Tetrachloroethane	µg/L	Grab	Quarterly	[4]
1,1,1-Trichloroethane	µg/L	Grab	Quarterly	[4]
1,1,2-Trichloroethane	µg/L	Grab	Quarterly	[4]
Tetrachloroethylene	µg/L	Grab	Quarterly	[4]
Trichloroethylene	µg/L	Grab	Quarterly	[4]
Vinyl chloride	µg/L	Grab	Quarterly	[4]
Antimony	µg/L	24-hr composite	Quarterly	[4]
Arsenic	µg/L	24-hr composite	Quarterly	[4]
Beryllium	µg/L	24-hr composite	Quarterly	[4]
Cadmium	µg/L	24-hr composite	Monthly	[4]
Chromium (III)	µg/L	Grab	Monthly	[4]
Copper	µg/L	24-hr composite	Monthly	[4]
Hexavalent chromium[9]	µg/L	Grab	Monthly	[4]
Lead	µg/L	24-hr composite	Monthly	[4]
Mercury[13]	µg/L	24-hr composite	Monthly	[4]
Nickel	µg/L	24-hr composite	Monthly	[4]
Selenium	µg/L	24-hr composite	Monthly	[4]
Silver	µg/L	24-hr composite	Monthly	[4]
Thallium	µg/L	24-hr composite	Quarterly	[4]
Zinc	µg/L	24-hr composite	Monthly	[4]

IV. EFFLUENT MONITORING REQUIREMENTS

(Footnotes are specified on pages E-15 and E-16 of this Order/Permit.)

Effluent monitoring is required to:

- Determine compliance with NPDES permit conditions and water quality standards.
- Assess plant performance, identify operational problems and improve plant performance.
- Provide information on wastewater characteristics and flows for use in interpreting water quality and biological data.

A. Monitoring Locations - EFF 001 and EFF 002

1. The Discharger shall monitor effluent at EFF-001 and EFF-002 as follows. If more than one analytical test method is listed for a given parameter, the

Discharger must select from the listed methods and corresponding Minimum Level:

Table 3. Effluent Monitoring

Effluent Monitoring Program				
Parameter	**Units**	**Sample Type**[1]	**Minimum Sampling Frequency**[2,10]	**Required Analytical Test Method**
Flow	MGD	Recorder/totalizer	Continuous[3]	[4]
$BOD_5 20^0C$	mg/L	24-hr composite	Daily	[4]
Suspended solids	mg/L	24-hr composite	Daily	[4]
pH	pH unit	Grab	Weekly	[4]
Oil and grease	mg/L	Grab[5]	Weekly	[4]
Temperature[11]	^0C	Continuous	Continuous	[4]
Total Organic Carbon	mg/L	24-hr composite	Monthly	[4]
Settleable solids	mL/L	Grab[5]	Daily	[4]
Total residual chlorine (Discharge Point 001 only)	mg/L	Grab	Daily	[4]
Dissolved Oxygen	mg/L	Grab	Weekly	[4]
Turbidity	NTU	Grab and 24-hr composite	Weekly	[4]
Ammonia nitrogen	mg/L	24-hr composite	Weekly	[4]
Toxicity, Acute	TUa	24-hr composite	Monthly	[4]
Toxicity, Chronic	TUc	24-hr composite	Monthly	[4]
Cyanide	µg/L	grab	Monthly	[4]
Nitrate nitrogen	mg/L	24-hr composite	Quarterly	[4]
Organic nitrogen	mg/L	24-hr composite	Quarterly	[4]
Radioactivity (including gross alpha, gross beta, combined radium-226 & radium-228, tritium, strontium-90 and uranium)[6]	pCi/L	24-hr composite	Monthly	[4]
Total phosphorus (as P)	mg/L	24-hr composite	Quarterly	[4]
Tributyltin	ng/L	24-hr composite	Quarterly	[4]
Aldrin	µg/L	24-hr composite	Quarterly	[4]
Chlordane and related compounds[7]	µg/L	24-hr composite	Quarterly	[4]
DDT[7]	µg/L	24-hr composite	Quarterly	[4]
Dieldrin	µg/L	24-hr composite	Quarterly	[4]
Endosulfan[7]	µg/L	24-hr composite	Quarterly	[4]
Endrin	µg/L	24-hr composite	Quarterly	[4]
HCH[7]	µg/L	24-hr composite	Quarterly	[4]
Heptachlor	µg/L	24-hr composite	Quarterly	[4]
Heptachlor epoxide	µg/L	24-hr composite	Quarterly	[4]
PCBs[7]	µg/L	24-hr composite	Quarterly	[4]
PCB congeners[8]	µg/L	24-hr composite	Annually	[4]
Toxaphene	µg/L	24-hr composite	Quarterly	[4]
2,4-Dinitrophenol	µg/L	24-hr composite	Quarterly	[4]

Effluent Monitoring Program				
Parameter	**Units**	**Sample Type**[1]	**Minimum Sampling Frequency**[2,10]	**Required Analytical Test Method**
2,4,6-Trichlorophenol	µg/L	24-hr composite	Quarterly	4
4,6-Dinitro-2-methylphenol	µg/L	24-hr composite	Quarterly	4
Phenolic compounds (chlorinated)[7]	µg/L	24-hr composite	Quarterly	4
Phenolic compounds (non-chlorinated)[7]	µg/L	24-hr composite	Quarterly	4
Bis(2-chloro-ethoxy) methane	µg/L	24-hr composite	Quarterly	4
Bis(2-chloro-isopropyl) ether	µg/L	24-hr composite	Quarterly	4
Di-n-butylphthalate	µg/L	24-hr composite	Quarterly	4
Dichlorobenzenes[7]	µg/L	24-hr composite	Quarterly	4
Diethylphthalate	µg/L	24-hr composite	Quarterly	4
Dimethylphthalate	µg/L	24-hr composite	Quarterly	4
Fluoranthene	µg/L	24-hr composite	Quarterly	4
Hexachlorocyclopentadiene	µg/L	24-hr composite	Quarterly	4
Isophorone	µg/L	24-hr composite	Quarterly	4
Nitrobenzene	µg/L	24-hr composite	Quarterly	4
Benzidine	µg/L	24-hr composite	Quarterly	4
Bis(2-chloroethyl) ether	µg/L	24-hr composite	Quarterly	4
Bis(2-ethylhexyl) phthalate	µg/L	24-hr composite	Quarterly	4
1,4-Dichlorobenzene	µg/L	24-hr composite	Quarterly	4
3,3-Dichlorobenzidine	µg/L	24-hr composite	Quarterly	4
2,4-Dinitrotoluene	µg/L	24-hr composite	Quarterly	4
1,2-Diphenylhydrazine	µg/L	24-hr composite	Quarterly	4
Hexachlorobenzene	µg/L	24-hr composite	Quarterly	4
Hexachlorobutadiene	µg/L	24-hr composite	Quarterly	4
Hexachloroethane	µg/L	24-hr composite	Quarterly	4
N-Nitrosodimethylamine	µg/L	24-hr composite	Quarterly	4
N-Nitrosodi-n-propylamine	µg/L	24-hr composite	Quarterly	4
N-Nitrosodiphenylamine	µg/L	24-hr composite	Quarterly	4
PAHs[7]	µg/L	24-hr composite	Quarterly	4
TCDD equivalents[7,12]	pg/L	24-hr composite	Quarterly	4
Acrolein	µg/L	Grab	Quarterly	4
Acrylonitrile	µg/L	Grab	Quarterly	4
Benzene	µg/L	Grab	Quarterly	4
Carbon tetrachloride	µg/L	Grab	Quarterly	4
Chlorobenzene	µg/L	Grab	Quarterly	4
Chlorodibromomethane	µg/L	Grab	Quarterly	4
Chloroform	µg/L	Grab	Quarterly	4
Dichlorobromomethane	µg/L	Grab	Quarterly	4
Dichloromethane	µg/L	Grab	Quarterly	4
1,1-Dichloroethylene	µg/L	Grab	Quarterly	4
1,2-Dichloroethane	µg/L	Grab	Quarterly	4
1,3-Dichloropropene	µg/L	Grab	Quarterly	4

Effluent Monitoring Program				
Parameter	Units	Sample Type[1]	Minimum Sampling Frequency[2,10]	Required Analytical Test Method
Ethylbenzene	µg/L	Grab	Quarterly	[4]
Halomethanes[7]	µg/L	Grab	Quarterly	[4]
Methyl-tert-butyl-ether	µg/L	Grab	Quarterly	[4]
Toluene	µg/L	Grab	Quarterly	[4]
1,1,2,2-Tetrachloroethane	µg/L	Grab	Quarterly	[4]
1,1,1-Trichloroethane	µg/L	Grab	Quarterly	[4]
1,1,2-Trichloroethane	µg/L	Grab	Quarterly	[4]
Tetrachloroethylene	µg/L	Grab	Quarterly	[4]
Trichloroethylene	µg/L	Grab	Quarterly	[4]
Vinyl chloride	µg/L	Grab	Quarterly	[4]
Antimony	µg/L	24-hr composite	Quarterly	[4]
Arsenic	µg/L	24-hr composite	Monthly	[4]
Beryllium	µg/L	24-hr composite	Quarterly	[4]
Cadmium	µg/L	24-hr composite	Monthly	[4]
Chromium (III)	µg/L	Grab	Monthly	[4]
Copper	µg/L	24-hr composite	Monthly	[4]
Hexavalent chromium[9]	µg/L	Grab	Monthly	[4]
Lead	µg/L	24-hr composite	Monthly	[4]
Mercury[13]	µg/L	24-hr composite	Monthly	[4]
Nickel	µg/L	24-hr composite	Monthly	[4]
Selenium	µg/L	24-hr composite	Monthly	[4]
Silver	µg/L	24-hr composite	Monthly	[4]
Thallium	µg/L	24-hr composite	Quarterly	[4]
Zinc	µg/L	24-hr composite	Monthly	[4]

Footnotes for Influent and Effluent Monitoring Program:

[1] For 24-hour composite samples, if the duration of the discharge is less than 24 hours but greater than 8 hours, at least eight flow-weighted samples shall be obtained during the discharge period and composited. For discharge durations of less than eight hours, individual grab samples may be substituted. A grab sample is an individual sample collected in less than 15 minutes.

[2] For the influent and effluent, weekly and monthly sampling shall be arranged so that each day of the week is represented over a seven week or month period. The schedule should be repeated every seven weeks or months.

[3] When continuous monitoring of flow is required, total daily flow and peak daily flow (24-hr basis) shall be reported.

[4] Pollutants shall be analyzed using: the analytical methods described in 40 CFR part 136; where no methods are specified for a given pollutant, by methods approved by this Regional Water Board, the State Water Board and USEPA Region 9. For any pollutant whose effluent limitation is lower than all the minimum levels (MLs) specified in Appendix II of the Ocean Plan, the analytical method with the lowest ML must be selected.

[5] Oil and grease and settleable solids monitoring shall consist of a single grab sample at peak flow over a 24-hour period.

[6] Analyze these radiochemicals by the following USEPA methods: method 900.0 for gross alpha and gross beta, method 903.0 or 903.1 for radium-226, method 904.0 for radium-228, method 906.0 for tritium, method 905.0 for strontium-90, and method 908.0 for uranium. Analysis for combined radium-226 & 228 shall be conducted only if gross alpha or gross beta results for the same sample exceed 15 pCi/L or 50 pCi/L, respectively. If radium-226 & 228 exceeds the stipulated criteria, then analyze for tritium, strontium-90, and uranium.

[7] See Attachment A for definition of terms.

[8] To facilitate interpretation of sediment/fish tissue data and TMDL development, PCB congeners whose analytical characteristics resemble those of PCB-18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206 shall be individually quantified.

[9] Discharger may, at its option, meet the hexavalent chromium limitation by analyzing for total chromium rather than hexavalent chromium.

[10] For Discharge Point 001, the minimum frequency of analysis shall be once per discharge day, but no more than one analysis need be done during the indicated sampling period; however, total chlorine residual shall be monitored daily, and acute toxicity shall not be monitored. During routine maintenance activities, sampling and analyses are not required, except for total chlorine residuals.

[11] For Discharge Point 002, sampling shall be continuous, and the maximum daily temperature shall be reported.

[12] USEPA Method 1613 shall be used to analyze TCDD equivalents.

[13] USEPA Method 1631E, with a quantitation level of 0.5 ng/L, shall be used to analyze total mercury.

B. Mass Emission Benchmarks

The following Mass Emission Benchmarks, in metric tons per year (MT/yr), have been established for the discharge through the 5-mile outfall (Discharge Point 002). The Discharger shall monitor and report the mass emission rate for all constituents that have mass emission benchmarks. For each constituent, the 12-month average mass emission rate and the concentration and flow used to calculate that mass emission rate shall be reported in the annual pretreatment report and the annual receiving water monitoring report.

Table 4. 12-Month Average Effluent Mass Emission Benchmarks

Ocean Plan Constituent	12-month Average Mass Emission Benchmarks (MT/yr)
Marine Aquatic Life	
Arsenic	1.9
Cadmium	0.88
Chromium VI	4.6
Chromium (total)	N/A

Ocean Plan Constituent	12-month Average Mass Emission Benchmarks (MT/yr)
Copper	13
Lead	2.1
Mercury	0.19
Nickel	8.3
Selenium	0.94
Silver	1.2
Zinc	22
Cyanide	4.6
Total chlorine residual	N/A
Ammonia as N	20,100
Acute toxicity	N/A
Chronic toxicity	N/A
Phenolic compounds (non-chlorinated)	3
Phenolic compounds (chlorinated)	0.5
Endosulfan	0.004
Endrin	0.004
HCH	0.02
Radioactivity	N/A
Human Health (noncarcinogens)	
Acrolein	1
Antimony	3
Bis(2-cl-ethoxy) methane	0.03
Bis(2-cl-isopropyl) ether	0.03
Chlorobenzene	0.066
Chromium (III)	3.6
Di-n-butyl phthalate	2.2
Dichlorobenzenes (BNA)	1
Diethyl phthalate	0.03
Dimethyl phthalate	0.15
2-methyl-4,6-dinitrophenol	0.2
2,4-dinitrophenol	0.12
Ethyl benzene	0.066
Fluoranthene	0.03
Hexachlorocyclopentadiene	1.6
Nitrobenzene	0.03

Ocean Plan Constituent	12-month Average Mass Emission Benchmarks (MT/yr)
Thallium	4.3
Toluene	0.25
Tributyltin	N/A
1,1,1-trichloroethane	0.099
Human Health Protection (carcinogens)	
Acrylonitrile	0.17
Aldrin	N/A
Benzene	0.12
Benzidine	N/A
Beryllium	0.006
Bis(2-chloroethyl) ether	0.05
Bis(2-ethylhexyl) phthalate	3.8
Carbon tetrachloride	0.083
Chlordane	N/A
Chlorodibromomethane	2.2
Chloroform	3.6
DDT, total	N/A
1,4-dichlorobenzene (BNA)	7.7
3,3'-dichlorobenzidine	N/A
1,2-dichloroethane	0.03
1,1-dichloroethylene	0.072
Dichlorobromomethane	0.83
Methylene chloride	12
1,3-dichloropropene	0.17
Dieldrin	N/A
2,4-dinitrotoluene	0.04
1,2-diphenylhydrazine	0.03
Halomethanes	1.2
Heptachlor	N/A
Heptachlor epoxide	N/A
Hexachlorobenzene	N/A
Hexachlorobutadiene	0.04
Hexachloroethane	0.04
Isophorone	3.2
N-nitrosodimethylamine	0.094

Ocean Plan Constituent	12-month Average Mass Emission Benchmarks (MT/yr)
N-nitrosodi-n-propylamine	0.072
N-nitrosodiphenylamine	0.05
PAHs	N/A
PCBs	N/A
TCDD equivalents	N/A
1,1,2,2-tetrachloroethane	0.1
Tetrachloroethylene	3.2
Toxaphene	N/A
Trichloroethylene	0.094
1,1,2-trichloroethane	0.094
2,4,6-trichlorophenol	0.05
Vinyl chloride	0.094

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Acute Toxicity Testing for Discharge Point 002

1. Methods and Test Species

The Discharger shall conduct 96-hour static renewal acute toxicity tests on flow-weighted 24-hour composite effluent samples. When conducting toxicity tests in accordance with the specified chronic test methods manual, if daily observations of mortality make it possible to also calculate acute toxicity for the desired exposure period and the dilution series for the toxicity test includes the acute IWC, such method may be used to estimate the 96-hour LC50.

The presence of acute toxicity shall be estimated as specified in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA 821-R-02-012, 2002), with preference for West Coast vertebrate and invertebrate species.

2. Frequency

a. Screening - The Discharger shall conduct the first acute toxicity test screening for three consecutive months beginning in 2011. Re-screening is required every 24 months. The Discharger shall re-screen with a marine vertebrate species and a marine invertebrate species and continue to monitor with the most sensitive species. If the first suite of re-screening tests demonstrate that the same species is the most sensitive, then the re-screening does not need to include more than one suite of tests. If a different species is the most sensitive or if there is ambiguity, then the Discharger shall proceed with suites of screening tests for a minimum of three, but not to exceed five, suites.

b. Regular toxicity tests - After the screening period, monitoring shall be conducted monthly using the most sensitive marine species.

3. Toxicity Units

The acute toxicity of the effluent shall be expressed and reported in Acute Toxic Units, TUa, where,

$$TU_a = \frac{100}{LC50}$$

The Lethal Concentration, 50 Percent (LC50) is expressed as the estimate of the percent effluent concentration that causes death in 50% of the test population in the time period prescribed by the toxicity test.

B. Chronic Toxicity Testing for Discharge Points 002 and 001

1. Methods and Test Species

The Discharger shall conduct critical life stage chronic toxicity tests on flow-weighted, 24-hour composite effluent samples. The presence of chronic toxicity shall be estimated as specified in *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, 1995). When a chronic toxicity test method that incorporates a 96-hour acute toxicity endpoint is used to monitor toxicity at the chronic IWC in effluent discharged from Discharge Point 002, the 96-hour acute toxicity statistical endpoint may also be reported as LC50 and TUa, along with other chronic toxicity test results required by this Order/Permit.

2. Frequency

Screening - The Discharger shall conduct the first chronic toxicity test screening for three consecutive months beginning in 2011. Re-screening is required every 24 months. The Discharger shall re-screen with a marine vertebrate species, a marine invertebrate species, and a marine alga species and continue to monitor with the most sensitive species. If the first suite of re-screening tests demonstrate that the same species is the most sensitive, then the re-screening does not need to include more than one suite of tests. If a different species is the most sensitive or if there is ambiguity, then the Discharger shall proceed with suites of screening tests for a minimum of three, but not to exceed five, suites.

Regular toxicity tests - After the screening period, monitoring shall be conducted monthly using the most sensitive marine species.

3. Toxicity Units

The chronic toxicity of the effluent shall be expressed and reported in Chronic Toxic Units, TUc, where,

$$TU_c = \frac{100}{NOEC}$$

The No Observable Effect Concentration (NOEC) is expressed as the maximum percent effluent concentration that causes no observable effect on test organisms, as determined by the results of a critical life stage toxicity test.

C. Quality Assurance

1. Concurrent testing with a reference toxicant shall be conducted. Reference toxicant tests shall be conducted using the same test conditions as the effluent toxicity tests (e.g., same test duration, etc).

2. If either the reference toxicant test or effluent test does not meet all test acceptability criteria (TAC) as specified in the test methods manual (EPA-821-R-02-012 and/or EPA/600/R-95/136), then the Discharger must re-sample and re-test within 14 days.

3. Control and dilution water should be receiving water or laboratory water, as appropriate, as described in the manual. If the dilution water used is different from the culture water, a second control using culture water shall be used.

4. A series of at least five dilutions and a control shall be tested. The dilution series shall include the instream waste concentration (IWC) and two dilutions above and two below the IWC. The chronic IWCs for Discharge Points 001 and 002 are 7.1% and 1.1% effluent, respectively. 7.1% is the result of 1 divided by 14, which is sum of dilution credit 13 plus 1. 1.1% is the result of 1 divided by 85, which is sum of dilution credit 84 plus 1. The acute IWC for Discharge Point 002 is 35.7% effluent.

5. Following Paragraph 10.2.6.2 of USEPA's chronic freshwater test methods manual (EPA/821/R-02/013, 2002), all chronic toxicity test results from the multi-concentration tests required by this Order/Permit must be reviewed and reported according to USEPA guidance on the evaluation of concentration-response relationships found in Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR 136) (EPA/821/B-00-004, 2000).

6. Because this Order/Permit requires sublethal hypothesis testing endpoints from test methods in Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms (EPA/600/R-95/136, 1995), within-test variability must be reviewed for acceptability and a variability criterion (upper %MSD bound) must be

applied, as directed under each test method. Based on this review, only accepted effluent toxicity test results shall be reported on the DMR form. If excessive within-test variability invalidates a test result, then the Discharger must resample and retest within 14 days.

7. If the discharged effluent is chlorinated, then chlorine shall not be removed from the effluent sample prior to toxicity testing without written approval by the permitting authority.

8. pH drift during the toxicity test may contribute to artifactual toxicity when pH-dependent toxicants (e.g., ammonia, metals) are present in an effluent. To determine whether or not pH drift during the toxicity test is contributing to artifactual toxicity, the Discharger shall conduct three sets of parallel toxicity tests, in which the pH of one treatment is controlled at the pH of the effluent and the pH of the other treatment is not controlled, as described in section 11.3.6.1 of the test methods manual, Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA/821/R-02/013, 2002). Toxicity is confirmed to be artifactual and due to pH drift when no toxicity above the chronic WET permit limit or trigger is observed in the treatments controlled at the pH of the effluent. If toxicity is confirmed to be artifactual and due to pH drift, then, following written approval by the permitting authority, the Discharger may use the procedures outlined in section 11.3.6.2 of the test methods manual to control sample pH during the toxicity test.

D. Accelerated Monitoring

If the effluent toxicity test result exceeds the toxicity limitation, then the Discharger shall immediately implement accelerated toxicity testing that consists of six additional tests, approximately every two weeks, over a 12-week period. Effluent sampling for the first test of the six additional tests shall commence within five days of the test results exceeding the toxicity limitation.

1. If all results of the six additional tests are in compliance with the toxicity limitation, then the Discharger may resume regular monthly testing.

2. If the result of any of the six additional tests exceeds the toxicity limitation, then the Discharger shall continue to monitor once every two weeks until six consecutive biweekly tests are in compliance. At that time, the Discharger may resume regular monthly testing.

3. If the results of any two of the six additional tests (any two tests in the 12-week period) exceed the toxicity limitation, then the Discharger shall implement the initial investigation Toxicity Reduction Evaluation (TRE) Workplan.

4. If implementation of the initial investigation TRE workplan (see item E, below) indicates the source of toxicity (e.g., a temporary plant upset, etc.), then the Discharger shall return to the regular testing frequency.

E. Preparation of an Initial Investigation TRE Workplan

The Discharger shall prepare and submit a copy of the Discharger's Initial Investigation Toxicity Reduction Evaluation (TRE) workplan to the Regional Water Board Executive Officer for approval and USEPA within 90 days of the effective date of this Order/Permit. If the Executive Officer does not disapprove the workplan within 60 days, the workplan shall become effective. The Discharger shall use USEPA manual EPA/833B-99/002 (municipal), or most current version, as guidance. At a minimum, the workplan must contain the provisions in Attachment G. This workplan shall describe the steps the Discharger intends to follow if toxicity is detected, and should include, at a minimum:

1. A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency.

2. A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices and a list of all chemicals used in the operation of the facility; and

3. If a Toxicity Identification Evaluation (TIE) is necessary, an indication of the person who would conduct the TIEs (i.e., an in-house expert or an outside contractor). See MRP section V.F.3 for guidance manuals.

F. Steps in Toxicity Reduction Evaluation (TRE) and Toxicity Identification Evaluation (TIE)

1. If results of the implementation of the Initial Investigation TRE Workplan indicate the need to continue the TRE/TIE, then Discharger shall expeditiously develop a more detailed TRE Workplan for submittal to the Executive Officer and USEPA within 15 days of completion of the initial investigation TRE. The detailed workplan shall include, but not be limited to:

   a. Further actions to investigate and identify the cause of toxicity;

   b. Actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and

   c. A schedule for these actions.

2. The following section summarizes the stepwise approach used in conducting the TRE:

a. Step 1 includes basic data collection.

b. Step 2 evaluates optimization of the treatment system operation, facility housekeeping, and selection and use of in-plant process chemicals.

c. If Steps 1 and 2 are unsuccessful, Step 3 implements a Toxicity Identification Evaluation (TIE) and employment of all reasonable efforts using currently available TIE methodologies. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity.

d. Assuming successful identification or characterization of the toxicant(s), Step 4 evaluates final effluent treatment options.

e. Step 5 evaluates in-plant treatment options.

f. Step 6 consists of confirmation once a toxicity control method has been implemented.

3. The Discharger may initiate a Toxicity Identification Evaluation (TIE) as part of a TRE to identify the causes of toxicity using the same species and test method and, as guidance, USEPA test method manuals; Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures (EPA/600/6-91/003, 1991); Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity (EPA/600/R-92/080, 1993); Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity (EPA/600/R-92/081, 1993); and Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document (EPA/600/R-96-054, 1996).

4. If a TRE/TIE is initiated prior to completion of the accelerated testing required in section V.D. of this program, then the accelerated testing schedule may be terminated, or used as necessary in performing the TRE/TIE, as determined by the Executive Officer and USEPA.

G. Ammonia Removal

1. Except with prior approval from the Regional Water Board Executive Officer and USEPA, ammonia shall not be removed from bioassay samples. The Discharger must demonstrate the effluent toxicity is caused by ammonia *because of increasing test pH* when conducting the toxicity test. It is important to distinguish the potential toxic effects of ammonia from other pH sensitive chemicals, such as certain heavy metals, sulfide, and cyanide. The following may be steps to demonstrate that the toxicity is caused by ammonia and not other toxicants before the Executive Officer and USEPA would allow for control of pH in the test.

a. There is consistent toxicity in the effluent, and the maximum pH in the toxicity test is in the range to cause toxicity due to increased pH.

b. Chronic ammonia concentrations in the effluent are greater than 4 mg/L total ammonia.

c. Conduct graduated pH tests as specified in the toxicity identification evaluation methods. For example, mortality should be higher at pH 8 and lower at pH 6.

d. Treat the effluent with a zeolite column to remove ammonia. Mortality in the zeolite treated effluent should be lower than the non-zeolite treated effluent. Then add ammonia back to the zeolite-treated samples to confirm toxicity due to ammonia.

2. When it has been demonstrated that toxicity is due to ammonia because of increasing test pH, pH may be controlled, using appropriate procedures which do not significantly alter the nature of the effluent, after submitting a written request to the Executive Officer and USEPA and receiving written permission expressing approval from the Executive Officer and USEPA.

H. Reporting

The Discharger shall submit a full report of the toxicity test results, including any accelerated testing conducted during the month, as required by this Order/Permit. Test results shall be reported in Acute Toxic Units (TUa) or Chronic Toxic Units (TUc), as required, with the self-monitoring report (SMR) and the discharge monitoring report (DMR) for the month in which the test is conducted.

If an initial investigation indicates the source of toxicity and accelerated testing is unnecessary, pursuant to section V.D, then those results also shall be submitted with the DMR and SMR for the period in which the investigation occurred.

1. The full report shall be received by the Regional Water Board and USEPA by the 15th day of the second month following sampling.

2. A full laboratory report for all toxicity testing shall be submitted as an attachment to the SMR and DMR for the month in which the toxicity test was conducted and shall also include: the toxicity test results reported according to the test methods manual chapter on report preparation and test review; the dates of sample collection and initiation of each toxicity test; all results for effluent parameters monitored concurrently with the toxicity test(s); and progress reports on TRE/TIE investigations. Routine reporting shall include, at a minimum, as applicable for each toxicity test:

a. sample collection date(s)

b. test initiation date

c. test species

d. end point values for each dilution (e.g. number of young, growth rate, percent survival)

e. LC_{50} value(s) in percent effluent

f. TUa value(s) $\left(TU_a = \frac{100}{LC50} \right)$

g. NOEC value(s) in percent effluent

h. TUc values $\left(TU_c = \frac{100}{NOEC} \right)$

i. Mean percent mortality (+standard deviation) after 96 hours in 100% effluent (if applicable)

j. IC/EC_{25} value(s) in percent effluent

k. NOEC and LOEC (Lowest Observable Effect Concentration) values for reference toxicant test(s)

l. Available water quality measurements for each toxicity test (e.g., pH, dissolved oxygen, temperature, conductivity, hardness, salinity, ammonia).

3. The Discharger shall provide a compliance summary that includes a summary table of toxicity data from at least eleven of the most recent effluent samples for toxicity testing.

4. The Discharger shall notify the Regional Water Board and USEPA of any exceedance of a toxicity limitation, in writing, within 14 days after the receipt of the test results. The notification will describe actions the Discharger has taken or will take to investigate and correct the cause(s) of toxicity. It may also include a status report on any actions required by the permit, with a schedule for actions not yet completed. If no actions have been taken, the reasons shall be given.

VI. RECEIVING WATER MONITORING REQUIREMENTS

(Footnotes are specified on page E-41 of this Order/Permit.)

A. Inshore Water Quality Monitoring

This monitoring addresses the question: "Are Ocean Plan and Basin Plan objectives for bacteria being met?" Data collected at inshore stations provide the means to determine whether bacteriological objectives for water contact and shellfish harvesting are being met in the area of greatest potential for water contact and shellfish harvesting activities most proximal to the points of discharge.

1. The Discharger shall monitor the following 11 inshore stations:

Table 5. Inshore Monitoring Stations

Inshore Monitoring Stations						
Station	**Latitude***	**Longitude***		**Station**	**Latitude***	**Longitude***
RW-IS-01	33 59.833	118 48.067		RW-IS-07	33 58.550	118 28.317
RW-IS-02	34 00.950	118 46.967		RW-IS-08	33 57.567	118 27.583
RW-IS-03	34 01.717	118 44.117		RW-IS-09	33 56.900	118 27.133
RW-IS-04	34 01.833	118 40.383		RW-IS-10	33 56.283	118 26.817
RW-IS-05	34 02.050	118 34.833		RW-IS-11	33 50.000	118 23.850
RW-IS-06	34 00.201	118 29.923				

Note: IS-01 to IS-11 shall be sampled at a distance of 100 ft from the shoreline or at the 30-ft depth contour, whichever is further from shore (except that station IS-11 is located at King Harbor in Redondo Beach).
* Given in decimal minutes.

Eleven inshore water quality sampling stations shall be sampled at a distance of 1000 feet from the shoreline or at the 30-foot depth contour, whichever is further from shore (except that station IS-11 is located at King Harbor in Redondo Beach). The stations shall be designated and located as shown in Table 5.

2. Parameters to be monitored at the 11 stations are as follows:

Table 6. Inshore Microbiological Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total coliform	CFU/100 mL or MPN/100mL	Grab at surface and midwater	Annually (summer)[1]	[15]
Fecal coliform	CFU/100 mL or MPN/100mL	Grab at surface and midwater	Annually (summer)[1]	[15]
Enterococcus	CFU/100 mL or MPN/100mL	Grab at surface and midwater	Annually (summer)[1]	[15]

B. Offshore Water Quality Monitoring

This monitoring addresses the compliance questions: “Are Ocean Plan and Basin Plan objectives for physical and chemical parameters and bacteria being met?” Water quality data collected provide the information necessary to demonstrate compliance with the water quality standards. In addition, data collected by the City of Los Angeles contribute to the Central Bight Cooperative Water Quality Survey. This regionally coordinated survey provides integrated water quality surveys on a quarterly basis and covers more than 200 kilometers of coast in Ventura, Los Angeles, Orange, and San Diego Counties, from the nearshore to approximately 10 kilometers offshore. This cooperative program contributes to a regional understanding of seasonal patterns in water column structure. The regional view provides context for determining the significance and causes of locally observed patterns in the area of wastewater outfalls.

1. The Discharger shall monitor the following 54 offshore stations (Figure 1):

Table 7. Offshore Monitoring Stations

Offshore Monitoring Stations									
Station	Latitude*		Longitude*		Station	Latitude*		Longitude*	
RW-OS-3201	33	51.250	118	24.367	RW-OS-3604**	33	56.416	118	30.586
RW-OS-3202	33	50.917	118	25.067	RW-OS-3605**	33	55.666	118	32.133
RW-OS-3203	33	50.717	118	25.583	RW-OS-3606**	33	55.000	118	33.500
RW-OS-3204**	33	50.217	118	26.433	RW-OS-3701	33	59.166	118	29.166
RW-OS-3205**	33	49.433	118	27.817	RW-OS-3702	33	58.800	118	30.000
RW-OS-3206	33	49.666	118	29.567	RW-OS-3703	33	58.450	118	30.600
RW-OS-3301	33	53.583	118	25.633	RW-OS-3704**	33	58.000	118	31.533
RW-OS-3302	33	53.350	118	26.183	RW-OS-3705**	33	57.216	118	33.216
RW-OS-3303	33	53.133	118	26.800	RW-OS-3706**	33	56.550	118	34.500
RW-OS-3304**	33	52.767	118	27.417	RW-OS-3801	34	2.000	118	35.000
RW-OS-3305**	33	52.100	118	29.600	RW-OS-3802	34	1.550	118	35.250
RW-OS-3306**	33	51.067	118	31.633	RW-OS-3803	34	0.350	118	35.833
RW-OS-3401	33	54.150	118	25.950	RW-OS-3804**	33	59.600	118	36.250
RW-OS-3402	33	54.000	118	26.833	RW-OS-3805**	33	58.333	118	36.850
RW-OS-3403	33	54.066	118	27.600	RW-OS-3806	33	57.366	118	37.416
RW-OS-3404**	33	53.816	118	28.116	RW-OS-3901	34	1.650	118	43.000
RW-OS-3405**	33	53.233	118	30.383	RW-OS-3902	34	1.166	118	43.000
RW-OS-3406**	33	52.750	118	32.133	RW-OS-3903	34	0.666	118	43.000
RW-OS-3501	33	55.883	118	26.883	RW-OS-3904**	33	59.850	118	43.000
RW-OS-3502	33	55.666	118	27.616	RW-OS-3905	33	57.616	118	43.000
RW-OS-3503	33	55.433	118	28.350	RW-OS-3906	33	56.566	118	43.000
RW-OS-3504**	33	55.000	118	29.650	RW-OS-4001	33	59.716	118	48.316
RW-OS-3505**	33	54.550	118	31.516	RW-OS-4002	33	59.300	118	48.316
RW-OS-3506**	33	54.000	118	32.983	RW-OS-4003**	33	58.833	118	48.316
RW-OS-3601	33	57.584	118	27.975	RW-OS-4004	33	57.500	118	48.316
RW-OS-3602	33	57.333	118	28.666	RW-OS-4005	33	55.683	118	48.316
RW-OS-3603	33	56.966	118	29.416	RW-OS-4006	33	54.750	118	48.316

* Given in decimal minutes.
** Discrete stations of the Central Bight Cooperative Water Quality Survey.

2. Parameters to be monitored at the 54 offshore stations are as follows:

Table 8. Offshore Water Quality Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved oxygen	mg/L	continuous profile[3]	quarterly	[15]
Water temperature	^oC	continuous profile[3]	quarterly	[15]
Salinity	ppt	continuous profile[3]	quarterly	[15]
Transmissivity	% transmission	continuous profile[3] or Beam C	quarterly	[15]
Chlorophyll a	µg/L	continuous profile[3]	quarterly	[15]
pH	pH units	continuous profile[3]	quarterly	[15]
Ammonia	µg/L	discrete sampling at specified depth[2]	quarterly	[15]
Fecal coliform	CFU/100 mL or MPN/100mL	discrete sampling at specified depth[2]	quarterly	[15]
Total coliform	CFU/100 mL or MPN/100mL	discrete sampling at specified depth[2]	quarterly	[15]
Enterococcus	CFU/100 mL or MPN/100mL	discrete sampling at specified depth[2]	quarterly	[15]
Visual observations[4]	---	---	quarterly	[15]

3. Sampling Design - Fifty-four offshore water quality stations shall be sampled quarterly by a CTD profiler (see Figure 1). Water quality methods and protocols shall follow those described in the most current edition of the Field Operations Manual for Marine Water Column, Benthic, and Trawl Monitoring in Southern California. Visual observations shall be recorded at each station.

   Concurrent with the CTD profiling survey, discrete samples shall be collected quarterly at all 21 offshore discrete sampling stations for ammonia and fecal coliform, total coliform and *Enterococcus* at fixed depths of 1, 15, 30, and 45 meters (or as deep as practical for those stations located in depths less than 45 m) as noted in Table 7.

4. Whenever there is any discharge to the 1-mile outfall (Discharge Point 001), the following additional offshore sampling shall be conducted at Station A-2 (see Benthic and Trawl Stations table in Benthic Sediments Monitoring under Table 1 and Figure 2) and two additional stations within approximately 50 meters of the discharge point:

Table 9. Additional Offshore Water Quality Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total chlorine residual	mg/L	Grab[2,5]	Once per discharge day	[15]
Fecal coliform	CFU/100 mL or MPN/100mL	Surface & bottom grab[6]	Once per discharge day	[15]
Total coliform	CFU/100 mL or MPN/100mL	Surface & bottom grab[6]	Once per discharge day	[15]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Enterococcus	CFU/100 mL or MPN/100mL	Surface & bottom grab[6]	Once per discharge day	15

C. Benthic Infauna and Sediment Chemistry Monitoring

1. Local Benthic Trends Survey

This survey addresses the question: "Are benthic conditions under the influence of the discharge changing over time?" The data collected are used for regular assessment of trends in sediment contamination and biological response along a fixed grid of sites within the influence of the discharge.

a. Sampling Design - Benthic infauna and sediment chemistry monitoring stations in Table 10 shall be sampled in summer (July – September) for the parameters in Table 11. Separate samples shall be collected for benthic infauna and sediment chemistry.

Forty-four benthic monitoring stations (24 fixed stations plus one set of 20 random stations) shall be sampled annually for benthic infauna community analysis[7]. Random station sets A and B shall be sampled in alternate years. The entire contents of each sample shall be passed through a 1.0 millimeter screen to retain the benthic organisms. Sampling methods and protocols shall follow those described in the most current edition of the Field Operations Manual for Marine Water Column, Benthic, and Trawl Monitoring in Southern California.

Table 10. Benthic Infauna, Sediment Chemistry, and Trawl Monitoring Stations

Benthic and Trawl Monitoring Stations

Station	Latitude*		Longitude*	
FIXED GRID STATIONS				
RW-A-1 (T)	33	59.183	118	30.117
RW-A-2	33	55.117	118	26.883
RW-A-3 (T)	33	52.050	118	25.000
RW-B-1	34	00.417	118	42.933
RW-B-3	34	00.350	118	35.833
RW-B-5	33	57.983	118	31.533
RW-B-6	33	56.467	118	30.567
RW-B-7	33	55.283	118	29.500
RW-B-8	33	53.800	118	28.450
RW-B-10	33	50.483	118	24.940
RW-C-1 (T)	33	59.833	118	43.050
RW-C-3 (T)	33	59.383	118	36.033
RW-C-5	33	57.167	118	33.233
RW-C-6 (T)	33	55.683	118	32.083
RW-C-7	33	53.583	118	32.250
RW-C-8	33	52.750	118	31.417
RW-C-9A (T)	33	51.283	118	26.283
RW-D-1 (Benthic)	33	54.700	118	33.000
RW-D-1T (T)**	33	54.805	118	32.215
RW-E-1	33	59.057	118	42.867
RW-E-3	33	58.317	118	36.867
RW-E-6	33	55.700	118	33.417
RW-E-10	33	49.405	118	27.880
RW-Z-1	33	54.883	118	31.500
RW-Z-2 (T)	33	54.450	118	31.467
RW-Z-3 (T)**	33	54.005	118	30.395
RW-Z-4 (T)**	33	55.282	118	30.579
YEAR 1 RANDOM STATIONS				
RW-NA-1	33	53.396	118	31.190
RW-NA-2	33	54.054	118	30.907
RW-NA-3	33	54.199	118	32.025
RW-NA-4	33	55.061	118	30.380
RW-NA-5	33	55.167	118	31.114
RW-NA-6	33	56.041	118	31.636
RW-FA-7	33	52.397	118	29.837
RW-FA-8	33	52.675	118	32.650
RW-FA-9	33	52.981	118	29.263
RW-FA-10	33	53.132	118	30.983
RW-FA-11	33	53.594	118	30.105
RW-FA-12	33	53.870	118	29.438
RW-FA-13	33	54.398	118	34.130
RW-FA-14	33	54.874	118	28.602
RW-FA-15	33	55.073	118	33.387
RW-FA-16	33	55.966	118	30.050
RW-FA-17	33	56.086	118	33.208
RW-FA-18	33	56.612	118	29.351
RW-FA-19	33	56.671	118	32.167
RW-FA-20	33	57.157	118	31.470
RW-Random1A (T)**	33	54.874	118	28.602
RW-Random2A (T)**	33	52.397	118	29.837
RW-Random3A (T)**	33	51.451	118	28.185
YEAR 2 RANDOM STATIONS				
RW-NB-1	33	54.325	118	33.022
RW-NB-2	33	54.490	118	30.105
RW-NB-3	33	54.883	118	32.057
RW-NB-4	33	54.905	118	30.594
RW-NB-5	33	55.261	118	32.981
RW-NB-6	33	55.620	118	29.888
RW-NB-7	33	55.670	118	31.887
RW-NB-8	33	56.212	118	30.826
RW-FB-9	33	52.493	118	31.105
RW-FB-10	33	53.017	118	29.854
RW-FB-11	33	53.087	118	33.191
RW-FB-12	33	53.249	118	30.759
RW-FB-13	33	53.282	118	29.015
RW-FB-14	33	53.616	118	33.900
RW-FB-15	33	54.194	118	28.841
RW-FB-16	33	55.102	118	29.375
RW-FB-17	33	56.220	118	33.825
RW-FB-18	33	56.407	118	29.231
RW-FB-19	33	56.690	118	31.871
RW-FB-20	33	56.858	118	30.287
RW-Random1B (T)**	33	56.220	118	33.825
RW-Random2B (T)**	33	56.407	118	29.231
RW-Random3B (T)**	33	53.017	118	29.854

* Given in decimal minutes.
** Trawl site only.
(T) Trawl stations.

For benthic infauna community analysis, the following determinations shall be made at each station, where appropriate: Identification of all organisms to lowest possible taxon; community structure analysis[7]; mean, range, standard deviation, and 95% confidence limits, if appropriate, for value determined in the community analysis. The Discharger shall conduct additional statistical analyses to determine temporal and spatial trends in the marine environment.

Forty-four benthic monitoring stations (24 fixed stations plus one set of 20 random stations) shall also be sampled annually for Grain Size (sufficiently detailed to calculate percent weight in relation to phi size) and TOC; random station sets A and B shall be sampled in alternate years. Four benthic monitoring stations (RW- C1, C6, Z2, and E6) shall be sampled annually for Dissolved Sulfides. Nine benthic monitoring stations (RW- Z2, C1, C3, C6, C7, RW-C8, C9a, D1, and E6) shall be sampled annually for selected priority pollutants and compounds on the local 303(d) list; see Table 11. All 64 benthic monitoring stations (24 fixed stations plus both sets of 20 random stations) shall be sampled in year five of the Order/Permit for selected priority pollutants and compounds on the local 303(d) list; see Table 11.

Table 11. Benthic Infauna and Sediment Chemistry Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Benthic Infauna	--	0.1 square meter Van Veen grab	Annually	[15]
Grain Size	Phi size	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	[15]
Total organic carbon	mg/kg	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	[15]
Dissolved Sulfides	mg/kg	0.1 square meter Van Veen grab (upper 2 centimeters, porewater)	Annually	[15]
Organic nitrogen	mg/kg	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	[15]
Priority Pollutants for Sediment Chemistry				
Arsenic	mg/kg	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	[15]
Cadmium	mg/kg	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	[15]
Chromium	mg/kg	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	[15]
Copper	mg/kg	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	[15]
Lead	mg/kg	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	[15]
Mercury	mg/kg	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	[15]
Nickel	mg/kg	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	[15]
Silver	mg/kg	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	[15]
Zinc	mg/kg	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	[15]
Total DDT[13]	µg/kg	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	[15]
DDT derivatives[8]	µg/kg	0.1 square meter Van Veen grab (upper 2	Annually	[15]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
		centimeters)		
Total PCB[14]	μg/kg	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	15
PCB derivatives[9]	μg/kg	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	15
Compounds on local 303(d) list	μg/kg	0.1 square meter Van Veen grab (upper 2 centimeters)	Annually	15

2. Local Benthic Mapping Survey

   a. Sampling Design - The benthic monitoring station array utilized was designed as a fixed station/random station combination, incorporating 24 stations from the old sampling array and two sets of 20 newly designated randomly positioned stations. These stations shall be sampled in alternate years for the purposes of monitoring benthic infaunal community and sediment chemistry changes resulting from the implementation of full secondary treatment at Hyperion Treatment Plant. The goal is to develop a better depiction of any impact footprint resulting from the discharge using a probabilistic monitoring approach.

   b. The Discharger shall evaluate monitoring data collected between January 1999 and December 2009 using a fixed station/random station combination, and any other relevant data, to assess the mapping ability of this benthic station array. The goal is to determine if the spatial coverage is appropriate to adequately delineate any changes and describe the extent of the footprint of any impacts. Following the analysis, the station array will be assessed and any recommendations for change will be submitted to the Regional Water Board Executive Officer and USEPA.

3. Regional Benthic Survey

   This regional survey addresses the questions: 1) “What is the extent, distribution, magnitude and trend of ecological change in soft-bottom benthic habitats within the Southern California Bight?”; and 2) “What is the relationship between biological response and contaminant exposure?” The data collected will be used to assess the condition of the sea-floor environment and the health of biological communities in the Bight.

   Sampling Design - A regional survey of benthic conditions within the Southern California Bight took place in 2008 (Bight ’08). The final survey design was determined cooperatively by participants represented on the Regional Steering Committee. The Discharger provided support to the Bight ’08 benthic survey by participating in or performing the following activities:

Participation on the Steering Committee
Participation on relevant Technical Committees (e.g., Information Management, Field Methods & Logistics, Benthos, and Chemistry)
Field sampling at sea
Infaunal sample analysis
Sediment chemistry analysis
Data management

This level of participation was consistent with that provided by the Discharger during the 2008, 2003, 1998, and 1994 Regional Benthic Surveys. The next regional survey is expected to take place in 2013 and the Discharger's level of participation shall be consistent with that provided in previous surveys.

D. Fish and Macroinvertebrate (Trawl and Rig Fishing) Monitoring

1. Local Demersal Fish and Macroinvertebrates Survey

This survey addresses the question: "Is the health of demersal fish and epibenthic invertebrate communities in the vicinity of the discharge changing over time?" The data collected are used for regular assessment of temporal trends in community structure along an array of sites within the influence of the discharge. Data will also be collected on trash and debris to contribute to the SMBRP's Sources and Loadings program.

Sampling Design - Ten trawl monitoring stations (7 fixed stations plus one set of 3 random stations; see Table 12) shall be sampled in winter (January – March) and summer (July – September) for demersal fish and epibenthic invertebrates, using 10-minute otter trawls. Random station sets A and B shall be sampled in alternate years. Sampling methods and protocols shall follow those described in the most current edition of the Field Operations Manual for Marine Water Column, Benthic, and Trawl Monitoring in Southern California.

Table 12. Local Demersal Fish and Macroinvertebrates Monitoring Stations

Trawl Monitoring Stations					
Station	**Latitude***	**Longitude***	**Station**	**Latitude***	**Longitude***
FIXED GRID STATION			**YEAR 1 RANDOM STATIONS**		
RW-C-1 (T)	33 59.833	118 43.050	RW-Random1A (T)**	33 54.874	118 28.602
RW-C-3 (T)	33 59.383	118 36.033	RW-Random2A (T)**	33 52.397	118 29.837
RW-C-6 (T)	33 55.683	118 32.083	RW-Random3A (T)**	33 51.451	118 28.185
RW-Z-2 (T)	33 54.450	118 31.467			
RW-Z-3 (T)**	33 54.005	118 30.395	**YEAR 2 RANDOM STATIONS**		
RW-Z-4 (T)**	33 55.282	118 30.579	RW-Random1B (T)**	33 56.220	118 33.825
RW-D-1T (T)**	33 54.805	118 32.215	RW-Random2B (T)**	33 56.407	118 29.231
			RW-Random3B (T)**	33 53.017	118 29.854

* Given in decimal minutes.
** Trawl site only.
(T) Trawl stations.

All organisms captured shall be identified to the lowest possible taxon and counted. Fish shall be size-classed. Wet-weight biomass shall be estimated for all species. Each individual captured shall be examined for the presence of externally evident signs of disease or anomaly. Estimates of type, quantity, and weight of trash and debris in each trawl shall be made. Community analysis[10] shall be conducted for fish and macroinvertebrates at each station. Mean, range, standard deviation, and 95% confidence limits, if appropriate, shall be reported for the values determined in the community analysis. The Discharger shall conduct additional statistical analyses to determine temporal and spatial trends in the marine environment.

2. Regional Demersal Fish and Macroinvertebrates Survey

This survey addresses the questions: 1) “What is the extent, distribution, magnitude and trend of ecological change in demersal fish and epibenthic invertebrate communities within the Southern California Bight?” and 2) “What is the relationship between biological response and contaminant exposure?” The data collected will be used to assess the condition of the sea-floor environment and health of biological resources in the Bight.

Sampling Design - A regional survey of trawl-caught demersal fish and epibenthic invertebrates within the Southern California Bight took place in 2008 (Bight ’08). The final survey design was determined cooperatively by the participants as represented in the Regional Steering Committee. The Discharger provided support to the Bight ’08 survey by participating in or performing the following activities:

Participation on the Steering Committee
Participation on relevant Technical Committees (e.g., Information Management, Field Methods & Logistics, Fish & Invertebrates)
Field sampling at sea
Data management

This level of participation was consistent with that provided by the Discharger during the 2008, 2003, and 1998 Regional Surveys. The next regional survey is expected to take place in 2013 and the Discharger’s level of participation shall be consistent with that provided in previous surveys.

3. Bioaccumulation and Seafood Safety Monitoring

a. Local Bioaccumulation Trends Survey

This survey addresses the question: “Are fish tissue contamination levels in the vicinity of the outfall changing over time?” The data collected are used for regular assessment of temporal trends in horneyhead turbot tissue.

Sampling Design - Three survey sites (Table 13) shall be sampled annually for the parameters in Table 14. The composite sample for muscle tissue and the composite sample for liver tissue for a survey site can be taken from any station within that survey site.

Table 13. Local Bioaccumulation Sampling Zones

Station Type	Monitoring Location Name	Monitoring Location Description
Bottom Station	RW-BA-Z4	**Zone 4 (south Santa Monica Bay) -** Inshore of the 150 meter depth contour and between a line bearing 235° magnetic off the south end of the Redondo Beach Pier and a line bearing 240° magnetic off the south entrance of Marina Del Rey. This zone includes the Redondo Piers, the north rim of the Redondo Canyon, Short Bank, and the 1, 5, and 7-mile Hyperion outfalls.
Bottom Station	RW-BA-Z5	**Zone 5 (north Santa Monica Bay) -** Inshore of the 150-meter depth contour and between a line bearing 240° magnetic off the south entrance of Marina del Rey and a line bearing 180° magnetic off Point Dume. This zone includes the Santa Monica beaches, Venice and Santa Monica Piers, Paradise Cove and most of Point Dume Canyon.
Bottom Station	RW-BA-NF	**Nearfield** - A 2-km radius around the 5-mile outfall (Discharge Point 002).

Table 14. Local Bioaccumulation Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
% moisture	%	Composite of liver tissue from 10 individuals of hornyhead turbot	annually	[15]
		Composite of muscle tissue from 10 individuals of hornyhead turbot	annually	[15]
% lipid	%	Composite of liver tissue from 10 individuals of hornyhead turbot	annually	[15]
		Composite of muscle tissue from 10 individuals of hornyhead turbot	annually	[15]
Arsenic	µg/kg	Composite of liver tissue from 10 individuals of hornyhead turbot	annually	[15]
		Composite of muscle tissue from 10 individuals of hornyhead turbot	annually	[15]
Selenium	µg/kg	Composite of liver tissue from 10 individuals of hornyhead turbot	annually	[15]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
		Composite of muscle tissue from 10 individuals of hornyhead turbot	annually	15
Mercury	µg/kg	Composite of liver tissue from 10 individuals of hornyhead turbot	annually	15
		Composite of muscle tissue from 10 individuals of hornyhead turbot	annually	15
Total DDT[13]	µg/kg	Composite of liver tissue from 10 individuals of hornyhead turbot	annually	15
		Composite of muscle tissue from 10 individuals of hornyhead turbot	annually	15
DDT derivatives[8]	µg/kg	Composite of liver tissue from 10 individuals of hornyhead turbot	annually	15
		Composite of muscle tissue from 10 individuals of hornyhead turbot	annually	15
Total PCB[14]	µg/kg	Composite of liver tissue from 10 individuals of hornyhead turbot	annually	15
		Composite of muscle tissue from 10 individuals of hornyhead turbot	annually	15
PCB derivatives[9]	µg/kg	Composite of liver tissue from 10 individuals of hornyhead turbot	annually	15
		Composite of muscle tissue from 10 individuals of hornyhead turbot	annually	15

b. Local Seafood Safety Survey

This survey addresses the questions: 1) “Where seafood consumption advisories exist locally, do tissue concentrations of contaminants continue to exceed the Advisory Tissue Concentration (ATC)?”; and 2) “What are tissue contaminant trends relative to the ATC in other species and for other contaminants not currently subject to local consumption advisories?” The data collected will be used to provide information necessary for the management of local seafood consumption advisories.

Sampling Design - A regionally coordinated survey covering Santa Monica Bay employing the sampling design proposed by the Santa Monica Bay Restoration Commission (SMBRC). During years one, three, and five of this Order/Permit, two survey sites (Table 15) shall be sampled annually (late summer/early fall)—focusing on a consistent size class of fish—for the parameters in Table 16. The composite sample for muscle tissue for a survey site can be taken from any station within that survey site.

Table 15. Local Seafood Safety Survey Zones

Station Type	Monitoring Location Name	Monitoring Location Description
Bottom Station	RW-BA-Z4	**Zone 4 (south Santa Monica Bay) -** Inshore of the 150 meter depth contour and between a line bearing 235° magnetic off the south end of the Redondo Beach Pier and a line bearing 240° magnetic off the south entrance of Marina Del Rey. This zone includes the Redondo Piers, the north rim of the Redondo Canyon, Short Bank, and the 1, 5, and 7-mile Hyperion outfalls.
Bottom Station	RW-BA-Z5	**Zone 5 (north Santa Monica Bay) -** Inshore of the 150-meter depth contour and between a line bearing 240° magnetic off the south entrance of Marina del Rey and a line bearing 180° magnetic off Point Dume. This zone includes the Santa Monica beaches, Venice and Santa Monica Piers, Paradise Cove and most of Point Dume Canyon.

One species from each of five groups of fish (rockfish, kelpbass, sandbass, surfperches and croakers) shall be sampled from each of the two zones in years one, three and five. For rockfishes, scorpionfish (*Scorpaena guttata*) is the preferred species, followed by bocaccio (*Sebastes paucispinis*) and then by any other abundant and preferably benthic rockfish species. For surfperches, black perch (*Embiotoca jacksoni*) is the preferred species, followed by white seaperch (*Phanerodon furcatus*) and then by walleye surfperch (*Hyperprosopon argenteum*).

Sampling should take place within the same season of the year (preferably late summer/early fall) and should focus upon a consistent size class of fish. All tissue samples shall be analyzed for:

Table 16. Local Seafood Safety Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
% moisture	%	Composite of muscle tissue from 10 individuals of each of 5 species[10]	Annually during years 1, 3 and 5	[15]
% lipid	%	Composite of muscle tissue from 10 individuals of each of 5 species[10]	Annually during years 1, 3 and 5	[15]
Arsenic	µg/kg	Composite of muscle tissue from 10 individuals of each of 5 species[10]	Annually during years 1, 3 and 5	[15]
Selenium	µg/kg	Composite of muscle tissue from 10 individuals of each of 5 species[10]	Annually during years 1, 3 and 5	[15]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Mercury	µg/kg	Composite of muscle tissue from 10 individuals of each of 5 species[10]	Annually during years 1, 3 and 5	[15]
Total DDT[13]	µg/kg	Composite of muscle tissue from 10 individuals of each of 5 species[10]	Annually during years 1, 3 and 5	[15]
DDT derivatives[8]	µg/kg	Composite of muscle tissue from 10 individuals of each of 5 species[10]	Annually during years 1, 3 and 5	[15]
Total PCB[14]	µg/kg	Composite of muscle tissue from 10 individuals of each of 5 species[10]	Annually during years 1, 3 and 5	[15]
PCB derivatives[9]	µg/kg	Composite of muscle tissue from 10 individuals of each of 5 species[10]	Annually during years 1, 3 and 5	[15]

c. Regional Seafood Safety Survey

This regional survey addresses the question: “Are seafood tissue levels within the Southern California Bight below levels that ensure public safety?” The data collected will be used to assess levels of contaminants in the edible tissue of commercial or recreationally important fish within the Bight relative to Advisory Tissue Concentrations.

Sampling Design - A regional survey of edible tissue contaminant levels in fish within the Southern California Bight shall be conducted at least once every ten years, encompassing a broader set of sampling sites and target species than those addressed in the local seafood survey. The objective is to determine whether any unexpected increases or decreases in contaminant levels have occurred in non-target species and/or at unsampled sites. The final survey design may be determined cooperatively by participants represented on a Regional Steering Committee or by the State of California’s Office of Environmental Health and Hazard Assessment. The Discharger shall provide support to a Regional Seafood Safety Survey by participating in or performing the following activities:

Participation on a Steering Committee
Participation on relevant Technical Committees (e.g., Information Management, Field Methods & Logistics, and Chemistry)
Field sampling at sea
Tissue chemical analysis
Data management

The Discharger’s participation shall be consistent with that provided by the Discharger to similar regional bioaccumulation surveys.

d. Regional Bioaccumulation Survey

This regional survey addresses the question: “Are fish body burdens within the Southern California Bight a health risk to higher trophic levels in the marine food web?” The data collected will be used to estimate health risk to marine birds, mammals and wildlife from the consumption of fish tissue.

Sampling Design - A regional survey of whole fish body burdens of contaminants within the Southern California Bight took place in 2008 (Bight ’08). The final survey design was determined cooperatively by participants represented on the Regional Steering Committee. The Discharger provided support to the Bight ’08 Bioaccumulation Survey by participating in or performing the following activities:

Participation on the Steering Committee
Participation on relevant Technical Committees (e.g., Information Management, Field Methods & Logistics, and Chemistry)
Field sampling at sea
Tissue chemical analysis

This level of participation was consistent with that provided by the Discharger to the 2008, 2003, and 1998 Regional Bioaccumulation/Predator Risk Survey. The next regional survey is expected to occur in 2013 and the Discharger’s level of participation shall be consistent with that provided in previous surveys.

E. Kelp Bed Monitoring

This regional survey is to address the question: “Is the extent of kelp beds in the Southern California Bight changing over time and are some beds changing at rates different than others?” The data collected in this regional survey will be used to assess status and trends in kelp bed health and spatial extent. The regional nature of the survey will allow the status of beds local to the discharge to be compared to regional trends.

The Discharger shall participate in the Central Region Kelp Survey Consortium (CRKSC) Monitoring Program to conduct regional kelp bed monitoring in Southern California coastal waters. The CRKSC design is based upon quarterly measures of kelp canopy extent using aerial imaging. The Discharger shall provide up to $10,000 per year in financial support to the CRKSC (annual level of support will depend on the number of participants in the program). The Discharger shall participate in the regional management and technical committees responsible for the development of the survey design and the assessment of kelp bed resources in the Bight.

Participation in this survey provides data to the SMBRC’s Kelp Beds program.

Footnotes for Receiving Water Monitoring Program:

1 The annual sample shall be taken in the summer quarter.

2 Discrete sampling for ammonia nitrogen, fecal coliform, total coliform, *Enterococcus*, and total residual chlorine shall be done below the surface within 1 m (3.1 ft) and at 15.0 m (49.2 ft), 30.0 m (98.4 ft), and 45.0 m (147.6 ft) (or as deep as practical for those stations located in depths less than 45 m).

3 Depth profile measurements will be obtained using multiple sensors to measure parameters through the entire water column (from the surface to as close to the bottom as practicable).

4 Receiving Water Observations of water color, turbidity, odor, and unusual or abnormal amounts of floating or suspended matter in the water or on the beach, rocks and jetties, or beach structures shall be made and recorded at stations. The character and extent of such matter shall be described. The dates, times and depths of sampling and these observations shall also be reported.

5 The “Daily Maximum” value shall be reported during periods of discharge.

6 Bottom sampling shall be done within 2.0 m (6.6 ft) of the seabed.

7 Community analysis of benthic infauna shall include number of species, number of individuals per species, total numerical abundance per station, benthic response index (BRI) and biological indices, plus utilize appropriate regression analyses, parametric and nonparametric statistics, and multivariate techniques or other appropriate analytical techniques.

8 At a minimum, 4,4'-DDT, 2,4'-DDT, 4,4'-DDE, 2,4'-DDE, 4,4'-DDD, and 2,4'-DDD.

9 At a minimum, chlorinated biphenyl congeners whose analytical characteristics resemble those of PCB-18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206 shall be individually quantified.

10 Community analysis of fish and macroinvertebrates shall include wet weight of fish and macroinvertebrate species (when combined weight of individuals of one species exceed 0.1 kg), standard length of each individual fish, number of species, number of individuals per species, total numerical abundance per station, number of individuals in each 1-cm size class for each species of fish, species abundance per trawl and per station, and biological indices, plus utilize appropriate regression analyses, parametric and nonparametric techniques, and multivariate techniques or other appropriate analytical techniques.

11 Where appropriate, individuals collected for both local bioaccumulation trends or local seafood safety comprising the smallest 10 percent by weight shall not be used as part of the composite sample. Individuals for tissue analysis shall be randomly selected from the remaining organisms. It may not be possible to collect the required number of fish every year at each zone. If fish of the target size are absent in a given zone, additional sampling effort need not be attempted. If target size fish are present in a given zone, one additional sampling event shall be conducted to attempt to collect the necessary number of individuals.

12 Tissue samples removed from individuals shall be of uniform weight.

13 Total DDT means the sum of 4,4’-DDT, 2,4’-DDT, 4,4’-DDE, 2,4’-DDE, 4,4’-DDD and 2,4’-DDD.

14 Total PCBs (polychlorinated biphenyls) mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-l232, Aroclor-1242, Aroclor-l248, Aroclor-1254 and Aroclor-1260.

15 Pollutants shall be analyzed using: the analytical methods described in 40 CFR part 136; where no methods are specified for a given pollutant, by methods approved by this Regional Water Board, State Water Board, and USEPA Region 9.

VII. OTHER MONITORING REQUIREMENTS

A. Special Study – Constituents of Emerging Concern in Effluent

<u>Background</u>

Advancements in analytical technology over the last decade have dramatically increased the number of chemicals that can be detected and greatly decreased the concentrations at which chemicals can be detected. This new ability to detect trace levels of chemical concentrations has expanded the existing understanding of the kinds of contaminants present in water and wastewater. Many man-made chemicals, particularly pesticides, pharmaceuticals and personal care products, have been found in waters across the United States.

Collectively, these compounds are referred to as Emerging Constituents (ECs) or Constituents of Emerging Concern (CECs) because their presence is starting to be revealed by rapid advances in analytical technology. Despite recent improvements in analytical science, there is still scarcity of data and lack of robust methodologies for measuring most CECs. CECs are part of the unregulated chemicals, for which no water quality standards or State notification levels have been established.

Recent publications and media reports on CECs have increased public awareness of the issue, providing an impetus for CEC investigations around the country, including local efforts by the City of Los Angeles and Southern California Coastal Water Research Project (SCCWRP). For instance, starting in 2005, the City of Los Angeles has been conducting a special study as part of Order No. 2005-0020, and results suggest that the presence of natural and synthetic estrogen hormones has caused feminization of male fish (hornyhead turbot) in Santa Monica Bay, especially near the Hyperion Treatment Plant outfall. In January 2010, SCCWRP convened a workshop where 50 scientists, water quality managers, and stakeholders discussed and collaborated on developing an effective CEC monitoring and management strategy that is protective of water quality. Anticipated outcomes of this workshop include recommended lists of CECs for monitoring in recycled water (for groundwater concerns) by the end of 2010, and for monitoring in ambient waters, including ocean waters, by the summer of 2011.

In recent years, this Regional Water Board has incorporated monitoring of a select group of CECs into the NPDES permits issued to POTWs.

<u>CEC Special Study Requirements</u>

1. The Discharger shall initiate an investigation of CECs by conducting a special study. Specifically, within 6 months of the effective date of this Order/Permit, the Discharger shall develop a CEC Special Study Work Plan (Work Plan) and submit it for Regional Water Board Executive Officer and USEPA Director approval. Immediately upon approval of the Work Plan, the Discharger shall fully implement the Work Plan.

   This Work Plan shall include, but not be limited to, the following:

a. Identification of CECs to be monitored in the effluent, sample type (e.g., 24-hour composite), sampling frequency, and sampling methodology. Table 17 identifies the minimum parameters to be monitored.

Table 17. Effluent Monitoring of CECs

Parameter[2]	Units	Sample Type	Minimum Sampling Frequency	Analytical Test Method and (Minimum Level, units)
17α-Ethinyl Estradiol	ng/L	To be proposed	Annually	To be proposed
17β-Estradiol	ng/L	To be proposed	Annually	To be proposed
Estrone	ng/L	To be proposed	Annually	To be proposed
Bisphenol A	ng/L	To be proposed	Annually	To be proposed
Nonylphenol and nonylphenol polyethoxylates	ng/L	To be proposed	Annually	To be proposed
Octylphenol	ng/L	To be proposed	Annually	To be proposed
Polybrominated diphenyl ethers	ng/L	To be proposed	Annually	To be proposed
Acetaminophen	ng/L	To be proposed	Annually	To be proposed
Amoxicillin	ng/L	To be proposed	Annually	To be proposed
Azithromycin	ng/L	To be proposed	Annually	To be proposed
Carbamazepine	ng/L	To be proposed	Annually	To be proposed
Ciprofloxacin	ng/L	To be proposed	Annually	To be proposed
Dilantin	ng/L	To be proposed	Annually	To be proposed
Gemfibrozil	ng/L	To be proposed	Annually	To be proposed
Ibuprofen	ng/L	To be proposed	Annually	To be proposed
Lipitor	ng/L	To be proposed	Annually	To be proposed
Sulfamethoxazole	ng/L	To be proposed	Annually	To be proposed
Trimethoprim	ng/L	To be proposed	Annually	To be proposed
Salicylic acid	ng/L	To be proposed	Annually	To be proposed
Triclosan	ng/L	To be proposed	annually	To be proposed
DEET	ng/L	To be proposed	Annually	To be proposed
Caffeine	ng/L	To be proposed	Annually	To be proposed
Iodinated contrast media (i.e., iopromide)	ng/L	To be proposed	Annually	To be proposed
Fire retardants (e.g., TCEP)	ng/L	To be proposed	Annually	To be proposed

Once the SCCWRP's recommended list of CEC monitoring in ambient waters, including ocean waters, is finalized, the above list of minimum parameters to be monitored by the Discharger and the sampling frequency may be re-evaluated and modified by the Executive Officer and Director. At such time, upon request by the Executive Officer and Director, the Discharger shall monitor the requested CEC parameters at the specified frequency. In the Work Plan, the Discharger may also propose, for consideration and approval by the Executive Officer and Director, surrogate or indicator CECs that may contribute towards a better understanding of CECs in its effluent.

[2] Given the evolving state of research, science, and policy involving CECs, the Regional Water Board Executive Officer and USEPA Director may add or remove CECs from the monitoring and reporting program.

Sample Type - The Discharger shall propose in the Work Plan the appropriate sample type for each type of constituent.

Sampling Period - At minimum, the Discharger shall monitor the specified CECs once per year. The Work Plan shall propose the appropriate sampling month or quarter for each year, consistent with the goals of the analyses. The rationale for selecting the particular sampling month or quarter shall be explained in the Work Plan.

Analytical Test Methodology and QA/QC - The Discharger shall review and consider all available analytical test methodologies and appropriate QA/QC procedures, including but not limited to those listed in USEPA Methods 1694 and 1698 or utilized by the U.S. Geologic Survey, California Department of Public Health, or other federal or State agencies. Based on its review, the Discharger shall propose the most appropriate analytical methodology, considering sensitivity, accuracy, availability, and cost.

b. Characterization of existing CEC data (data collected previous to Special Study). The Discharger shall propose a characterization of all existing CEC data (associated with its effluent or receiving water) that have been collected for various purposes in the past. At minimum, the characterization shall include:

- an identification of all CECs monitored to date (outside of this Special Study);
- monitoring duration, frequency, and date(s) (for example, from 2000-present, annually);
- analytical methodologies employed;
- RL, MLs, and MDLs achieved for each methodology used; and
- temporal/seasonal trend analyses (using both statistical and graphical demonstration) of CEC data, over time and by season.

c. Evaluation of CEC data collected as part of this Special Study. The Discharger shall propose an evaluation of CEC data (associated with its effluent) to be collected as part of this special study. At minimum, the characterization shall include:

- an identification of CECs that have been monitored;
- monitoring duration, frequency, and date(s);
- RL, MLs and MDLs achieved for each methodology used;
- a brief update on any improvements (or change) in the analytical methodologies and associated RL, MLs and MDLs achieved for each methodology used; and

- temporal/seasonal trend analyses (using both statistical and graphical demonstration) of CEC data collected as part of this special study.

2. Reporting - By April 15th of each year (starting April 15, 2012), the Discharger shall submit to the Regional Water Board Executive Officer and USEPA Director an annual report summarizing the monitoring results from the previous calendar year. Each annual report shall include a compilation of effluent monitoring data of CECs listed in the approved Work Plan, MLs, sample type, analytical methodology used, sampling date/time, QA/QC information, and an evaluation of cumulative CEC data collected to date as part of this special study (see above for further details on CEC data evaluation). In addition, the first annual report due April 15, 2012 shall include a characterization of existing CEC data, i.e., all data collected outside of this special study (see above for further details on existing CEC data characterization).

B. Special Study – Nutrient Loading and Receiving Water Impacts

By November 4, 2011, consistent with the logistics described in section I.D.3 of the MRP, the Discharger shall propose, as a special study, a summary assessment of existing nutrient data (both effluent and receiving water) collected under the Order/Permit during the period of secondary treatment and quantify the resulting effects, if any, of the discharge on receiving water quality for dissolved oxygen, pH, and percent transmission.

C. Outfall and Diffuser Inspection

This survey answers the question: "Are the outfall structures in serviceable condition ensuring their continued safe operation?" The data collected will be used for a periodic assessment of the integrity of the outfall pipes and ballasting system.

Each ocean outfall (001 and 002) shall be externally inspected a minimum of once a year. Inspections shall include general observations and photographic/videographic records of the outfall pipes and adjacent ocean bottom. The pipes shall be visually inspected by a diver, manned submarine, or remotely operated vehicle. A summary report of the inspection findings shall be provided. This written report, augmented with videographic and/or photographic images, will provide a description of the observed condition of the discharge pipes from shallow water to their respective termini.

D. Biosolids and Sludge Management

The Discharger must comply with all Clean Water Act and regulatory requirements of 40 CFR 257, 258, 501, and 503, including all applicable monitoring, record keeping, and reporting requirements. The Discharger must comply with the requirements in Attachment H of this Order/Permit.

E. Hauling Reports

1. In the event wastes are transported to a different disposal site during the reporting period, the following shall be reported:

   a. Types of wastes and quantity of each type;

   b. Name and either the address or the State registration number for each hauler of wastes (or the method of transport if other than by hauling); and

   c. Location of the final point(s) of disposal for each type of wastes.

2. If no wastes are transported off site during the reporting period, a statement to that effect shall be submitted.

VIII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

2. The Discharger shall inform the Regional Water Board and USEPA well in advance of any proposed construction or maintenance or modification to the POTW that could potentially affect compliance with applicable requirements.

3. If the Discharger monitors (other than for process/operational control, startup, research, or equipment testing) any influent, effluent, or receiving water constituent more frequently than required by this Order/Permit using approved analytical methods, the results of those analyses shall be included in the monitoring report. These results shall be reflected in the calculation of the average (or median) used in demonstrating compliance with this Order/Permit.

4. The date and time of sampling (as appropriate) shall be reported with the analytical values determined.

5. Influent and effluent analyses shall be performed on different days of the week during each month. Quarterly influent and effluent analyses shall be performed during the months of January, April, July, and October. Semiannual influent and effluent analyses shall be performed during the months of January and July. Annual influent and effluent analyses shall be performed during the month of July. Should there be instances when monitoring cannot be done during these specified months, the Discharger must notify the Regional Water Board and USEPA, state the reason why the monitoring cannot be conducted, and obtain approval from the Regional Water Board Executive Officer and USEPA for an alternate schedule. Results of quarterly, semiannual, and

annual analyses shall be reported by the 15th of the second month following the analysis.

6. Pollutants shall be analyzed using the analytical methods described in 40 CFR 136 or where no methods are specified for a particular pollutant, by methods approved by the Regional Water Board Executive Officer, in consultation with the State Water Board's Quality Assurance Program, and USEPA. For any analyses performed for which no procedure is specified in USEPA guidelines or in the MRP, the constituent or parameter analyzed and the method or procedure used must be specified in the monitoring report.

7. The laboratory conducting analyses shall be certified by the California Department of Public Health Environmental Laboratory Accreditation Program (ELAP), in accordance with CWC section 13176, or approved by the Regional Water Board Executive Officer, in consultation with the State Water Board's Quality Assurance Program, and USEPA for that particular parameter and must include quality assurance/quality control (QA/QC) data in their reports. A copy of the laboratory certification shall be provided each time a new/renewal certification is obtained from ELAP and must be submitted with the annual summary report. Each monitoring report must affirm in writing that: "All analyses were conducted at a laboratory certified for such analyses by the California Department of Public Health, or approved by the Regional Water Board Executive Officer (in consultation with the State Water Board's Quality Assurance Program) and USEPA, and in accordance with current USEPA guideline procedures or as specified in this MRP."

8. Water/wastewater samples must be analyzed within allowable holding time limits as specified in 40 CFR 136.3. All QA/QC analyses must be run on the same dates that samples are actually analyzed. The Discharger shall retain the QA/QC documentation in its files and make available for inspection and/or submit this documentation when requested by the Regional Water Board and/or USEPA. Proper chain of custody procedures must be followed and a copy of this documentation shall be submitted with the monthly report.

9. The Discharger shall calibrate and perform maintenance procedures on all monitoring instruments to insure accuracy of measurements.

10. The Discharger shall report with each sample result in the monitoring reports: the analytical method used, the Method Detection Limit (MDL) as determined by the procedure in 40 CFR 136, and the Reporting Level (RL) [the applicable minimum level (ML) or reported Minimum Level (RML)] for each pollutant. The MLs are those published by the State Water Board in Appendix II of the 2005 Ocean Plan. The ML represents the lowest quantifiable concentration in a sample based on the proper application of all method-based analytical procedures and the absence of any matrix interference. When all specific analytical steps are followed and after appropriate application of method specific factors, the ML also represents the lowest standard in the calibration

curve for that specific analytical technique. When there is deviation from the analytical method for dilution or concentration of samples, other factors are applied to the ML depending on the sample preparation. The resulting value is the reported Minimum Level.

11. The Discharger shall select the analytical method that provides an ML lower than the effluent limitation or performance goal established for a given parameter or where no such requirement exists, the lowest applicable water quality objective in the Ocean Plan. If the effluent limitation, performance goal, or the lowest applicable water quality objective is lower than all the MLs in Appendix II of the 2005 Ocean Plan, the Discharger must select the method with the lowest ML for compliance purposes. The Discharger shall include in the annual summary reports a list of the analytical methods and MLs employed for each test.

12. Non-detect levels reported for the Hyperion effluent are generally higher than effluent limitations or water quality objectives for DDT, chlordane, PCBs and PAHs. Therefore, the Discharger shall strive for lower analytical detection levels than those specified in Appendix II of the 2005 Ocean Plan to facilitate pollutant load quantification for future DDT and PCBs TMDLs.

13. The Discharger shall instruct its laboratories to establish calibration standards so that the ML (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve. In accordance with section 14 below, the Discharger's laboratory may employ a calibration standard lower than the ML in Appendix II of the 2005 Ocean Plan.

14. Upon request by the Discharger, the Regional Water Board, in consultation with the State Water Board's Quality Assurance Program and/or USEPA, may establish an ML that is not contained in Appendix II of the 2005 Ocean Plan, to be included in the Discharger's NPDES permit, in any of the following situations:

    a. When the pollutant under consideration is not included in Appendix II;

    b. When the Discharger agrees to use a test method that is more sensitive than those specified in 40 CFR 136 (most recent revision);

    c. When the Discharger agrees to use an ML lower than those listed in Appendix II;

    d. When the Discharger demonstrates that the calibration standard matrix is sufficiently different from that used to establish the ML in Appendix II and proposes an appropriate ML for their matrix; or

e. When the Discharger uses a method whose quantification practices are not consistent with the definition of an ML. Examples of such methods are the USEPA-approved method 1613 for dioxins and furans, method 1624 for volatile organic substances, and method 1625 for semi-volatile organic substances. In such cases, the Discharger, Regional Water Board, State Water Board and USEPA shall agree on a lowest quantifiable limit, and that limit will substitute for the ML for reporting and compliance determination purposes.

15. The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

    a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

    b. Sample results less than the reported ML, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc.").

    c. Sample results less than the laboratory's MDL shall be reported as "Not Detected" or ND.

16. For bacterial analyses, sample dilutions should be performed so the expected range of values is bracketed (for example, with multiple tube fermentation method or membrane filtration method, 2 to 16,000 per 100 ml for total and fecal coliforms, at a minimum; and 1 to 1000 per 100 ml for *Enterococcus*). The detection methods used for each analysis shall be reported with the results of the analyses. Detection methods used for coliforms (total and fecal) and *Enterococcus* shall be those presented in Table 1A of 40 CFR 136 (most recent revision).

17. Records and reports of marine monitoring surveys conducted to meet receiving water monitoring requirements shall include, at a minimum, the following information:

    a. A description of climatic and receiving water characteristics at the time of sampling (weather observations, unusual or abnormal amounts of floating debris, discoloration, wind speed and direction, swell or wave action, time of sampling or measurements, tidal stage and height, etc.).

b. The date, exact place and description of sampling stations, including differences unique to each station (e.g., date, time, station location, depth, and sample type).

c. A list of the individuals participating in field collection of samples or data and description of the sample collection and preservation procedures used in the various surveys.

d. A description of the specific method used for laboratory analysis, the date(s) the analyses were performed and the individuals participating in these analyses.

e. An in-depth discussion of the results of the survey. All tabulations and computations shall be explained.

18. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with this Order/Permit.

19. The Discharger shall attach a cover letter to the monitoring reports. The information contained in the cover letter shall clearly identify violations of the Order/Permit; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

20. All reports must be submitted to the Regional Water Board and USEPA, signed and certified as required by the Standard Provisions (Attachment D), to the addresses listed below. (Reference the reports to Compliance File No. CI-1492 to facilitate routing to the appropriate staff and file.)

California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
Attention: Information Technology Unit

Regional Administrator
United States Environmental Protection Agency, Region IX
NPDES Data Team (WTR-1)
75 Hawthorne Street
San Francisco, CA 94105

B. Self Monitoring Reports (SMRs) and Discharge Monitoring Reports (DMRs)

1. At any time during the term of this Order/Permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program web site (http://www.waterboards.ca.gov/ciwqs/ index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. The Discharger shall report in the SMR/DMR the results for all monitoring specified in this Order/Permit. The Discharger shall submit monthly SMRs/DMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order/Permit. If the Discharger monitors any pollutant more frequently than required by this Order/Permit, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the monitoring reports.

3. Monitoring periods and reporting for required monitoring shall be completed according to the following schedule, except where specific monitoring periods and reporting dates are required elsewhere in this Order/Permit:

Table 18. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	Monitoring Report Due Date
Continuous	Order/Permit effective date	All	By the 15th day of the second month after the month of sampling
Hourly	Order/Permit effective date	Hourly	By the 15th day of the second month after the month of sampling
Daily	Order/Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling	By the 15th day of the second month after the month of sampling
Weekly	Sunday following Order/Permit effective date (or on Order/Permit effective date if that date is Sunday)	Sunday through Saturday	By the 15th day of the second month after the month of sampling
Monthly	First day of calendar month following Order/Permit effective date (or on Order/Permit effective date if that date is first day of month)	1st day of calendar month through last day of calendar month	By the 15th day of the second month after the month of sampling

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	Monitoring Report Due Date
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) Order/Permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	May 15 August 15 November 15 February 15
Semiannually	Closest of January 1 or July 1 following (or on) Order/Permit effective date	January 1 through June 30 July 1 through December 31	August 15 February 15
Annually	January 1 following (or on) Order/Permit effective date	January 1 through December 31	February 15

4. The Discharger shall submit hard copy SMRs in accordance with the following requirements:

   a. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

   b. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below. (Reference the reports to Compliance File No. CI-1492 to facilitate routing to the appropriate staff and file.)

      California Regional Water Quality Control Board
      Los Angeles Region
      320 West 4th Street, Suite 200
      Los Angeles, CA 90013
      Attention: Information Technology Unit

5. The Discharger shall submit hard copy DMRs in accordance with the following requirements:

   a. As described in section VIII.B.1 above, at any time during the term of this Order/Permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.

   b. DMRs must be signed and certified as required by the Standard Provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to the State Water Board address listed below. The Discharger shall submit one copy of the DMR to the USEPA address listed below:

Standard Mail	FedEx/UPS/Other Private Carriers
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814
U.S. EPA, Region 9 ATTN: NPDES Data Team (WTR-1) 75 Hawthorne Street San Francisco, CA 94105-3901	

c. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated must be approved by USEPA.

C. Other Reports

1. Annual Summary Report

By April 15 of each year, the Discharger shall submit an annual summary report containing a discussion of the previous year's influent/effluent analytical results, as well as graphical and tabular summaries of the monitoring analytical data. The data shall be submitted to the Regional Water Board and USEPA on hard copy and a CD-ROM disk or other appropriate electronic medium. The submitted data must be IBM compatible, preferably using Microsoft Excel software. The Discharger shall discuss the compliance record and any corrective actions taken or planned that may be needed to bring the discharge into full compliance with Order/Permit requirements.

The first annual report shall be due April 15, 2011, covering the sampling period from January 2010 – December 2010.

2. Receiving Water Monitoring Report

An annual summary of the receiving water monitoring data collected during each sampling year (January – December) shall be prepared and submitted so that it is received by the Regional Board and USEPA by August 1 of the following year.

By August 1 of every other year, a detailed receiving water monitoring biennial assessment report of the data collected during the two previous calendar sampling years (January – December) shall be prepared and submitted to the Regional Water Board and USEPA. This report shall include an annual data summary and shall also include an in-depth analysis of the biological, chemical, and physical data following recommendations in the Model Monitoring Program guidance document (Schiff, K.C., J.S. Brown and S.B. Weisberg. 2001. *Model Monitoring Program for Large Ocean Dischargers in Southern California*.

SCCWRP Tech. Rep. #357. SCCWRP, Westminster, CA. 101 pp.). Data shall be tabulated, summarized, and graphed where appropriate, analyzed, interpreted, and generally presented in such a way as to facilitate ready understanding of its significance. Spatial and temporal trends shall be examined and compared. The relation of physical and chemical parameters to biological parameters shall be evaluated. See, also, section IV.H of this Monitoring and Reporting Program. All receiving water monitoring data shall be submitted in accordance with the data submittal formats developed for the Southern California Bight Regional Monitoring Surveys.

The first biennial assessment report shall be due August 1, 2011, covering sampling periods of January – December 2009 and January – December 2010. Subsequent reports shall be due August 1, 2013, and August 1, 2015, to cover sampling periods of January 2011 – December 2012 and January 2013 – December 2014, respectively.

3. Outfall Inspection Report

By August 1 of each year, a summary report of the outfall Inspection findings for the previous calendar year shall be prepared and submitted to the Regional Water Board and USEPA. This written report, augmented with videographic and/or photographic images, shall provide a description of the observed external condition of the discharge pipes from shallow water to their respective termini.

The first summary report shall be due August 1, 2011, covering the monitoring period from January 2010 – December 2010.

4. Database Management System

The Regional Water Board and State Water Resources Control Board are developing a database compliance monitoring management system. The Discharger may be required to submit all monitoring and annual summary reports electronically in a specified format when this system becomes fully operational.

Figure 1. Offshore Water Quality Station Locations

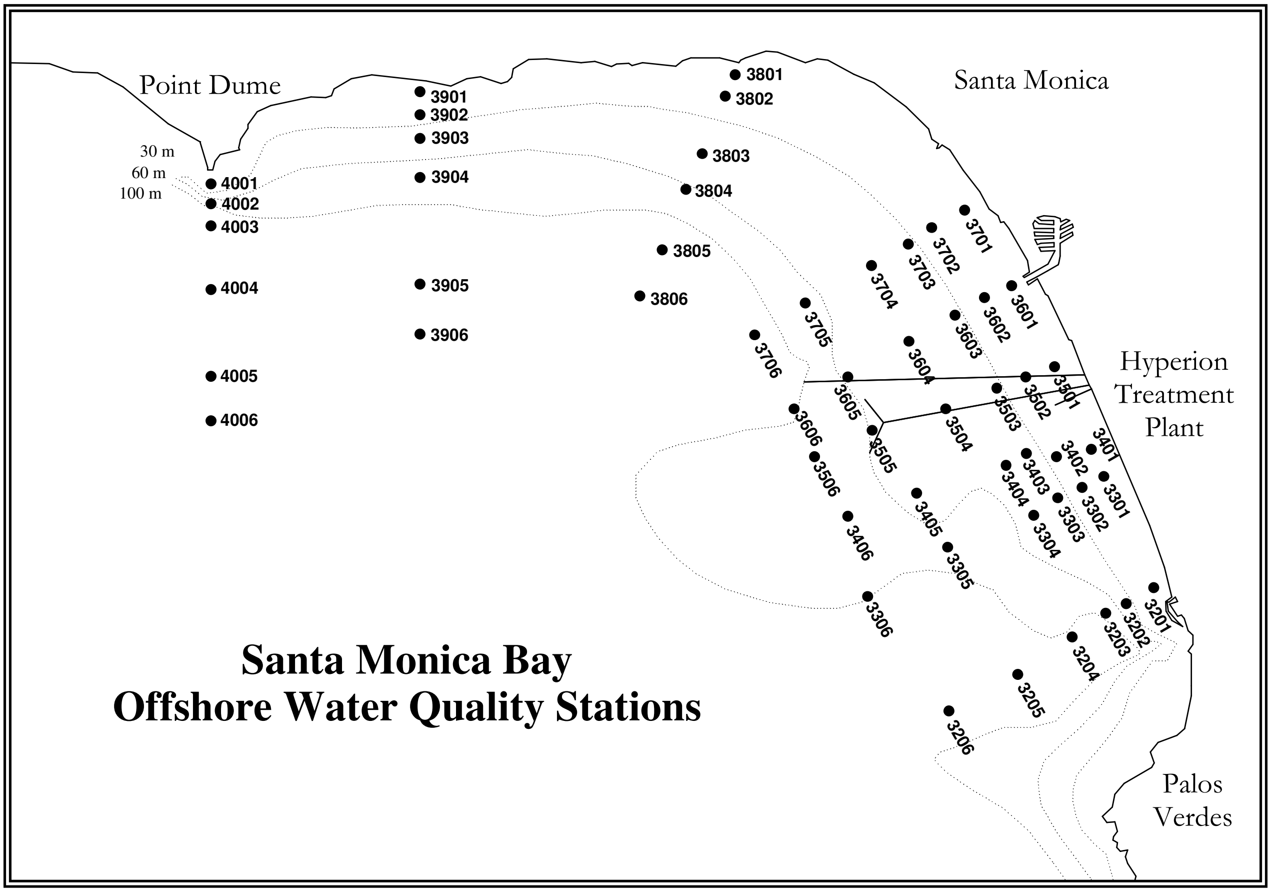


Figure 2. Offshore Benthic Sediments and Macrofauna Station Locations for Fixed Stations plus Year 1 Random Stations

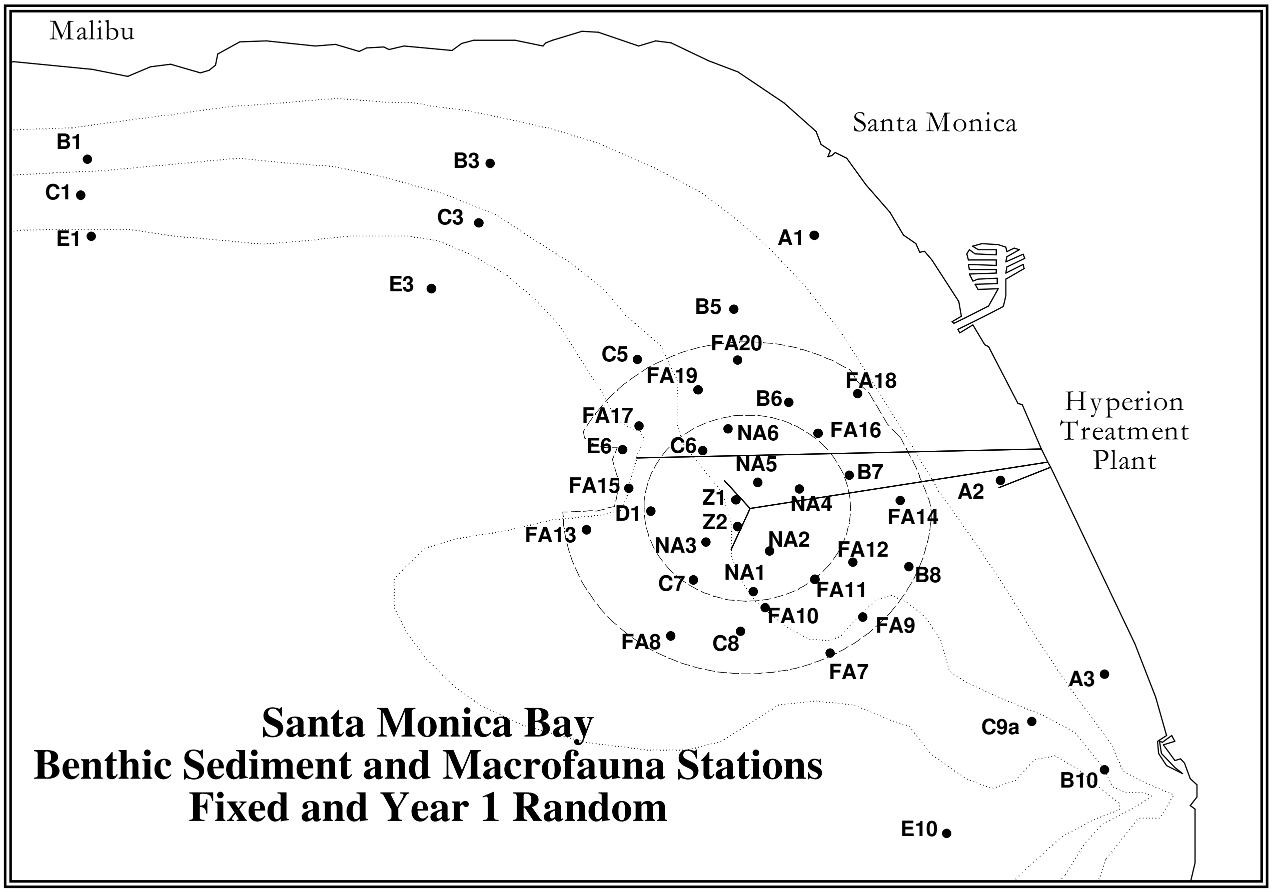


Figure 3. Offshore Benthic Sediments and Macrofauna Station Locations for Fixed Stations plus Year 2 Random Stations

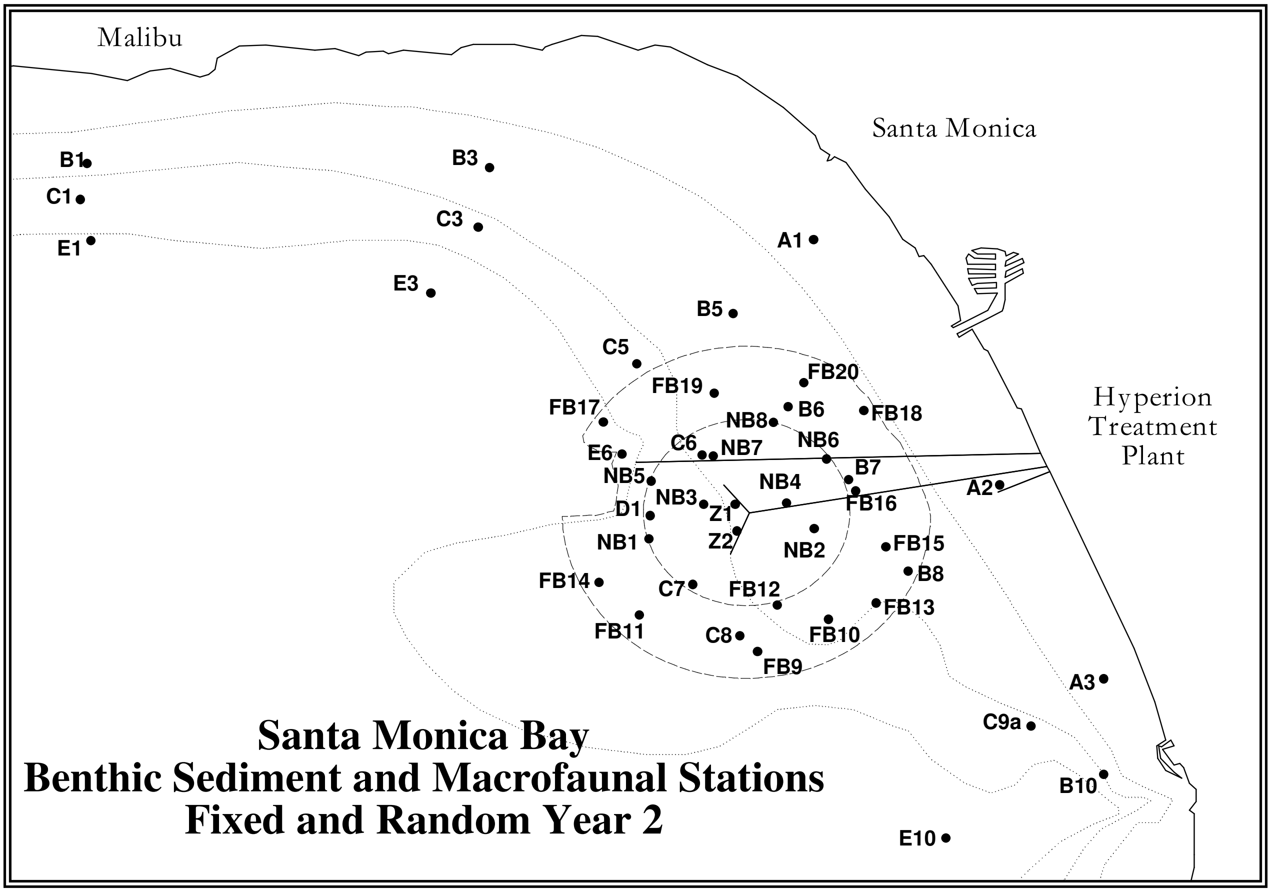


Figure 4. Trawl Station Locations Including Fixed Stations and Example of a Combined Array of Year 1 and Year 2 Stations

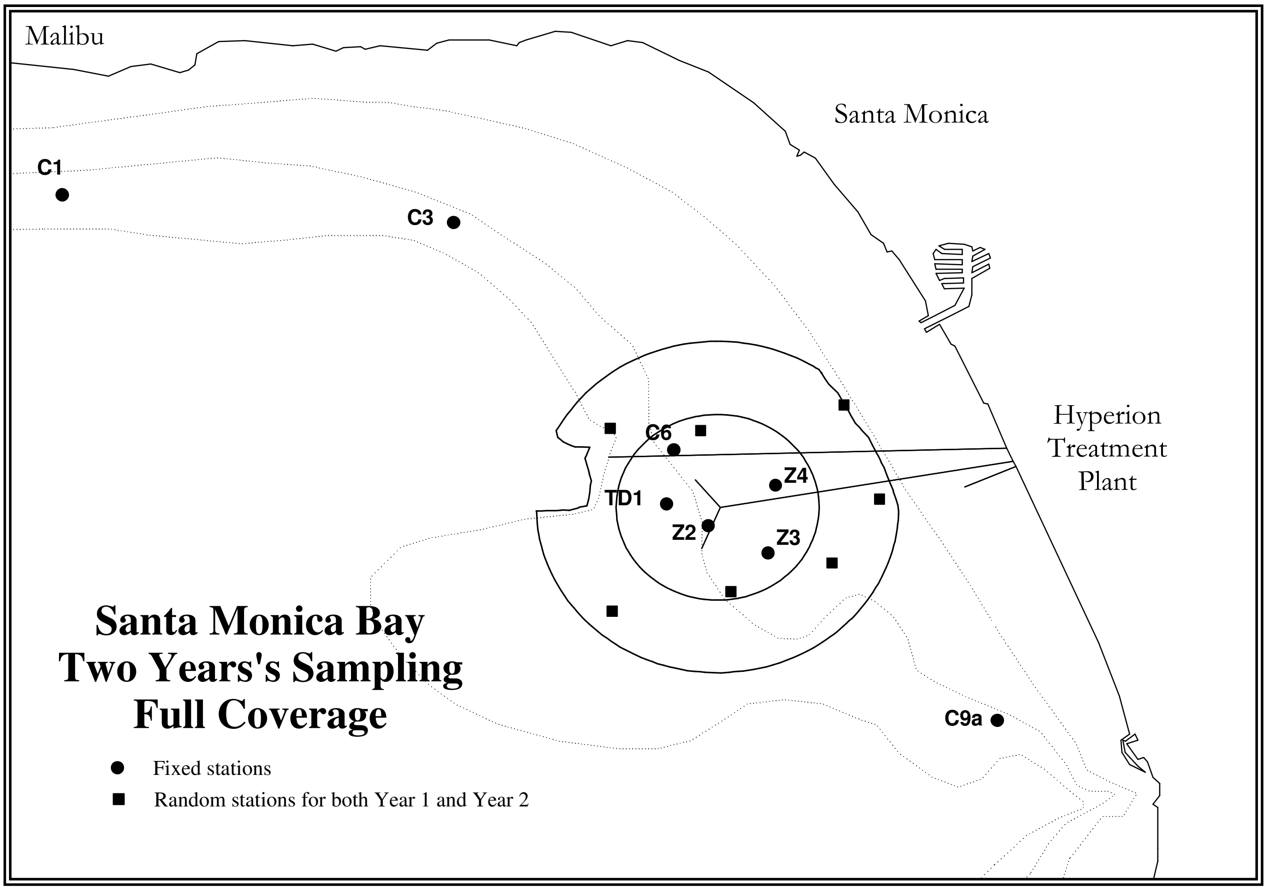
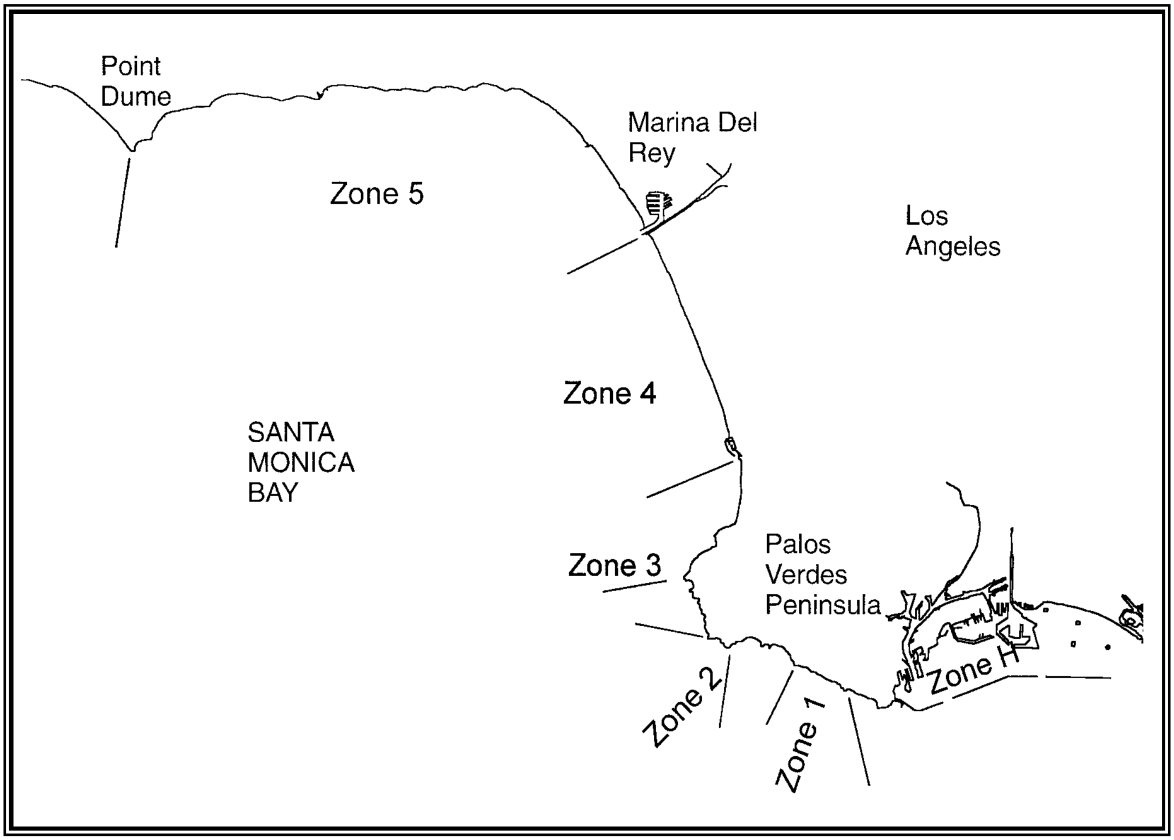


Figure 5. Local Seafood Survey Zones as Defined by SMBRC Seafood Tissue Monitoring Design



ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II of this Order/Permit, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order/Permit.

This Order/Permit has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order/Permit that are specifically identified as "not applicable" have been determined not to apply to this Discharger. sections or subsections of this Order/Permit not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table 1. Facility Information

WDID	**4B190106002**
Discharger	City of Los Angeles
Name of Facility	Hyperion Treatment Plant
Facility Address	12000 Vista del Mar Boulevard Playa del Rey, CA 90293 Los Angeles County
Facility Contact, Title and Phone	Steven Fan, Sanitation Wastewater Manager III, (310) 648-5168
Authorized Person to Sign and Submit Reports	Steven Fan, Sanitation Wastewater Manager III, (310) 648-5168
Mailing Address	Public Works Building, Bureau of Sanitation 1149 S. Broadway, 9th Floor Los Angeles, CA 90015
Billing Address	same
Type of Facility	POTW
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Yes
Reclamation Requirements	None
Facility Design Flow	450 (in million gallons per day)
Watershed	Santa Monica Bay Watershed Management Area
Receiving Water	Pacific Ocean
Receiving Water Type	Ocean waters

A. The City of Los Angeles (hereinafter Discharger) is the owner and operator of Hyperion Treatment Plant (hereinafter, HTP or Facility and its appurtenances), a municipal publicly owned treatment works (POTW). USEPA and the Regional Water Board have classified the Hyperion Treatment Plant as a major discharger. It has a Threat to Water Quality and Complexity rating of 1-A pursuant to California Code of Regulations (CCR), Title 23, section 2200.

For the purposes of this Order/Permit, references to the "discharger" or "permittee" in applicable federal and State laws, regulations, plans, or policies are held to be equivalent to references to the Discharger herein.

B. The Hyperion Treatment Plant discharges wastewater to the Pacific Ocean, a water of the United States, and is currently regulated by Order R4-2005-0020 (NPDES No. CA0109991), which was issued on April 11, 2005 and expired on May 14, 2010. The terms and conditions of the current Order/Permit have been automatically continued and remain in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit are issued pursuant to this Order/Permit.

C. The Discharger submitted a Report of Waste Discharge, dated October 27, 2009, and applied for renewal of its WDR and NPDES permit to discharge up to 450 MGD of secondary-treated wastewater from the Hyperion Treatment Plant. The application was deemed complete on December 23, 2009. A site visit was conducted on October 7, 2010, to observe operations and to collect additional data to develop permit limitations and conditions.

II. BACKGROUND - CONSENT DECREE AND LEGAL ISSUES

A. The operations and discharges from the Hyperion Treatment Plant and Hyperion collection system are also regulated under the following enforcement actions:

1. Amended Consent Decree entered on February 19, 1987, in United States and State of California v. City of Los Angeles, No. CV 77-3047-HP (C.D. Cal.);

2. Settlement Agreement, Los Angeles Superior Court Case No. C 665238, dated January 29, 1990, in State of California v. City of Los Angeles; and

3. Regional Water Board Cease and Desist Order 98-073 adopted on September 14, 1998, amended by Order No. 00-128 adopted on August 31, 2000.

B. In 1987, the City entered into an Amended Consent Decree (No. CV 77-3047-HP) with USEPA and the Regional Water Board. The Amended Consent Decree required the City under time schedules to undertake the following:

1. Eliminate the discharge of sewage sludge into the Pacific Ocean from Hyperion Treatment Plant by December 31, 1987 (status: completed);

2. Comply with interim effluent limitations (status: interim limits are not applicable as of January 1, 1999);

3. Complete construction and begin operation of the Hyperion Energy Recovery System by June 30, 1989 (status: completed, but determined to be a technological failure and abandoned);

4. Achieve and thereafter maintain compliance with full secondary treatment at Hyperion Treatment Plant by December 31, 1998 (status: completed and achieved compliance before the deadline);

5. Prepare a storm water pollution reduction study and implement the recommended measures thereof (status: completed).

C. On June 7, 1991, the United States and the State of California filed a supplemental complaint under the existing Consent Decree CV 77-3047-HP (C.D. Cal.) for alleged pretreatment violations against the City. Settlement of the complaint had been concluded and modification to the Consent Decree was entered into court records on August 7, 2000. The settlement requires the City to implement the Westside Water Recycling Extension Project and the Santa Monica Bay Storm Drain Low-Flow Diversion Project. The Santa Monica Urban Runoff Recycling Facility (SMURRF), completed in 2000, is owned and operated by the City of Santa Monica. As the first full-scale, dry-weather runoff recycling facility in the U.S., SMURRF reclaims dry-weather run-off from storm drains and treats the water for reuse in landscape irrigation and toilet flushing. Since the City of Los Angeles contributes about half of the runoff treated at SMURRF, the City of Los Angeles pays for half of the capital and operations and maintenance costs of SMURRF, pursuant to an agreement with the City of Santa Monica.

D. In October 1987, the California Attorney General, on behalf of the Regional Water Board, filed a complaint with the Los Angeles Superior Court (Case No. C 665238) for civil penalties regarding unpermitted discharges to Discharge Point 001 and raw sewage overflows to surface waters from the Hyperion collection system. A settlement agreement was entered into on January 29, 1990. In lieu of civil penalties, the City was required to implement 23 projects to improve and enhance its collection system and benefit the waters in the Greater Los Angeles Area. Twenty two of the 23 Settlement Agreement projects were completed. The remaining project deals with the Los Angeles Zoo Wastewater Treatment Facility. Two of the original three elements of the Zoo project (construction of the retention basin and pump station for collection of the Zoo's wastewater and diversion to the North Outfall Sewer force main) were completed in 1995. The City proposes to substitute Best Management Practices (BMPs) for the stormwater peripheral drainage system, the third element of the original design concept. After reviewing the study, the Regional Water Board rejected the

City's proposal because the proposed BMPs cannot achieve the objectives of the original Settlement Agreement. In a letter dated November 5, 2008, the Regional Water Board approved the Fremont High School Stormwater Improvements Project (Freemont Project) as a substitute for the remaining project, the Los Angeles Zoo Perimeter Drain System (PDS). The Regional Water Board agreed that the PDS has ceased to be necessary due to the completion of the North East interceptor Sewer and East Central Interceptor Sewer. The Freemont Project includes the implementation of the following five BMPs: Stormwater Diversion, Pollutant Settlement, Sediment Forebay, Dry Extended Detention/Retention Basin, and "Smart" (programmable) Irrigation System.

E. Sanitary sewer overflows (SSO) have been a recurring problem in certain areas of the City; in particular, in the South Central area, where sewers do not have adequate capacity to absorb inflow and infiltration that occurs during wet weather. For the entire City, between the wet weather period of February 3, 1998 through May 14, 1998, there were 99 separate sanitary overflows resulting in 44 million gallons of raw sewage released. On September 14, 1998, the Regional Water Board issued Cease and Desist Order (CDO) No. 98-073 to the City, amended by CDO No. 00-128 adopted on August 31, 2000. The CDO requires the City to provide adequate capacity to its wastewater collection system by constructing additional sewer alignments and/or upgrading the existing sewer system over a seven-year period (1998 to 2005). Additionally, on August 5, 2004, the United States, the State of California, Santa Monica Baykeeper, a coalition of community groups and the City of Los Angeles lodged a settlement that would resolve the parties' Clean Water Act and Porter-Cologne Act litigation regarding the City of Los Angeles' SSOs and sewage odors. This settlement underwent public review and comment. The Settlement Agreement and Final Order was filed on October 28, 2004 and entered by the District Court on October 29, 2004, and is now being implemented. The Settlement Agreement and Final Order establish a ten-year program designed to reduce SSOs and sewage odors to the maximum extent feasible.

III. FACILITY DESCRIPTION

A. Description of Wastewater and Biosolids Treatment or Controls

The Discharger owns and operates the Hyperion Treatment Plant located at 12000 Vista del Mar Boulevard, Playa Del Rey, California. The plant has a 30-day (monthly) average daily dry weather design treatment capacity of 450 million gallons per day (MGD) and a wet weather peak hydraulic capacity of approximately 850 MGD. In 2009, the HTP treated an average effluent flow of 312 MGD and discharged an average of 275 MGD. Approximately 37 MGD of the secondary effluent was sent to West Basin Water Recycling Facility for advanced treatment and reuse.

The HTP is part of a joint outfall system commonly known as the Hyperion Treatment System, which consists of the wastewater collection system, the Hyperion Treatment Plant and three upstream wastewater treatment plants: Donald C. Tillman Water Reclamation Plant (Tillman WRP), Los Angeles-Glendale Water Reclamation Plant (LAGWRP), Burbank Water Reclamation Plant (Burbank WRP) (owned and operated by a contract city), and outfalls. The Hyperion Treatment System collects, treats, and disposes of sewage from the entire City (except the Wilmington-San Pedro Area, the strip north of San Pedro, and Watts) and from a number of cities and agencies under contractual agreements. Approximately, 85% of the sewage and commercial/industrial wastewater comes from the City of Los Angeles. The remaining 15% comes from the Contract Cities and Agencies. There are approximately four million people in the Hyperion Treatment System Service Area.

The HTP started treating dry weather runoff from the low flow diverters (LFDs) year-round in November 2009.

Sludge from the City's two upstream plants (Tillman WRP and LAGWRP) is returned to the wastewater collection system and flows to the Hyperion Treatment Plant for treatment. Discharges from Tillman WRP and LAGWRP are regulated by Order No. R4-2010-0060 (NPDES No. CA0056227) and Order No. R4-2010-0059 (NPDES No. CA0053953), respectively. In addition, sludge generated from the Burbank WRP is also returned to the City of Burbank sewer system for treatment at the Hyperion Treatment Plant. The influent to the Burbank WRP can be diverted/bypassed to the Hyperion Treatment Plant during periods of emergency. Discharges from the Burbank WRP are regulated under R4-2010-0058 (NPDES No. CA0055531).

The Hyperion Treatment Plant has provided full secondary treatment since December 1998. Preliminary and primary wastewater treatments consist of screening, grit removal, and primary sedimentation with coagulation and flocculation. In secondary treatment, the primary effluent is biologically treated in a high purity oxygen activated sludge process comprised of a cryogenic oxygen plant, nine secondary reactor modules and 36 secondary clarifiers. Each secondary reactor module is designed to handle 50 MGD of flow which results in a total treatment capacity of 450 MGD producing secondary effluent. After clarification, undisinfected secondary effluent is discharged into Santa Monica Bay through a five mile submerged outfall pipe. Discharge up to 325 MGD flows by gravity to the outfall, or is pumped at the Effluent Pumping Plant when flows exceed 325 MGD.

Solid fractions recovered from wastewater treatment processes include grit, primary screenings, primary sludge and skimmings, thickened waste activated sludge, digested sludge screenings and digester cleaning solids. The fine solids (grit, primary screenings, digested sludge screenings, digester cleaning solids) that consist of primarily inorganic materials are hauled away to landfills. The remaining solid fractions (primary sludge and skimmings, thickened waste activated sludge) are anaerobically digested onsite. The digested solids are screened and dewatered using centrifuges. Since January 1, 2003, the Hyperion Treatment Plant has implemented full thermophilic digestion to generate Class A "EQ" biosolids. The biosolids (treated sewage sludge) are beneficially reused offsite for land application and composting projects. The digester gas is cleaned and a major part of the gas is currently exported to the Los Angeles Department of Water and Power's Scattergood Steam Generating Plant, located immediately adjacent to the Hyperion Treatment Plant. The exported digester gas is used as fuel in the generation of electricity. In return, the generating plant provides steam for digester heating for the Hyperion Treatment Plant. During interruptions in the export of steam from the Scattergood Steam Generation Plant, digester gas can be used as fuel for in-plant boilers that provide steam to heat the anaerobic digesters. Any remaining non-exported digester gas may be flared, if necessary, and is regulated under a flare operation permit from the South Coast Air Quality Management District (AQMD).

The Hyperion Treatment Plant has an industrial wastewater Pretreatment Program which is approved by USEPA and the Regional Water Board. The City continues to implement the Pretreatment Program throughout the Hyperion Treatment Plant's service area. However, since Contract Cities and Agencies operate their respective collection systems that are tributary to the City's main trunk lines, some contract cities and agencies also perform certain nondomestic source control activities, e.g., Fats, Oils, and Grease (FOG) program.

The Hyperion Treatment Plant collects and treats in-plant storm water runoff except that, during intense storms, undisinfected storm water overflows may be discharged through Outfall 001. This storm water discharge is regulated under the State Water Board's *NPDES General Permit No. CAS00001 and Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities* contained in Order No. 97-03-DWQ, adopted on April 17, 1997. The City has developed and implemented a *Storm Water Pollution Prevention Plan* as required by the general permit.

Water Reclamation. A small fraction (approximately 37 MGD in 2009) of the HTP's secondary effluent is sent to West Basin Water Recycling Facility (West Basin Facility) for advanced treatment and reuse. The West Basin Municipal Water District (West Basin) operates the West Basin Facility in El Segundo. West Basin is contractually entitled to receive up to 70 MGD of secondary effluent from HTP. West Basin Facility provides tertiary treatment and/or advanced treatments such as microfiltration and reverse osmosis (RO) to the Hyperion secondary effluent to produce Title 22 and high purity recycled water. Title 22 recycled water is used for beneficial irrigation, industrial applications including cooling water and boiler feed water, and other purposes. The RO-treated recycled water is primarily injected into the West Coast Basin Barrier Project to control seawater intrusion.

The waste brine from West Basin Facility is discharged to the ocean through Hyperion's five-mile outfall (Discharge Point 002) via a waste brine line from West Basin Facility. Although the waste brine is discharged through Hyperion's outfall, it is regulated under separate waste discharge requirements and NPDES permit.

The Hyperion Treatment Plant ceased the irrigation use of in-plant chlorinated secondary treated wastewater in January 1999. Instead, the plant started using tertiary recycled water from West Basin Facility in August 1999.

B. Discharge Points and Receiving Waters

The HTP has three ocean outfalls. However, only two outfalls (i.e., 001 and 002) are authorized discharge points for discharging treated wastes to the Pacific Ocean. The three ocean outfalls are described as follows:

1. Discharge Points 001 and 002

Table 2. Description of the Outfalls

Discharge Point No.	001	002
Diameter of Pipe at Discharge Terminus (feet)	12	12
Outfall Distance Offshore (feet)	5,364	26,525 (including Y-shaped diffuser with two 3,840-ft legs)
Discharge Depth Below Surface Water (feet)	50	187
Latitude and Longitude	33° 55.06' N, 118° 26.51' W	33° 54.72' N, 118° 31.29' W (Outfall at start of wye structure) 33° 54.43' N, 118° 31.17' W (North terminus of wye structure) 33° 54.02' N, 118° 31.38' W (South terminus of wye structure)

Discharge Point 001

Discharge Point 001 is commonly referred to as the “one-mile outfall”. It is a 12-foot diameter outfall terminating approximately 5,364 feet (1.6 kilometers (km)) west-southwest of the treatment plant at a depth of approximately 50 feet (15 meters (m)) below the ocean surface (Latitude 33° 55.06’ N, Longitude 118° 26.51’ W). This outfall is permitted for emergency discharge of chlorinated secondary treated effluent during extremely high flows, and preventative maintenance, such as routine opening and closing the outfall gate valve(s) for exercising and lubrication. However, during intense storms or storms associated with plant power outages, direct discharge of undisinfected storm water overflow is also permitted at this outfall. This Order/Permit requires the City to notify the Regional Water Board and USEPA in advance of any planned preventative maintenance that results in discharges through Discharge Point 001.

The ocean water in this area is not listed as impaired under the 2006 Clean Water Act (CWA) section 303(d) List.

Discharge Point 002

Discharge Point 002 is commonly referred to as the “five-mile outfall”. It is a 12-foot diameter outfall terminating approximately 26,525 feet (8.1 km) west-southwest of the treatment plant at a depth of approximately 187 feet (57m) below the ocean surface. This outfall is located north of Discharge Point 001 and ends in a “Y” shaped diffuser consisting of two 3,840-foot legs (Latitude 33° 54.72’ N, Longitude: 118° 31.29’ W) (North terminus of wye structure – Latitude 33° 54.43’ N, Longitude 118° 31.71’ W; South terminus of wye structure – Latitude 33° 54.02’ N, Longitude 118° 31.38’ W). This is the only outfall permitted for the routine discharge of undisinfected secondary treated effluent.

2. Outfall No. 003

This is a 20-inch diameter outfall terminating approximately 35,572 feet (10.8 km) west of the treatment plant, at the head of a submarine canyon at a depth of approximately 300 feet (91m) below the ocean surface (Latitude 33° 55.62’ N, Longitude 118° 33.18’ W). This outfall had been used to discharge sludge. Under the 1987 amended Consent Decree No. CV77-3047-HP, this outfall was deactivated in November 1987 when sludge discharge to the ocean was terminated. Near the head of this outfall, a spool piece was removed and the discharge pipe was blind-flanged to prevent any possible discharge of sewage or sludge into the Pacific Ocean. This outfall has not been maintained since it was taken out of service. Any discharge from this outfall is prohibited.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in the existing Order/Permit for discharges from Discharge Points EFF-002 and EFF-001 and representative monitoring data from the term of the previous Order/Permit are as follows:

Table 3a. Historic Effluent Limitations and Monitoring Data (Conventional and Non-conventional Pollutants)

Parameter	Units	Effluent Limitation in Order R4-2005-0020			Monitoring Data (From July 2005 – July 2009)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Conventional/Non-Conventional							
BOD	mg/L	30	45	--	24	26.4	38
Total Suspended Solids	mg/L	30	45	--	12	15	24
Oil & Grease	mg/L	25	40	75	13	22	38
Settleable Solids	mL/L	1.0	1.5	3.0	<0.1	0.3	1.5
Total Coliform	MPN/100mL	--	--	--	119323	160000	160000
Fecal Coliform	MPN/100mL	--	--	--	60940	160000	160000
Enterococcus	MPN/100mL	--	--	--	3746	16000	16000
Nitrate-N	mg/L	--	--	--	0.22	--	--
Nitrite-N	mg/L	--	--	--	0.92	--	--
pH	pH Unit	6.0 – 9.0			7.4	7.5	7.6
Temperature	°C				29	29	29
Turbidity	NTU	75	100	225	11.7	13.6	18.8

Table 3b. Historic Effluent Limitations and Monitoring Data (Toxic Pollutants)

Parameter	Units	Effluent Limitation in Order No. R4-2005-0020			Monitoring Data (From July 2005 – July 2009)			
		Average Monthly	Maximum Daily	Instantaneous Maximum	Minimum Nondetect	Maximum Nondetect	Minimum Detected	Maximum Detected
Marine Aquatic Life Protection								
Arsenic (As)	µg/L	--	--	--	<1	<1	1.1	3.5
Cadmium (Cd)	µg/L	--	--	--	<0.01	<0.4	--	--
Chromium VI (Cr VI)	µg/L	--	--	--	<0.5	<2	--	--
Chromium Total (Cr)	µg/L	--	--	--	<0.5	<10	--	--
Copper (Cu)*	µg/L	16	140	160	--	--	12.9	28
Lead (Pb)	µg/L	--	--	--	<0.5	<3	--	--

Parameter	Units	Effluent Limitation in Order No. R4-2005-0020			Monitoring Data (From July 2005 – July 2009)			
		Average Monthly	Maximum Daily	Instantaneous Maximum	Minimum Nondetect	Maximum Nondetect	Minimum Detected	Maximum Detected
Mercury (Hg)	µg/L	--	--	--	<0.004	<0.022	--	--
Nickel (Ni)	µg/L	--	--	--	<20	<20	7.95	21.8
Selenium (Se)	µg/L	--	--	--	<1	<1	1	1.6
Silver (Ag)	µg/L	--	--	--	<0.2	<0.25	0.57	2.24
Zinc (Zn)	µg/L	--	--	--	<20	<20	15.8	118
Cyanide*	µg/L	14	56	140	<4	<4	5	5
Total Residual Chlorine*	mg/L	28	112	840	<0.1	<0.1	0.1	0.3
Ammonia-N*	mg/L	8.4	34	84	--	--	33.7	41.8
Acute Toxicity**	TUa	--	2.8	2--	--	--	0.59	3
Chronic Toxicity*	TUc	--	13	--	--	--	10	142.9
Chronic Toxicity**	TUc	--	84	--	--	--	10	142.9
Non-Chlorinated Phenolic Compounds	µg/L	--	--	--	<0.21	<2	--	--
Chlorinated Phenolic Compounds	µg/L	--	--	--	<0.4	<5	--	--
Endosulfan	µg/L	--	--	--	<0.002	<0.008	--	--
Endrin	µg/L	--	--	--	<0.001	<0.007	--	--
HCH*	µg/L	0.056	0.11	0.17	<0.002	<0.003	--	--
Human Health Toxicants – Non Carcinogens								
Acrolein	µg/L	--	--	--	<0.61	<1.96	--	--
Antimony	µg/L	--	--	--	<0.5	<0.5	0.84	1.53
Bis (2-Chloroethoxy) methane	µg/L	--	--	--	<0.05	<0.05	--	--
Bis (2-Chloroisopropyl) ether	µg/L	--	--	--	<0.05	<0.35	--	--
Chlorobenzene	µg/L	--	--	--	<0.06	<0.15	--	--
Chromium III (Cr)	µg/L	--	--	--	<0.5	<10	--	--
Di-n-Butyl Phthalate	µg/L	--	--	--	<0.15	<10	--	--
Dichlorobenzene	µg/L	--	--	--	<0.06	<2	--	--
Diethyl phthalate	µg/L	--	--	--	<0.06	<2	--	--
Dimethyl phthalate	µg/L	--	--	--	<0.08	<0.27	--	--
4,6-dinitro-2-methylphenol	µg/L	--	--	--	<0.4	<0.49	--	--
2,4-dinitrophenol*	µg/L	56	--	--	<0.08	<0.130	--	--
Ethylbenzene	µg/L	--	--	--	<0.08	<0.17	--	--
Fluoranthene	µg/L	--	--	--	<0.0047	<0.2	--	--

Parameter	Units	Effluent Limitation in Order No. R4-2005-0020			Monitoring Data (From July 2005 – July 2009)			
		Average Monthly	Maximum Daily	Instantaneous Maximum	Minimum Nondetect	Maximum Nondetect	Minimum Detected	Maximum Detected
Hexachlorocyclopentadiene	µg/L	--	--	--	<2.42	<2.9	--	--
Nitrobenzene	µg/L	--	--	--	<0.05	<0.33	--	--
Thallium	µg/L	--	--	--	<0.01	<1	--	--
Toluene	µg/L	--	--	--	<0.08	<2	--	--
Tributyltin*	µg/L	0.02	--	--	<1	<1	--	--
Tributyltin**	µg/L	0.12	--	--	<1	<1	--	--
1,1,1-trichloroethane	µg/L	--	--	--	<0.05	<0.29	--	--
Human Health Toxicants - Carcinogens								
Acrylonitrile*	µg/L	1.4	--	--	<0.08	<0.96	--	--
Aldrin	µg/L		--	--	<0.003	<0.09	--	--
Benzene	µg/L		--	--	<0.07	<0.22	--	--
Benzidine	µg/L		--	--	<1.52	<5	--	--
Berylium (Be)*	µg/L	0.46	--	--	<0.04	<2	--	--
Bis (2-Chloroethyl) ether*	µg/L	0.63	--	--	<0.09	<0.32	--	--
Bis(2-ethylhexyl)-phthalate*	µg/L	49	--	--	<1	<5	--	--
Carbon tetrachloride	µg/L	--	--	--	<0.09	<0.34	--	--
Chlordane*	µg/L	0.0003	--	--	<0.003	<0.09	--	--
Chlordane**	µg/L	0.0019	--	--	<0.003	<0.09	--	--
Chlorodibromomethane	µg/L	--	--	--	<2	<2	2.16	2.16
Chloroform	µg/L	--	--	--	--	--	2.05	8.65
DDT*	µg/L	0.0024	--	--	<0.002	<0.006	--	--
DDT**	µg/L	0.014	--	--	<0.002	<0.006	--	--
1,4-Dichlorobenzene	µg/L	--	--	--	<0.07	<1	1.25	2.05
3,3'-Dichlorobenzidine	µg/L		--	--	<0.11	<1.79	--	--
1,2-dichloroethane	µg/L	--	--	--	<0.03	<0.1	--	--
1,1-dichloroethylene	µg/L	--	--	--	<0.12	<0.2	--	--
Dichlorobromomethane	µg/L	--	--	--	<2	<2	--	--
Dichloromethane	µg/L	--	--	--	<0.12	<2	2.13	6.49
1,3-dichloropropene	µg/L	--	--	--	<0.09	<0.15	--	--
Dieldrin	µg/L		--	--	<0.0009	<0.005	--	--
2,4-Dinitrotolulene	µg/L	--	--	--	<0.08	<0.13	--	--

Parameter	Units	Effluent Limitation in Order No. R4-2005-0020			Monitoring Data (From July 2005 – July 2009)			
		Average Monthly	Maximum Daily	Instantaneous Maximum	Minimum Nondetect	Maximum Nondetect	Minimum Detected	Maximum Detected
1,2-Diphenylhydrazine	µg/L		--	--	<0.06	<0.21	--	--
Halomethanes	µg/L	--	--	--	<0.21	<2	--	--
Heptachlor	µg/L		--	--	<0.001	<0.007	--	--
Heptachlor epoxide	µg/L		--	--	<0.001	<0.003	--	--
Hexachlorobenzene	µg/L		--	--	<0.07	<0.18	--	--
Hexachlorobutadiene	µg/L	--	--	--	<0.07	<0.17	--	--
Hexachloroethane	µg/L	--	--	--	<0.07	<0.17	--	--
Isophorone	µg/L	--	--	--	<0.07	<1	--	--
N-Nitrosodimethylamine	µg/L	--	--	--	<0.17	<0.5	--	--
N-Nitrosodi-N-propylamine	µg/L	5.3	--	--	<0.13	<0.36	--	--
N-Nitrosodiphenylamine	µg/L	--	--	--	<0.09	<0.86	--	--
PAH*	µg/L	0.123	--	--	<0.0037	<0.36	--	--
PAH**	µg/L	0.748	--	--	<0.0037	<0.36	--	--
PCBs*	µg/L	0.0003	--	--	<0.07	<0.49	--	--
PCBs**	µg/L	0.002	--	--	<0.07	<0.49	--	--
TCDD equivalents*	pg/L	0.055	--	--	<1	<1	--	--
TCDD equivalents**	pg/L	0.33	--	--	<1E	<1	--	--
1,1,2,2-tetrachloroethane	µg/L	--	--	--	<0.11	<0.19	--	--
Tetrachloroethylene	µg/L	--	--	--	<0.1	<2	2.37	4.03
Toxaphene	µg/L		--	--	<0.02	<0.1	--	--
Trichloroethylene	µg/L	--	--	--	<0.08	<0.18	--	--
1,1,2-trichloroethane	µg/L	--	--	--	<0.05	<0.2	--	--
2,4,6-Trichlorophenol	µg/L	--	--	--	<0.09	<0.45	--	--
Vinyl chloride	µg/L	--	--	--	<0.07	<0.22	--	--

* Indicates effluent limitations for Discharge Point 001.
** Indicates effluent limitations for Discharge Point 002.
< Indicates that the pollutant was not detected at that concentration level.
-- Indicates not applicable.

D. Compliance Summary

Monitoring data from 2005 to 2009 indicate that the Discharger has consistently complied with the effluent limitations of Order No. R4-2005-0020, except for the following exceedances:

Settleable Solids

- Daily maximum limitation of 3.0 ml/L on April 7, 2005.
- Weekly average limitation of 1.5 ml/L on April 9, 2005.
- Daily maximum limitation of 3.0 ml/L on July 16, 2009.

Ammonia as N - Daily maximum limitation of 34 mg/L on November 29, 2006.

Acute toxicity - Daily maximum acute toxicity limitation of 2.8 TUa on March 12, 2008. An acute topsmelt toxicity test conducted on a 24-hour composite sample collected on March 11, 2008 (and analyzed on Marched on March 12, 2008) resulted in an exceedance of the effluent limitation in Order No. R4-2005-0020. This triggered the initiation of accelerated testing, a requirement of Order No. R4-2005-0020. The Discharger conducted all six additional tests, which were in compliance with the toxicity limitation. The Discharger has since resumed regular monthly testing.

Sanitary Sewer Overflows (SSO) and Spills - The Discharger has reported a number of spills and/or overflows in the HTP service area over the years. City of Los Angeles reported that, between January 2007 and April 2010, there was a total of 557 SSOs and spills in the Hyperion Service Area (totaling 524,450 gallons of spill, of which 183,847 gallons were recovered). Only one SSO incident, estimated at 1,700 gallons, was related to wet weather. Appropriate enforcement is being evaluated by the Regional Water Board and USEPA.

Discharge to Discharge Point 001 - During the planned maintenance of the one-mile gates, secondary treated effluent was discharged through the Discharge Point 001 (one-mile outfall), on the following dates: July 21, 2005, August 29, 2005, May 2 and 24, 2007, February 12, 2008, May 21, 2008, August 20, 2008, January 13, 2009, April 28, 2009. In addition, from November 28 - 30, 2006, during a planned mainenance inspection of Discharge Point 002 (five-mile outfall), secondary treated effluent was discharged through the Outfall Discharge Point 001. The Discharger conducted the necessary notifications to the Regional Water Board and USEPA, appropriate sampling and monitoring was conducted as required by the Order No. R4-2005-0020.

E. Discharge Plume

The City has conducted offshore water quality monitoring in Santa Monica Bay since 1987.

The movement of the Hyperion Treatment Plant's wastewater plume is dictated by the depth of the thermocline or stratification and the direction and strength of highly variable currents in Santa Monica Bay. Under typical conditions, the plume is detected within 2 km (6,562 ft) of the outfall terminus of Discharge Point 002, although it has been detected as far as 8 km (2,6247 ft) away from the outfall. Also, the plume has almost always been detected below the thermocline at a depth ranging from 10 m (33 ft) to 55 m (180 ft). Infrequently, during winter storm conditions, the plume has been detected at the surface in the vicinity of the outfall. On rare occasions, it has been impossible to detect the plume.

As the waters of Santa Monica Bay approach the shore, the thermocline intersects the rising sea bottom. This point is typically 1000 m (3,281 ft) or more offshore and is the theoretical limit of the approach of the plume to the shoreline. The plume has never been detected less than 2.5 km (8,202 ft) from shore, at the 45 m (148 ft) depth contour.

The City has conducted shoreline and nearshore/inshore water quality monitoring in Santa Monica Bay since the late 1940s. The monitoring results indicated that effluent from the five-mile outfall does not reach the shoreline and that elevated bacterial counts are associated with runoff from storm drains and discharges from piers. The direct impacts of the discharge from the one-mile outfall on shoreline water quality have not been studied due to the lack of routine discharge. However, it is expected to be minimal because effluent discharged from the one-mile outfall is disinfected and the volume of the discharge is usually less than five million gallons, occurring at most once per quarter. This discharge is intended for conducting a functional test of equipment.

Shoreline monitoring requirements have been transferred to the monitoring program of the municipal storm water for the City (Order No. 01-182, NPDES No. CAS004001) adopted by this Regional Water Board on December 13, 2001.

F. Receiving Water Description

The receiving water into which Hyperion Treatment Plant discharges is part of the Santa Monica Bay watershed. The watershed is home to unique wetland, sand dune, and open ocean ecosystems that support a rich diversity of wildlife and serve as migration stopovers for marine mammals and birds. The Bay and its beaches are invaluable recreational resources and important sources of revenue for the region. The Bay is heavily used for fishing, swimming, surfing, diving, and other activities classified as water contact and noncontact recreation.

Over the years, the beneficial uses of the Bay have been impaired to various degrees due to pollution, resource over-exploitation, and habitat destruction. The primary problems of concern include acute health risk associated with swimming in runoff-contaminated surfzone waters, chronic (cancer) risk associated with consumption of certain sport fish species in areas impacted by DDT and PCB contamination, pollutant loading from point sources, urban runoff, and other nonpoint sources in light of projected population increases and their impacts on marine ecosystem, health of fishery resources, and degradation of natural habitats, and population decline of key species. (Santa Monica Bay Restoration Commission. 2004. “State of the Bay: 2004 Progress and Challenges”, 45 pages; Santa Monica Bay Restoration Project. 1998. “Taking the Pulse of the Bay - State of the Bay 1998”).

Section 403 of the Clean Water Act (CWA) requires dischargers to comply with specific Ocean Discharge Criteria established to address impacts on marine resources, including fisheries and endangered species. The City of Los Angeles submitted a report on May 29, 2003, to demonstrate compliance with the section 403 Ocean Discharge Criteria. Based upon an evaluation of previous receiving water monitoring data and reports from other agencies, the City concluded that no unreasonable degradation of the marine environment is occurring with the current discharge receiving full secondary treatment and compliance with applicable water quality standards achieved.

G. Planned Changes

The Discharger has no significant planned changes.

IV. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order/Permit are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order/Permit is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California Water Code (CWC) (commencing with Section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order/Permit also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, Chapter 4, Division 7 of the California Water Code (commencing with Section 13260). Although Discharge Point 002 is beyond the limit of State-regulated ocean waters, effluent plume migration into State waters warrants joint regulation of the discharge by USEPA and the Regional Water Board.

B. California Environmental Quality Act (CEQA)

Under California Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100 through 21177.

C. State and Federal Regulations, Policies, and Plans

1. **Los Angeles Water Quality Control Plan.** On June 13, 1994, the Regional Water Board adopted a water quality control plan for the Los Angeles Region (hereinafter Basin Plan), as amended, that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for the Pacific Ocean. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63 which established State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Basin Plan beneficial uses applicable to the Pacific Ocean are as follows:

Table 4. Basin Plan Beneficial Uses of the Applicable Receiving Waters

Discharge Point	Receiving Water	Beneficial Use(s)
001, 002	Dockweiler Beach (Hydrologic Unit 405.12)	Existing: Industrial service supply (IND), navigation (NAV), water contact recreation (REC-1), non-contact water recreation (REC-2), commercial and sport fishing (COMM), marine habitat (MAR), and wildlife habitat (WILD). Potential: Spawning, reproduction, and/or early development (SPWN).
	Pacific Ocean Nearshore Zone	Existing: IND, NAV, REC-1, REC-2, COMM, MAR, WILD, preservation of biological habitats (BIOL), RARE, migration of aquatic organisms (MIGR), SPWN, and SHELL. Potential: None.
	Pacific Ocean Offshore Zone	Existing: IND, NAV, REC-1, REC-2, COMM, MAR, WILD, RARE, MIGR, SPWN, and SHELL. Potential: None.

Requirements of this Order/Permit implement the Basin Plan. The Basin Plan relies primarily on the requirements of *the Water Quality Control Plan for Ocean Waters of California* (Ocean Plan) for protection of the beneficial uses of the State ocean waters. The Basin Plan, however, may contain additional water quality objectives applicable to the Discharger.

2. **California Thermal Plan.** In 1972, the State Water Board adopted the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (hereinafter Thermal Plan), as amended. This plan contains temperature objectives for coastal and inland surface waters. Requirements of this Order/Permit implement the Thermal Plan.

3. **California Ocean Plan.** In 1972, the State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California, California Ocean Plan* (hereinafter Ocean Plan), as amended. The latest amendment became effective on February 14, 2006. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean waters of the State. Ocean Plan beneficial uses applicable to ocean waters of the State are shown in Table 5.

Table 5. Ocean Plan Beneficial Uses

Discharge Point	Receiving Water	Beneficial Use(s)
001, 002	Pacific Ocean	IND, REC-1, REC-2, NAV, COMM, mariculture, preservation and enhancement of designated Area of Special Biological Significance (ASBS), RARE, MAR, MIGR, SPWN, and SHELL.

To protect the beneficial uses in ocean water, the Ocean Plan establishes water quality objectives and a program implementation. Requirements of this Order/Permit implement the Ocean Plan.

4. **Santa Monica Bay Restoration Plan**. The Hyperion Treatment Plant discharges to Santa Monica Bay, one of the most heavily used recreational areas in California. Recognizing the importance of the Bay as a national resource, the State of California and USEPA nominated and Congress included Santa Monica Bay in the National Estuary Program. This led to the formation of the Santa Monica Bay Restoration Project (currently named Santa Monica Bay Restoration Commission) that developed the Bay Restoration Plan (BRP) which serves as a blueprint for restoring and enhancing the Bay. The Regional Water Board plays a lead role in the implementation of the BRP. Three of the proposed priorities of the BRP are reduction of pollutants of concern at the source (including municipal wastewater treatment plants), attainment of full secondary treatment at the City of Los Angeles' Hyperion Treatment Plant and the County Sanitation Districts of Los Angeles County's Joint Water Pollution Control Plant, and implementation of the mass emission approach for discharges of pollutants to the Bay.

5. **Alaska Rule.** USEPA has revised its regulation that specifies when new and revised State and Tribal water quality standards (WQS) become effective for CWA purposes (40 CFR part 131.21; 65 Fed. Reg. 24641 (April 27, 2000)). Under the revised regulation (hereinafter Alaska Rule), new and revised

standards submitted to USEPA after May 30, 2000 must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000 may be used for CWA purposes, whether or not approved by USEPA.

6. **Stringency of Requirements for Individual Pollutants.** This Order/Permit contains restrictions on individual pollutants that are no more stringent than required by the federal CWA. Individual pollutant restrictions consist of technology-based effluent limitations and water quality-based effluent limitations. The technology-based effluent limitations consist of restrictions on biochemical oxygen demand (5-day) (BOD_5), total suspended solids (TSS), and pH, and percent removal of BOD_5 and TSS, which implement the minimum, applicable federal technology-based requirements for POTWs. Also, effluent limitations consisting of restrictions on oil and grease, settleable solids, and turbidity more stringent than federal technology-based requirements are necessary to implement State treatment standards in Table A of the Ocean Plan. Water quality-based effluent limitations consisting of restrictions on copper, chlorine residual, ammonia (as nitrogen), acute toxicity, chronic toxicity, beryllium, chlordane, DDT, PAHs, PCBs, and TCCD equivalents have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. Collectively, restrictions on individual pollutants in this Order/Permit are no more stringent than required by the CWA.

7. **Antidegradation Policy.** Title 40 of the Code of Federal Regulations[1] Part 131.12 requires that the State water quality standards include an antidegradation policy consistent with the federal antidegradation policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. This resolution incorporates the federal antidegradation policy, where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. As discussed in detail in the Fact Sheet (Attachment F), the permitted discharge is consistent with the antidegradation provisions of 40 CFR part 131.12 and State Water Board Resolution No. 68-16.

8. **Anti-Backsliding Requirements.** CWA sections 402(o)/303(d) and 40 CFR part 122.44(l) prohibit backsliding and require effluent limitations, permit conditions, and standards in a reissued NPDES permit to be as stringent as those in the previous permit, with some exceptions where limitations and conditions may be relaxed. Some effluent limitations in this Order/Permit are

[1] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated and will be abbreviated as "40 CFR part number".

less stringent that those in the previous Order/Permit. As discussed in detail in the Fact Sheet (Attachment F), this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

This Order/Permit is consistent with State and federal antidegradation policies in that it does not authorize a change in pollutant mass emission rates, nor does it authorize a relaxation in the manner of treatment of the discharge. Pollutant limit mass emission rates continue to be based on the design flow rate of the treatment plant under the 1994 permit of 420 MGD. Although the design flow rate of the treatment plant has increased to 450 MGD, this increase has been accompanied by a significant improvement in the level of treatment necessary to achieve full secondary treatment. As a result, both the quantity of discharged pollutants and quality of the discharge are expected to remain relatively constant or improve during this permit term, consistent with antidegradation policies. In conformance with reasonable potential analysis procedures identified in State Water Board and USEPA documents, effluent limitations for some constituents are not carried forward in this Order/Permit because there is not presently reasonable potential for the constituents to cause or contribute to an exceedance of water quality standards. Without reasonable potential, there is no longer a need to maintain prior WQBELs under NPDES regulations, antibacksliding provisions, and antidegradation policies. The accompanying monitoring and reporting program requires continued data collection and if monitoring data show reasonable potential for a constituent to cause or contribute to an exceedance of water quality standards, the Order/Permit will be reopened to incorporate WQBELs. Such an approach ensures that the discharge will adequately protect water quality standards for designated beneficial uses and conform with antidegradation policies and antibacksliding provisions.

9. **Endangered Species Act.** This Order/Permit does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C. sections 1531 to 1544). This Order/Permit requires compliance with effluent limitations, receiving water limitations, and other requirements to protect the beneficial uses of waters of the State. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act

10. **Monitoring and Reporting Requirements.** 40 CFR part 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. California Water Code sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (Attachment E) establishes monitoring and reporting requirements to implement federal and State requirements.

11. **Federal Permit Renewal Contingency.** The Discharger's federal permit renewal is contingent upon determination by the U.S. Fish and Wildlife Service and NOAA National Marine Fisheries Service that the proposed discharge is consistent with the: (1) federal Endangered Species Act; (2) Magnuson-Stevens Fishery Conservation and Management Act (MSA); and (3) the Regional Water Board's certification/concurrence that the discharge will comply with applicable State water quality standards.

    USEPA's reissuance of NPDES No. CA0109991 to the City of Los Angeles for Hyperion Treatment Plant is subject to requirements of MSA and ESA. In May 2010, USEPA requested updated information related to: (1) essential fish habitat and managed and associated species, and (2) threatened and endangered species and their designated critical habitats, in the vicinity of the Hyperion outfalls from the National Marine Fisheries Service and the U.S. Fish and Wildlife Service (collectively, the Services). Based on this and other relevant information, USEPA is currently evaluating whether there are effects on essential fish habitat and managed and associated species protected under the MSA, or on threatened and endangered species and their designated critical habitats protected under the ESA. Based on the outcome of this analysis, USEPA may engage in consultation with the Services during, and subsequent to, this permit reissuance. USEPA may decide that changes to this permit are warranted based on the results of the completed consultation, and a reopener provision to this effect has been included in the Order/Permit.

    Joint issuance of an NPDES permit which incorporates both federal requirements and State waste discharge requirements will serve as the State's concurrence that the discharge complied with State water quality standards. The California Coastal Commission has indicated that it is not necessary to obtain a consistency certification pursuant to the Coastal Zone Management Act for the issuance of a federal NPDES permit containing secondary treatment standards.

D. Impaired Water Bodies on CWA 303(d) List

On June 28, 2007, the USEPA approved the State's 2006 303(d) List of Water Quality Limited Segments (hereinafter 303(d) list). The 303(d) list identifies water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations by point sources (water quality limited water bodies).

Santa Monica Bay (Offshore and Nearshore) is on the 303(d) list for the following pollutants/stressors from point and non-point sources: DDT (tissue & sediment, centered on Palos Verdes Shelf), PCBs (tissue & sediment), sediment toxicity, debris, and fish consumption advisory. Santa Monica Bay Beaches Total maximum daily loads (TMDLs) for DDT, PCBs, sediment toxicity, and fish consumption advisory have not been scheduled. A TMDL for Santa Monica Bay Nearshore Debris TMDL is under development. Santa Monica Bay Beaches Bacteria TMDLs were approved by USEPA in 2003, as described in the following section.

E. Other Plans, Polices and Regulations

1. **Secondary Treatment Regulations.** 40 CFR part 133 establishes the minimum levels of effluent quality to be achieved by secondary treatment at publicly owned treatment works. These technology-based effluent limitations, established by USEPA, are incorporated into this Order/Permit except where more stringent limitations are required by other applicable plans, policies, or regulations.

2. **Storm Water.** See Fact Sheet.

3. **Sanitary Sewer Overflows.** The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ (General Order) on May 2, 2006. The amended General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions. Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating SSOs. The requirements contained in this Order/Permit are generally consistent with the requirements in the SSO WDR. The Discharger's collection system is part of the POTW that is subject to this Order/Permit. The Discharger must comply with both the General Order and this Order/Permit.

4. **Pretreatment.** Section 402 of the CWA and implementing regulations at 40 CFR 403 establish pretreatment requirements for POTWs which receive pollutants from non-domestic users. This Order/Permit contains pretreatment program requirements pursuant to 40 CFR 403 that are applicable to the Discharger.

5. **Sewage Sludge/Biosolids Requirements.** Section 405 of the CWA and implementing regulations at 40 CFR 503 require that producers of sewage sludge/biosolids meet certain reporting, handling, and use or disposal requirements. The State has not been delegated the authority to implement this program; therefore, USEPA is the implementing agency. This Order/Permit contains sewage sludge/biosolids requirements pursuant to 40 CFR 503 that are applicable to the Discharger.

6. **Watershed Management.** This Regional Water Board has been implementing a Watershed Management Approach (WMA) to address water quality protection in Los Angeles and Ventura Counties. The approach is in accordance with

USEPA guidance on *Watershed Protection: A Project Focus* (EPA 841-R-95-003, August 1995). The objective is to provide a comprehensive and integrated strategy resulting in water resource protection, enhancement and restoration, while balancing economic and environmental impacts within a hydrologically defined drainage basin or watershed. The Management Approach emphasizes cooperative relationships between regulatory agencies, the regulated community, environmental groups, and other stakeholders in the watershed to achieve the greatest environmental improvements with the resources available. This Order/Permit and the accompanying *Monitoring and Reporting Program* (Attachment E) fosters implementation of this approach. The *Monitoring and Reporting Program* requires the Discharger to participate in regional monitoring programs in the Southern California Bight.

7. **Santa Monica Bay Beaches Bacteria Total Maximum Daily Loads (TMDLs).** The Regional Water Board has adopted two TMDLs to reduce bacteria at Santa Monica Bay beaches during dry and wet weather. The Regional Water Board adopted the Dry Weather and Wet Weather TMDLs on January 24, 2002 and December 12, 2002, respectively (Resolution Nos. 2002-004 and 2002-022). These TMDLs were approved by the State Water Board, State OAL and USEPA Region 9 and became effective on July 15, 2003. Since their approval, these TMDLs have been incorporated into the Los Angeles County Municipal Storm Water NPDES Permit (hereinafter, the LA MS4 Permit) (CAS004001, Order No. 01-182), as receiving water limitations.

   In these TMDLs, waste load allocations (WLAs) are expressed as the number of sample days at a shoreline monitoring site that may exceed the single sample targets for total coliform, fecal coliform and *Enterococcus* identified under “Numeric Target” in the TMDLs. Waste load allocations are expressed as allowable exceedance days because the bacterial density and frequency of single sample exceedances are the most relevant to public health protection at beaches. The final shoreline compliance point for the WLAs in the TMDLs is the wave wash where there is a freshwater outlet (i.e., publicly owned storm drain or natural creek) to the beach, or at ankle depth at beaches without a freshwater outlet.

   The City of Los Angeles, as the owner of Hyperion Treatment Plant, is identified as a responsible jurisdiction in these TMDLs. In these TMDLs, Hyperion Treatment Plant is assigned a WLA of zero days of exceedance of the single sample bacterial objectives during all three identified periods – summer dry weather, winter dry weather and wet weather. Hyperion Treatment Plant’s WLA of zero exceedance days requires that no discharge from its outfalls may cause or contribute to any exceedances of the single sample bacteria objectives at the shoreline compliance points identified in the TMDL and subsequently approved Coordinated Shoreline Monitoring Plan (dated April 7, 2004) submitted by responsible agencies and jurisdictions under the TMDLs. The shoreline monitoring data collected as part of the Los Angeles County MS4 Permit will be used to demonstrate compliance with the WLAs in these TMDLs.

V. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 CFR part 122.44(a) requires that permits include applicable technology-based limitations and standards, and 40 CFR part 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, 40 CFR 122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a); proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information may be used; or an indicator parameter may be established.

A. Discharge Prohibitions

Discharge prohibitions in this Order/Permit are based on the requirements in section III.H of the Ocean Plan (2005).

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and implementing regulations at 40 CFR part 125.3, require that NPDES permits include limitations which meet applicable technology-based requirements, at a minimum. The discharge authorized by this Order/Permit must meet minimum federal technology-based requirements for POTWs at 40 CFR 133 and other technology requirements based on Best Professional Judgment (BPJ) in accordance with 40 CFR part 125.3. A detailed discussion of technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

2. Applicable Technology-Based Effluent Limitations

Pursuant to sections 301(b)(1)(B) and 304(d) of the CWA, USEPA has established standards of performance for secondary treatment at 40 CFR 133. Secondary treatment is defined in terms of three parameters – 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH. The following summarizes the technology-based requirements for secondary treatment, which are applicable to the Facility:

Table 6. Summary of Technology-based Effluent Limitations for Secondary Treatment Facility by USEPA at 40 CFR part 133.102

Constituent	Average Monthly	Average Weekly	Percent Removal
BOD_5	30 mg/L	45 mg/L	85%
TSS	30 mg/L	45 mg/L	85%
pH	6.0 to 9.0 pH units		

Also, Table A of the Ocean Plan establishes the following technology-based effluent limitations, which are applicable to the Facility:

Table 7. Summary of Technology-based Effluent Limitations for POTWs established by the Ocean Plan (2005)

Constituent	Average Monthly	Average Weekly	Instantaneous Maximum	Percent Removal
Oil & Grease	25 mg/L	40 mg/L	75 mg/L	--
TSS	--	--	--	75%[2]
Settleable Solids	1.0 ml/L	1.5 ml/L	3.0 ml/L	--
Turbidity	75 NTU	100 NTU	225 NTU	--
pH	6.0 to 9.0 pH units			

All technology-based effluent limitations from Order No. R4-2005-0020 for BOD_5, TSS, oil and grease, settleable solids, pH, and turbidity are retained in this Order/Permit with minor changes for oil and grease, settleable solids, and turbidity, as described below. Limitations for BOD_5, TSS, and pH are based on secondary treatment standards established by the USEPA at 40 CFR 133. Limitations for oil and grease, settleable solids, and turbidity are based on requirements in the 2005 Ocean Plan. To be consistent with the Ocean Plan, daily maximum limitations for these three constituents in the existing permit are prescribed as instantaneous maximum limitations in this Order/Permit. All technology-based effluent limitations are not dependent upon the dilution ratio for the discharge outfall. In addition to the concentration-based effluent limitations, mass-based effluent limitations based on the average design flow rate of 420 million gallons per day for the Hyperion Treatment Plant in the 1994 permit are also included.

The following table summarizes the technology-based effluent limitations for the discharge from the Facility:

[2] Dischargers shall, as a 30-day average, remove 75% of TSS from the influent stream before discharging wastewaters to the ocean, except that the effluent limitation to be met shall not be lower than 60 mg/L.

Table 8. Summary of Technology-based Effluent Limitations - Discharge Points 001 and 002

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
$BOD_5 20^0C$	mg/L	30	45	--	--	--
	lbs/day[3]	113,000	169,000	--	--	--
	% removal	85	--	--	--	--
Total Suspended Solids (TSS)	mg/L	30	45	--	--	--
	lbs/day[5]	113,000	169,000	--	--	--
	% removal	85	--	--	--	--
Oil and Grease	mg/L	25	40	--	--	75
	lbs/day[5]	93,800	150,000	--	--	281,000
Settleable Solids	mL/L	1.0	1.5	--	--	3.0
Turbidity	NTU	75	100	--	--	225
pH	pH unit	--	--	--	6.0	9.0

C. Water Quality-Based Effluent Limits (WQBELs)

1. Scope and Authority

Section 301(b) of the CWA and 40 CFR part 122.44(d) require that permits include limitations more stringent than applicable technology-based requirements where necessary to achieve water quality standards and State requirements. 40 CFR part 122.44(d)(1)(i) requires that permits include water quality-based effluent limitations (WQBELs) for all pollutants which are or may be discharged at levels having the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives or criteria within a standard. USEPA has applied CWA section 403(c) and 40 CFR 125, Subpart M, following 40 CFR 122.

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other State plans and policies, or any applicable water quality standards contained in the Ocean Plan.

[3] The mass emission rates are based on the average design flow rate (420 MGD) of the Hyperion Treatment Plant in the 1994 permit: lbs/day = 0.00834 x Ce (effluent concentration, ug/L) x Q (flow rate, MGD). During wet-weather storm events in which the flow exceeds the design capacity, the mass discharge rate limitations shall not apply, and concentration limitations will provide the only applicable effluent limitations.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan and Ocean Plan establish the beneficial uses for ocean waters of the State. The beneficial uses of the receiving waters affected by the discharge have been described previously in this Fact Sheet. The Ocean Plan contains water quality objectives for bacterial characteristics, physical characteristics, chemical characteristics, biological characteristics, and radioactivity. The Basin Plan contains the bacteria objectives for water bodies designated for water contact recreation as amended by Resolution No. 01-018. Bacteria objectives from the Ocean Plan and Basin Plan were included as receiving water limitations in this Order/Permit.

Table B of the Ocean Plan includes numerical water quality objectives for toxic pollutants.

a. 6-month median, daily maximum, and instantaneous maximum objectives for 21 chemicals and chemical characteristics, including total residual chlorine, and acute and chronic toxicity, for the protection of marine aquatic life.

b. 30-day average objectives for 20 non-carcinogenic chemicals for the protection of human health.

c. 30-day average objectives for 42 carcinogenic chemicals for the protection of human health.

3. Expression of WQBELs

Pursuant to 40 CFR part 122.45(d)(2), for POTW continuous discharges, all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall, unless impracticable, be stated as average weekly and average monthly discharge limitations. It is impracticable to include only average weekly and average monthly effluent limitations in the Order/Permit because a single daily discharge of certain pollutants, in excess amounts, can cause violations of water quality objectives. The effects of pollutants on aquatic organisms are often rapid. For many pollutants, an average weekly or average monthly effluent limitation alone is not sufficiently protective of beneficial uses. As a result, maximum daily effluent limitations, as referenced in 40 CFR part 122.45(d), are included in the Order/Permit for certain constituents.

The WQBELs for marine aquatic life toxics contained in this Order/Permit are based on Table B water quality objectives contained in the 2005 Ocean Plan that are expressed as six-month median, daily maximum, and instantaneous maximum water quality objectives. However, in the existing Order/Permit (Order No. R4-2005-0020), the calculated effluent limitations based on 6-month median objectives for marine aquatic life toxics in the 2001 Ocean Plan were prescribed as monthly average limitations. Applying the antibacksliding regulations, this Order/Permit retains the same approach and sets effluent limitations derived from six-month median water quality objectives for marine aquatic life toxics in the 2005 Ocean Plan as monthly average limitations. To be consistent with the Ocean Plan, daily maximum and instantaneous maximum limitations are prescribed in this Order/Permit.

4. Determining the Need for WQBELs

Order No. R4-2005-0020 contains effluent limitations for non-conventional and toxic pollutant parameters in Table B of the Ocean Plan. For this Order/Permit, the need for effluent limitations based on water quality objectives in Table B of the 2005 Ocean Plan was reevaluated in accordance with the Reasonable Potential Analysis (RPA) procedures contained in Appendix VI of the 2005 Ocean Plan. This statistical RPA method (RPcalc version 2.0) accounts for the averaging period of the water quality objective, accounts for and captures the long-term variability of the pollutant in the effluent, accounts for limitations associated with sparse data sets, accounts for uncertainty associated with censored data sets, and assumes a lognormal distribution of the facility-specific effluent data. The program calculates the upper confidence bound (UCB) of an effluent population percentile after complete mixing. In the evaluation employed in this Order/Permit, the UCB is calculated as the one-sided, upper 95 percent confidence bound for the 95th percentile of the effluent distribution after complete mixing. The calculated $UCB_{95/95}$ is then compared to the appropriate objective to determine the potential for an exceedance of that objective and the need for an effluent limitation. For constituents that have an insufficient number of monitoring data or a substantial number of non-detected data with a reporting limit higher than the respective water quality objective, the RPA result is likely to be inconclusive. As suggested by the Ocean Plan, existing effluent limitations for these constituents are retained in the new Order/Permit. For Discharge Point 001, these include beryllium, chlordane, DDT, PAH, PCBs, and TCDD. For Discharge Point 002, these include chlordane, DDT, PCBs, and TCDD. In addition, the MRP (Attachment E) of this Order/Permit also requires the Discharger to continue to monitor for these constituents.

Using this statistical procedure, in combination with effluent data provided by the Discharger from July 2005 to July 2009, and minimum initial dilution ratios of 13:1 for Discharge Point 001 and 84:1 for Discharge Point 002, Regional Water Board staff and USEPA have determined that the following constituents, when discharged through the specified outfall, either have reasonable potential to exceed Ocean Plan objectives, or have inconclusive results after performing the RPA, and therefore, require effluent limitations.

Discharge Point 001
Copper, chlorine residual, ammonia (as nitrogen), chronic toxicity, beryllium, chlordane, DDT, PAHs, PCBs, TCDD equivalents.

Discharge Point 002
Acute toxicity, chronic toxicity, chlordane, DDT, PCBs, and TCDD equivalents.

In general, for constituents that have been determined to have no reasonable potential to cause, or contribute to, excursions of water quality objectives, no numerical limits are prescribed; instead a narrative statement to comply with all Ocean Plan requirements is provided and the Discharger is required to monitor for these constituents to gather data for use in RPAs for future Order/Permit renewals and/or updates.

5. 303(d) Listed Constituents and Discharge Limitations - DDT and PCBs

At various locations in Santa Monica Bay, DDT, and PCBs are found in sediments at levels that can be harmful to marine organisms. In addition, DDT and PCBs are found in certain Bay-captured seafood species at levels posing potential health risks to humans. A brief description of these pollutants and their occurrence in Santa Monica Bay is given below.

In the U.S., DDT, an organochlorine insecticide, was widely used in agricultural and urban settings until they were banned in 1973. PCBs, a large group of industrial and commercial chemicals, were widely used as coolants and lubricants in transformers, capacitors and other electronic equipment until the late 1970s when their manufacture was banned. Because of their stable properties, DDT and PCBs persist in the environment, the result of historical uses which no longer occur. They have low water solubility and are generally found in sediments and fish tissue.

Bight '98 surveys included efforts to assess the spatial extent of anthropogenic contaminant accumulation in benthic sediments and their effects on marine biota in the Southern California Bight. These surveys showed that while elevated levels of DDT and PCBs continue to be measured in sediments near Hyperion Treatment Plant's 5-mile outfall, much of this is reflective of historical deposition and not the levels of contaminants associated with recent discharges. These surveys also concluded that DDT and PCBs in sediments are a dominant source of contaminant exposure levels in bottom living fish. DDT continues to be found in fish tissue at levels of concern throughout the Bight, although these levels are declining over time. Monitoring data show that effluent levels of DDT and PCBs discharged from the 5-mile outfall remain at non-detect concentrations.

Nearshore and offshore waters of Santa Monica Bay are on California's 2006 CWA 303(d) list of water quality limited segments for DDT (sediment and tissue, centered on Palos Verdes Shelf) and PCBs (sediment and tissue). TMDLs for DDT and PCBs have not been scheduled. As TMDLs for these two constituents have not been completed, the Order/Permit continues forward mass emission and concentration WQBELs contained in the 2005 Order/Permit. These limits are based on Ocean Plan water quality objectives and effluent limitation calculation procedures, and, for Discharge Point 002, the average design flow rate (420 MGD) of the Hyperion Treatment Plant in 1994. Current performance for DDT and PCBs in the Hyperion Treatment Plant effluent are set at non-detect concentrations. The Ocean Plan RPA results for DDT and PCBs are inconclusive.

DDT	Effluent Concentration (ug/L)	Effluent Limitation (ug/L) carried over from R4-2005-0020
Outfall 002	<0.002 - <0.006	0.014
Outfall 001	<0.002 - <0.006	0.0024
PCBs	Effluent Concentration (ug/L)	Effluent Limitation (ug/L) carried over from R4-2005-0020
Outfall 002	<0.07 - <0.49	0.002
Outfall 001	<0.002 - <0.09	0.002

6. WQBEL Calculations

From the Table B water quality objectives in the Ocean Plan, effluent limitations are calculated according to the following equation for all pollutants, except for acute toxicity (if applicable) :

$$\mathbf{C_e = C_o + D_m(C_o - C_s)}$$

where

C_e = the effluent limitation (µg/L)
C_o = the water quality objective to be met at the completion of initial dilution (µg/L)
C_s = background seawater concentration (µg/L) (see Table below)
D_m = minimum probable initial dilution expressed as parts seawater per part wastewater

The Dm is based on observed waste flow characteristics, receiving water density structure, and the assumption that no currents of sufficient strength to influence the initial dilution process flow across the discharge structure. In this Order/Permit, dilution ratios of 84:1 and 13:1 have been applied to Discharge Points 002 and 001, respectively.

Initial dilution is the process that results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge. For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally. As site-specific water quality data is not available, in accordance with Table B implementing procedures, Cs equals zero for all pollutants, except the following:

Table 9. Pollutants with Background Seawater Concentrations

Constituent	Background Seawater Concentration (C_s)
Arsenic	3 µg/L
Copper	2 µg/L
Mercury	0.0005 µg/L
Silver	0.16 µg/L
Zinc	8 µg/L

The calculation of WQBELs for copper and ammonia are demonstrated below for Discharge Point 001, as examples:

Table 10. Ocean Plan Water Quality Objectives (C_o) for Copper and Ammonia

Constituents	6-Month Median	Daily Maximum	Instantaneous Maximum	30 Day Average
Copper	3 µg/L	12 µg/L	30 µg/L	--
Ammonia	0.60 mg/L	2.4 mg/L	6 mg/L	--

Using the equation, $\mathbf{C_e=C_o+D_m(C_o-C_s)}$, effluent limitations are calculated as follows before rounding to two significant digits. All calculations are based on discharge through Discharge Point 001 and, therefore, a dilution ratio (D_m) of 13:1 is applied.

<u>Copper</u>

C_e = 3 + 13(3-2) = 16 µg/L (prescribed as Average Monthly, see section 3 above)

C_e = 12 + 13(12-2) = 142 µg/L (rounded to 140 µg/L prescribed as Daily Maximum)

C_e = 30 + 13(30-2) = 394 µg/L (However, this Order/Permit maintains the effluent limitation of <u>160 µg/L</u> from Order No. R4-2005-0020, per the anti-backsliding requirements; 160 µg/L is prescribed as Instantaneous Maximum.)

<u>Ammonia</u>

C_e = 0.6 + 13(0.6) = 8.4 mg/L (prescribed as Average Monthly, see section 3 above)

C_e = 2.4 + 13(2.4) = 33.6 mg/L (rounded to 34 mg/L prescribed as Daily Maximum)
C_e = 6.0 + 13(6.0) = 84.0 mg/L (rounded to 84 mg/L prescribed as Instantaneous Maximum)

Based on the implementing procedures described above, effluent limitations have been calculated for all Table B pollutants (excluding acute toxicity and chronic toxicity) from the Ocean Plan and incorporated into this Order/Permit when applicable.

7. Whole Effluent Toxicity (WET)

This Order/Permit includes water quality-based effluent limitations for acute toxicity and chronic toxicity at Discharge Point 002 and for chronic toxicity at Discharge Point 001. While the 2005 Ocean Plan specifies that discharges with dilution ratios below 100:1 must conduct chronic toxicity testing, it does not preclude permitting authorities implementing 40 CFR 122.44(d)(1) from establishing acute toxicity testing requirements, and effluent limitations, to ensure protection of the acute toxicity objective. Because both marine acute toxicity effluent quality data for POTW ocean discharges having dilution ratios greater than 84:1 periodically show acute toxicity and acute toxicity data collected under the 2005 permit show that the Hyperion discharge has reasonable potential to exceed the current Ocean Plan objective for acute toxicity. The Order/Permit contains a daily maximum acute toxicity effluent limitation for Discharge Point 002 and testing protocols consistent with the 2005 Ocean Plan.

Using the objective of 0.3 TUa for the daily maximum and 10% of the dilution ratio (as the acute toxicity mixing zone), the daily maximum acute toxicity limit for Discharge Point 002 is calculated as follows:

$C_e = C_a + (0.1)\ D_m\ (C_a)$

Where

C_e = the effluent daily maximum limit for acute toxicity
C_a = the concentration (water quality objective) to be met at the edge of the acute mixing zone
D_m = minimum probable initial dilution expressed as parts seawater per part wastewater (84:1 and 13:1 for Discharge Points 002 and 001, respectively) (This equation applies only when $D_m > 24$.)

$C_e = 0.3 + (0.1)(84)(0.3) = 2.8\ TU_a$

Since the above equation for calculating an acute toxicity limitation applies only when Dm > 24, this Order/Permit does not contain an acute toxicity limitation for Discharge Point 001 although RP is present. USEPA and Regional Water Board staff consider that acute toxicity is adequately addressed by controlling ammonia, for which this Order/Permit contains an effluent limitation at Discharge Point 001. Ammonia is considered the primary probable cause of acute toxicity in secondary-treated wastewater from POTWs.

D. Final Effluent Limitations

1. Satisfaction of Anti-Backsliding Requirements

All effluent limitations in this Order/Permit are at least as stringent as the effluent limitations in the previous Order/Permit. The effluent limitations of the following marine aquatic life toxicants, and non-carcinogenic and carcinogenic human health toxicants have been deleted because they did not show reasonable potential to cause or contribute to an excursion above the respective water quality objectives for: (1) Discharge Point 002 – radioactivity, tributyltin, and PAHs; and (2) Discharge Point 001 – cyanide, phenolic compounds (chlorinated), HCH, radioactivity, 2,4-dinitrophenol, tributyltin, acrylonitrile, bis(2-chloroethyl) ether, bis(2-ethylhexyl) phthalate, n-nitrosodi-n-propylamine, tetrachloroethylene, and 2,4,6-trichlorophenol. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

2. Satisfaction of Antidegradation Policy

On October 28, 1968, the State Water Board adopted Resolution No. 68-16, *Maintaining High Quality Water*, which established an antidegradation policy for State and Regional Water Boards. The State Water Board has, in State Water Board Order No. 86-17 and an October 7, 1987 guidance memorandum, interpreted Resolution No. 68-16 to be fully consistent with the federal antidegradation policy. Similarly, CWA sections 402(o)/303(d)(4) and USEPA regulations at 40 CFR part 131.12 require that all permitting actions be consistent with the federal antidegradation policy. Together, the State and federal policies are designed to ensure that a water body will not be degraded resulting from the permitted discharge. The provisions of this Order/Permit are consistent with the antidegradation policies.

3. Stringency of Requirements for Individual Pollutants

This Order/Permit contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD_5, TSS, and pH. Restrictions on BOD_5, TSS, and pH are discussed in section V.B.2 of this Fact Sheet. This Order/Permit's technology-based pollutant restrictions implement the minimum applicable federal technology-based requirements.

Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. The scientific procedures for calculating individual water quality-based effluent limitations for priority pollutants are based on the 2005 Ocean Plan, which was approved by USEPA on February 14, 2006. All beneficial uses and water quality objectives contained in the Basin Plan were approved under State law and approved by USEPA. Collectively, this Order/Permit's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA and applicable water quality standards.

Table 11. Summary of Final Effluent Limitations Discharge Point 002
(Footnotes are specified on pages F-41 and F-42 of this Fact Sheet.)

Parameter	Units	Effluent Limitations[1,3]				Performance Goal[2]	Basis
		Average Monthly	Average Weekly	Maximum Daily[4]	Instantaneous Maximum[5]		
$BOD_5 20^\circ C$[6]	mg/L	30	45	--	--	--	Existing/ Secondary treatment standard
	lbs/day	113,000	169,000	--	--		
	% removal	85	--	--	--		
Total Suspended Solids (TSS)[6]	mg/L	30	45	--	--	--	Existing/ Secondary treatment standard
	lbs/day	113,000	169,000	--	--		
	% removal	85	--	--	--		
pH[5,6,7]	pH unit	6.0 (instantaneous minimum) – 9.0 (instantaneous maximum)				--	Existing/ Secondary treatment standard/Ocean Plan
Oil and Grease[7]	mg/L	25	40	--	75	--	Existing/ Carry-over; Ocean Plan
	lbs/day	93,800	150,000	--	--		Existing/ Ocean Plan
Settleable Solids[7]	ml/L	1.0	1.5	--	3.0	--	Existing/ Carry-over; Ocean Plan
Turbidity[7]	NTU	75	100	--	225	--	Existing/ Carry-over; Ocean Plan Existing/ Ocean Plan
Marine Aquatic Life Toxicants[8]							
Arsenic[9]	µg/L	--	--	--	--	3.5	No RP[10]
Cadmium[9]	µg/L	--	--	--	--	2.0	No RP[10]

Parameter	Units	Effluent Limitations[1,3]				Performance Goal[2]	Basis
		Average Monthly	Average Weekly	Maximum Daily[4]	Instantaneous Maximum[5]		
Chromium (VI)[9]	µg/L	--	--	--	--	2.5	No RP[10]
Copper[9]	µg/L	--	--	--	--	25	No RP[10]
Lead[9]	µg/L	--	--	--	--	10	No RP[10]
Mercury[9]	µg/L	--	--	--	--	0.02	No RP[10]
Nickel[9]	µg/L	--	--	--	--	3	No RP[10]
Selenium[9]	µg/L	--	--	--	--	1.6	No RP[10]
Silver[9]	µg/L	--	--	--	--	2.2	No RP[10]
Zinc[9]	µg/L	--	--	--	--	31	No RP[10]
Cyanide	µg/L	--	--	--	--	5	No RP[10]
Chlorine Residual	mg/L	--	--	--	--	--	No RP[10]
Ammonia as N	mg/L	--	--	--	--	44.1	No RP[10]
Phenolic compounds (non-chlorinated)	µg/L	--	--	--	--	2.0	No RP[10]
Phenolic compounds (chlorinated)	µg/L	--	--	--	--	2.0	No RP[10]
Endosulfan	µg/L	--	--	--	--	0.04	No RP[10]
HCH	µg/L	--	--	--	--	0.015	No RP[10]
Endrin	µg/L	--	--	--	--	0.025	No RP[10]
Acute toxicity	TUa	--	--	2.8	--	--	RP; Existing; Carry-over; Ocean Plan[4]
Chronic toxicity	TUc	--	--	84	--	--	RP; Existing/ Carry-over; Ocean Plan[5]
Radioactivity							
Gross alpha	pCi/L	--	--	--	--	9.72	No RP[11]
Gross beta	pCi/L	--	--	--	--	27.5	No RP[11]
Combined Radium 226 & Radium-228	pCi/L	--	--	--	--	--	No RP[11]
Tritium	pCi/L	--	--	--	--	--	No RP[11]
Strontium-90	pCi/L	--	--	--	--	--	No RP[11]
Uranium	pCi/L	--	--	--	--	--	No RP[11]
Human Health Toxicants – Non Carcinogens[8]							
Acrolein	µg/L	--	--	--	--	20	No RP[10]
Antimony[9]	µg/L	--	--	--	--	1.5	No RP[10]

Parameter	Units	Effluent Limitations[1,3]				Performance Goal[2]	Basis
		Average Monthly	Average Weekly	Maximum Daily[4]	Instantaneous Maximum[5]		
Bis(2-chloroethoxy) methane	µg/L	--	--	--	--	0.5	No RP[10]
Bis(2-chloroisopropyl) ether	µg/L	--	--	--	--	0.5	No RP[10]
Chlorobenzene	µg/L	--	--	--	--	0.6	No RP[10]
Chromium (III)	µg/L	--	--	--	--	1	No RP[10]
Di-n-butyl-phthalate	µg/L	--	--	--	--	5	No RP[10]
Dichlorobenzenes[3]	µg/L	--	--	--	--	0.6	No RP[10]
Diethyl phthalate	µg/L	--	--	--	--	0.6	No RP[10]
Dimethyl phthalate	µg/L	--	--	--	--	2.7	No RP[10]
2-Methyl-4,6-dinitrophenol	µg/L	--	--	--	--	4	No RP[10]
2,4-Dinitrophenol	µg/L	--	--	--	--	2.1	No RP[10]
Ethyl benzene	µg/L	--	--	--	--	0.8	No RP[10]
Fluoranthene	µg/L	--	--	--	--	0.2	No RP[10]
Hexachlorocyclopentadiene	µg/L	--	--	--	--	29	No RP[10]
Nitrobenzene	µg/L	--	--	--	--	0.5	No RP[10]
Thallium[9]	µg/L	--	--	--	--	0.1	No RP[10]
Toluene	µg/L	--	--	--	--	0.6	No RP[10]
Tributyltin	ng/L	--	--	--	--	9.6	No RP[10]
1,1,1-Trichloroethane	µg/L	--	--	--	--	0.5	No RP[10]
Human Health Toxicants – Carcinogens[8]							
Acrylonitrile	µg/L	--	--	--	--	0.4	No RP[10]
Aldrin	µg/L	--	--	--	--	0.0019	No RP[10]
Benzene	µg/L	--	--	--	--	0.35	No RP[10]
Benzidine	µg/L	--	--	--	--	0.0059	No RP[10]
Beryllium	µg/L	--	--	--	--	1	No RP[10]
Bis(2-chloroethyl) ether	µg/L	--	--	--	--	0.45	No RP[10]
Bis(2-ethylhexyl) phthalate	µg/L	--	--	--	--	5	No RP[10]
Carbon tetrachloride	µg/L	--	--	--	--	0.45	No RP[10]
Chlordane	µg/L	0.0019	--	--	--	--	Existing/ Carry-over; Ocean Plan
	lbs/day	0.0067	--	--	--	--	
Chlorodibromomethane	µg/L	--	--	--	--	0.25	No RP[10]
Chloroform	µg/L	--	--	--	--	8.7	No RP[10]
DDT[3]	µg/L	0.014	--	--	--	--	Existing/ Carry-over; Ocean Plan
	lbs/day	0.049	--	--	--	--	

Parameter	Units	Effluent Limitations[1,3]				Performance Goal[2]	Basis
		Average Monthly	Average Weekly	Maximum Daily[4]	Instantaneous Maximum[5]		
1,4-Dichlorobenzene	µg/L	--	--	--	--	2.0	No RP[10]
3,3'-Dichlorobenzidine	µg/L	--	--	--	--	0.55	No RP[10]
1,2-Dichloroethane	µg/L	--	--	--	--	0.5	No RP[10]
1,1-Dichloroethylene	µg/L	--	--	--	--	0.6	No RP[10]
Bromodichloromethane	µg/L	--	--	--	--	0.3	No RP[10]
Dichloromethane[3]	µg/L	--	--	--	--	6.5	No RP[10]
1,3-Dichloropropene	µg/L	--	--	--	--	0.45	No RP[10]
Dieldrin	µg/L	--	--	--	--	0.0034	No RP[10]
2,4-Dinitrotoluene	µg/L	--	--	--	--	0.4	No RP[10]
1,2-Diphenylhydrazine	µg/L	--	--	--	--	0.3	No RP[10]
Halomethanes[3]	µg/L	--	--	--	--	1.05	No RP[10]
Heptachlor	µg/L	--	--	--	--	0.0043	No RP[10]
Heptachlor epoxide	µg/L		--	--	--	0.0017	Existing/ Carry-over; Ocean Plan
Hexachlorobenzene	µg/L	--	--	--	--	0.018	No RP[10]
Hexachlorobutadiene	µg/L	--	--	--	--	0.35	No RP[10]
Hexachloroethane	µg/L	--	--	--	--	0.35	No RP[10]
Isophorone	µg/L	--	--	--	--	0.35	No RP[10]
N-Nitrosodimethylamine	µg/L	--	--	--	--	0.85	No RP[10]
N-Nitrosodi-N-propylamine	µg/L	--	--	--	--	0.65	No RP[10]
N-Nitrosodiphenylamine	µg/L	--	--	--	--	0.45	No RP[10]
PAHs[3]	µg/L	--	--	--	--	0.70	No RP[10]
PCBs[3]	µg/L	0.0020	--	--	--	--	Existing/ Carry-over; Ocean Plan
	lbs/day	0.0070	--	--	--	--	
TCDD equivalents[3]	pg/L	0.33	--	--	--	--	Existing/ Carry-over; Ocean Plan
	lbs/day	1.2xE-6	--	--	--	--	
1,1,2,2-Tetrachloroethane	µg/L	--	--	--	--	0.55	No RP[10]
Tetrachloroethylene	µg/L	--	--	--	--	0.5	No RP[10]
Toxaphene	µg/L	--	--	--	--	0.018	No RP[10]
Trichloroethylene	µg/L	--	--	--	--	0.4	No RP[10]
1,1,2-Trichloroethane	µg/L	--	--	--	--	0.25	No RP[10]
2,4,6-Trichlorophenol	µg/L	--	--	--	--	0.45	No RP[10]
Vinyl chloride	µg/L	--	--	--	--	0.35	No RP[10]

Table 12. Summary of Final Effluent Limitations Discharge Point 001
(Footnotes are specified on pages F-41 and F-42 of this Fact Sheet.)

Parameter	Units	Effluent Limitations[1,3]				Performance Goal[2]	Basis
		Average Monthly	Average Weekly	Maximum Daily[4]	Instantaneous Maximum[5]		
$BOD_5 20^{\circ}C$[6]	mg/L	30	45	--	--	--	Existing; Carry-over; Secondary treatment standard
	lbs/day	113,000	169,000	--	--		
	% removal	85	--	--	--		
Total Suspended Solids (TSS)[6]	mg/L	30	45	--	--	--	Existing; Carry-over; Secondary treatment standard
	lbs/day	113,000	169,000	--	--		
	% removal	85	--	--	--		
pH[5,6,7]	pH unit	6.0 (instantaneous minimum) – 9.0 (instantaneous maximum)				--	Existing; Carry-over; Ocean Plan
Oil and Grease[7]	mg/L	25	40	--	75	--	Existing; Carry-over; Ocean Plan
	lbs/day	93,800	150,000	--	--		
Settleable Solids[7]	ml/L	1.0	1.5	--	3.0	--	Existing; Carry-over; Ocean Plan
Turbidity[7]	NTU	75	100	--	225	--	Existing; Carry-over; Ocean Plan
Marine Aquatic Life Toxicants[8]							
Arsenic[9]	µg/L	--	--	--	--	--	No RP[10]
Cadmium[9]	µg/L	--	--	--	--	--	No RP[10]
	lbs/day	--	--	--	--	--	
Chromium (VI)[9]	µg/L	--	--	--	--	--	No RP[10]
Copper[9]	µg/L	16	--	140	160	--	RP; Existing; Carry-over; Ocean Plan
	lbs/day	56	--	490	560	--	
Lead[9]	µg/L	--	--	--	--	--	No RP[10]
Mercury[9]	µg/L	--	--	--	--	--	No RP[10]
Nickel[9]	µg/L	--	--	--	--	--	No RP[10]
Selenium[9]	µg/L	--	--	--	--	--	No RP[10]
Silver[9]	µg/L	--	--	--	--	--	No RP[10]
Zinc[9]	µg/L	--	--	--	--	--	No RP[10]
Cyanide	µg/L	--	--	--	--	--	No RP[10]
Chlorine Residual	µg/L	28	--	112	840	--	No RP[10]
	lbs/day	98	--	320	2900	--	

Parameter	Units	Effluent Limitations[1,3]				Performance Goal[2]	Basis
		Average Monthly	Average Weekly	Maximum Daily[4]	Instantaneous Maximum[5]		
Ammonia as N	mg/L	8.4	--	34	84	--	RP; Existing; Carry-over; Ocean Plan
	lbs/day	29,000	--	120,000	290,000	--	
Phenolic compounds (non-chlorinated)	µg/L	--	--	--	--	--	No RP[10]
Phenolic compounds (chlorinated)	µg/L	--	--	--	--	--	No RP[10]
Endosulfan	µg/L	--	--	--	--	--	No RP[10]
HCH	µg/L	--	--	--	--	--	No RP[10]
Endrin	µg/L	--	--	--	--	--	No RP[10]
Acute toxicity	TUa	--	--		--	--	BPJ
Chronic toxicity	TUc	--	--	13	--	--	RP; Existing Carry-over; Ocean Plan[4]
Radioactivity							
Gross alpha	pCi/L	--	--	--	--	--	No RP[11]
Gross beta	pCi/L	--	--	--	--	--	No RP[11]
Combined Radium 226 & Radium-228	pCi/L	--	--	--	--	--	No RP[11]
Tritium	pCi/L	--	--	--	--	--	No RP[11]
Strontium-90	pCi/L	--	--	--	--	--	No RP[11]
Uranium	pCi/L	--	--	--	--	--	No RP[11]
Human Health Toxicants – Non Carcinogens[8]							
Acrolein	µg/L	--	--	--	--	--	No RP[10]
Antimony[9]	µg/L	--	--	--	--	--	No RP[10]
Bis(2-chloroethoxy) methane	µg/L	--	--	--	--	--	No RP[10]
Bis(2-chloroisopropyl) ether	µg/L	--	--	--	--	--	No RP[10]
Chlorobenzene	µg/L	--	--	--	--	--	No RP[10]
Chromium (III)[9]	µg/L	--	--	--	--	--	No RP[10]
Di-n-butyl-phthalate	µg/L	--	--	--	--	--	No RP[10]
Dichlorobenzenes[3]	µg/L	--	--	--	--	--	No RP[10]
Diethyl phthalate	µg/L	--	--	--	--	--	No RP[10]
Dimethyl phthalate	µg/L	--	--	--	--	--	No RP[10]
2-Methyl-4,6-dinitrophenol	µg/L	--	--	--	--	--	No RP[10]
2,4-Dinitrophenol	µg/L	--	--	--	--	--	No RP[10]
Ethyl benzene	µg/L	--	--	--	--	--	No RP[10]
Fluoranthene	µg/L	--	--	--	--	--	No RP[10]

Parameter	Units	Effluent Limitations[1,3]				Performance Goal[2]	Basis
		Average Monthly	Average Weekly	Maximum Daily[4]	Instantaneous Maximum[5]		
Hexachlorocyclopentadiene	µg/L	--	--	--	--	--	No RP[10]
Nitrobenzene	µg/L	--	--	--	--	--	No RP[10]
Thallium[9]	µg/L	--	--	--	--	--	No RP[10]
Toluene	µg/L	--	--	--	--	--	No RP[10]
Tributyltin	ng/L	--	--	--	--	--	No RP[10]
1,1,1-Trichloroethane	µg/L	--	--	--	--	--	No RP[10]
Human Health Toxicants – Carcinogens[8]							
Acrylonitrile	µg/L	--	--	--	--	--	No RP[10]
Aldrin	µg/L	--	--	--	--	--	No RP[10]
Benzene	µg/L	--	--	--	--	--	No RP[10]
Benzidine	µg/L	--	--	--	--	--	No RP[10]
Beryllium[8]	µg/L	0.46	--	--	--	--	Existing/ Carry-over; Ocean Plan
	lbs/day	1.6	--	--	--	--	
Bis(2-chloroethyl) ether	µg/L	--	--	--	--	--	No RP[10]
Bis(2-ethylhexyl) phthalate	µg/L	--	--	--	--	--	No RP[10]
Carbon tetrachloride	µg/L	--	--	--	--	--	No RP[10]
Chlordane	µg/L	0.0003	--	--	--	--	Existing/ Carry-over; Ocean Plan
	lbs/day	0.0011	--	--	--	--	
Chlorodibromomethane	µg/L	--	--	--	--	--	No RP[10]
Chloroform	µg/L	--	--	--	--	--	No RP[10]
DDT	µg/L	0.0024	--	--	--	--	Existing/ Carry-over; Ocean Plan
	lbs/day	0.0084	--	--	--	--	
1,4-Dichlorobenzene	µg/L	--	--	--	--	--	No RP[10]
3,3'-Dichlorobenzidine	µg/L	--	--	--	--	--	No RP[10]
1,2-Dichloroethane	µg/L	--	--	--	--	--	No RP[10]
1,1-Dichloroethylene	µg/L	--	--	--	--	--	No RP[10]
Bromodichloromethane	µg/L	--	--	--	--	--	No RP[10]
Dichloromethane	µg/L	--	--	--	--	--	No RP[10]
1,3-Dichloropropene	µg/L	--	--	--	--	--	No RP[10]
Dieldrin	µg/L	--	--	--	--	--	No RP[10]
2,4-Dinitrotoluene	µg/L	--	--	--	--	--	No RP[10]
1,2-Diphenylhydrazine	µg/L	--	--	--	--	--	No RP[10]
Halomethanes[3]	µg/L	--	--	--	--	--	No RP[10]
Heptachlor	µg/L	--	--	--	--	--	No RP[10]

Parameter	Units	Effluent Limitations[1,3]				Performance Goal[2]	Basis
		Average Monthly	Average Weekly	Maximum Daily[4]	Instantaneous Maximum[5]		
Heptachlor epoxide	µg/L		--	--	--	--	No RP[10]
Hexachlorobenzene	µg/L	--	--	--	--	--	No RP[10]
Hexachlorobutadiene	µg/L	--	--	--	--	--	No RP[10]
Hexachloroethane	µg/L	--	--	--	--	--	No RP[10]
Isophorone	µg/L	--	--	--	--	--	No RP[10]
N-Nitrosodimethylamine	µg/L	--	--	--	--	--	No RP[10]
N-Nitrosodi-N-propylamine	µg/L	--	--	--	--	--	No RP[10]
N-Nitrosodiphenylamine	µg/L	--	--	--	--	--	No RP[10]
PAHs[3]	µg/L	0.12	--	--	--	--	Existing/ Carry-over; Ocean Plan
	lbs/day[6]	0.43	--	--	--	--	
PCBs[3]	µg/L	0.00030	--	--	--	--	Existing/ Carry-over; Ocean Plan
	lbs/day[6]	0.0084	--	--	--	--	
TCDD equivalents[3]	pg/L	0.055	--	--	--	--	Existing/ Carry-over; Ocean Plan
	lbs/day[6]	1.93xE-7	--	--	--	--	
1,1,2,2-Tetrachloroethane	µg/L	--	--	--	--	--	No RP[10]
Tetrachloroethylene	µg/L	--	--	--	--	--	No RP[10]
Toxaphene	µg/L	--	--	--	--	--	No RP[10]
Trichloroethylene	µg/L	--	--	--	--	--	No RP[10]
1,1,2-Trichloroethane	µg/L	--	--	--	--	--	No RP[10]
2,4,6-Trichlorophenol	µg/L	--	--	--	--	--	No RP[10]
Vinyl chloride	µg/L	--	--	--	--	--	No RP[10]

Footnotes:

1 Effluent limitations for conventional, nonconventional, and toxic pollutants were calculated based on effluent limitations in *Table A* and water quality objectives in *Table B* of the Ocean Plan. The minimum dilution ratios used to calculate effluent limitations for nonconventional and toxic pollutants based on water quality objectives in *Table B* of the Ocean Plan are 84:1 (i.e., 84 parts seawater to one part effluent) and 13:1 for Discharge Points 002 and 001, respectively. The calculations of mass emission rates are shown in the accompanying Fact Sheet.

The mass emission rates are based on the average design flow rate (420 MGD) of the Hyperion Treatment Plant in the 1994 permit: lbs/day = 0.00834 x Ce (effluent concentration in ug/L) x Q (flow rate in MGD). During storm events when flow exceeds the dry weather design capacity, the mass emission rate limitations shall not apply.

2 The performance goals are based upon the actual performance data of Hyperion Treatment Plant and are specified only as an indication of the treatment efficiency of the plant. They are not considered effluent limitations or standards for the treatment plant. Hyperion Treatment Plant shall make best efforts to maintain, if not improve, the effluent quality at the level of these performance goals. The Executive Officer and USEPA

may modify any of the performance goals if the City requests and has demonstrated that the change is warranted.

[3] See section VIII of this Order and Attachment A for definition of terms.

[4] The maximum daily effluent concentration limitation shall apply to flow-weighted 24-hour composite samples. It may apply to grab samples if the collection of composite samples for those constituents is not appropriate because of the instability of the constituents.

[5] The instantaneous maximum effluent limitations shall apply to grab sample results.

[6] The effluent limitations are based on secondary treatment standards, 40 CFR 133.102.

[7] Based on Ocean Plan Table A effluent limitations.

[8] Effluent limitations for these constituents are based on Ocean Plan Table B objectives using initial dilution ratios of 84 and 13 parts of seawater to 1 part effluent for Discharge Points 002 and 001, respectively.

[9] Represents total recoverable metal value.

[10] These constituents did not show reasonable potential to exceed Ocean Plan Table B objectives; therefore, no numerical water quality-based effluent limits are prescribed.

VI. PERFORMANCE GOALS

Chapter III, section F.2, of the 2005 Ocean Plan allows the Regional Water Board to establish more restrictive water quality objectives and effluent limitations than those set forth in the Ocean Plan as necessary for the protection of the beneficial uses of ocean waters.

Pursuant to this provision and to implement the recommendation of the Water Quality Advisory Task Force (*Working Together for an Affordable Clean Water Environment, A final report presented to the California Water Quality Control Board, Los Angeles Region by Water Quality Advisory Task Force, September 30, 1993)* that was adopted by the Regional Water Board on November 1, 1993, performance goals that are more stringent than those based on Ocean Plan objectives are prescribed in this Order/Permit. This approach is consistent with the antidegradation policy in that it requires the Discharger to maintain its treatment level and effluent quality, recognizing normal variations in treatment efficiency and sampling and analytical techniques. However, this approach does not address substantial changes in treatment plant operations that could significantly affect the quality of the treated effluent.

While performance goals were previously placed in many POTW permits in the Region, they have not been continued for discharges that are to inland surface waters. For inland surface waters, the California Toxics Rule (40 CFR part 131.38) has resulted in effluent limitations as stringent as many performance goals. However, the Ocean Plan allows for significant dilution, and the continued use of performance goals serves to maintain existing treatment levels and effluent quality and supports State and federal antidegradation policies.

The performance goals are based upon the actual performance of the Hyperion Treatment Plant and are specified only as an indication of the treatment efficiency of the Facility. Performance goals are intended to minimize pollutant loading (primarily for toxics), while maintaining the incentive for future voluntary improvement of water quality whenever feasible, without the imposition of more stringent limits based on improved performance. They are not considered enforceable limitations or standards for the regulation of the discharge from the treatment facility. The Executive Officer may modify any of the performance goals if the Discharger requests and has demonstrated that the change is warranted.

Procedures for the Determination of Performance Goals

1. For constituents that have been routinely detected in the effluent (at least 20 percent detectable data), performance goals are based on the one-sided, upper 95 percent confidence bound ($UCB_{95/95}$) of the 95th percentile of July 2005 through July 2009 performance data using the RPA protocol contained in the 2005 Ocean Plan. Effluent data are assumed lognormally distributed. Performance goals are calculated according to the equation $C_{PG} = UCB_{95/95}$.

   a. If the maximum detected effluent concentration is greater than the calculated performance goal, then the calculated performance goal is used as the performance goal; or

   b. If the maximum detected effluent concentration is less than the calculated performance goal, then the maximum detected effluent concentration is used as the performance goal.

2. For constituents where monitoring data have consistently shown nondetectable levels (less than 20 percent detectable data), performance goals are set at five times the Method Detection Limit reported in the 2008 Annual Report. However, if the maximum detected effluent concentration is less than the calculated value based on MDL, then the maximum detected effluent concentration is used as the performance goal.

3. For constituents with no effluent limitations, if the performance goal derived from the steps, above, exceeds the respective calculated Ocean Plan effluent limitation, then the calculated effluent limitation is prescribed as the performance goal.

4. For constituents with effluent limitations, if the performance goal derived from the steps, above, exceeds respective effluent limitation, then a performance goal is not prescribed.

The performance goals for Discharge Point 002 are prescribed in this Order/Permit. The listed performance goals are not enforceable effluent limitations or standards. The Discharger shall maintain, if not improve, its treatment efficiency. Any exceedance of the performance goals shall trigger an investigation into the cause of the exceedance. If the exceedance persists in three successive monitoring periods, the Discharger shall submit a written report to the Regional Water Board and USEPA on the nature of the exceedance, the results of the investigation as to the cause of the exceedance, and the corrective actions taken or proposed corrective measures with timetable for implementation, if necessary.

VII. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

The Ocean Plan and Basin Plan contain numeric and narrative water quality standards applicable to surface waters within the Los Angeles Region. Water quality objectives include a policy to maintain the high quality waters pursuant to federal regulations (40 CFR part 131.12) and State Water Board Resolution No. 68-16. Receiving water limitations in the Order/Permit are included to ensure protection of beneficial uses of the receiving water.

VIII. MASS EMISSION CAPS

Mass emission caps are applied to four pollutants of concern identified by the SMBRP (copper, lead, silver, and zinc) that are causing or could cause deterioration of designated beneficial uses in the Santa Monica Bay. Caps are set at 1995 allowable emission rates. The Discharger should make best efforts to discharge these pollutants of concern below cap values. The Executive Officer and USEPA may modify any of the mass emission cap values, if the Discharger requests and demonstrates that the change is warranted.

The mass emission caps are based on 1995 average flow rate of 347 MGD and the 1995 average concentration of the pollutant of concern. If performance data showed nondetectable levels, one half of the detection limit was used to calculate an average concentration. Mass emission cap calculations are shown below.

Parameter	Mass Emission CAP, lbs/year
Copper	41,100
Lead	2,700
Silver	5,500
Zinc	59,100

Mass Emission Cap Calculation:

1995 average flow: 347 MGD

Monthly Monitoring Results in 1995

Month	Unit	Constituent: Copper	Lead*	Silver	Zinc
Jan	ug/L	35	<3	4.2	45
Feb	ug/L	46	<6	6	62
Mar	ug/L	33	<3	6	40
Apr	ug/L	30	<3	1.2	34
May	ug/L	36	<3	7	51
Jun	ug/L	45	3	6.7	77
Jul	ug/L	39	<3	8.9	45
Aug	ug/L	38	10	5.5	53
Sep	ug/L	46	3	3.4	57
Oct	ug/L	42	<3	2.6	60
Nov	ug/L	43	<3	7.2	54
Dec	ug/L	34	<3	3.9	94
Average	ug/L	39	2.6	5.2	56
Mass Emission Cap **	Lbs/yr	41,181	2,745	5,491	59,132

* One half of the detection limit is used in the calculation.
** Mass Emission Cap is based on the 1995 flow rate of 347 MGD.

Example calculation for copper:
39 ug/L x 1 g/1,000,000 ug x 347,000,000 gals/day x 3.785L/gal x lb/454 g x 365 days/year = 41,181 lbs/year

IX. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

40 CFR part 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. California Water Code sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E of this Order/Permit, establishes monitoring and reporting requirements to implement federal and State requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring

Influent monitoring is required to:

- Determine compliance with NPDES permit conditions.
- Assess treatment plant performance.
- Assess effectiveness of the Pretreatment Program.

Influent monitoring in this Order/Permit follows the influent monitoring requirements in the previous Order/Permit with minor changes. The monitoring frequencies for some parameters have been increased due to RP for those parameters.

B. Effluent Monitoring

The Discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with permit limitations and conditions. Monitoring requirements are specified in the Monitoring and Reporting Program (Attachment E). This Order/Permit requires compliance with the Monitoring and Reporting Program, and is based on 40 CFR parts 122.48, 122.44(i), and 122.41(j). The Monitoring and Reporting Program is a standard requirement in almost all NPDES permits (including this Order/Permit) issued by the Regional Water Board or USEPA. In addition to containing definition of terms, it specifies general sampling/analytical protocols and the requirements of reporting spills, violation, and routine monitoring data in accordance with NPDES regulations, the California Water Code, and Regional Water Board and USEPA policies. The Monitoring and Reporting Program also contains sampling program specific for the Discharger's wastewater treatment plant. It defines the sampling stations and frequency, pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all pollutants for which effluent limitations are specified.

Monitoring for those pollutants expected to be present in the discharge from the facility, will be required as shown on the proposed Monitoring and Reporting Program (Attachment E) and as required in the Ocean Plan.

C. Receiving Water Monitoring

1. Surface Water

   Receiving water monitoring is required to determine compliance with receiving water limitations and to characterize the water quality of the receiving water. Requirements are based on the Ocean Plan and Basin Plan. The conceptual framework for the receiving water program has three components that comprise a range of spatial and temporal scales: (a) core monitoring; (b) regional monitoring; and (c) special studies.

a. Core monitoring is local in nature and focused on monitoring trends in quality and effects of the point source discharge. This includes effluent monitoring as well as many aspects of receiving water monitoring. In the monitoring program described below these core components are typically referred to as local monitoring.

b. Regional monitoring is focused on questions that are best answered by a region-wide approach that incorporates coordinated survey design and sampling techniques. The major objective of regional monitoring is to collect information required to assess how safe it is to swim in the ocean, how safe it is to eat seafood from the ocean, and whether the marine ecosystem is being protected. Key components of regional monitoring include elements to address pollutant mass emission estimations, public health concerns, monitoring of trends in natural resources, assessment of regional impacts from all contaminant sources, and protection of beneficial uses. The final design of regional monitoring programs is developed by means of steering committees and technical committees comprised of participating agencies and organizations and is not specified in this Order/Permit. Instead, for each regional component, the degree and nature of participation of the Discharger is specified. For this Order/Permit, these levels of effort are based upon past participation of the Discharger in regional monitoring programs.

   The Discharger shall participate in regional monitoring activities coordinated by the SCCWRP or any other appropriate agency approved by the Regional Water Board and USEPA. The procedures and time lines for the Regional Water Board and USEPA approval shall be the same as detailed for special studies, below.

c. Special studies are focused on refined questions regarding specific effects or development of monitoring techniques and are anticipated to be of short duration and/or small scale, although multiyear studies also may be needed. Questions regarding effluent or receiving water quality, discharge impacts, ocean processes in the area of the discharge, or development of techniques for monitoring the same, arising out of the results of core or regional monitoring, may be pursued through special studies. These studies are by nature ad hoc and cannot be typically anticipated in advance of the five-year permit cycle.

   The Discharger, the Regional Water Board and USEPA shall consult annually to determine the need for special studies. Each year, the Discharger shall submit proposals for any proposed special studies to the Regional Water Board and USEPA by December 31, for the following year's monitoring effort (July through June). The following year, detailed scopes of work for proposals, including reporting schedules, shall be presented by the Discharger at a Spring Regional Water Board meeting, to obtain the Regional Water Board approval and to inform the public. Upon approval by the Regional Water Board and USEPA, the Discharger shall implement its special study or studies. (Note: The CEC and Nutrient special studies have different deadlines for submitting a Workplan.)

d. The receiving water monitoring program contains the following core and regional components: Inshore and offshore water quality monitoring; benthic infauna and sediment chemistry monitoring; fish and macroinvertebrate (trawl and rig fishing) monitoring, including bioaccumulation/seafood safety; and kelp bed monitoring. Local and regional survey questions, sampling designs, monitoring locations, and other specific monitoring requirements are detailed in the MRP.

D. Other Monitoring Requirements

1. Outfall and Diffuser Inspection

This survey answers the question: “Are the outfall structures in serviceable condition ensuring their continued safe operation?” The data collected will be used for a periodic assessment of the integrity of the outfall pipes and ballasting system.

2. Biosolids and Sludge Management

Attachment H establishes monitoring and reporting requirements for the storage, handling and disposal practices of biosolids/sludge generated from the operation of this POTW.

X. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR part 122.41, and additional conditions applicable to specified categories of NPDES permits in accordance with 40 CFR part 122.42, are provided in Attachment D to the Order/Permit. 40 CFR part 122.41(a) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions are incorporated into this Order/Permit expressly.

B. Special Provisions

1. Reopener Provisions

   These provisions are based on 40 CFR part 123.25. The Regional Water Board and USEPA may reopen the Order/Permit to modify conditions and requirements. Causes for modifications can include, but are not limited to, the promulgation of new regulations, modification in sludge use or disposal practices, or adoption of new regulations by the State Water Board or Regional Water Board, including revisions to the Ocean Plan and Basin Plan.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

   a. Toxicity Reduction Requirements

      If the discharge consistently exceeds an effluent limitation for toxicity as specified in this Order/Permit, the Discharger shall conduct a TRE as detailed in section V of the MRP (Attachment E). The TRE will help the Discharger identify the possible source(s) of toxicity. The Discharger shall take all reasonable steps to reduce toxicity to the required level.

3. Best Management Practices and Pollution Prevention

   a. Spill Clean-Up Contingency Plan (SCCP)

      Since spills or overflows are a common event in the POTW, this Order/Permit requires the Discharger to review and update, if necessary, its SCCP after each incident. The Discharger shall ensure that the up-to-date SCCP is readily available to the sewage system personnel at all times and that the sewage personnel are familiar with it.

   b. Pollutant Minimization Program

      This provision is based on the requirements of section III.C.9 of the Ocean Plan.

4. Construction, Operation and Maintenance Specifications

   This provision is based on the requirements of 40 CFR 122.41(e) and the previous Order/Permit.

5. Special Provisions for Municipal Facilities (POTWs Only)

   a. Sludge (Biosolids) Requirements. Section 405 of the CWA and implementing regulations at 40 CFR 503 require that producers of sewage sludge/biosolids meet certain reporting, handling, and use or disposal requirements. The State has not been delegated the authority to implement this program; therefore, USEPA is the implementing agency. This Order/Permit contains sewage sludge/biosolids requirements that are applicable to the Discharger.

b. Pretreatment Program Requirements. Section 402 of the CWA and implementing regulations at 40 CFR part 403 establish pretreatment requirements for POTWs which receive pollutants from non-domestic users. This Order/Permit contains pretreatment program requirements that are applicable to the Discharger.

6. Spill Reporting Requirements for POTWs. This Order/Permit established a reporting protocol for how different types of spills, overflows, and bypasses of raw or partially treated sewage from the POTW shall be reported to regulatory agencies.

In addition, the State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ (General Order) on May 2, 2006. The amended General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions. Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating SSOs. The Discharger's collection system is part of the POTW that is subject to this Order/Permit. The Discharger must comply with both the General Order and this Order/Permit.

XI. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Los Angeles Region (Regional Water Board) and the U.S. Environmental Protection Agency, Region 9 (USEPA) are considering reissuance of waste discharge requirements (WDR) and a National Pollutant Discharge Elimination System (NPDES) permit for the above-referenced POTW. As an initial step in this process, Regional Board and USEPA staff have developed a tentative WDR and NPDES permit. The Regional Water Board and USEPA encourage public participation in this reissuance process.

A. Written Comments

Staff determinations are tentative. Interested persons are invited to submit written comments concerning the tentative WDR and draft NPDES permit. Comments must be submitted either in person or by mail to:

EXECUTIVE OFFICER
California Regional Water Quality Control Board, Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Robyn Stuber
U.S. Environmental Protection Agency, Region 9
NPDES Permits Office (WTR-5)
75 Hawthorne Street
San Francisco, CA 94105-3901

To facilitate consideration by the Regional Water Board and USEPA, written comments should be received at Regional Water Board and USEPA offices by June 21, 2010. In addition, written and oral public comments may be submitted until the close of the public hearing at the Regional Water Board's regular Board meeting on July 8 and 9, 2010.

B. Public Hearing

The Regional Water Board and USEPA held a joint public hearing on the tentative WDR and NPDES permit during the regular Board meeting on the following date, time, and location:

Date and Time: July 8 at 9:00 a.m. and 9, 2010 at 8:00 a.m.
Location: County Government Center, Board of Supervisors Hearing Room
800 S. Victoria Avenue
Ventura, California

Interested parties and persons were invited to attend. At the public hearing, the Regional Water Board and USEPA heard testimonies pertinent to the waste discharge, WDR, and NPDES permit.

In addition, the Regional Water Board will hold a public hearing on the tentative WDR during its regular Board meeting on the following date and time and at the following location:

Date and Time: November 4, 2010 at 9 a.m.
Location: Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, California

Interested parties and persons are invited to attend. However, since the comment period ended on July 9, 2010, oral testimony pertinent to the waste discharge, WDR, and NPDES permit will not be heard at the public hearing.

The Regional Water Board's web address is www.swrcb.ca.gov/rwqcb4 where interested persons can access the current agenda for changes in Board meeting dates, times and venues.

C. Information and Copying

The Report of Waste Discharge (ROWD), related documents, tentative effluent limitations and special conditions, comments received, and other information are on file and may be inspected at 320 West 4th Street, Suite 200, Los Angeles, California and 75 Hawthorne Street, San Francisco, California, at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged by calling the Los Angeles Regional Water Board at (213) 576-6600 or USEPA at (415) 972-3524.

D. Waste Discharge Requirements Appeals

Any aggrieved person may petition the State Water Board to review the decision of the Regional Water Board regarding the final WDR. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
ATTN: Michael Lauffer
P.O. Box 100, 1001 I Street
Sacramento, CA 95812

E. Federal NPDES Permit Appeals

When a final NPDES permit is issued by USEPA, it will become effective 33 days following the date it is mailed to the Discharger, unless a request for review is filed. If a request for review is filed, only those permit conditions which are uncontested will go into effect pending disposition of the request for review. Requests for review must be filed within 33 days following the date the final permit is mailed and must meet the requirements of 40 CFR part 124.19. All requests for review should be addressed to the Environmental Appeals Board (EAB) as follows. Requests sent through the U.S. Postal Service (except by Express Mail) must be addressed to the EAB's mailing address, which is:

U.S. Environmental Protection Agency
Clerk of the Board
Environmental Appeals Board (MC 1103B)
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460-0001

All filings delivered by hand or courier, including Federal Express, UPS, and U.S. Postal Express Mail, should be directed to the following address:

Environmental Appeals Board
U.S. Environmental Protection Agency
Colorado Building
1341 G Street, N.W., Suite 600
Washington, D.C. 20460

Those persons filing a request for review must have filed comments on the draft permit, or participated in the public hearing. Otherwise, any such request for review may be filed only to the extent of changes from the draft to the final permit decision.

F. Additional Information

Requests for additional information or questions regarding this Order/Permit should be directed to Ms. Robyn Stuber at stuber.robyn@epa.gov or (415) 972-3524, or Dr. Cathy Chang at cchang@waterboards.ca.gov or (213) 576-6760.

ATTACHMENT G – GENERIC TOXICITY REDUCTION EVALUATION (TRE) WORKPLAN (POTW)

1. Information and Data Acquisition

a. Operations and performance review

i. NPDES permit requirements
   (1) Effluent limitations
   (2) Special conditions
   (3) Monitoring data and compliance history

ii. POTW design criteria
   (1) Hydraulic loading capacities
   (2) Pollutant loading capacities
   (3) Biodegradation kinetics calculations/assumptions

iii. Influent and effluent conventional pollutant data
   (1) Biochemical oxygen demand (BOD_5)
   (2) Chemical oxygen demand (COD)
   (3) Suspended solids (SS)
   (4) Ammonia
   (5) Residual chlorine
   (6) pH

iv. Process control data
   (1) Primary sedimentation - hydraulic loading capacity and BOD_5 and SS removal
   (2) Activated sludge - Food-to-microorganism (F/M) ratio, mean cell residence time (MCRT), mixed liquor suspended solids (MLSS), sludge yield, and BOD_5 and COD removal
   (3) Secondary clarification - hydraulic and solids loading capacity, sludge volume index and sludge blanket depth

v. Operations information
   (1) Operating logs
   (2) Standard operating procedures
   (3) Operations and maintenance practices

vi. Process sidestream characterization data
   (1) Sludge processing sidestreams
   (2) Tertiary filter backwash
   (3) Cooling water

vii. Combined sewer overflow (CSO) bypass data
   (1) Frequency
   (2) Volume

viii. Chemical coagulant usage for wastewater treatment and sludge processing
   (1) Polymer
   (2) Ferric chloride
   (3) Alum

b. POTW influent and effluent characterization data

i. Toxicity
ii. Priority pollutants
iii. Hazardous pollutants
iv. SARA 313 pollutants
v. Other chemical-specific monitoring results

c. Sewage residuals (raw, digested, thickened and dewatered sludge and incinerator ash) characterization data

i. EP toxicity
ii. Toxicity Characteristic Leaching Procedure (TCLP)
iii. Chemical analysis

d. Industrial waste survey (IWS)

i. Information on IUs with categorical standards or local limits and other significant non-categorical IUs
ii. Number of IUs
iii. Discharge flow
iv. Standard Industrial Classification (SIC) code
v. Wastewater flow
   (1) Types and concentrations of pollutants in the discharge
   (2) Products manufactured
vi. Description of pretreatment facilities and operating practices
vii. Annual pretreatment report
viii. Schematic of sewer collection system
ix. POTW monitoring data
   (1) Discharge characterization data
   (2) Spill prevention and control procedures
   (3) Hazardous waste generation
x. IU self-monitoring data
   (1) Description of operations
   (2) Flow measurements
   (3) Discharge characterization data
   (4) Notice of sludge loading
   (5) Compliance schedule (if out of compliance)
xi. Technically based local limits compliance reports
xii. Waste hauler monitoring data manifests
xiii. Evidence of POTW treatment interferences (i.e., biological process inhibition)

ATTACHMENT H

BIOSOLIDS AND SLUDGE MANAGEMENT

(Note: "Biosolids" refers to non-hazardous sewage sludge, as defined at 40 CFR 503.9. Sewage sludge that is hazardous, as defined at 40 CFR 261, must be disposed of in accordance with the Resource Conservation and Recovery Act (RCRA).)

1. General Requirements

a. All biosolids generated by the Discharger shall be used or disposed of in compliance with applicable portions of Clean Water Act and Safe Drinking Water Act, including: 40 CFR 503—for biosolids that are land applied, placed in a surface disposal site (dedicated land disposal site, monofill, or sludge-only parcel at a municipal landfill), or incinerated; 40 CFR 258—for biosolids disposed of in a municipal solid waste landfill (with other materials); and 40 CFR 257—for all biosolids use and disposal practices not covered under 40 CFR 258 or 503.

   40 CFR 503, Subpart B (land application), sets forth requirements for biosolids that are applied for the purpose of enhancing plant growth or for land reclamation. 40 CFR 503, Subpart C (surface disposal), sets forth requirements for biosolids that are placed on land for the purpose of disposal.

   The Discharger is responsible for assuring that all biosolids produced at its facility are used or disposed of in accordance with these rules, whether the Discharger uses or disposes of the biosolids itself, or transfers their biosolids to another party for further treatment, use, or disposal. The Discharger is responsible for informing subsequent preparers, appliers, and disposers of requirements they must meet under these rules.

b. Duty to Mitigate: The Discharger shall take all reasonable steps to prevent or minimize any biosolids use or disposal which has a likelihood of adversely affecting human health or the environment.

c. No biosolids shall be allowed to enter wetlands or other waters of the United States.

d. Biosolids treatment, storage, use, or disposal shall not contaminate groundwater.

e. Biosolids treatment, storage, use, or disposal shall not create a nuisance such as objectionable odors or flies.

f. The Discharger shall assure that haulers transporting biosolids off-site for treatment, storage, use, or disposal take all necessary measures to keep the biosolids contained. Trucks hauling biosolids that are not Class A, as defined at 40 CFR 503.32(a), shall be cleaned as necessary after loading and after unloading, so as to have no biosolids on the exterior of the truck or wheels. Trucks hauling biosolids that are not Class A shall be tarped. All haulers must have spill clean-up procedures. Trucks hauling biosolids that are not Class A shall not be used for hauling food or feed crops after unloading the biosolids unless the Discharger submits a hauling description, to be approved by USEPA, describing how trucks will be thoroughly cleaned prior to adding food or feed.

g. If biosolids are stored for over two years from the time they are generated, the Discharger must ensure compliance with all requirements for surface disposal under 40 CFR 503, Subpart C, or must submit a written request to USEPA and the State with the information specified under 40 CFR 503.20(b), demonstrating the need for longer temporary storage. During storage of any length for non-Class A biosolids, whether on the facility site or off-site, adequate procedures must be taken to restrict access by the public and domestic animals.

h. Any biosolids treatment, disposal, or storage site shall have facilities adequate to divert surface runoff from adjacent areas, to protect the site boundaries from erosion, and to prevent any conditions that would cause drainage from the materials to escape from the site. Adequate protection is defined as protection from at least a 100-year storm and the highest tidal stage which may occur.

i. There shall be adequate screening at the plant headworks and/or at the biosolids treatment units to ensure that all pieces of metal, plastic, glass, and other inert objects with a diameter greater than 3/8 inches are removed.

j. Sewage sludge containing more than 50 mg/kg PCBs shall be disposed of in accordance with 40 CFR 761.

k. The Discharger shall ensure compliance with the requirements in State Water Board Order No. 2004-10-DWQ, “General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural and Land Reclamation Activities” for those sites receiving the Discharger’s biosolids which a Regional Water Board has placed under this general order, and with the requirements in individual Waste Discharge Requirements (WDRs) issued by a Regional Water Board for sites receiving the Discharger's biosolids.

l. The Discharger shall comply, if applicable, with WDRs issued by Regional Water Boards to which jurisdiction the biosolids are transported and applied, and with the State of Arizona's biosolids rule for biosolids transported to Arizona for treatment and/or use.

2. Inspection and Entry

The Regional Water Board, USEPA, or an authorized representative thereof, upon the presentation of credentials, shall be allowed by the Discharger, directly or through contractual arrangements with their biosolids management contractors, to:

a. Enter upon all premises where biosolids produced by the Discharger are treated, stored, used, or disposed of, by either the Discharger or another party to whom the Discharger transfers biosolids for further treatment, storage, use, or disposal.

b. Have access to and copy any records that must be kept by either the Discharger or another party to whom the Discharger transfers biosolids for further treatment, storage, use, or disposal, under the conditions of this Order/Permit or 40 CFR 503.

c. Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations used in biosolids treatment, storage, use, or disposal by either the Discharger or another party to whom the Discharger transfers biosolids for further treatment, storage, use, or disposal.

3. Monitoring

a. Biosolids shall be monitored for the following constituents, at the frequency stipulated in Table 1 of 40 CFR 503.16: arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, organic nitrogen, ammonia nitrogen, and total solids. If biosolids are removed for use or disposal on a routine basis, sampling should be scheduled at regular intervals throughout the year. If biosolids are stored for an extended period prior to use or disposal, sampling may occur at regular intervals, or samples of the accumulated stockpile may be collected prior to use or disposal, corresponding to the tons accumulated in the stockpile over that period.

   Monitoring shall be conducted using the methods in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846), or as otherwise required under 40 CFR 503.8(b). All results must be reported on a 100% dry weight basis and records of all analyses must state on each page of the analytical results whether the reported results are expressed on an "as-is" or a "100% dry weight" basis.

b. The Discharger shall sample biosolids twice per year for the pollutants listed under CWA section 307(a) using best practicable detection limits.

For accumulated, previously untested biosolids, the Discharger shall develop a representative sampling plan, which addresses the number and location of sampling points, and collect representative samples.

Test results shall be expressed in mg pollutant per kg biosolids on a 100% dry weight basis.

Biosolids to be land applied shall be tested for Organic-N, ammonium-N, and nitrate-N at the frequencies required above.

c. Class 1 facilities (facilities with pretreatment programs or others designated as Class 1 by the Regional Administrator) and Federal facilities with >5 mgd influent flow shall sample biosolids for pollutants listed under Section 307(a) of the Clean Water Act (as required in the pretreatment section of the permit for POTWs with pretreatment programs.) Class 1 facilities and Federal facilities with >5 mgd influent flow shall test dioxins/dibenzofurans using a detection limit of <1 pg/g during their next sampling period if they have not done so within the past 5 years and once per 5 years thereafter.

d. The biosolids shall be tested annually, or more frequently if necessary, to determine hazardousness in accordance with California Law.

4. Pathogen and Vector Control

a. Prior to land application, the Discharger shall demonstrate that the biosolids meet Class A or Class B pathogen reduction levels by one of the methods listed under 40 CFR 503.32.

b. Prior to disposal in a surface disposal site, the Discharger shall demonstrate that the biosolids meet Class B levels pathogen reduction levels, or ensure that the site is covered at the end of each operating day. If pathogen reduction is demonstrated using a “Process to Further Reduce Pathogens” or one of the “Processes to Significantly Reduce Pathogens”, the Discharger shall maintain daily records of the operating parameters used to achieve this reduction. If pathogen reduction is demonstrated by testing for fecal coliform and/or pathogens, samples must be collected at the frequency specified in Table 1 of 40 CFR 503.16. If Class B is demonstrated using fecal coliform, at least seven grab samples must be collected during each monitoring period and a geometric mean calculated from these samples. The following holding times between sample collection and analysis shall not be exceeded: fecal coliform- 6 hours when cooled to <4 degrees C (extended to 24 hours when cooled to <4 degrees C for Class A composted, Class B aerobically digested, and Class B anaerobically digested sample types); Salmonella spp. Bacteria-

24 hours when cooled to <4 degrees C (unless using Method 1682- 6 hours when cooled to <10 degrees C); enteric viruses- 6 hours when cooled to <10 degrees C (extended to 24 hours when cooled to <4 degrees C or 2 weeks when frozen); helminth ova- 6 hours when cooled to <10 degrees C (extended to one month when cooled to <4 degrees C).

c. For biosolids that are land applied or placed in a surface disposal site, the Discharger shall track and keep records of the operational parameters used to achieve Vector Attraction Reduction requirements in under 40 CFR 503.33 (b).

5. Surface Disposal

If biosolids are placed in a surface disposal site (dedicated land disposal site or monofill), a qualified groundwater scientist shall develop a groundwater monitoring program for the site, or shall certify that the placement of biosolids on the site will not contaminate an aquifer.

6. Landfill Disposal

Biosolids placed in a municipal landfill shall be tested by the Paint Filter Test (SW-846, Method 9095) at the frequency specified in Table 1 of 40 CFR 503.16, or more often if necessary to demonstrate that there are no free liquids.

7. Notifications

The Discharger either directly or through contractual arrangements with their biosolids management contractors shall comply with the following notification requirements:

a. Notification of Non-compliance

The Discharger shall notify USEPA and the State (for both Discharger and use or disposal site) of any non-compliance within 24 hours, if the non-compliance may seriously endanger health or the environment. For other instances of non-compliance, the Discharger shall notify USEPA and the State of the non-compliance in writing within 5 working days of becoming aware of the non-compliance. The Discharger shall require their biosolids management contractors to notify USEPA and the State of any non-compliance within these same time-frames.

b. Interstate Notification

If biosolids are shipped to another State or Tribal Land, the Discharger shall send 60 days prior notice of the shipment to the permitting authorities in the receiving State or Tribal Land, and the USEPA Regional Office.

c. Land Application Notification

Prior to using any biosolids from this facility (other than composted biosolids) at a new or previously unreported site, the Discharger shall notify USEPA and the State. This notification shall include a description and topographic map of the proposed site(s), names and addresses of the applier and site owner, and a listing of any State or local permits which must be obtained. It shall also include a description of the crops or vegetation to be grown, proposed loading rates, and a determination of agronomic rates.

Within a given monitoring period, if any biosolids do not meet the applicable metals concentration limits specified under 40 CFR 503.13, then the Discharger (or its contractor) must pre-notify USEPA, and determine the cumulative metals loading at that site to date, as required by 40 CFR 503.12.

d. Surface Disposal Notification

Prior to disposal at a new or previously unreported site, the Discharger shall notify USEPA and the State. The notice shall include a description and topographic map of the proposed site, depth to groundwater, whether the site is lined or unlined, site operator and site owner, and any State or local permits. It shall also describe procedures for ensuring grazing and public access restrictions for three years following site closure. The notice shall include a groundwater monitoring plan or description of why groundwater monitoring is not required.

8. Reporting

The Discharger shall furnish this Regional Water Board with a copy of any report submitted to USEPA, State Water Board or other Regional Water Board, with respect to municipal sludge or biosolids. The Discharger shall submit an annual biosolids report to the USEPA Region 9 Biosolids Coordinator and the State by February 19 of each year for the period covering the previous calendar year. The report shall include:

a. The amount of biosolids generated that year, in dry metric tons, and the amount accumulated from previous years.

b. Results of all pollutant monitoring required under Monitoring, above. Results must be reported on a 100% dry weight basis.

c. Demonstrations of pathogen and vector attraction reduction methods, as required under 40 CFR 503.17 and 503.27, and certifications.

d. Names, mailing addresses, and street addresses of persons who received biosolids for storage, further treatment, disposal in a municipal landfill, deep well injection, or other use or disposal method not covered above, and tonnage delivered to each.

e. The following information must be submitted by the Discharger, unless the Discharger requires its biosolids management contractors to report this information directly to the USEPA Region 9 Biosolids Coordinator.

   i. For land application sites:

      Locations of land application sites (with field names and numbers) used that calendar year, size of each field applied to, applier, and site owner.

      Volumes applied to each field (in wet tons and dry metric tons), nitrogen applied, and calculated plant available nitrogen.

      Crops planted, dates of planting and harvesting.

      For biosolids exceeding 40 CFR 503.13 Table 3 metals concentrations, the locations of sites where the biosolids were applied and cumulative metals loading at the sites to date.

      Certifications of management practices at 40 CFR 503.14.

      Certifications of site restrictions at 40 CFR 503(b)(5).

   ii. For surface disposal sites:

      Locations of sites, site operator and site owner, size of parcel on which biosolids were disposed.

      Results of any required groundwater monitoring.

      Certifications of management practices at 40 CFR 503.24.

   iii. For closed sites, the date of site closure and certifications of management practices for three years following site closure.

f. All reports shall be submitted to:

   Regional Biosolids Coordinator
   U.S. Environmental Protection Agency
   CWA Compliance Office (WTR-7)
   75 Hawthorne Street
   San Francisco, CA 94105-3901

   Biosolids Program Coordinator
   Arizona Department of Environmental Quality
   Mail Code: 5415B-1

1110 West Washington Street
Phoenix, AZ 85007

ATTACHMENT I

PRETREATMENT PROGRAM REQUIREMENTS

1. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 CFR 403, including any subsequent revisions to that part. Where 40 CFR 403 or subsequent revisions place mandatory actions upon the Discharger, as Control Authority, but do not specify a timetable for completion, the Discharger shall complete the mandatory actions within 180 days of the effective date of this Order/Permit, or the effective date of the revisions to 40 CFR 403, whichever is later. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies imposed by the USEPA, the Regional Water Board, or other appropriate parties as provided in the CWA and/or the California Water Code. The Regional Water Board or USEPA may initiate enforcement action against a nondomestic user for noncompliance with applicable standards and requirements, as provided in the CWA and/or the California Water Code.

2. The Discharger shall implement and enforce in its entire service area, including contributing jurisdictions, its approved pretreatment program, and all subsequent revisions, which are hereby made enforceable conditions of this Order/Permit. The Discharger shall enforce the requirements promulgated pursuant to CWA sections 307(b), 307(c), 307(d), and 402(b) with timely, appropriate, and effective enforcement actions. The Discharger shall cause all nondomestic users subject to federal categorical standards to achieve compliance no later than the date specified in those requirements, or, in the case of a new nondomestic user, upon commencement of discharge.

3. The Discharger shall perform the pretreatment functions required by 40 CFR 403, including, but not limited to:

a. Implement the necessary legal authorities as required by 40 CFR 403.8(f)(1);

b. Enforce the pretreatment requirements under 40 CFR 403.5 and 403.6;

c. Implement the programmatic functions as required by 40 CFR 403.8(f)(2); and

d. Provide the requisite funding and personnel to implement the pretreatment program as required by 40 CFR 403.8(f)(3).

4. By March 1 of each year, the Discharger shall submit an annual report to the Regional Water Board, State Water Board, and USEPA describing its pretreatment activities over the previous calendar year (January through December 31). In the event the Discharger is not in compliance with any condition or requirement of this Order/Permit, or any pretreatment compliance inspection/audit requirements, the Discharger shall include the reasons for noncompliance and state how and when it will comply with such conditions and requirements. The annual report shall contain, but not be limited to, the following information:

a. A summary of analytical results from representative flow-proportioned 24-hour composite sampling of the Discharger's influent and effluent for those pollutants USEPA has identified under CWA section 307(a) which are known or suspected to be discharged by nondomestic users. Representative grab sampling shall be employed for pollutants that may degrade after collection, or where the use of automatic sampling equipment may otherwise result in unrepresentative sampling. Such pollutants include, but are not limited to, cyanide, oil and grease, volatile organic compounds, chlorine, phenol, sulfide, pH, and temperature. This will consist of an annual full priority pollutant scan in July. Wastewater sampling and analysis shall be performed in accordance with the minimum frequency of analysis required by the MRP (Attachment E). The Discharger shall also provide influent and effluent monitoring data for non-priority pollutants, which the Discharger believes may be causing or contributing to interference or pass through. The Discharger is not required to sample and analyze for asbestos. Sludge sampling and analysis is addressed elsewhere in this Order/Permit. Wastewater sampling and analysis shall be performed in accordance with 40 CFR 136.

b. A discussion of upset, interference, or pass through, if any, at the Discharger's facilities, which the Discharger knows or suspects were caused by nondomestic users of the POTW system. The discussion shall include the reasons why the incidents occurred, any corrective actions taken, and, if known, the name and address of the responsible nondomestic user(s). The discussion shall also include a review of the applicable local pollutant limitations to determine whether any additional limitations or changes to existing limitations, are necessary to prevent pass-through, interference, or noncompliance with sludge disposal requirements.

c. An updated list of the Discharger's SIUs including their names and addresses, and a list of deletions, additions and SIU name changes keyed to the previously submitted list. The Discharger shall provide a brief explanation for each change. The list shall identify the SIUs subject to federal categorical standards by specifying which set(s) of standards are applicable to each SIU. The list shall also indicate which SIUs are subject to local limitations.

d. The Discharger shall characterize the compliance status of each SIU by providing a list or table for the following:

   Name of SIU;

   Category, if subject to categorical standards;

   Type of wastewater treatment or control processes in place;

Number of samples taken by SIU during the year;

Number of samples and inspections by Discharger during the year;

For an SIU subject to discharge requirements for total toxic organics, whether all required certifications were provided;

A list of pretreatment standards (categorical or local) violated during the year, or any other violations;

SIUs in significant noncompliance (SNC) as defined at 40 CFR 403.8(f)(2)(viii), at any time during the year;

A summary of enforcement actions or any other actions taken against SIUs during the year. Describe the type of action, final compliance date, and the amount of fines and/or penalties collected, if any. Describe any proposed actions for bringing SIUs into compliance.

e. A brief description of any programs the Discharger implements to reduce pollutants from nondomestic users not classified as SIUs;

f. A brief description of any significant changes in operating the pretreatment program which differ from the previous year, including, but not limited to, changes in the program's administrative structure, local limits, monitoring program, legal authority, enforcement policy, funding, and staffing levels;

g. A summary of the annual pretreatment program budget, including the cost of pretreatment program functions and equipment purchases;

h. A summary of activities to involve and inform the public of the pretreatment program, including a copy of the newspaper notice, if any, required by 40 CFR 403.8(f)(2)(vii);

i. A description of any changes in sludge disposal methods;

j. A discussion of any concerns not described elsewhere in the annual report.

5. Any substantial modifications to the approved Pretreatment Program, as defined in 40 CFR 403.18(b), shall be submitted in writing to the Regional Water Board and USEPA and shall not become effective until Regional Water Board and USEPA approval is obtained.

6. Semiannual SIU Status Report

The Discharger shall submit a semiannual SIU noncompliance status report to the Regional Water Board, State Water Board, and USEPA. The report shall cover the period of January 1 through June 30 and shall be submitted no later than September 1. (All required information for semiannual SIU noncompliance status reporting covering the period July 1 through December 31 shall be included in the annual report that is due March 1.) The report shall contain:

a. The names and addresses of all SIUs which violated any discharge or reporting requirements during the semi-annual reporting period;

b. A description of the violations, including whether the discharge violations were for categorical standards or local limits;

c. A description of the enforcement actions or other actions taken to remedy the noncompliance;

d. The status of enforcement actions or other actions taken in response to SIU noncompliance identified in previous reports.

7. The Discharger is required to describe in the annual report any programs the POTW implements to reduce pollutants from non-domestic sources.

8. Nonindustrial Source Control and Public Education Programs

The Discharger shall continue to develop and implement its nonindustrial source control program and public education program. The purpose of these programs is to reduce nonindustrial toxic pollutants and pesticides into the POTW. These programs shall be periodically reviewed and addressed in the annual report.

9. Signatory Requirements and Report Submittal

a. The semi-annual and annual reports must be signed by a principal executive officer, ranking elected official or other duly authorized employee if such employee is responsible for the overall operation of the POTW. Any person signing these reports must make the following certification (40 CFR 403.6(a)(2)(ii)):

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

b. An original copy of the Annual Report and Semi-Annual Report must be sent to the Pretreatment Program Coordinator of the Regional Water Board and the duplicate copies of the Reports must be sent to USEPA through the following addresses:

Information and Technology Unit
Attn: Pretreatment Program Coordinator
California Regional Water Quality Control Board, Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Pretreatment Program
U.S. Environmental Protection Agency, Region 9
CWA Compliance Office (WTR-7)
75 Hawthorne Street
San Francisco, CA 94105-3901

APPENDIX C – MASS BALANCES

Appendix C

Mass Balances

Mass Balances - DCTWRP

Donald C. Tillman Water Reclamation Plant

Total Dissolved Solids Mass Balance

Cells highlighted yellow indicate user input.

List of Acronyms
ADF - Average Daily Flow
TDS - Total Dissolved Solids
AVORS - Additional Valley Outfall Relief Sewer
EVIS - East Valley Interceptor Sewer
DCTWRP - Donald C. Tillman Water Reclamation Plant
ID - Industrial Discharger

Industrial Discharger*

		Flow (MGD)	TDS (mg/L)
ID	**Brine Discharge**	0.11	3600

*Mass balance based on existing brine discharge of 40,000 gpd at 3600 mg/L TDS. Expanded facility brine discharge design ADF is 110,000 gpd. Expanded facility design TDS concentration is unknown.

New Dischargers to AVORS and EVIS

		Flow (MGD)	TDS (mg/L)
1	**New Discharger No. 1**		
2	**New Discharger No. 2**		
3	**New Discharger No. 3**		

Existing Conditions

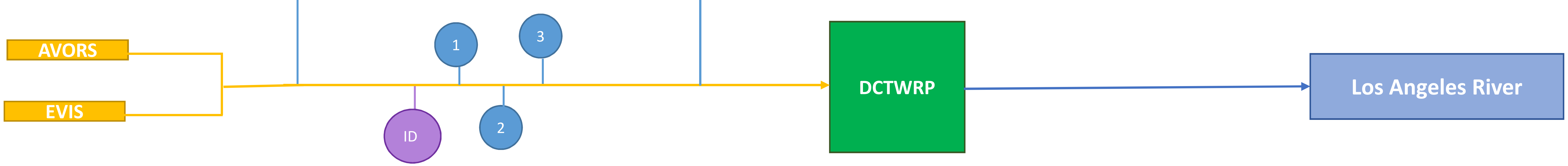
ADF	47	MGD
Max TDS	842	mg/L
Avg TDS	599	mg/L

Influent

ADF	47	MGD
Max TDS	846	mg/L
Avg TDS	603	mg/L

TDS Permit Limit

Avg Monthly TDS	950	mg/L



Mass Balances - LAGWRP

Los Angeles-Glendale Water Reclamation Plant

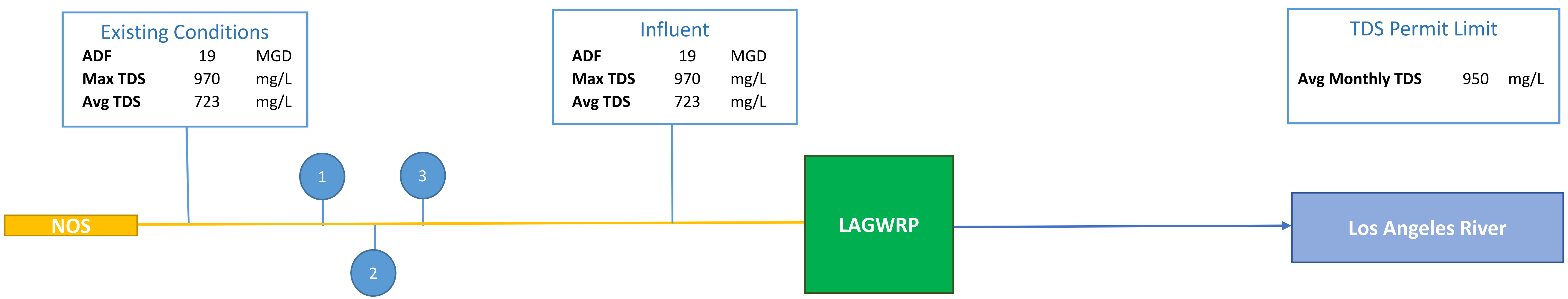
Total Dissolved Solids Mass Balance

Cells highlighted yellow indicate user input.

List of Acronyms
ADF - Average Daily Flow
TDS - Total Dissolved Solids
NOS - North Outfall Sewer
LAGWRP - Los Angeles-Glendale Water Reclamation Plant

New Dischargers to NOS

		Flow (MGD)	TDS (mg/L)
1	New Discharger No. 1		
2	New Discharger No. 2		
3	New Discharger No. 3		



Mass Balances - HWRP

Hyperion Water Reclamation Plant
Total Dissolved Solids Mass Balance

Cells highlighted yellow indicate user input.

List of Acronyms
ADF - Average Daily Flow
TDS - Total Dissolved Solids
NOS - North Outfall Sewer
NCOS - North Central Outfall Sewer
NORS - North Outfall Relief Sewer
COS - Central Outfall Sewer
CIS- Coastal Interceptor Sewer
HWRP - Hyperion Water Reclamation Plant

DCT AWPF*

		Flow (MGD)	TDS (mg/L)
1	**Influent to DCT AWPF**	31.25	695
2	**Brine from DCT AWPF**	5.5	3854

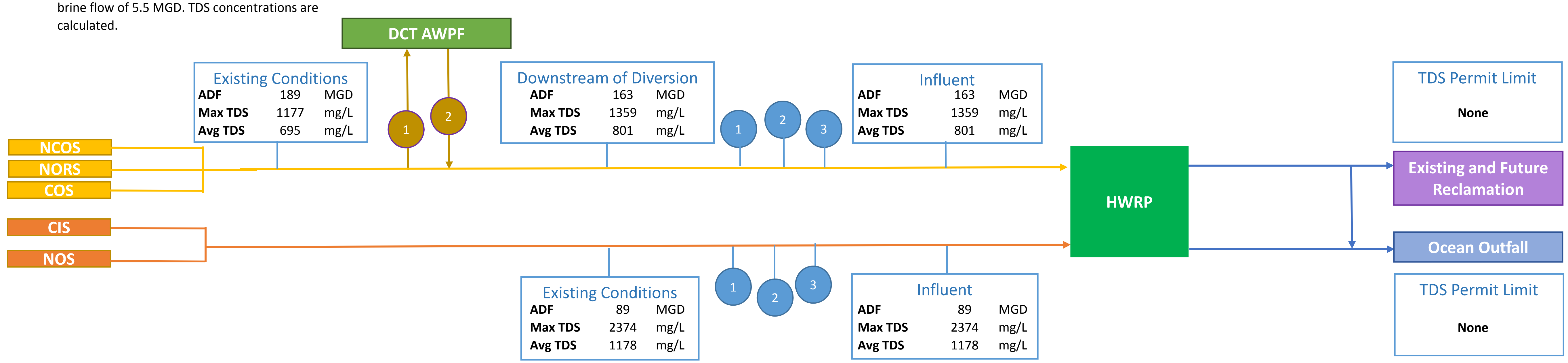
*Facility not yet constructed. Concept design based on influent flow of 31.25 MGD and brine flow of 5.5 MGD. TDS concentrations are calculated.

New Dischargers to NCOS, NORS and COS

		Flow (MGD)	TDS (mg/L)
1	**New Discharger No. 1**		
2	**New Discharger No. 2**		
3	**New Discharger No. 3**		

New Dischargers to CIS and NOS

		Flow (MGD)	TDS (mg/L)
1	**New Discharger No. 1**		
2	**New Discharger No. 2**		
3	**New Discharger No. 3**		



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