c. Identification of known water quality impairments and impaired waterbodies per the 2010 Clean Water Act 303(d) List of Impaired Waterbodies (List of Impaired Waterbodies);
d. Identification of beneficial uses and applicable water quality standards;
e. Identification of applicable Total Maximum Daily Loads;
f. Monitoring parameters;
g. Monitoring schedule, including description and frequencies of monitoring events;
h. Description of data analysis methods;

6. The QAPP must include receiving water and site-specific information, project organization and responsibilities, and quality assurance components of the MRP. The QAPP must also include the laboratory and field requirements to be used for analyses and data evaluation. The QAPP must contain adequate detail for project and Water Board staff to identify and assess the technical and quality objectives, measurement and data acquisition methods, and limitations of the data generated under the surface receiving water quality monitoring. All sampling and laboratory methodologies and QAPP content must be consistent with U.S. EPA methods, State Water Board's Surface Water Ambient Monitoring Program (SWAMP) protocols and the Central Coast Water Board's Central Coast Ambient Monitoring Program (CCAMP). Following U.S. EPA guidelines[1] and SWAMP templates[2], the receiving water quality monitoring QAPP must include the following minimum required components:
    a. Project Management. This component addresses basic project management, including the project history and objectives, roles and responsibilities of the participants, and other aspects.
    b. Data Generation and Acquisition. This component addresses all aspects of project design and implementation. Implementation of these elements ensures that appropriate methods for sampling, measurement and analysis, data collection or generation, data handling, and quality control activities are employed and are properly documented. Quality control requirements are applicable to all the constituents sampled as part of the MRP, as described in the appropriate method.
    c. Assessment and Oversight. This component addresses the activities for assessing the effectiveness of the implementation of the project and associated QA and QC activities. The purpose of the assessment is to provide project oversight that

[1] USEPA 2001 (2006) USEPA requirements for Quality Assurance Project Plans (QA/R-5) Office of Environmental Information, Washington, D.C. USEPA QA/R-5
[2] http://waterboards.ca.gov/water_issues/programs/swamp/tools.shtml#qa

will ensure that the QA Project Plan is implemented as prescribed.

d. Data Validation and Usability. This component addresses the quality assurance activities that occur after the data collection, laboratory analysis and data generation phase of the project is completed. Implementation of these elements ensures that the data conform to the specified criteria, thus achieving the MRP objectives.

7. The Central Coast Water Board may conduct an audit of contracted laboratories at any time in order to evaluate compliance with the QAPP.

8. The Sampling and Analysis Plan and QAPP, and any proposed revisions are subject to approval by the Executive Officer. The Executive Officer may also revise the Sampling and Analysis Plan, including adding, removing, or changing monitoring site locations, changing monitoring parameters, and other changes as necessary to assess the impacts of waste discharges from irrigated lands to receiving water.

Surface Receiving Water Quality Monitoring Sites

9. The Sampling and Analysis Plan must, at a minimum, include monitoring sites to evaluate waterbodies identified in Table 1, unless otherwise approved by the Executive Officer. The Sampling and Analysis Plan must include sites to evaluate receiving water quality impacts most directly resulting from areas of agricultural discharge (including areas receiving tile drain discharges). Site selection must take into consideration the existence of any long term monitoring sites included in related monitoring programs (e.g. CCAMP and the existing CMP). Sites may be added or modified, subject to prior approval by the Executive Officer, to better assess the pollutant loading from individual sources or the impacts to receiving waters caused by individual discharges. Any modifications must consider sampling consistency for purposes of trend evaluation.

Surface Receiving Water Quality Monitoring Parameters

10. The Sampling and Analysis Plan must, at a minimum, include the following types of monitoring and evaluation parameters listed below and identified in Table 2:

    a. Flow Monitoring;
    b. Water Quality (physical parameters, metals, nutrients, pesticides);
    c. Toxicity (water and sediment);
    d. Assessment of Benthic Invertebrates.

11. All analyses must be conducted at a laboratory certified for such analyses by the State Department of Public Health (CDPH) or at laboratories approved by the Executive Officer. Unless otherwise noted, all sampling, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, U.S. EPA, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link: http://www.cdph.ca.gov/certlic/labs/Documents/ELAPLablist.xls

12. Water quality and flow monitoring is used to assess the sources, concentrations, and loads of waste discharges from individual farms/ranches and groups of Dischargers to surface waters, to evaluate impacts to water quality and beneficial uses, and to evaluate the short term patterns and long term trends in receiving water quality. Monitoring data must be compared to existing numeric and narrative water quality objectives.

13. Toxicity testing is to evaluate water quality relative to the narrative toxicity objective. Water column toxicity analyses must be conducted on 100% (undiluted) sample. At sites where persistent unresolved toxicity is found, the Executive Officer may require concurrent toxicity and chemical analyses and a Toxicity Identification Evaluation (TIE) to identify the individual discharges causing the toxicity.

Surface Receiving Water Quality Monitoring Frequency and Schedule

14. The Sampling and Analysis Plan must include a schedule for sampling. Timing, duration, and frequency of monitoring must be based on the land use, complexity, hydrology, and size of the waterbody. Table 2 includes minimum monitoring frequency and parameter lists. Agricultural parameters that are less common may be monitored less frequently. Modifications to the receiving water quality monitoring parameters, frequency, and schedule may be submitted for Executive Officer consideration and approval. At a minimum, the Sampling and Analysis Plan schedule must consist of monthly monitoring of common agricultural parameters in major agricultural areas, including two major storm events during the wet season (October 1 – April 30).

15. Storm event monitoring must be conducted within 18 hours of storm events, preferably including the first flush run-off event that results in significant increase in stream flow. For purposes of this MRP, a storm event is defined as precipitation producing onsite runoff (surface water flow) capable of creating significant ponding, erosion or other water quality problem. A

significant storm event will generally result in greater than 1-inch of rain within a 24-hour period.

16. Dischargers (individually or as part of a cooperative monitoring program) must perform receiving water quality monitoring per the Sampling and Analysis Plan and QAPP approved by the Executive Officer.

B. Surface Receiving Water Quality Reporting

Surface Receiving Water Quality Data Submittal

1. Dischargers (individually or as part of a cooperative monitoring program) must submit water quality monitoring data to the Central Coast Water Board electronically, in a format specified by the Executive Officer and compatible with SWAMP/CCAMP electronic submittal guidelines, each January 1, April 1, July 1, and October 1.

Surface Receiving Water Quality Monitoring Annual Report

2. By July 1, 2017, and every July 1 annually thereafter, Dischargers (individually or as part of a cooperative monitoring program) must submit an Annual Report, electronically, in a format specified by the Executive Officer including the following minimum elements:

a. Signed Transmittal Letter;
b. Title Page;
c. Table of Contents;
d. Executive Summary;
e. Summary of Exceedance Reports submitted during the reporting period;
f. Monitoring objectives and design;
g. Monitoring site descriptions and rainfall records for the time period covered;
h. Location of monitoring sites and map(s);
i. Tabulated results of all analyses arranged in tabular form so that the required information is readily discernible;
j. Summary of water quality data for any sites monitored as part of related monitoring programs, and used to evaluate receiving water as described in the Sampling and Analysis Plan.
k. Discussion of data to clearly illustrate compliance with the Order and water quality standards;
l. Discussion of short term patterns and long term trends in receiving water quality and beneficial use protection;
m. Evaluation of pesticide and toxicity analyses results, and recommendation of candidate sites for Toxicity Identification Evaluations (TIEs);

n. Identification of the location of any agricultural discharges observed discharging directly to surface receiving water;
o. Laboratory data submitted electronically in a SWAMP/CCAMP comparable format;
p. Sampling and analytical methods used;
q. Copy of chain-of-custody forms;
r. Field data sheets, signed laboratory reports, laboratory raw data;
s. Associated laboratory and field quality control samples results;
t. Summary of Quality Assurance Evaluation results;
u. Specify the method used to obtain flow at each monitoring site during each monitoring event;
v. Electronic or hard copies of photos obtained from all monitoring sites, clearly labeled with site ID and date;
w. Conclusions.

PART 2. GROUNDWATER MONITORING AND REPORTING REQUIREMENTS

Groundwater monitoring may be conducted through a cooperative monitoring and reporting program on behalf of growers, or Dischargers may choose to conduct groundwater monitoring and reporting individually. Qualifying cooperative groundwater monitoring and reporting programs must implement the groundwater monitoring and reporting requirements described in this Order, unless otherwise approved by the Executive Officer. An interested person may seek review by the Central Coast Water Board of the Executive Officer's approval or denial of a cooperative groundwater monitoring and reporting program.

Key monitoring and reporting requirements for groundwater are shown in Table 3.

A. Groundwater Monitoring

1. Dischargers must sample private domestic wells and the primary irrigation well on their farm/ranch to evaluate groundwater conditions in agricultural areas, identify areas at greatest risk for nitrogen loading and exceedance of drinking water standards, and identify priority areas for follow up actions.

2. Dischargers must sample at least one groundwater well for each farm/ranch on their operation, including groundwater wells that are located within the property boundary of the enrolled county assessor parcel numbers (APNs). For farms/ranches with multiple groundwater wells, Dischargers must sample all domestic wells and the primary irrigation well. For the purposes of this MRP, a "domestic well" is any well that is used or may be used for domestic use purposes, including any groundwater well that is connected to a residence, workshop, or place of business that may be used for human consumption, cooking, or sanitary purposes. Groundwater monitoring

parameters must include well screen interval depths (if available), general chemical parameters, and general cations and anions listed in Table 3.

3. Dischargers must conduct two rounds of monitoring of required groundwater wells during calendar year 2017; one sample collected during spring (**March - June)** and one sample collected during fall **(September - December)**.

4. Groundwater samples must be collected by a qualified third party (e.g., consultant, technician, person conducting cooperative monitoring) using proper sampling methods, chain-of-custody, and quality assurance/quality control protocols. Groundwater samples must be collected at or near the well head before the pressure tank and prior to any well head treatment. In cases where this is not possible, the water sample must be collected from a sampling point as close to the pressure tank as possible, or from a cold-water spigot located before any filters or water treatment systems.

5. Laboratory analyses for groundwater samples must be conducted by a State certified laboratory according to U.S. EPA approved methods; unless otherwise noted, all monitoring, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, United States Environmental Protection Agency, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link below: http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/resources4growers/2016_04_11_labs.pdf

6. If a discharger determines that water in any domestic well exceeds 10 mg/L of nitrate as N, the discharger or third party must provide notice to the Central Coast Water Board within 24 hours of learning of the exceedance. For domestic wells on a Discharger's farm/ranch, that exceed 10 mg/L of nitrate as N, the Discharger must provide written notification to the users within 10 days of learning of the exceedance and provide written confirmation of the notification to the Central Coast Water Board.

   The drinking water notification must include the statement that the water poses a human health risk due to elevated nitrate concentration, and include a warning against the use of the water for drinking or cooking. In addition, Dischargers must also provide prompt written notification to any new well users (e.g. tenants and employees with access to the affected well), whenever there is a change in occupancy.

   For all other domestic wells not on a Discharger's farm/ranch but that may be impacted by nitrate, the Central Coast Water Board will notify the users promptly.

The drinking water notification and confirmation letters required by this Order are available to the public.

B. Groundwater Reporting

1. **Within 60 days of sample collection,** Dischargers must coordinate with the laboratory to submit the following groundwater monitoring results and information, electronically, using the Water Board's GeoTracker electronic deliverable format (EDF):
    a. GeoTracker Ranch Global Identification Number
    b. Field point name (Well Name)
    c. Field Point Class (Well Type)
    d. Latitude
    e. Longitude
    f. Sample collection date
    g. Analytical results
    h. Well construction information (e.g., total depth, screened intervals, depth to water), as available

2. Dischargers must submit groundwater well information required in the electronic Notice of Intent (eNOI) for each farm/ranch and update the eNOI to reflect changes in the farm/ranch information within 30 days of the change. Groundwater well information reported on the eNOI includes, but is not limited to:
    a. Number of groundwater wells present at each farm/ranch
    b. Identification of any groundwater wells abandoned or destroyed (including method destroyed) in compliance with the Order
    c. Use for fertigation or chemigation
    d. Presence of back flow prevention devices
    e. Number of groundwater wells used for agricultural purposes
    f. Number of groundwater wells used for or may be used for domestic use purposes (domestic wells).

C. Total Nitrogen Applied Reporting

1. By March 1, 2018, and by March 1 annually thereafter, Tier 2 Dischargers growing any crop with a high potential to discharge nitrogen to groundwater must record and report total nitrogen applied for each specific crop that was irrigated and grown for commercial purposes on that farm/ranch during the preceding calendar year (January through December).

    Crops with a high potential to discharge nitrogen to groundwater are: beet, broccoli, cabbage, cauliflower, celery, Chinese cabbage (napa), collard, endive, kale, leek, lettuce (leaf and head), mustard, onion (dry and green),

spinach, strawberry, pepper (fruiting), and parsley.

Total nitrogen applied must be reported on the Total Nitrogen Applied Report form as described in the Total Nitrogen Applied Report form instructions.

Total nitrogen applied includes any product containing any form or concentration of nitrogen including, but not limited to, organic and inorganic fertilizers, slow release products, compost, compost teas, manure, and extracts.

2. The Total Nitrogen Applied Report form includes the following information:
    a. General ranch information such as GeoTracker file numbers, name, location, acres.
    b. Nitrogen concentration of irrigation water
    c. Nitrogen applied in pounds per acre with irrigation water
    d. Nitrogen present in the soil
    e. Nitrogen applied with compost and amendments
    f. Specific crops grown
    g. Nitrogen applied in pounds per acre with fertilizers and other materials to each specific crop grown
    h. Crop acres of each specific crop grown
    i. Whether each specific crop was grown organically or conventionally
    j. Basis for the nitrogen applied
    k. Explanation and comments section
    l. Certification statement with penalty of perjury declaration
    m. Additional information regarding whether each specific crop was grown in a nursery, greenhouse, hydroponically, in containers, and similar variables.

PART 3. ANNUAL COMPLIANCE FORM

Tier 2 Dischargers must submit annual compliance information, electronically, on the Annual Compliance Form. The purpose of the electronic Annual Compliance Form is to provide information to the Central Coast Water Board to assist in the evaluation of threat to water quality from individual agricultural discharges of waste and measure progress towards water quality improvement and verify compliance with the Order and MRP. Time schedules are shown in Table 4.

A. Annual Compliance Form

1. **By March 1, 2018, and updated annually thereafter by March 1**, Tier 2 Dischargers must submit an Annual Compliance Form electronically, in a

format specified by the Executive Officer. The electronic Annual Compliance Form includes, but is not limited to the following minimum requirements[1]:

a. Question regarding consistency between the Annual Compliance Form and the electronic Notice of Intent (eNOI);
b. Information regarding type and characteristics of discharge (e.g., number of discharge points, estimated flow/volume, number of tailwater days);
c. Identification of any direct agricultural discharges to a stream, lake, estuary, bay, or ocean;
d. Identification of specific farm water quality management practices completed, in progress, and planned to address water quality impacts caused by discharges of waste including irrigation management, pesticide management, nutrient management, salinity management, stormwater management, and sediment and erosion control to achieve compliance with this Order; and identification of specific methods used, and described in the Farm Plan consistent with Order Provision 44.g., for the purposes of assessing the effectiveness of management practices implemented and the outcomes of such assessments;
e. Proprietary information question and justification;
f. Authorization and certification statement and declaration of penalty of perjury.

PART 5. GENERAL MONITORING AND REPORTING REQUIREMENTS

A. Submittal of Technical Reports

1. Dischargers must submit reports in a format specified by the Executive Officer. A transmittal letter must accompany each report, containing the following penalty of perjury statement signed by the Discharger or the Discharger's authorized agent:

   "In compliance with Water Code §13267, I certify under penalty of perjury that this document and all attachments were prepared by me, or under my direction or supervision following a system designed to assure that qualified personnel properly gather and evaluate the information submitted. To the best of my knowledge and belief, this document and all attachments are true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment".

[1] Items reported in the Annual Compliance Form are due by March 1, 2018, and annually thereafter, unless otherwise specified.

2. If the Discharger asserts that all or a portion of a report submitted pursuant to this Order is subject to an exemption from public disclosure (e.g. trade secrets or secret processes), the Discharger must provide an explanation of how those portions of the reports are exempt from public disclosure. The Discharger must clearly indicate on the cover of the report (typically an electronic submittal) that the Discharger asserts that all or a portion of the report is exempt from public disclosure, submit a complete report with those portions that are asserted to be exempt in redacted form, submit separately (in a separate electronic file) unredacted pages (to be maintained separately by staff). The Central Coast Water Board staff will determine whether any such report or portion of a report qualifies for an exemption from public disclosure. If the Central Coast Water Board staff disagrees with the asserted exemption from public disclosure, the Central Coast Water Board staff will notify the Discharger prior to making such report or portions of such report available for public inspection.

B. Central Coast Water Board Authority

1. Monitoring reports are required pursuant to section 13267 of the California Water Code. Pursuant to section 13268 of the Water Code, a violation of a request made pursuant to section 13267 may subject you to civil liability of up to $1000 per day.

2. The Water Board needs the required information to determine compliance with Order No. R3-2017-0002. The evidence supporting these requirements is included in the findings of Order No. R3-2017-0002.

_____
John M. Robertson
Executive Officer

March 8, 2017
_____
Date

Table 1. Major Waterbodies in Agricultural Areas[1]

Hydrologic SubArea	Waterbody Name	Hydrologic SubArea	Waterbody Name
30510	Pajaro River	30920	Quail Creek
30510	Salsipuedes Creek	30920	Salinas Reclamation Canal
30510	Watsonville Slough	31022	Chorro Creek
30510	Watsonville Creek[2]	31023	Los Osos Creek
30510	Beach Road Ditch[2]	31023	Warden Creek
30530	Carnadero Creek	31024	San Luis Obispo Creek
30530	Furlong Creek[2]	31024	Prefumo Creek
30530	Llagas Creek	31031	Arroyo Grande Creek
30530	Miller's Canal	31031	Los Berros Creek
30530	San Juan Creek	31210	Bradley Canyon Creek
30530	Tesquisquita Slough	31210	Bradley Channel
30600	Moro Cojo Slough	31210	Green Valley Creek
30910	Alisal Slough	31210	Main Street Canal
30910	Blanco Drain	31210	Orcutt Solomon Creek
30910	Old Salinas River	31210	Oso Flaco Creek
30910	Salinas River (below Gonzales Rd.)	31210	Little Oso Flaco Creek
30920	Salinas River above Gonzales Rd. and below Nacimiento R.)	31210	Santa Maria River
30910	Santa Rita Creek[2]	31310	San Antonio Creek[2]
30910	Tembladero Slough	31410	Santa Ynez River
30920	Alisal Creek	31531	Bell Creek
30920	Chualar Creek	31531	Glenn Annie Creek
30920	Espinosa Slough	31531	Los Carneros Creek[2]
30920	Gabilan Creek	31534	Arroyo Paredon Creek
30920	Natividad Creek	31534	Franklin Creek

[1] At a minimum, monitoring sites must be included for these waterbodies in agricultural areas, unless otherwise approved by the Executive Officer. Monitoring sites may be proposed for addition or modification to better assess the impacts of waste discharges from irrigated lands to surface water. Dischargers choosing to comply with surface receiving water quality monitoring, individually (not part of a cooperative monitoring program) must only monitor sites for waterbodies receiving the discharge.

[2] These creeks are included because they are newly listed waterbodies on the 2010 303(d) list of Impaired Waters that are associated with areas of agricultural discharge.

Table 2. Surface Receiving Water Quality Monitoring Parameters

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Photo Monitoring		
Upstream and downstream photographs at monitoring location		With every monitoring event
WATER COLUMN SAMPLING		
Physical Parameters and General Chemistry		
Flow (field measure) (CFS) following SWAMP field SOP[9]	.25	Monthly, including 2 stormwater events
pH (field measure)	0.1	"
Electrical Conductivity (field measure) (µS/cm)	2.5	"
Dissolved Oxygen (field measure) (mg/L)	0.1	"
Temperature (field measure) (^{o}C)	0.1	"
Turbidity (NTU)	0.5	"
Total Dissolved Solids (mg/L)	10	"
Total Suspended Solids (mg/L)	0.5	"
Nutrients		
Total Nitrogen (mg/L)	0.5	Monthly, including 2 stormwater events
Nitrate + Nitrite (as N) (mg/L)	0.1	"
Total Ammonia (mg/L)	0.1	"
Unionized Ammonia (calculated value, mg/L))		"
Total Phosphorus (as P) (mg/L)	0.02	
Soluble Orthophosphate (mg/L)	0.01	"
Water column chlorophyll a (µg/L)	1.0	"
Algae cover, Floating Mats, % coverage	-	"
Algae cover, Attached, % coverage	-	"
Water Column Toxicity Test		
Algae - *Selenastrum capricornutum (*96-hour chronic; Method1003.0 in EPA/821/R-02/013)	-	4 times each year, twice in dry season, twice in wet season
Water Flea – *Ceriodaphnia dubia* (7-day chronic; Method 1002.0 in EPA/821/R-02/013)	-	"
Midge - *Chironomus spp.* (96-hour acute; Alternate test species in EPA 821-R-02-012)	-	"

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Toxicity Identification Evaluation (TIE)	-	As directed by Executive Officer
Pesticides[2] /Herbicides (µg/L)		
Organophosphate Pesticides		
Azinphos-methyl	0.02	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Chlorpyrifos	0.005	"
Diazinon	0.005	"
Dichlorvos	0.01	"
Dimethoate	0.01	"
Dimeton-s	0.005	"
Disulfoton (Disyton)	0.005	"
Malathion	0.005	"
Methamidophos	0.02	"
Methidathion	0.02	"
Parathion-methyl	0.02	"
Phorate	0.01	"
Phosmet	0.02	"
Neonicotinoids		
Thiamethoxam	.002	"
Imidacloprid	.002	"
Thiacloprid	.002	"
Dinotefuran	.006	"
Acetamiprid	.01	"
Clothianidin	.02	
Herbicides		
Atrazine	0.05	"
Cyanazine	0.20	"
Diuron	0.05	"
Glyphosate	2.0	"
Linuron	0.1	"
Paraquat	0.20	"
Simazine	0.05	"
Trifluralin	0.05	"
Metals (µg/L)		
Arsenic (total) [5,7]	0.3	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Boron (total) [6,7]	10	"

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Cadmium (total & dissolved) [4.5,7]	0.01	"
Copper (total and dissolved) [4,7]	0.01	"
Lead (total and dissolved) [4,7]	0.01	"
Nickel (total and dissolved) [4,7]	0.02	"
Molybdenum (total) [7]	1	"
Selenium (total)[7]	0.30	"
Zinc (total and dissolved) [4.5,7]	0.10	"
Other (µg/L)		
Total Phenolic Compounds[8]	5	2 times in 2017, once in spring (April-May) and once in fall (August-September)
Hardness (mg/L as CaCO3)	1	"
Total Organic Carbon (ug/L)	0.6	"
SEDIMENT SAMPLING		
Sediment Toxicity - *Hyalella azteca* 10-day static renewal (EPA, 2000)		2 times each year, once in spring (April-May) and once in fall (August-September)
Pyrethroid Pesticides in Sediment (µg/kg)		
Gamma-cyhalothrin	2	2 times in both 2017 and 2018, once in spring (April-May) and once in fall (August-September) of each year, concurrent with sediment toxicity sampling
Lambda-cyhalothrin	2	"
Bifenthrin	2	"
Beta-cyfluthrin	2	"
Cyfluthrin	2	"
Esfenvalerate	2	"
Permethrin	2	"
Cypermethrin	2	"
Danitol	2	"
Fenvalerate	2	"
Fluvalinate	2	"
Other Monitoring in Sediment		
Chlorpyrifos (µg/kg)	2	"
Total Organic Carbon	0.01%	"
		"
Sediment Grain Size Analysis	1%	"

[1]Monitoring is ongoing through all five years of the Order, unless otherwise specified. Monitoring frequency may be used as a guide for developing alternative Sampling and Analysis Plan.
[2]Pesticide list may be modified based on specific pesticide use in Central Coast Region. Analytes on this list must be reported, at a minimum.

[3] Reporting Limit, taken from SWAMP where applicable.
[4] Holmgren, Meyer, Cheney and Daniels. 1993. Cadmium, Lead, Zinc, Copper and Nickel in Agricultural Soils of the United States. J. of Environ. Quality 22:335-348.
[5]Sax and Lewis, ed. 1987. Hawley's Condensed Chemical Dictionary. 11th ed. New York: Van Nostrand Reinhold Co., 1987. Zinc arsenate is an insecticide.
[6]Http://www.coastalagro.com/products/labels/9%25BORON.pdf; Boron is applied directly or as a component of fertilizers as a plant nutrient.
[7]Madramootoo, Johnston, Willardson, eds. 1997. Management of Agricultural Drainage Water Quality. International Commission on Irrigation and Drainage. U.N. FAO. SBN 92-6-104058.3.
[8]http://cat.inist.fr/?aModele=afficheN&cpsidt=14074525; Phenols are breakdown products of herbicides and pesticides. Phenols can be directly toxic and cause endocrine disruption.
[9]See SWAMP field measures SOP, p. 17
mg/L – milligrams per liter; ug/L – micrograms per liter; ug/kg – micrograms per kilogram;
NTU – Nephelometric Turbidity Units; CFS – cubic feet per second;

Table 3. Groundwater Monitoring Parameters

Parameter	RL	Analytical Method[3]	Units
pH	0.1	Field or Laboratory Measurement EPA General Methods	pH Units
Specific Conductance	2.5		µS/cm
Total Dissolved Solids	10		mg/L
Total Alkalinity as CaCO3	1	EPA Method 310.1 or 310.2	
Calcium	0.05	General Cations[1] EPA 200.7, 200.8, 200.9	
Magnesium	0.02		
Sodium	0.1		
Potassium	0.1		
Sulfate (SO4)	1.0	General Anions EPA Method 300 or EPA Method 353.2	
Chloride	0.1		
Nitrate + Nitrite (as N)[2] or Nitrate as N	0.1		

[1]General chemistry parameters (major cations and anions) represent geochemistry of water bearing zone and assist in evaluating quality assurance/quality control of groundwater sampling and laboratory analysis.
[2]The MRP allows analysis of "nitrate plus nitrite" to represent nitrate concentrations (as N). The "nitrate plus nitrite" analysis allows for extended laboratory holding times and relieves the Discharger of meeting the short holding time required for nitrate.
[3]Dischargers may use alternative analytical methods approved by EPA.
RL – Reporting Limit; µS/cm – micro siemens per centimeter

Table4. Tier 2 - Time Schedule for Key Monitoring and Reporting Requirements (MRPs)

REQUIREMENT	TIME SCHEDULE[1]
Submit Sampling And Analysis Plan and Quality Assurance Project Plan (SAAP/QAPP) for Surface Receiving Water Quality Monitoring (*individually or through cooperative monitoring program*)	By March 1, 2018, or as directed by the Executive Officer; satisfied if an approved SAAP/QAPP has been submitted pursuant to Order No. R3-2012-0011 and associated MRPs
Initiate surface receiving water quality monitoring (*individually or through cooperative monitoring program*)	Per an approved SAAP and QAPP
Submit surface receiving water quality monitoring data (*individually or through cooperative monitoring program*)	Each January 1, April 1, July 1, and October 1
Submit surface receiving water quality Annual Monitoring Report *(individually or through cooperative monitoring program*)	By July 12017: annually thereafter by July 1
Initiate monitoring of groundwater wells	First sample from March-June 2017, second sample from September-December 2017
Submit electronic Annual Compliance Form	March 1, 2018 and every March 1 annually thereafter
Submit groundwater monitoring results	Within 60 days of the sample collection
Tier 2 Dischargers with farms/ranches growing high risk crops: Report total nitrogen applied on the Total Nitrogen Applied form	March 1, 2018 and every March 1annually thereafter

[1] Dates are relative to adoption of this Order or enrollment date for Dischargers enrolled after the adoption of this Order, unless otherwise specified.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

MONITORING AND REPORTING PROGRAM
ORDER NO. R3-2017-0002-03

TIER 3

DISCHARGERS ENROLLED UNDER
CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR
DISCHARGES FROM IRRIGATED LANDS

This Monitoring and Reporting Program Order No. R3-2017-0002-03 (MRP) is issued pursuant to California Water Code (Water Code) sections 13267 and 13269, which authorize the California Regional Water Quality Control Board, Central Coast Region (hereafter Central Coast Water Board) to require preparation and submittal of technical and monitoring reports. Water Code section 13269 requires a waiver of waste discharge requirements to include as a condition, the performance of monitoring and the public availability of monitoring results. *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands,* Order No. R3-2017-0002 (Order), includes criteria and requirements for three tiers. This MRP sets forth monitoring and reporting requirements for **Tier 3 Dischargers** enrolled under the Order. A summary of the requirements is shown below.

SUMMARY OF MONITORING AND REPORTING REQUIREMENTS FOR TIER 3:

Part 1: Surface Receiving Water Monitoring and Reporting *(cooperative or individual)*
Part 2: Groundwater Monitoring and Reporting *(cooperative or individual)*
Total Nitrogen Applied Reporting *(required for subset of Tier 3 Dischargers if farm/ranch growing any crop with high nitrate loading risk to groundwater);*
Part 3: Annual Compliance Form
Part 5: Individual Surface Water Discharge Monitoring and Reporting
Part 6: Irrigation and Nutrient Management Plan *(required for subset of Tier 3 Dischargers if farm/ranch has High Nitrate Loading Risk)*
Part 7: Water Quality Buffer Plan *(required for subset of Tier 3 Dischargers if farm/ranch contains or is adjacent to a waterbody impaired for temperature, turbidity or sediment)*

Pursuant to Water Code section 13269(a)(2), monitoring requirements must be designed to support the development and implementation of the waiver program, including, but not limited to, verifying the adequacy and effectiveness of the waiver's conditions. The monitoring and reports required by this MRP are to evaluate effects of discharges of waste from irrigated agricultural operations and individual farms/ranches on waters of the state and to determine compliance with the Order.

MONITORING AND REPORTING BASED ON TIERS

The Order and MRP includes criteria and requirements for three tiers, based upon those characteristics of the individual farms/ranches at the operation that present the highest level of waste discharge or greatest risk to water quality. Dischargers must meet conditions of the Order and MRP for the appropriate tier that applies to their land and/or the individual farm/ranch. Within a tier, Dischargers comply with requirements based on the specific level of discharge and threat to water quality from individual farms/ranches. The lowest tier, Tier 1, applies to dischargers who discharge the lowest level of waste (amount or concentration) or pose the lowest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States. The highest tier, Tier 3, applies to dischargers who discharge the highest level of waste or pose the greatest potential to cause or contribute to an exceedance of water quality standards in waters of the State or of the United States. Tier 2 applies to dischargers whose discharge has a moderate threat to water quality. Water quality is defined in terms of regional, state, or federal numeric or narrative water quality standards. Per the Order, Dischargers may submit a request to the Executive Officer to approve transfer to a lower tier. If the Executive Officer approves a transfer to a lower tier, any interested person may request that the Central Coast Water Board conduct a review of the Executive Officer's determination.

PART 1. SURFACE RECEIVING WATER MONITORING AND REPORTING REQUIREMENTS

The surface receiving water monitoring and reporting requirements described herein are generally a continuation of the surface receiving water monitoring and reporting requirements of Monitoring and Reporting Program Order No. 2012-0011-03, as revised August 22, 2016, with the intent of uninterrupted regular monitoring and reporting during the transition from Order No. R3-2012-0011-03 to Order No. R3-2017-0002-03.

Monitoring and reporting requirements for surface receiving water identified in Part 1.A. and Part 1.B. apply to Tier 3 Dischargers. Surface receiving water refers to water flowing in creeks and other surface waters of the State. Surface receiving water monitoring may be conducted through a cooperative monitoring program on behalf of Dischargers, or Dischargers may choose to conduct surface receiving water monitoring and reporting individually. Key monitoring and reporting requirements for surface receiving water are shown in Tables 1 and 2. Time schedules are shown in Table 5.

A. Surface Receiving Water Quality Monitoring

1. Dischargers must elect a surface receiving water monitoring option (cooperative monitoring program or individual receiving water monitoring) to comply with surface receiving water quality monitoring requirements, and identify the option selected on the Notice of Intent (NOI).

2. Dischargers are encouraged to choose participation in a cooperative monitoring program (e.g., the existing Cooperative Monitoring Program or a similar program) to comply with receiving water quality monitoring requirements. Dischargers not participating in a cooperative monitoring program must conduct surface receiving water quality monitoring individually that achieves the same purpose.

3. Dischargers (individually or as part of a cooperative monitoring program) must conduct surface receiving water quality monitoring to a) assess the impacts of their waste discharges from irrigated lands to receiving water, b) assess the status of receiving water quality and beneficial use protection in impaired waterbodies dominated by irrigated agricultural activity, c) evaluate status, short term patterns and long term trends (five to ten years or more) in receiving water quality, d) evaluate water quality impacts resulting from agricultural discharges (including but not limited to tile drain discharges), e) evaluate stormwater quality, f) evaluate condition of existing perennial, intermittent, or ephemeral streams or riparian or wetland area habitat, including degradation resulting from erosion or agricultural discharges of waste, and g) assist in the identification of specific sources of water quality problems.

Surface Receiving Water Quality Sampling and Analysis Plan

4. **By March 1, 2018, or as directed by the Executive Officer**, Dischargers (individually or as part of a cooperative monitoring program) must submit a surface receiving water quality Sampling and Analysis Plan (SAAP) and Quality Assurance Project Plan (QAPP); this requirement is satisfied if an approved SAAP and QAPP addressing all surface receiving water quality monitoring requirements described in this Order has been submitted pursuant to Order No.R3-2012-0011 and associated Monitoring and Reporting Programs. Dischargers (or a third party cooperative monitoring program) must develop the Sampling and Analysis Plan to describe how the proposed monitoring will achieve the objectives of the MRP and evaluate compliance with the Order. The Sampling and Analysis Plan may propose alternative monitoring site locations, adjusted monitoring parameters, and other changes as necessary to assess the impacts of waste discharges from irrigated lands to receiving water. The Executive Officer must approve the Sampling and Analysis Plan and QAPP.

5. The Sampling and Analysis Plan must include the following minimum required components:
    a. Monitoring strategy to achieve objectives of the Order and MRP;
    b. Map of monitoring sites with GIS coordinates;

c. Identification of known water quality impairments and impaired waterbodies per the 2010 Clean Water Act 303(d) List of Impaired Waterbodies (List of Impaired Waterbodies);
d. Identification of beneficial uses and applicable water quality standards;
e. Identification of applicable Total Maximum Daily Loads;
f. Monitoring parameters;
g. Monitoring schedule, including description and frequencies of monitoring events;
h. Description of data analysis methods;

6. The QAPP must include receiving water and site-specific information, project organization and responsibilities, and quality assurance components of the MRP. The QAPP must also include the laboratory and field requirements to be used for analyses and data evaluation. The QAPP must contain adequate detail for project and Water Board staff to identify and assess the technical and quality objectives, measurement and data acquisition methods, and limitations of the data generated under the surface receiving water quality monitoring. All sampling and laboratory methodologies and QAPP content must be consistent with U.S. EPA methods, State Water Board's Surface Water Ambient Monitoring Program (SWAMP) protocols and the Central Coast Water Board's Central Coast Ambient Monitoring Program (CCAMP). Following U.S. EPA guidelines[1] and SWAMP templates[2], the receiving water quality monitoring QAPP must include the following minimum required components:
    a. Project Management. This component addresses basic project management, including the project history and objectives, roles and responsibilities of the participants, and other aspects.
    b. Data Generation and Acquisition. This component addresses all aspects of project design and implementation. Implementation of these elements ensures that appropriate methods for sampling, measurement and analysis, data collection or generation, data handling, and quality control activities are employed and are properly documented. Quality control requirements are applicable to all the constituents sampled as part of the MRP, as described in the appropriate method.
    c. Assessment and Oversight. This component addresses the activities for assessing the effectiveness of the implementation of the project and associated QA and QC activities. The purpose of the assessment is to provide project oversight that

[1] USEPA. 2001 (2006) USEPA Requirements for Quality Assurance Project Plans (QA/R-5) Office of Environmental Information, Washington, D.C. USEPA QA/R-5
[2] http://waterboards.ca.gov/water_issues/programs/swamp/tools.shtml#qa

will ensure that the QA Project Plan is implemented as prescribed.

d. Data Validation and Usability. This component addresses the quality assurance activities that occur after the data collection, laboratory analysis and data generation phase of the project is completed. Implementation of these elements ensures that the data conform to the specified criteria, thus achieving the MRP objectives.

7. The Central Coast Water Board may conduct an audit of contracted laboratories at any time in order to evaluate compliance with the QAPP.

8. The Sampling and Analysis Plan and QAPP, and any proposed revisions are subject to approval by the Executive Officer. The Executive Officer may also revise the Sampling and Analysis Plan, including adding, removing, or changing monitoring site locations, changing monitoring parameters, and other changes as necessary to assess the impacts of waste discharges from irrigated lands to receiving water.

Surface Receiving Water Quality Monitoring Sites

9. The Sampling and Analysis Plan must, at a minimum, include monitoring sites to evaluate waterbodies identified in Table 1, unless otherwise approved by the Executive Officer. The Sampling and Analysis Plan must include sites to evaluate receiving water quality impacts most directly resulting from areas of agricultural discharge (including areas receiving tile drain discharges). Site selection must take into consideration the existence of any long term monitoring sites included in related monitoring programs (e.g. CCAMP and the existing CMP). Sites may be added or modified, subject to prior approval by the Executive Officer, to better assess the pollutant loading from individual sources or the impacts to receiving waters caused by individual discharges. Any modifications must consider sampling consistency for purposes of trend evaluation.

Surface Receiving Water Quality Monitoring Parameters

10. The Sampling and Analysis Plan must, at a minimum, include the following types of monitoring and evaluation parameters listed below and identified in Table 2:

    a. Flow Monitoring;
    b. Water Quality (physical parameters, metals, nutrients, pesticides);
    c. Toxicity (water and sediment);
    d. Assessment of Benthic Invertebrates.

11. All analyses must be conducted at a laboratory certified for such analyses by the State Department of Public Health (CDPH) or at laboratories approved by the Executive Officer. Unless otherwise noted, all sampling, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, U.S. EPA, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link: http://www.cdph.ca.gov/certlic/labs/Documents/ELAPLablist.xls

12. Water quality and flow monitoring is used to assess the sources, concentrations, and loads of waste discharges from individual farms/ranches and groups of Dischargers to surface waters, to evaluate impacts to water quality and beneficial uses, and to evaluate the short term patterns and long term trends in receiving water quality. Monitoring data must be compared to existing numeric and narrative water quality objectives.

13. Toxicity testing is to evaluate water quality relative to the narrative toxicity objective. Water column toxicity analyses must be conducted on 100% (undiluted) sample. At sites where persistent unresolved toxicity is found, the Executive Officer may require concurrent toxicity and chemical analyses and a Toxicity Identification Evaluation (TIE) to identify the individual discharges causing the toxicity.

Surface Receiving Water Quality Monitoring Frequency and Schedule

14. The Sampling and Analysis Plan must include a schedule for sampling. Timing, duration, and frequency of monitoring must be based on the land use, complexity, hydrology, and size of the waterbody. Table 2 includes minimum monitoring frequency and parameter lists. Agricultural parameters that are less common may be monitored less frequently. Modifications to the receiving water quality monitoring parameters, frequency, and schedule may be submitted for Executive Officer consideration and approval. At a minimum, the Sampling and Analysis Plan schedule must consist of monthly monitoring of common agricultural parameters in major agricultural areas, including two major storm events during the wet season (October 1 – April 30).

15. Storm event monitoring must be conducted within 18 hours of storm events, preferably including the first flush run-off event that results in significant increase in stream flow. For purposes of this MRP, a storm event is defined as precipitation producing onsite runoff (surface water flow) capable of creating significant ponding, erosion or other water quality problem. A

significant storm event will generally result in greater than 1-inch of rain within a 24-hour period.

16. Dischargers (individually or as part of a cooperative monitoring program) must perform receiving water quality monitoring per the Sampling and Analysis Plan and QAPP approved by the Executive Officer.

B. Surface Receiving Water Quality Reporting

Surface Receiving Water Quality Data Submittal

1. Dischargers (individually or as part of a cooperative monitoring program) must submit water quality monitoring data to the Central Coast Water Board electronically, in a format specified by the Executive Officer and compatible with SWAMP/CCAMP electronic submittal guidelines, each January 1, April 1, July 1, and October 1.

Surface Receiving Water Quality Monitoring Annual Report

2. By July 1, 2017, and every July 1 annually thereafter, Dischargers (individually or as part of a cooperative monitoring program) must submit an Annual Report, electronically, in a format specified by the Executive Officer including the following minimum elements:

a. Signed Transmittal Letter;
b. Title Page;
c. Table of Contents;
d. Executive Summary;
e. Summary of Exceedance Reports submitted during the reporting period;
f. Monitoring objectives and design;
g. Monitoring site descriptions and rainfall records for the time period covered;
h. Location of monitoring sites and map(s);
i. Tabulated results of all analyses arranged in tabular form so that the required information is readily discernible;
j. Summary of water quality data for any sites monitored as part of related monitoring programs, and used to evaluate receiving water as described in the Sampling and Analysis Plan.
k. Discussion of data to clearly illustrate compliance with the Order and water quality standards;
l. Discussion of short term patterns and long term trends in receiving water quality and beneficial use protection;

m. Evaluation of pesticide and toxicity analyses results, and recommendation of candidate sites for Toxicity Identification Evaluations (TIEs);
n. Identification of the location of any agricultural discharges observed discharging directly to surface receiving water;
o. Laboratory data submitted electronically in a SWAMP/CCAMP comparable format;
p. Sampling and analytical methods used;
q. Copy of chain-of-custody forms;
r. Field data sheets, signed laboratory reports, laboratory raw data;
s. Associated laboratory and field quality control samples results;
t. Summary of Quality Assurance Evaluation results;
u. Specify the method used to obtain flow at each monitoring site during each monitoring event;
v. Electronic or hard copies of photos obtained from all monitoring sites, clearly labeled with site ID and date;
w. Conclusions.

PART 2. GROUNDWATER MONITORING AND REPORTING REQUIREMENTS

Groundwater monitoring may be conducted through a cooperative monitoring and reporting program on behalf of growers, or Dischargers may choose to conduct groundwater monitoring and reporting individually. Qualifying cooperative groundwater monitoring and reporting programs must implement the groundwater monitoring and reporting requirements described in this Order, unless otherwise approved by the Executive Officer. An interested person may seek review by the Central Coast Water Board of the Executive Officer's approval or denial of a cooperative groundwater monitoring and reporting program.

Key monitoring and reporting requirements for groundwater are shown in Table 3.

A. Groundwater Monitoring

1. Dischargers must sample private domestic wells and the primary irrigation well on their farm/ranch to evaluate groundwater conditions in agricultural areas, identify areas at greatest risk for nitrogen loading and exceedance of drinking water standards, and identify priority areas for follow up actions.

2. Dischargers must sample at least one groundwater well for each farm/ranch on their operation, including groundwater wells that are located within the property boundary of the enrolled county assessor parcel numbers (APNs). For farms/ranches with multiple groundwater wells, Dischargers must sample all domestic wells and the primary irrigation well. For the purposes of this MRP, a "domestic well" is any well that is used or may be used for domestic

use purposes, including any groundwater well that is connected to a residence, workshop, or place of business that may be used for human consumption, cooking, or sanitary purposes. Groundwater monitoring parameters must include well screen interval depths (if available), general chemical parameters, and general cations and anions listed in Table 3.

3. Dischargers must conduct two rounds of monitoring of required groundwater wells during calendar year 2017; one sample collected during spring (**March - June)** and one sample collected during fall **(September - December)**.

4. Groundwater samples must be collected by a qualified third party (e.g., consultant, technician, person conducting cooperative monitoring) using proper sampling methods, chain-of-custody, and quality assurance/quality control protocols. Groundwater samples must be collected at or near the well head before the pressure tank and prior to any well head treatment. In cases where this is not possible, the water sample must be collected from a sampling point as close to the pressure tank as possible, or from a cold-water spigot located before any filters or water treatment systems.

5. Laboratory analyses for groundwater samples must be conducted by a State certified laboratory according to U.S. EPA approved methods; unless otherwise noted, all monitoring, sample preservation, and analyses must be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, United States Environmental Protection Agency, and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found at the web link below: http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/resources4growers/2016_04_11_labs.pdf

6. If a discharger determines that water in any domestic well exceeds 10 mg/L of nitrate as N, the discharger or third party must provide notice to the Central Coast Water Board within 24 hours of learning of the exceedance. For domestic wells on a Discharger's farm/ranch that exceed 10 mg/L nitrate as N, the Discharger must provide written notification to the users within 10 days of learning of the exceedance and provide written confirmation of the notification to the Central Coast Water Board.

   The drinking water notification must include the statement that the water poses a human health risk due to elevated nitrate concentration, and include a warning against the use of the water for drinking or cooking. In addition, Dischargers must also provide prompt written notification to any new well users (e.g. tenants and employees with access to the affected well), whenever there is a change in occupancy.

For all other domestic wells not on a Discharger's property, the Central Coast Water Board will notify the users promptly.

The drinking water notification and confirmation letters required by this Order are available to the public.

B. Groundwater Reporting

1. **Within 60 days of sample collection,** Dischargers must coordinate with the laboratory to submit the following groundwater monitoring results and information, electronically, using the Water Board's GeoTracker electronic deliverable format (EDF):
    a. GeoTracker Ranch Global Identification Number
    b. Field point name (Well Name)
    c. Field Point Class (Well Type)
    d. Latitude
    e. Longitude
    f. Sample collection date
    g. Analytical results
    h. Well construction information (e.g., total depth, screened intervals, depth to water), as available

2. Dischargers must submit groundwater well information required in the electronic Notice of Intent (eNOI) for each farm/ranch and update the eNOI to reflect changes in the farm/ranch information within 30 days of the change. Groundwater well information reported on the eNOI includes, but is not limited to:
    a. Number of groundwater wells present at each farm/ranch
    b. Identification of any groundwater wells abandoned or destroyed (including method destroyed) in compliance with the Order
    c. Use for fertigation or chemigation
    d. Presence of back flow prevention devices
    e. Number of groundwater wells used for agricultural purposes
    f. Number of groundwater wells used for or may be used for domestic use purposes (domestic wells)

C. Total Nitrogen Applied Reporting

1. By March 1, 2018, and by March 1 annually thereafter, Tier 3 Dischargers growing any crop with a high potential to discharge nitrogen to groundwater must record and report total nitrogen applied for each specific crop that was irrigated and grown for commercial purposes on that farm/ranch during the preceding calendar year (January through December).

    Crops with a high potential to discharge nitrogen to groundwater are: beet,

broccoli, cabbage, cauliflower, celery, Chinese cabbage (napa), collard, endive, kale, leek, lettuce (leaf and head), mustard, onion (dry and green), spinach, strawberry, pepper (fruiting), and parsley.

Total nitrogen applied must be reported on the Total Nitrogen Applied Report form as described in the Total Nitrogen Applied Report form instructions.

Total nitrogen applied includes any product containing any form or concentration of nitrogen including, but not limited to, organic and inorganic fertilizers, slow release products, compost, compost teas, manure, and extracts.

2. The Total Nitrogen Applied Report form includes the following information:
    a. General ranch information such as GeoTracker file numbers, name, location, acres.
    b. Nitrogen concentration of irrigation water
    c. Nitrogen applied in pounds per acre with irrigation water
    d. Nitrogen present in the soil
    e. Nitrogen applied with compost and amendments
    f. Specific crops grown
    g. Nitrogen applied in pounds per acre with fertilizers and other materials to each specific crop grown
    h. Crop acres of each specific crop grown
    i. Whether each specific crop was grown organically or conventionally
    j. Basis for the nitrogen applied
    k. Explanation and comments section
    l. Certification statement with penalty of perjury declaration
    m. Additional information regarding whether each specific crop was grown in a nursery, greenhouse, hydroponically, in containers, and similar variables.

PART 3. ANNUAL COMPLIANCE FORM

Tier 3 Dischargers must submit annual compliance information, electronically, on the Annual Compliance Form. The purpose of the electronic Annual Compliance Form is to provide information to the Central Coast Water Board to assist in the evaluation of threat to water quality from individual agricultural discharges of waste and measure progress towards water quality improvement and verify compliance with the Order and MRP. Time schedules are shown in Table 5.

A. Annual Compliance Form

1. **By March 1, 2018, and updated annually thereafter by March 1**, Tier 3 Dischargers must submit an Annual Compliance Form electronically, in a format specified by the Executive Officer. The electronic Annual Compliance Form includes, but is not limited to the following minimum requirements[1]:
    a. Question regarding consistency between the Annual Compliance Form and the electronic Notice of Intent (eNOI);
    b. Information regarding type and characteristics of discharge (e.g., number of discharge points, estimated flow/volume, number of tailwater days);
    c. Identification of any direct agricultural discharges to a stream, lake, estuary, bay, or ocean;
    d. Identification of specific farm water quality management practices completed, in progress, and planned to address water quality impacts caused by discharges of waste including irrigation management, pesticide management, nutrient management, salinity management, stormwater management, and sediment and erosion control to achieve compliance with this Order; and identification of specific methods used, and described in the Farm Plan consistent with Order Provision 44.g., for the purposes of assessing the effectiveness of management practices implemented and the outcomes of such assessments:
    e. Proprietary information question and justification;
    f. Authorization and certification statement and declaration of penalty of perjury.

PART 5. INDIVIDUAL SURFACE WATER DISCHARGE MONITORING AND REPORTING REQUIREMENTS

Monitoring and reporting requirements for individual surface water discharge identified in Part 5.A. and Part 5.B. apply to Tier 3 Dischargers with irrigation water or stormwater discharges to surface water from an outfall. Outfalls are locations where irrigation water and stormwater exit a farm/ranch, or otherwise leave the control of the discharger, after being conveyed by pipes, ditches, constructed swales, tile drains, containment structures, or other discrete structures or features that transport the water. Discharges that have commingled with discharges from another farm/ranch are considered to have left the control of the discharger. Key monitoring and reporting requirements for individual surface water discharge are shown in Tables 4A and 4B. Time schedules are shown in Table 5.

[1] Items reported in the Annual Compliance Form are due by March 1 2018, and annually thereafter, unless otherwise specified.

A. Individual Surface Water Discharge Monitoring

1. Tier 3 Dischargers must conduct individual surface water discharge monitoring to a) evaluate the quality of individual waste discharges, including concentration and load of waste (in kilograms per day) for appropriate parameters, b) evaluate effects of waste discharge on water quality and beneficial uses, and c) evaluate progress towards compliance with water quality improvement milestones in the Order.

Individual Sampling and Analysis Plan

2. **By March 1, 2018, or as directed by the Executive Officer**, Tier 3 Dischargers must submit an individual surface water discharge Sampling and Analysis Plan (SAAP) and QAPP to monitor individual discharges of irrigation water and stormwater that leaves their farm/ranch from an outfall. The Sampling and Analysis Plan and QAPP must be submitted to the Executive Officer; this requirement is satisfied if an approved SAAP and QAPP addressing all individual surface water discharge monitoring requirements described in this Order has been submitted pursuant to Order No.R3-2012-0011 and associated Monitoring and Reporting Programs.

3. The Sampling and Analysis Plan must include the following minimum required components to monitor irrigation water and stormwater discharges:
    a. Number and location of outfalls (identified with latitude and longitude or on a scaled map);
    b. Number and location of monitoring points;
    c. Description of typical irrigation runoff patterns;
    d. Map of discharge and monitoring points;
    e. Sample collection methods;
    f. Monitoring parameters;
    g. Monitoring schedule and frequency of monitoring events;

4. The QAPP must include appropriate methods for sampling, measurement and analysis, data collection or generation, data handling, quality control activities, and documentation.

5. The Sampling and Analysis Plan and QAPP, and any proposed revisions are subject to approval by the Executive Officer. The Executive Officer may require modifications to the Sampling and Analysis Plan or Tier 3 Dischargers may propose Sampling and Analysis Plan modifications for Executive Officer approval, when modifications are justified to accomplish the objectives of the MRP.

Individual Surface Water Discharge Monitoring Points

6. Tier 3 Dischargers must select monitoring points to characterize at least 80% of the estimated maximum irrigation run-off discharge volume from each farm/ranch based on that farm's/ranch's typical discharge patterns[1], including tailwater discharges and discharges from tile drains. Sample must be taken when irrigation activity is causing maximal run-off. Load estimates will be generated by multiplying flow volume of discharge by concentration of contaminants. Tier 3 Dischargers must include at least one monitoring point from each farm/ranch which drains areas where chlorpyrifos or diazinon are applied, and monitoring of runoff or tailwater must be conducted within one week of chemical application. If discharge is not routinely present, Discharger may characterize typical run-off patterns in the Annual Report. See Table 4A for additional details.

7. Tier 3 Dischargers must also monitor storage ponds and other terminal surface water containment structures that collect irrigation and stormwater runoff, unless the structure is (1) part of a tail-water return system where a major portion of the water in such structure is reapplied as irrigation water, or (2) the structure is primarily a sedimentation pond by design with a short hydraulic residence time (96 hours or less) and a discharge to surface water when functioning. If multiple ponds are present, sampling must cover at least those structures that would account for 80% of the maximum storage volume of the containment features. See Table 4B for additional details. Where water is reapplied as irrigation water. Dischargers shall document reuse in the Farm Plan.

Individual Surface Water Discharge Monitoring Parameters, Frequency, and Schedule

8. Tier 3 Dischargers must conduct monitoring for parameters, laboratory analytical methods, frequency and schedule described in Tables 4A and 4B. Dischargers may utilize in-field water testing instruments/equipment as a substitute for laboratory analytical methods if the method is approved by U.S. EPA, meets reporting limits (RL) and practical quantitation limits (PQL) specifications in the MRP, and appropriate sampling methodology and quality assurance checks can be applied to ensure that QAPP standards are met to ensure accuracy of the test.

[1] The requirement to select monitoring points to characterize at least 80% of the estimated maximum irrigation run-off based on typical discharge patterns is for the purposes of attempting to collect samples that represent a majority of the volume of irrigation run-off discharged; however the Board recognizes that predetermining these locations is not always possible and that sampling results may vary. The MRP does not specify the number or location of monitoring points to provide maximum flexibility for growers to determine how many sites necessary and exact locations are given the anticipated site-specific conditions.

9. Tier 3 Dischargers must initiate individual surface water discharge monitoring per an approved Sampling and Analysis Plan and QAPP, unless otherwise directed by the Executive Officer.

B. Individual Surface Water Discharge Reporting

Individual Surface Water Discharge Monitoring Data Submittal

By March 1, 2018, and annually thereafter by March 1, Tier 3 Dischargers must submit individual surface water discharge monitoring data and information to the Central Coast Water Board electronically, in a pdf format, containing at least the following items, or as otherwise approved by the Executive Officer:

a. Electronic laboratory data
- All reports of results must contain Ranch name and Global ID, site name(s), project contact, and date.
- Electronic laboratory data reports of chemical results shall include analytical results, as well as associated quality assurance data including method detection limits, reporting limits, matrix spikes, matrix spike duplicates, laboratory blanks, and other quality assurance results required by the analysis method.
- Electronic laboratory data reports of toxicity results shall include summary results comparable to those required in a CEDEN file delivery, including test and control results. For each test result, the mean, associated control performance, calculated percent of control, statistical test results and determination of toxicity, must be included. Test results must specify the control ID used to calculate statistical outcomes.
- Field data results, including temperature, pH, conductivity, turbidity and flow measurements, any field duplicates or blanks, and field observations.
- Calculations of un-ionized ammonia concentrations
- Calculations of total flow and pollutant loading (for nitrate, pesticides if sampled, total ammonia, and turbidity) (include formulas);

b. Narrative description of typical irrigation runoff patterns;
c. Location of sampling sites and map(s);
d. Sampling and analytical methods used;
e. Specify the method used to obtain flow at each monitoring site during each monitoring event;
f. Photos obtained from all monitoring sites, clearly labeled with location and date;
g. Sample chain-of-custody forms do not need to be submitted but must be made available to Central Coast Water Board staff, upon request.

PART 6. IRRIGATION AND NUTRIENT MANAGEMENT PLAN

Monitoring and reporting requirements related to the Irrigation and Nutrient Management Plan (INMP) identified in Part 6.A., and 6.B, apply to Tier 3 Dischargers identified by the Executive Officer that are newly enrolled in Order No. R3-2017-0002, and Tier 3 Dischargers that were subject to Irrigation and Nutrient Management Plan Requirements in Order R3-2012-0011 per MRP Order No. R3-2012-0011-03 Time schedules are shown in Table 5.

A. Irrigation and Nutrient Management Plan Monitoring

1. Tier 3 Dischargers required in Order No. R3-2012-0011 to develop and initiate implementation of an Irrigation and Nutrient Management Plan (INMP) certified by a Professional Soil Scientist, Professional Agronomist, or Crop Advisor certified by the American Society of Agronomy, or similarly qualified professional, are required to update (as necessary) and implement their INMP throughout the term of this Order.

2. The Executive Officer will assess whether an INMP is required for new Tier 3 Dischargers that enroll in Order No. R3-2017-0002 during the term of the Order. The Executive Officer will use the criteria established in Order No. R3-2012-0011 to make this assessment. If a Tier 3 Discharger is required to develop an INMP, the Tier 3 discharger must develop and initiate implementation of an Irrigation and Nutrient Management Plan (INMP) certified by a Professional Soil Scientist, Professional Agronomist, or Crop Advisor certified by the American Society of Agronomy, or similarly qualified professional, **within 18 months** of the Executive Officer's assessment of the INMP requirement.
3. The purpose of the INMP is to budget and manage the nutrients applied to each farm/ranch considering all sources of nutrients, crop requirements, soil types, climate, and local conditions in order to minimize nitrate loading to surface water and groundwater in compliance with this Order. The professional certification of the INMP must indicate that the relevant expert has reviewed all necessary documentation and testing results, evaluated total nitrogen applied relative to typical crop nitrogen uptake and nitrogen removed at harvest, with consideration to potential nitrate loading to groundwater, and conducted field verification to ensure accuracy of reporting.
4. Tier 3 Dischargers required to develop and initiate implementation an (INMP) must include the following elements in the INMP. The INMP is not submitted to the Central Coast Water Board, with the exception of the INMP Effectiveness Report:
    a. Proof of INMP certification;
    b. Map locating each farm/ranch;
    c. Identification of crop nitrogen uptake values for use in nutrient balance calculations;

d. Record keeping annually by either Method 1 or Method 2:

e. To meet the requirement to record total nitrogen in the soil,dischargers may take a nitrogen soil sample (e.g. laboratory analysis or nitrate quick test) or use an alternative method to evaluate nitrogen content in soil, prior to planting or seeding the field or prior to the time of pre-sidedressing, or at an alternative time when it is most effective to determine nitrogen present in the soil that is available for the next crop and to minimize nitrate leaching to groundwater. The amount of nitrogen remaining in the soil must be accounted for as a source of nitrogen when budgeting, and the soil sample or alternative method results must be maintained in the INMP.

f. Identification of irrigation and nutrient management practices in progress (identify start date), completed (identify completion date), and planned (identify anticipated start date) to reduce nitrate loading to groundwater to achieve compliance with this Order.

g. Description of methods Discharger will use to verify overall effectiveness of the INMP.

5. Tier 3 Dischargers must evaluate the effectiveness of the INMP. Irrigation and Nutrient Management Plan effectiveness monitoring must evaluate reduction in new nitrogen[1] loading potential based on minimized fertilizer use and improved irrigation and nutrient management practices in order to minimize new nitrogen loading to surface water and groundwater. Evaluation methods used may include, but are not limited to analysis of groundwater well monitoring data or soil sample data, or analysis of trends in new nitrogen application data.

B. Irrigation and Nutrient Management Plan Reporting

1. **By March 1, 2019**, Tier 3 Dischargers required to develop and initiate implementation of an INMP must submit an INMP Effectiveness Report to evaluate reductions in nitrate loading to surface water and groundwater based on the implementation of irrigation and nutrient management practices in a format specified by the Executive Officer. Dischargers in the same groundwater basin or subbasin may choose to comply with this requirement as a group by submitting a single report that evaluates the overall effectiveness of the broad scale implementation of irrigation and nutrient management practices identified in individual INMPs to protect groundwater. Group efforts must use data from each farm/ranch (e.g., data from individual groundwater wells, soil samples, or nitrogen application). The INMP

[1] New nitrogen is nitrogen from fertilizers, amendments, and other nitrogen sources applied other than nitrogen present in groundwater.

Effectiveness Report must include a description of the methodology used to evaluate and verify effectiveness of the INMP.

PART 7. WATER QUALITY BUFFER PLAN

Monitoring and reporting requirements related to the Water Quality Buffer Plan identified in Part 7.A. and Part 7.B. apply to Tier 3 Dischargers that have farms/ranches *that contain or are adjacent to waterbody identified on the List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment).* Time schedules are shown in Table 5.

A. Water Quality Buffer Plan

1. **By 18 months following enrollment in Order No. R3-2017-0002 of a Tier 3 farm/ranch**, Tier 3 Dischargers adjacent to or containing a waterbody identified on the List of Impaired Waterbodies as impaired for temperature, turbidity or sediment must submit a Water Quality Buffer Plan (WQBP) to the Executive Officer that protects the listed waterbody and its associated perennial and intermittent tributaries. The purpose of the Water Quality Buffer Plan is to prevent waste discharge, comply with water quality standards (e.g., temperature, turbidity, sediment), and protect beneficial uses in compliance with this Order and the following Basin Plan requirement:

   Basin Plan (Chapter 5, p. V-13, Section V.G.4 – Erosion and Sedimentation, *"A filter strip of appropriate width, and consisting of undisturbed soil and riparian vegetation or its equivalent, must be maintained, wherever possible, between significant land disturbance activities and watercourses, lakes, bays, estuaries, marshes, and other water bodies. For construction activities, minimum width of the filter strip must be thirty feet, wherever possible…."*

2. The Water Quality Buffer Plan must include the following or the functional equivalent, to address discharges of waste and associated water quality impairments:

   a. A minimum 30 foot buffer (as measured horizontally from the top of bank on either side of the waterway, or from the high water mark of a lake and mean high tide of an estuary);
   b. Any necessary increases in buffer width to adequately prevent the discharge of waste that may cause or contribute to any excursion above or outside the acceptable range for any Regional, State, or Federal numeric or narrative water quality standard (e.g., temperature, turbidity);

c. Any buffer less than 30 feet must provide equivalent water quality protection and be justified based on an analysis of site-specific conditions and be approved by the Executive Officer;
d. Identification of any alternatives implemented to comply with this requirement, that are functionally equivalent to described buffer;
e. Schedule for implementation;
f. Maintenance provisions to ensure water quality protection;
g. Annual photo monitoring;

2. The WQPB must be submitted using the Water Quality Buffer Plan form, or, if an alternative to the WQBP is submitted, in a format approved by the Executive Officer.

3. **By March 1, 2019**, Tier 3 Dischargers that submitted a WQBP pursuant to Order No. R3-2012-0011 or Order No. R3-2017-0002, are required to update (as necessary) and implement their WQBP, and annually submit a WQBP Status Report of their WQBP implementation using the Water Quality Buffer Plan form, or, if an alternative to the WQBP was submitted, an Alternative to WQBP Status Report, electronically, in a format approved by the Executive Officer.

PART 8. GENERAL MONITORING AND REPORTING REQUIREMENTS

A. Submittal of Technical Reports

1. Dischargers must submit reports in a format specified by the Executive Officer (reports will be submitted electronically, unless otherwise specified by the Executive Officer). A transmittal letter must accompany each report, containing the following penalty of perjury statement signed by the Discharger or the Discharger's authorized agent:

   "In compliance with Water Code §13267, I certify under penalty of perjury that this document and all attachments were prepared by me, or under my direction or supervision following a system designed to assure that qualified personnel properly gather and evaluate the information submitted. To the best of my knowledge and belief, this document and all attachments are true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment".

2. If the Discharger asserts that all or a portion of a report submitted pursuant to this Order is subject to an exemption from public disclosure (e.g. trade secrets or secret processes), the Discharger must provide an explanation of how those portions of the reports are exempt from public disclosure. The

Discharger must clearly indicate on the cover of the report (typically an electronic submittal) that the Discharger asserts that all or a portion of the report is exempt from public disclosure, submit a complete report with those portions that are asserted to be exempt in redacted form, submit separately (in a separate electronic file) unredacted pages (to be maintained separately by staff). The Central Coast Water Board staff will determine whether any such report or portion of a report qualifies for an exemption from public disclosure. If the Central Coast Water Board staff disagrees with the asserted exemption from public disclosure, the Central Coast Water Board staff will notify the Discharger prior to making such report or portions of such report available for public inspection.

B. Central Coast Water Board Authority

1. Monitoring reports are required pursuant to section 13267 of the California Water Code. Pursuant to section 13268 of the Water Code, a violation of a request made pursuant to section 13267 may subject you to civil liability of up to $1000 per day.

2. The Water Board needs the required information to determine compliance with Order No.R3-2017-0002. The evidence supporting these requirements is included in the findings of Order No.R3-2017-0002.

_____
John M. Robertson
Executive Officer

_____
Date

Table 1. Major Waterbodies in Agricultural Areas[1]

Hydrologic SubArea	Waterbody Name	Hydrologic SubArea	Waterbody Name
30510	Pajaro River	30920	Quail Creek
30510	Salsipuedes Creek	30920	Salinas Reclamation Canal
30510	Watsonville Slough	31022	Chorro Creek
30510	Watsonville Creek[2]	31023	Los Osos Creek
30510	Beach Road Ditch[2]	31023	Warden Creek
30530	Carnadero Creek	31024	San Luis Obispo Creek
30530	Furlong Creek[2]	31024	Prefumo Creek
30530	Llagas Creek	31031	Arroyo Grande Creek
30530	Miller's Canal	31031	Los Berros Creek
30530	San Juan Creek	31210	Bradley Canyon Creek
30530	Tesquisquita Slough	31210	Bradley Channel
30600	Moro Cojo Slough	31210	Green Valley Creek
30910	Alisal Slough	31210	Main Street Canal
30910	Blanco Drain	31210	Orcutt Solomon Creek
30910	Old Salinas River	31210	Oso Flaco Creek
30910	Salinas River (below Gonzales Rd.)	31210	Little Oso Flaco Creek
30920	Salinas River (above Gonzales Rd. and below Nacimiento R.)	31210	Santa Maria River
30910	Santa Rita Creek[2]	31310	San Antonio Creek[2]
30910	Tembladero Slough	31410	Santa Ynez River
30920	Alisal Creek	31531	Bell Creek
30920	Chualar Creek	31531	Glenn Annie Creek
30920	Espinosa Slough	31531	Los Carneros Creek[2]
30920	Gabilan Creek	31534	Arroyo Paredon Creek
30920	Natividad Creek	31534	Franklin Creek

[1] At a minimum, monitoring sites must be included for these waterbodies in agricultural areas, unless otherwise approved by the Executive Officer. Monitoring sites may be proposed for addition or modification to better assess the impacts of waste discharges from irrigated lands to surface water. Dischargers choosing to comply with surface receiving water quality monitoring, individually (not part of a cooperative monitoring program) must only monitor sites for waterbodies receiving the discharge.

[2] These creeks are included because they are newly listed waterbodies on the 2010 303(d) list of Impaired Waters that are associated with areas of agricultural discharge.

Table 2. Surface Receiving Water Quality Monitoring Parameters

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Photo Monitoring		
Upstream and downstream photographs at monitoring location		With every monitoring event
WATER COLUMN SAMPLING		
Physical Parameters and General Chemistry		
Flow (field measure) (CFS) following SWAMP field SOP[9]	.25	Monthly, including 2 stormwater events
pH (field measure)	0.1	"
Electrical Conductivity (field measure) (µS/cm)	2.5	"
Dissolved Oxygen (field measure) (mg/L)	0.1	"
Temperature (field measure) (^{o}C)	0.1	"
Turbidity (NTU)	0.5	"
Total Dissolved Solids (mg/L)	10	"
Total Suspended Solids (mg/L)	0.5	"
Nutrients		
Total Nitrogen (mg/L)	0.5	Monthly, including 2 stormwater events
Nitrate + Nitrite (as N) (mg/L)	0.1	"
Total Ammonia (mg/L)	0.1	"
Unionized Ammonia (calculated value, mg/L))		"
Total Phosphorus (as P) (mg/L)	0.02	
Soluble Orthophosphate (mg/L)	0.01	"
Water column chlorophyll a (µg/L)	1.0	"
Algae cover, Floating Mats, % coverage	-	"
Algae cover, Attached, % coverage	-	"
Water Column Toxicity Test		
Algae - *Selenastrum capricornutum (*96-hour chronic; Method1003.0 in EPA/821/R-02/013)	-	4 times each year, twice in dry season, twice in wet season
Water Flea – *Ceriodaphnia dubia* (7-day chronic; Method 1002.0 in EPA/821/R-02/013)	-	"
Midge - *Chironomus spp.* (96-hour acute; Alternate test species in EPA 821-R-02-012)	-	"

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Toxicity Identification Evaluation (TIE)	-	As directed by Executive Officer
Pesticides[2] /Herbicides (µg/L)		
Organophosphate Pesticides		
Azinphos-methyl	0.02	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Chlorpyrifos	0.005	"
Diazinon	0.005	"
Dichlorvos	0.01	"
Dimethoate	0.01	"
Dimeton-s	0.005	"
Disulfoton (Disyton)	0.005	"
Malathion	0.005	"
Methamidophos	0.02	"
Methidathion	0.02	"
Parathion-methyl	0.02	"
Phorate	0.01	"
Phosmet	0.02	"
Neonicotinoids		
Thiamethoxam	.002	"
Imidacloprid	.002	"
Thiacloprid	.002	"
Dinotefuran	.006	"
Acetamiprid	.01	"
Clothianidin	.02	
Herbicides		
Atrazine	0.05	"
Cyanazine	0.20	"
Diuron	0.05	"
Glyphosate	2.0	"
Linuron	0.1	"
Paraquat	0.20	"
Simazine	0.05	"
Trifluralin	0.05	"
Metals (µg/L)		
Arsenic (total) [5,7]	0.3	2 times in both 2017 and 2018, once in dry season and once in wet season of each year, concurrent with water toxicity monitoring
Boron (total) [6,7]	10	"
Cadmium (total & dissolved) [4.5,7]	0.01	"

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Copper (total and dissolved) [4,7]	0.01	"
Lead (total and dissolved) [4,7]	0.01	"
Nickel (total and dissolved) [4,7]	0.02	"
Molybdenum (total) [7]	1	"
Selenium (total)[7]	0.30	"
Zinc (total and dissolved) [4.5,7]	0.10	"
Other (µg/L)		
Total Phenolic Compounds[8]	5	2 times in 2017, once in spring (April-May) and once in fall (August-September)
Hardness (mg/L as CaCO3)	1	"
Total Organic Carbon (ug/L)	0.6	"
SEDIMENT SAMPLING		
Sediment Toxicity - *Hyalella azteca* 10-day static renewal (EPA, 2000)		2 times each year, once in spring (April-May) and once in fall (August-September)
Pyrethroid Pesticides in Sediment (µg/kg)		
Gamma-cyhalothrin	2	2 times in both 2017 and 2018, once in spring (April-May) and once in fall (August-September) of each year, concurrent with sediment toxicity sampling
Lambda-cyhalothrin	2	"
Bifenthrin	2	"
Beta-cyfluthrin	2	"
Cyfluthrin	2	"
Esfenvalerate	2	"
Permethrin	2	"
Cypermethrin	2	"
Danitol	2	"
Fenvalerate	2	"
Fluvalinate	2	"
Other Monitoring in Sediment		
Chlorpyrifos (µg/kg)	2	"
Total Organic Carbon	0.01%	"
		"
Sediment Grain Size Analysis	1%	"

[1]Monitoring is ongoing through all five years of the Order, unless otherwise specified. Monitoring frequency may be used as a guide for developing alternative Sampling and Analysis Plan.
[2]Pesticide list may be modified based on specific pesticide use in Central Coast Region. Analytes on this list must be reported, at a minimum.
[3] Reporting Limit, taken from SWAMP where applicable.

[4] Holmgren, Meyer, Cheney and Daniels. 1993. Cadmium, Lead, Zinc, Copper and Nickel in Agricultural Soils of the United States. J. of Environ. Quality 22:335-348.
[5]Sax and Lewis, ed. 1987. Hawley's Condensed Chemical Dictionary. 11th ed. New York: Van Nostrand Reinhold Co., 1987. Zinc arsenate is an insecticide.
[6]Http://www.coastalagro.com/products/labels/9%25BORON.pdf; Boron is applied directly or as a component of fertilizers as a plant nutrient.
[7]Madramootoo, Johnston, Willardson, eds. 1997. Management of Agricultural Drainage Water Quality. International Commission on Irrigation and Drainage. U.N. FAO. SBN 92-6-104058.3.
[8]http://cat.inist.fr/?aModele=afficheN&cpsidt=14074525; Phenols are breakdown products of herbicides and pesticides. Phenols can be directly toxic and cause endocrine disruption.
[9]See SWAMP field measures SOP, p. 17
mg/L – milligrams per liter; ug/L – micrograms per liter; ug/kg – micrograms per kilogram;
NTU – Nephelometric Turbidity Units; CFS – cubic feet per second;

Table 3. Groundwater Monitoring Parameters

Parameter	RL	Analytical Method[3]	Units
pH	0.1	Field or Laboratory Measurement EPA General Methods	pH Units
Specific Conductance	2.5		µS/cm
Total Dissolved Solids	10		mg/L
Total Alkalinity as $CaCO_3$	1	EPA Method 310.1 or 310.2	
Calcium	0.05	General Cations[1] EPA 200.7, 200.8, 200.9	
Magnesium	0.02		
Sodium	0.1		
Potassium	0.1		
Sulfate (SO_4)	1.0	General Anions EPA Method 300 or EPA Method 353.2	
Chloride	0.1		
Nitrate + Nitrite (as N)[2] *or* Nitrate as N	0.1		

[1]General chemistry parameters (major cations and anions) represent geochemistry of water bearing zone and assist in evaluating quality assurance/quality control of groundwater monitoring and laboratory analysis.
[2]The MRP allows analysis of "nitrate plus nitrite" to represent nitrate concentrations (as N). The "nitrate plus nitrite" analysis allows for extended laboratory holding times and relieves the Discharger of meeting the short holding time required for nitrate.
[3]Dischargers may use alternative analytical methods approved by EPA.
RL – Reporting Limit; µS/cm – micro siemens per centimeter

Table 4A. Individual Discharge Monitoring for Tailwater, Tile drain, and Stormwater Discharges

Parameter	Analytical Method[1]	Maximum PQL	Units	Min Monitoring Frequency
Discharge Flow or Volume	Field Measure	---	CFS	(a) (d)
Approximate Duration of Flow	Calculation	---	hours/month	
Temperature (water)	Field Measure	0.1	°Celsius	
pH	Field Measure	0.1	pH units	

Electrical Conductivity	Field Measure	100	µS/cm	
Turbidity	SM 2130B, EPA 180.1	1	NTUs	
Nitrate + Nitrite (as N)	EPA 300.1, EPA 353.2	0.1	mg/L	
Ammonia	SM 4500 NH3, EPA 350.3	0.1	mg/L	
Chlorpyrifos[2]	EPA 8141A, EPA 614	0.02	ug/L	(b) (c) (d)
Diazinon[2]				
Ceriodaphnia Toxicity (96-hr acute)	EPA-821-R-02-012	NA	% Survival	
Hyalella Toxicity in Water (96-hr acute)	EPA-821-R-02-012	NA	% Survival	

[1] In-field water testing instruments/equipment as a substitute for laboratory analysis if the method is approved by EPA, meets RL/PQL specifications in the MRP, and appropriate sampling methodology and quality assurance checks can be applied to ensure that QAPP standards are met to ensure accuracy of the test.
[2]If chlorpyrifos or diazinon is used at the farm/ranch, otherwise does not apply. The Executive Officer may require monitoring of other pesticides based on results of downstream receiving water monitoring.
(a) Two times per year during primary irrigation season for farms/ranches less than or equal to 500 acres, and four times per year during primary irrigation season for farms/ranches greater than 500 acres. Executive Officer may reduce sampling frequency based on water quality improvements.
(b) Once per year during primary irrigation season for farms/ranches less than or equal to 500 acres, and two times per year during primary irrigation season for farms/ranches greater than 500 acres.
(c) Sample must be collected within one week of chemical application, if chemical is applied on farm/ranch;
(d) Once per year during wet season (October – March) for farms/ranches less than or equal to 500 acres, and two times per year during wet season for farms/ranches greater than 500 acres, within 18 hours of major storm events;
CFS – Cubic feet per second; NTU – Nephelometric turbidity unit; PQL – Practical Quantitation Limit;
NA – Not applicable

Table 4B. Individual Discharge Monitoring for Tailwater Ponds and other Surface Containment Features

Parameter	Analytical Method[1]	Maximum PQL	Units	Minimum Monitoring Frequency
Volume of Pond	Field Measure	1	Gallons	(a) (d)
Nitrate + Nitrite (as N)	EPA 300.1, EPA 353.2	50	mg/L	

[1] In-field water testing instruments/equipment as a substitute for laboratory analysis if the method is approved by EPA, meets RL/PQL specifications in the MRP, and appropriate sampling methodology and quality assurance checks can be applied to ensure that QAPP standards are met to ensure accuracy of the test.
(a) Four times per year during primary irrigation season; Executive Officer may reduce monitoring frequency based on water quality improvements.
(d) Two times per year during wet season (October – March, within 18 hours of major storm events)

Table 5. Tier 3 - Time Schedule for Key Monitoring and Reporting Requirements (MRPs)

REQUIREMENT	TIME SCHEDULE[1]
Submit Sampling And Analysis Plan and Quality Assurance Project Plan (SAAP/QAPP) for Surface Receiving Water Quality Monitoring (*individually or*	By March 1, 2018, or as directed by the Executive Officer; satisfied if an approved SAAP/QAPP has been submitted pursuant

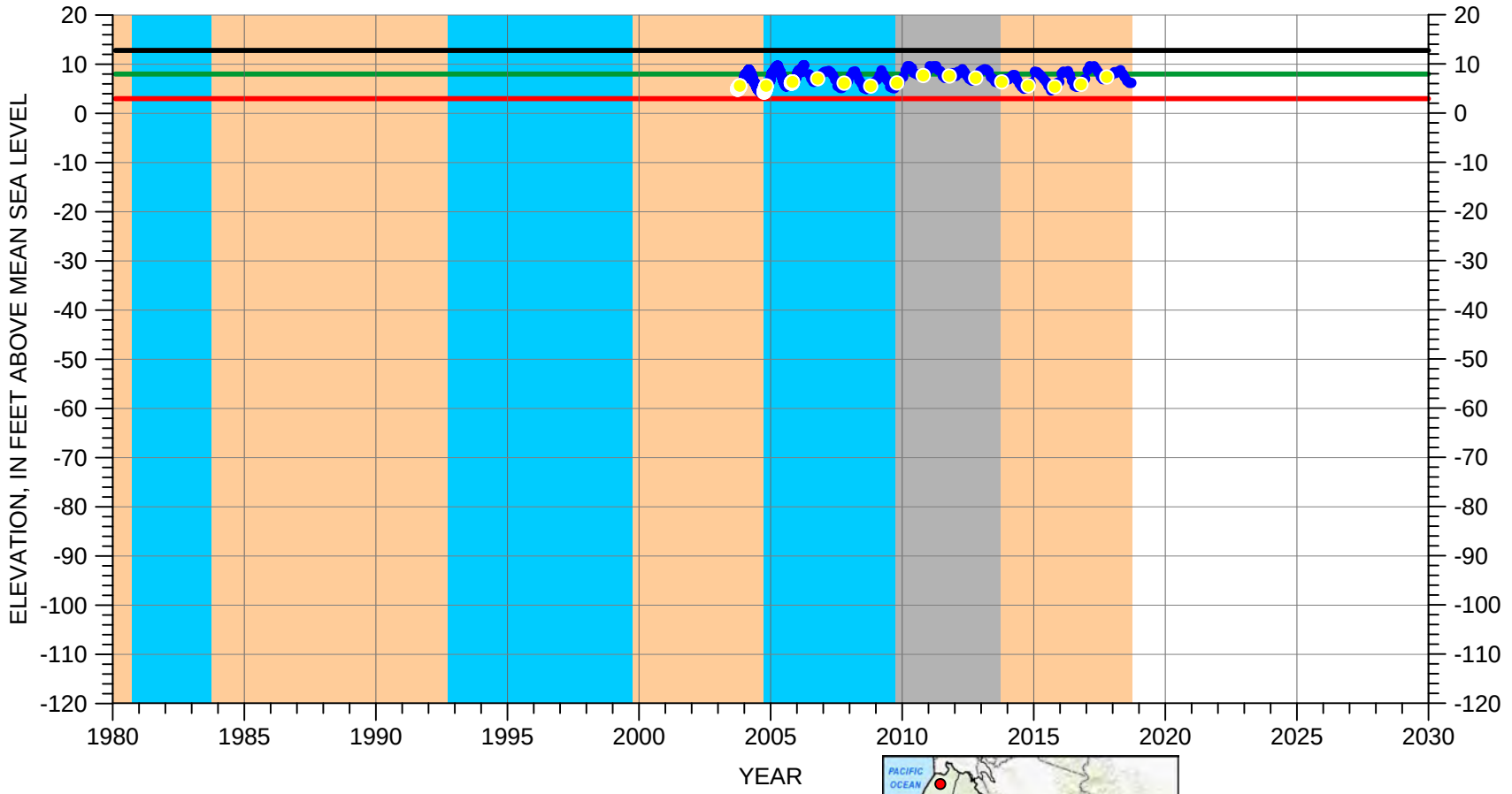
through cooperative monitoring program)	to Order No. R3-2012-0011 and associated MRPs
Initiate surface receiving water quality monitoring (*individually or through cooperative monitoring program*)	Per an approved SAAP and QAPP
Submit surface receiving water quality monitoring data (*individually or through cooperative monitoring program*)	Each January 1, April 1, July 1, and October 1
Submit surface receiving water quality Annual Monitoring Report (*individually or through cooperative monitoring program*)	By July 1 2017; annually thereafter by July 1
Initiate monitoring of groundwater wells	First sample from March-June 2017, second sample from September-December 2017
Submit individual surface water discharge SAAP and QAPP	By March 1, 2018 or as directed by the Executive Officer; waived if an approved SAAP and QAPP has been submitted and being implemented pursuant to Order No. R3-2012-0011.
Initiate individual surface water discharge monitoring	As described in an approved SAAP and QAPP
Submit individual surface water discharge monitoring data	March 1, 2018, and every March 1 annually thereafter
Submit electronic Annual Compliance Form	March 1, 2018 and every March 1 annually thereafter
Submit groundwater monitoring results	Within 60 days of the sample collection
Submit Water Quality Buffer Plan or alternative	Within 18 months of enrolling new Tier 3 farm/ranch in Order
Submit Status Report on Water Quality Buffer Plan or alternative	March 1, 2019
Tier 3 Dischargers with farms/ranches growing high risk crops:	
Report total nitrogen applied on the Total Nitrogen Applied form	March 1, 2018 and every March 1 annually thereafter
Submit INMP Effectiveness Report	March 1, 2019

[1] Dates are relative to adoption of this Order, unless otherwise specified.

APPENDIX 8A
HYDROGRAPHS

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-21Q01

180/400-Foot Aquifer Subbasin
(180-Foot Aquifer)

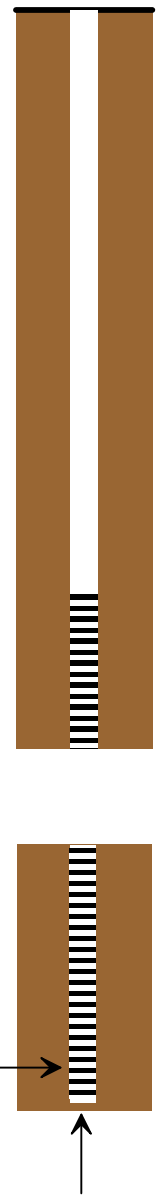


EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET



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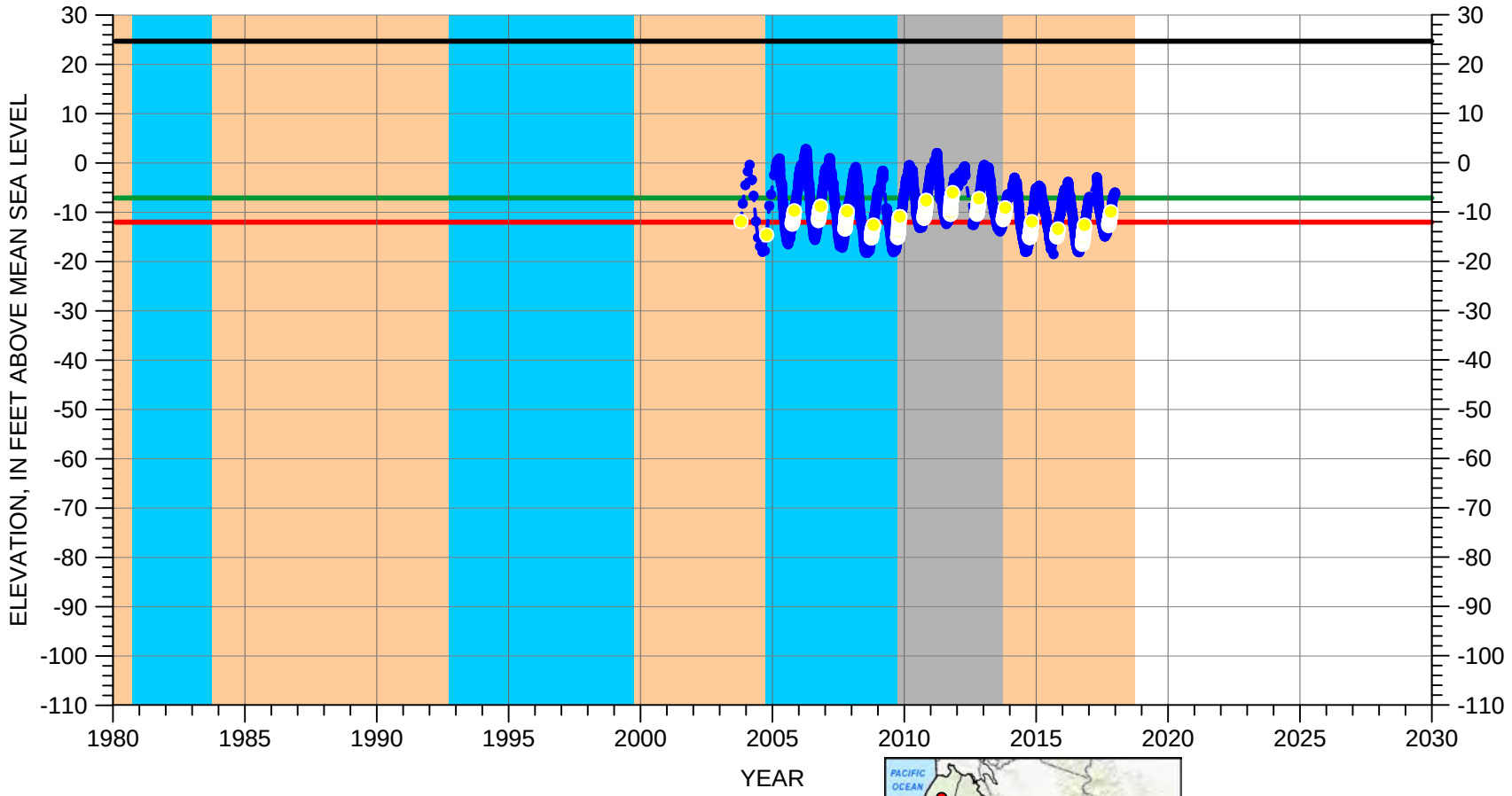
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-03F04

180/400-Foot Aquifer Subbasin
(180-Foot Aquifer)

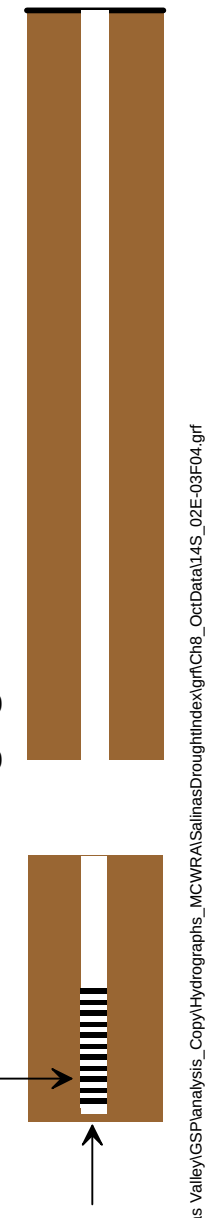


EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET



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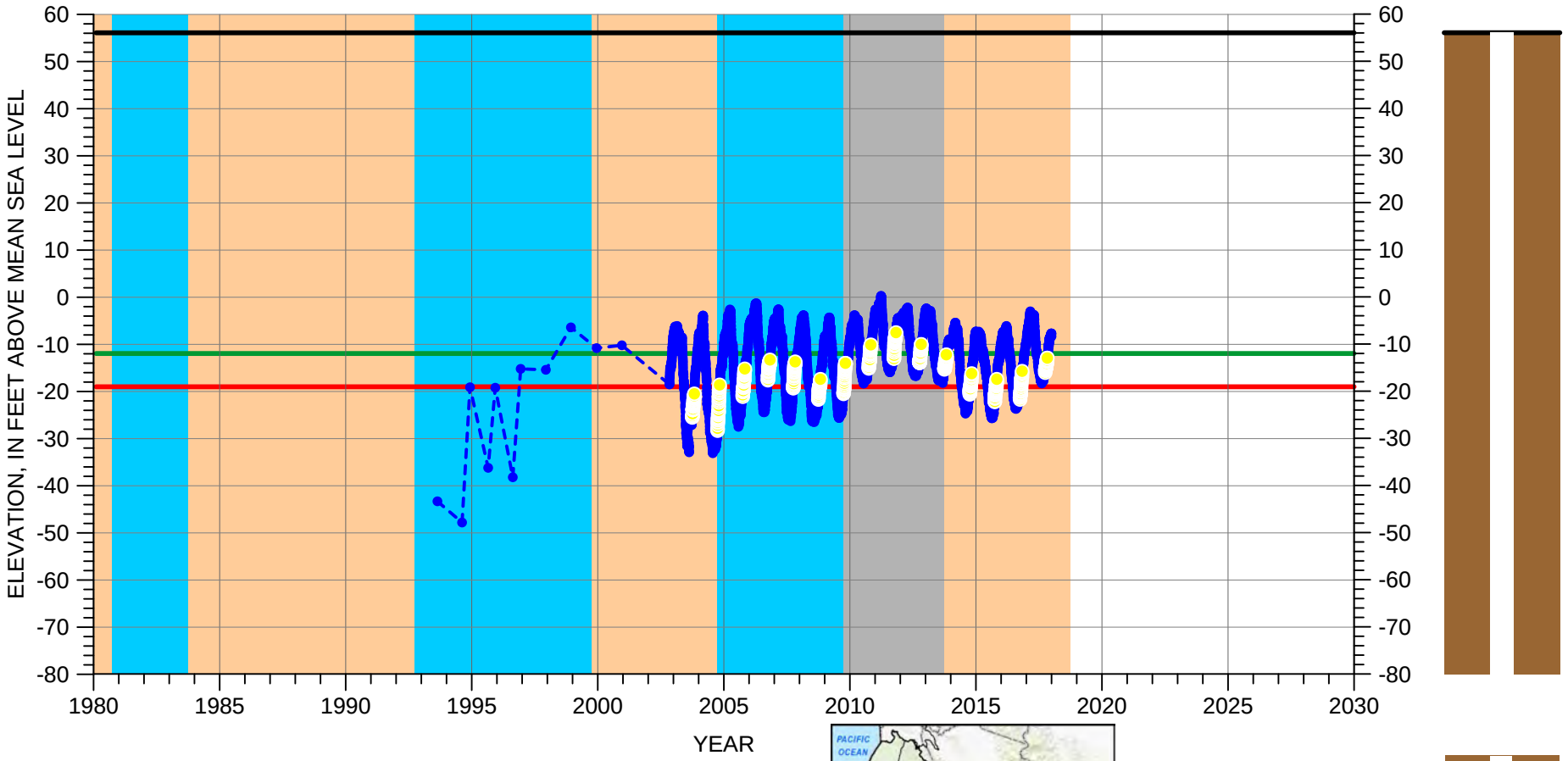
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-12B02

180/400-Foot Aquifer Subbasin
(180-Foot Aquifer)



EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET

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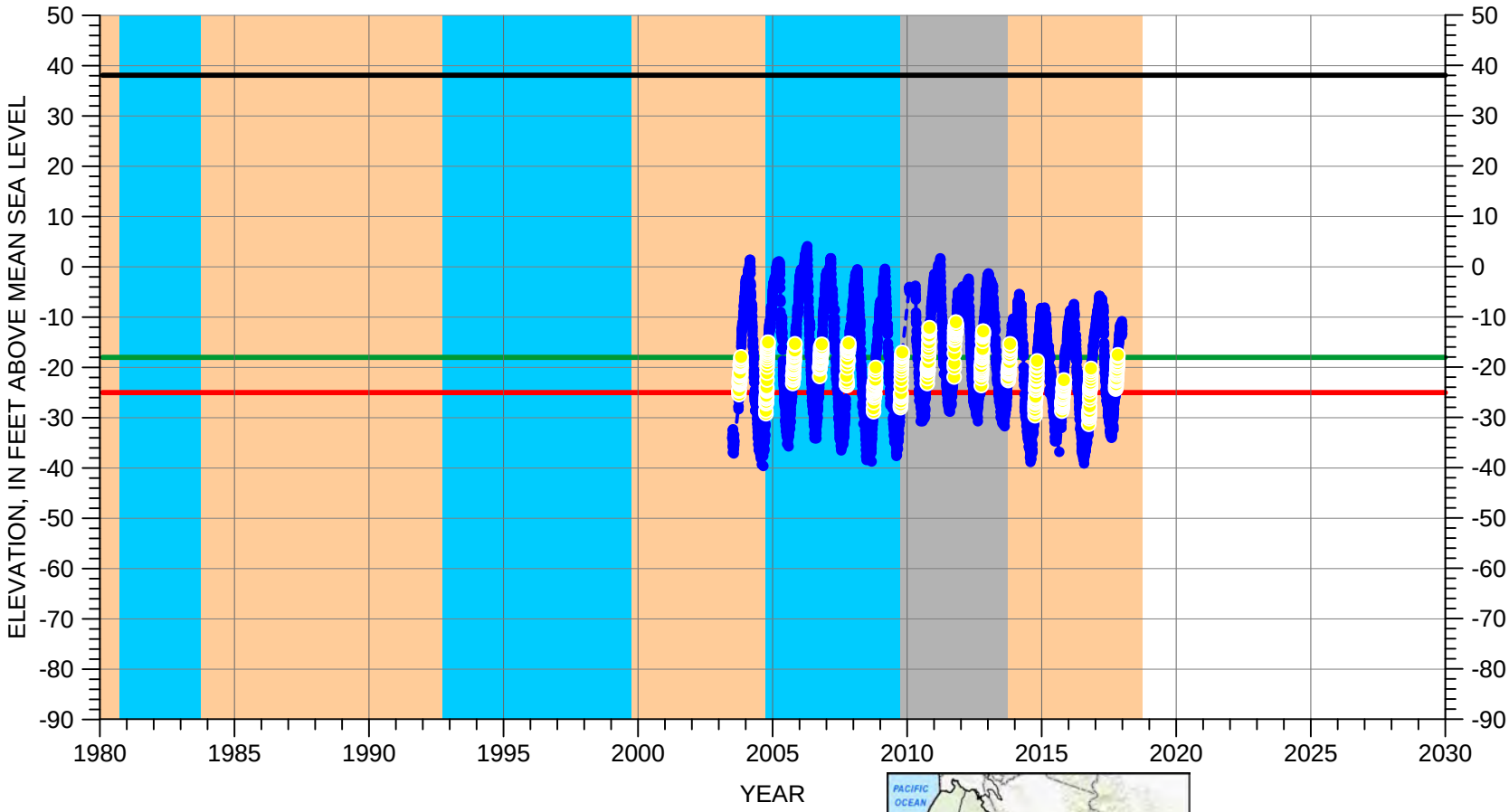
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-26H01

180/400-Foot Aquifer Subbasin
(180-Foot Aquifer)

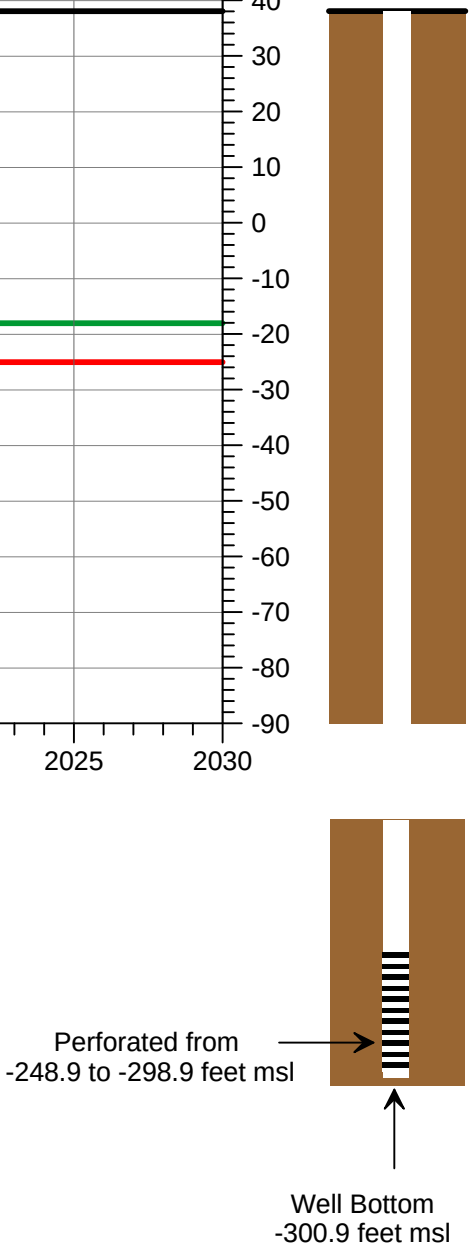


EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET



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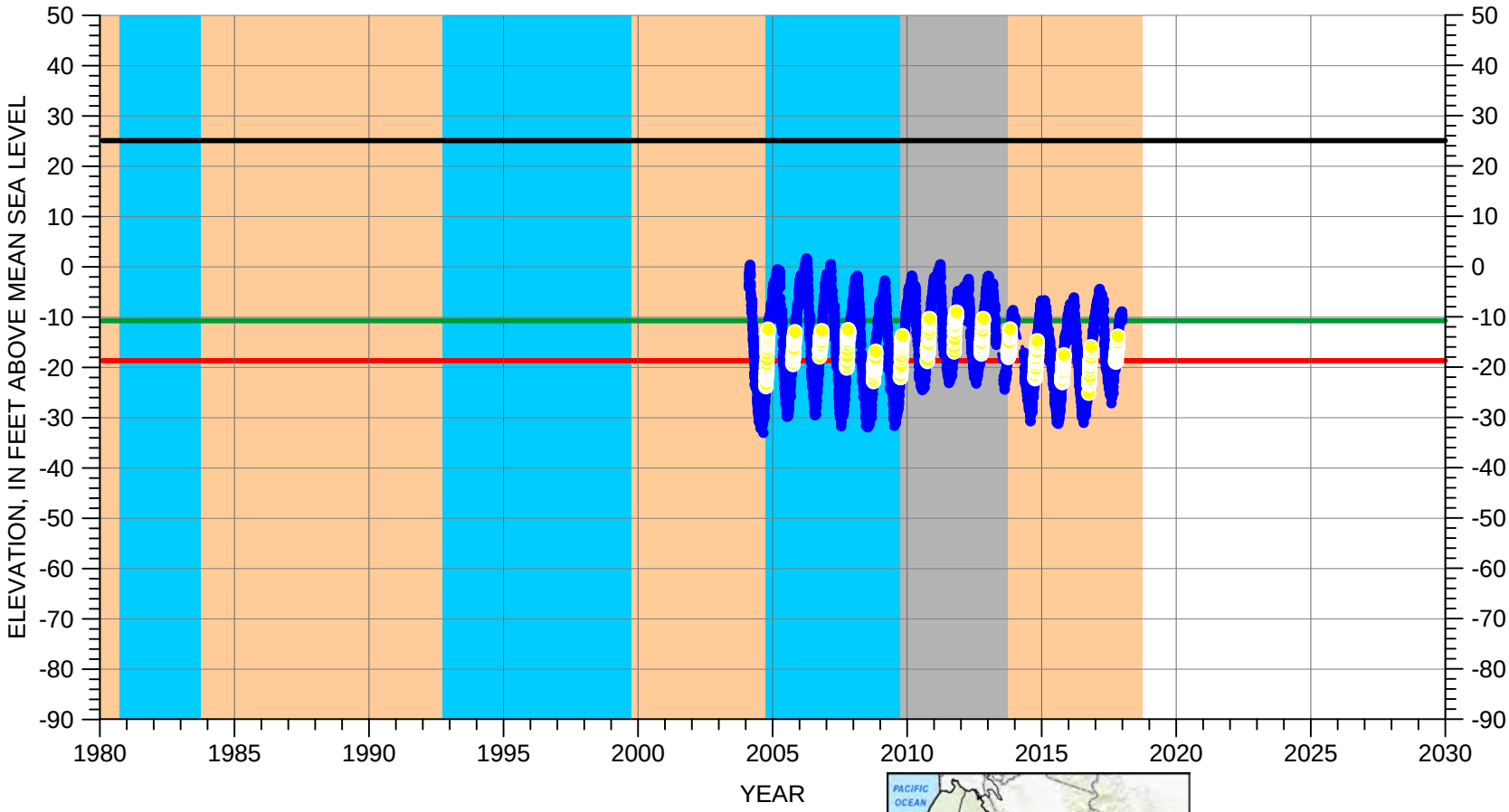
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-27A01

180/400-Foot Aquifer Subbasin
(180-Foot Aquifer)



EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
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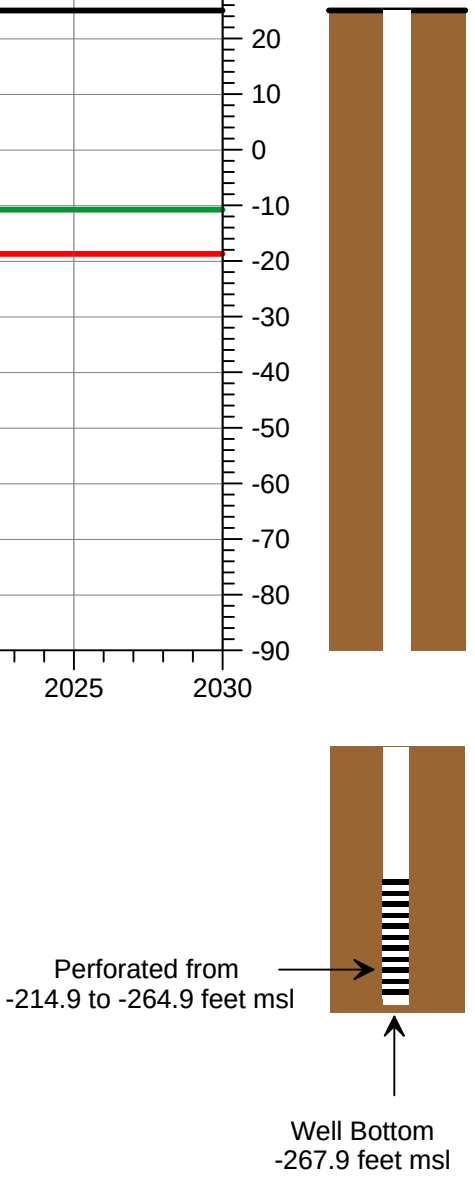
- WET



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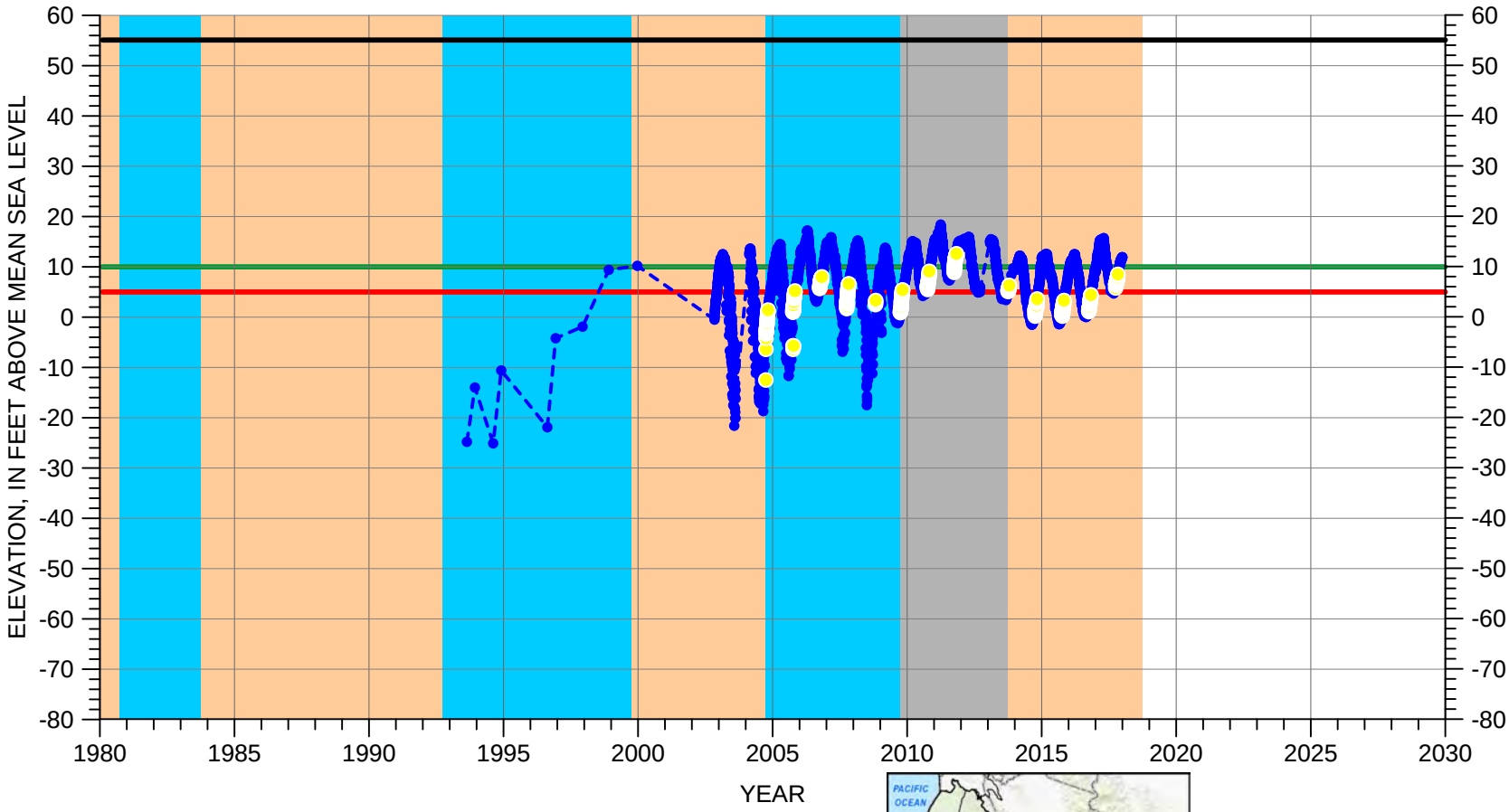
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-18C01

180/400-Foot Aquifer Subbasin
(180-Foot Aquifer)

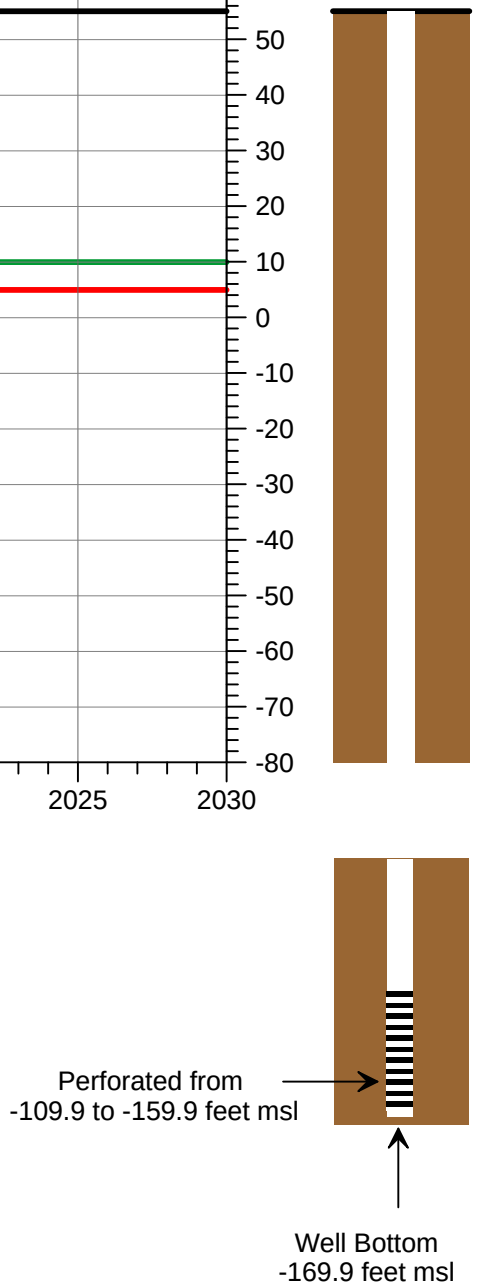


EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET



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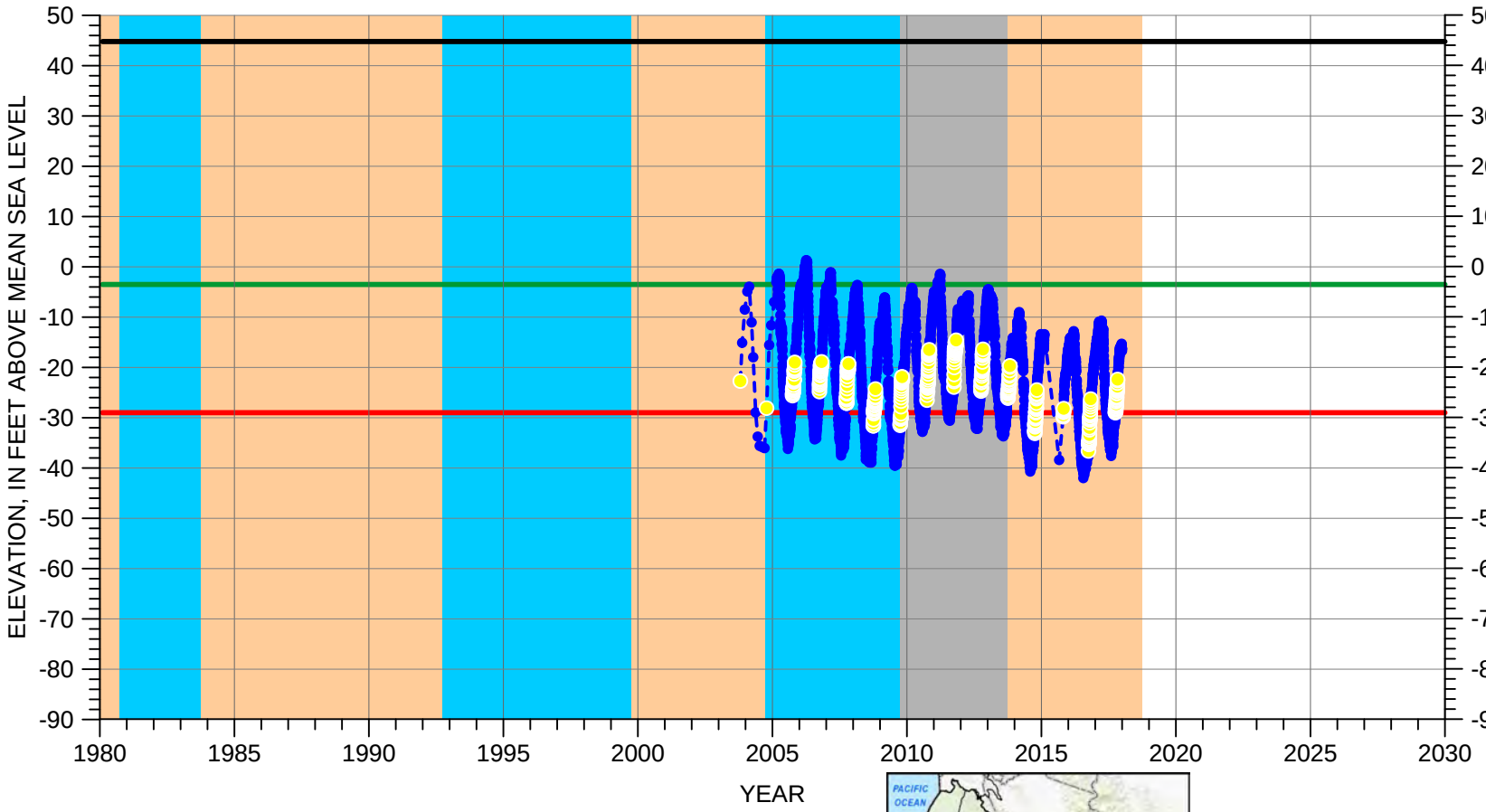
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-30G08

180/400-Foot Aquifer Subbasin
(180-Foot Aquifer)

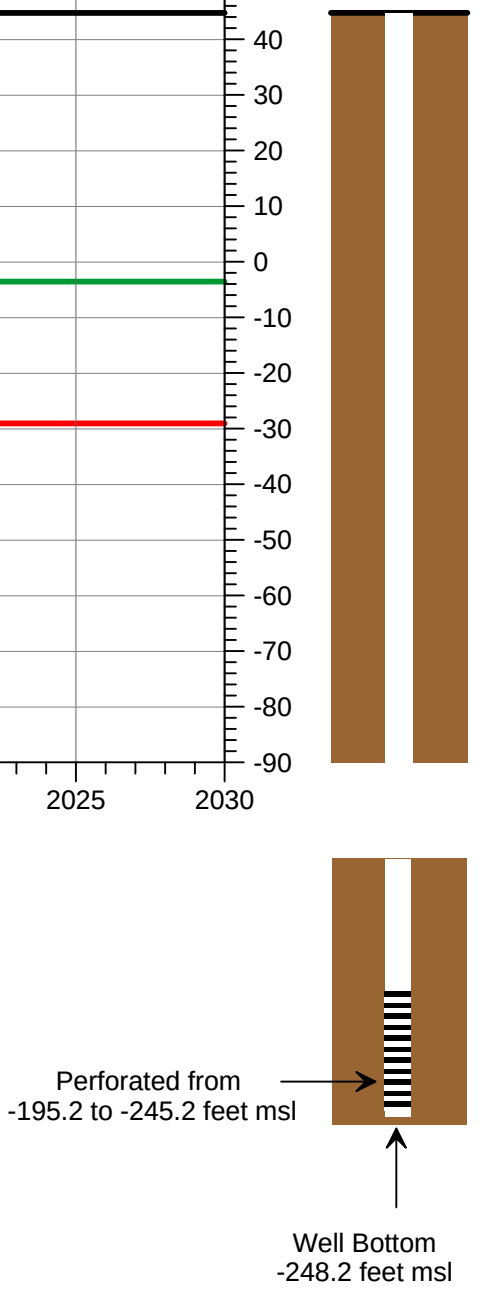


EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET



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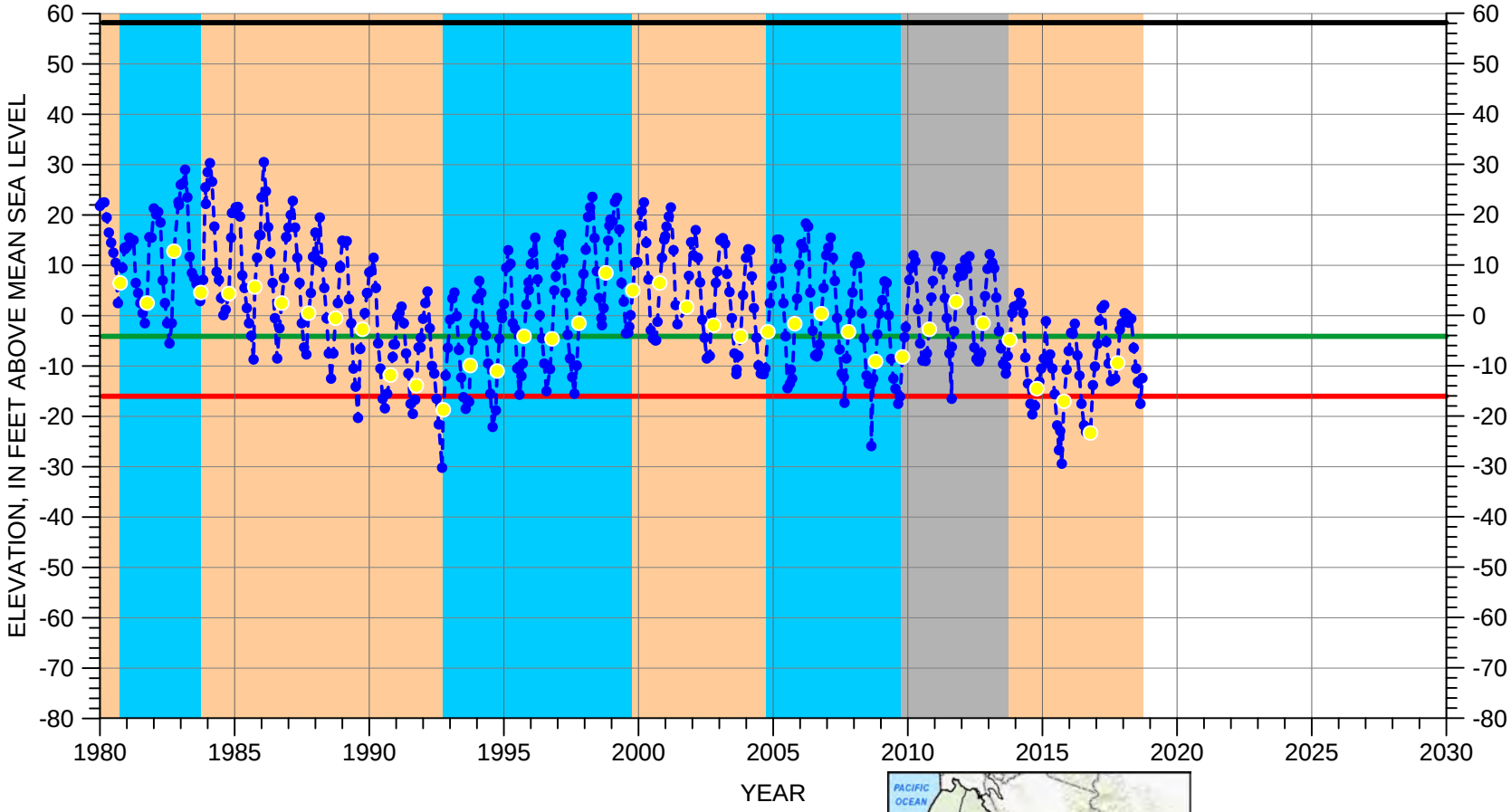
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-16M01

180/400-Foot Aquifer Subbasin
(180-Foot Aquifer)

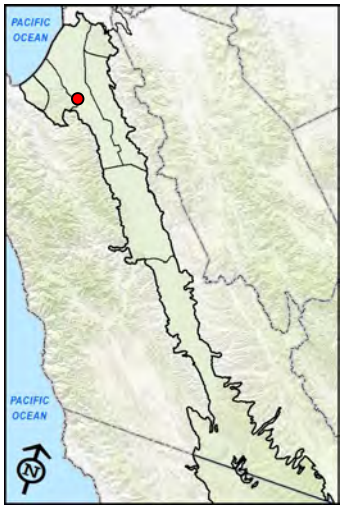


EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET



Perforated interval unknown

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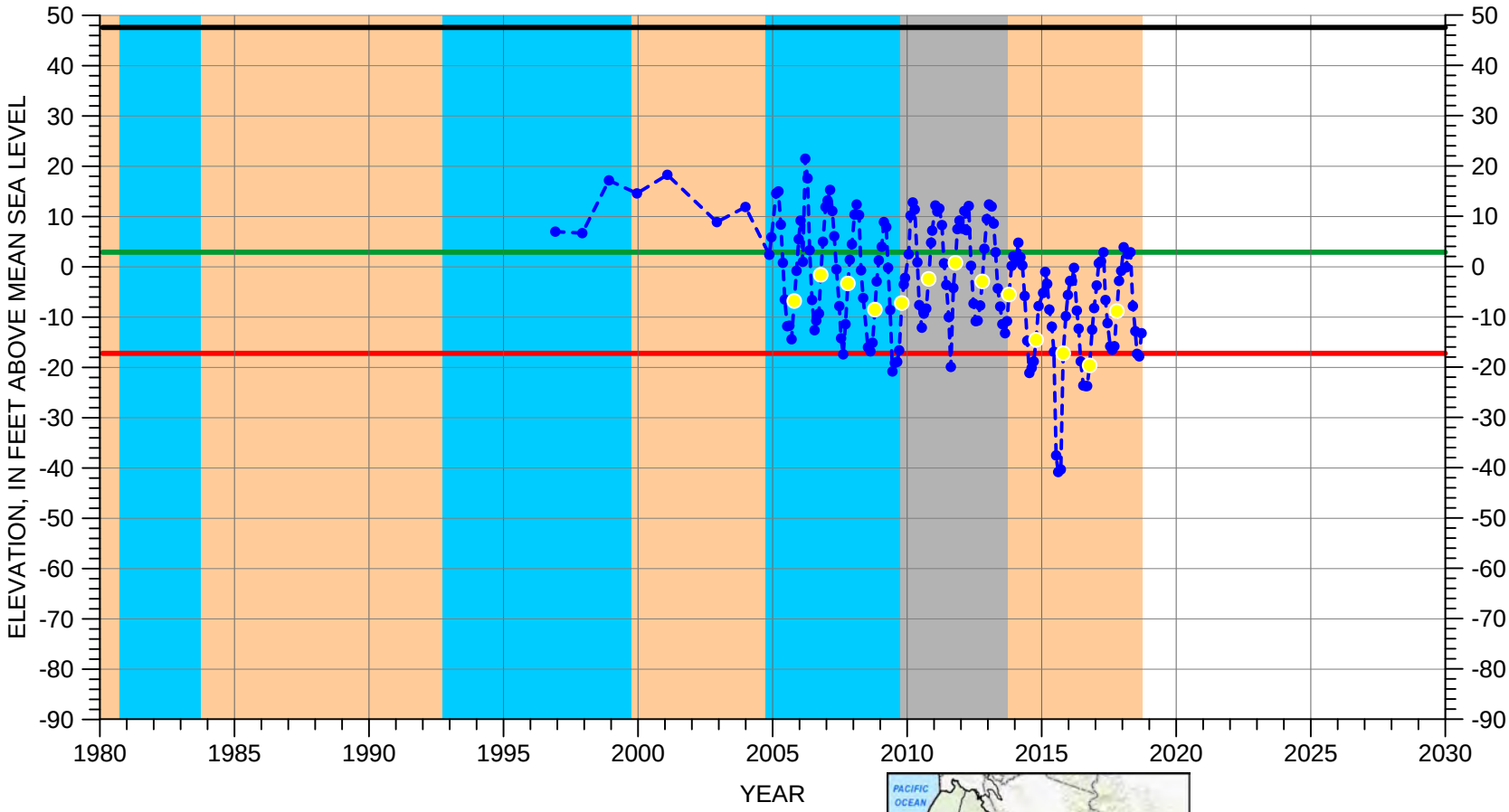
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-17M01

180/400-Foot Aquifer Subbasin
(180-Foot Aquifer)

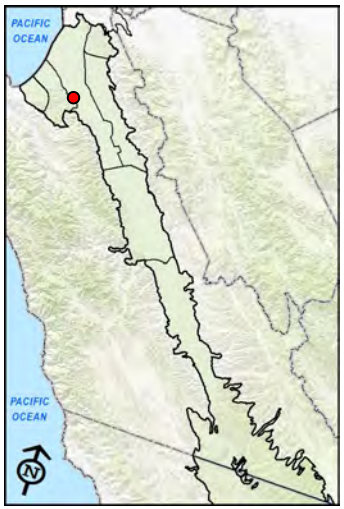


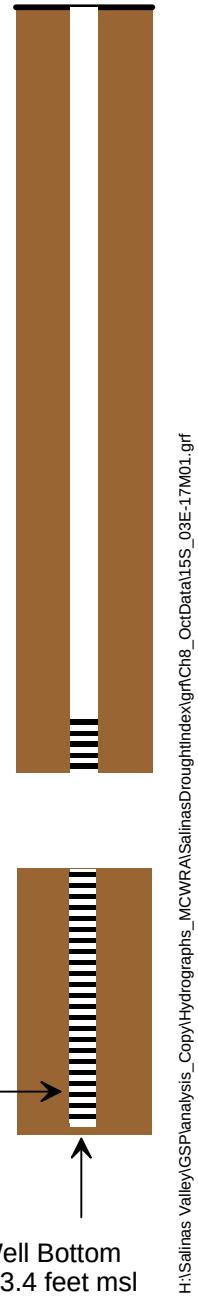
EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET





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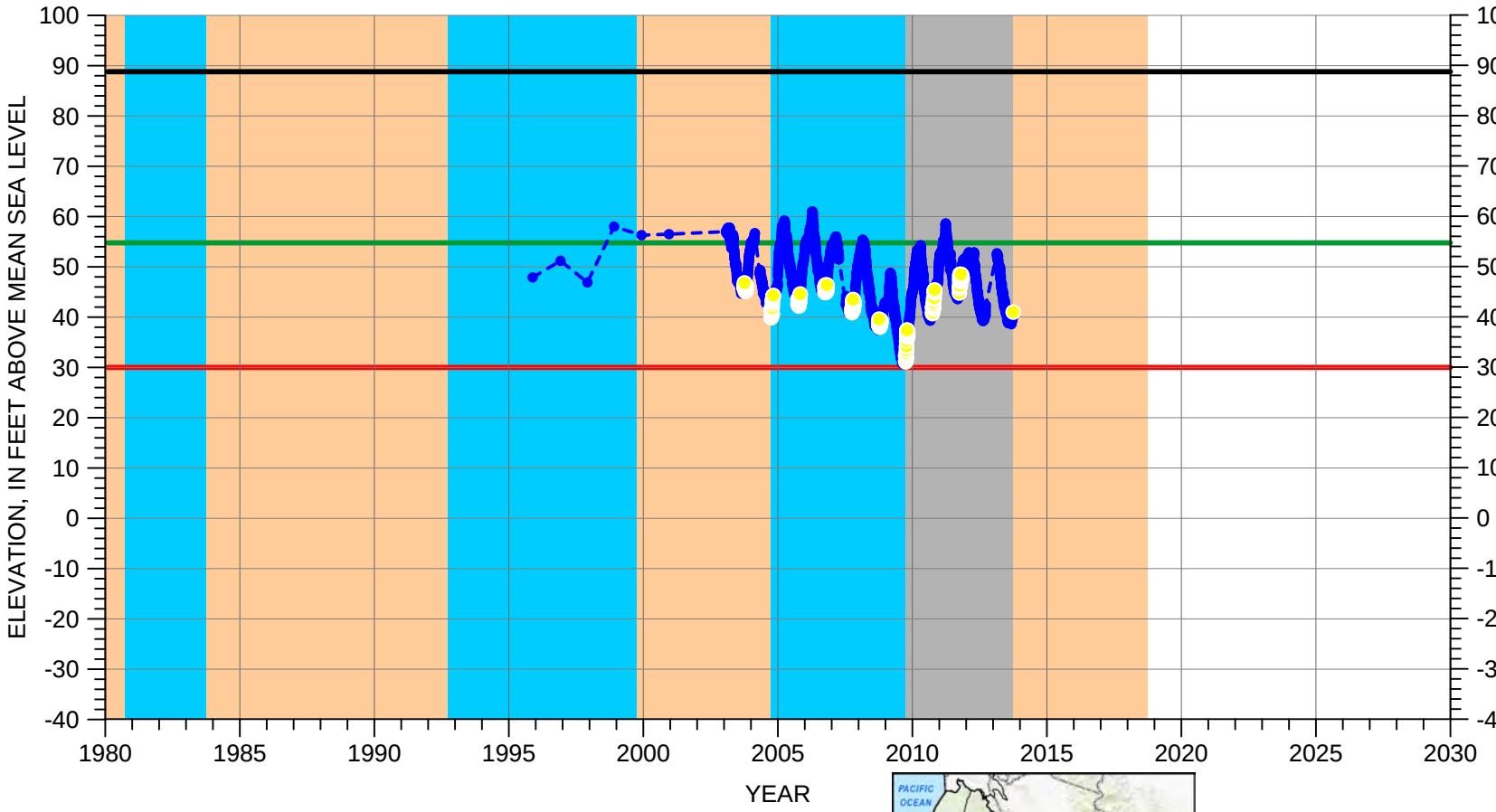
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/04E-08H04

180/400-Foot Aquifer Subbasin
(180-Foot Aquifer)

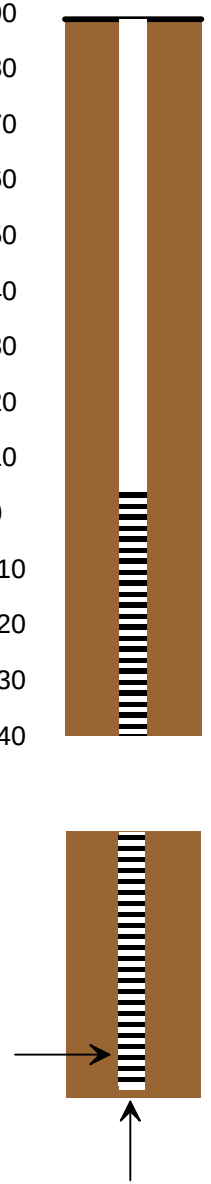


EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET



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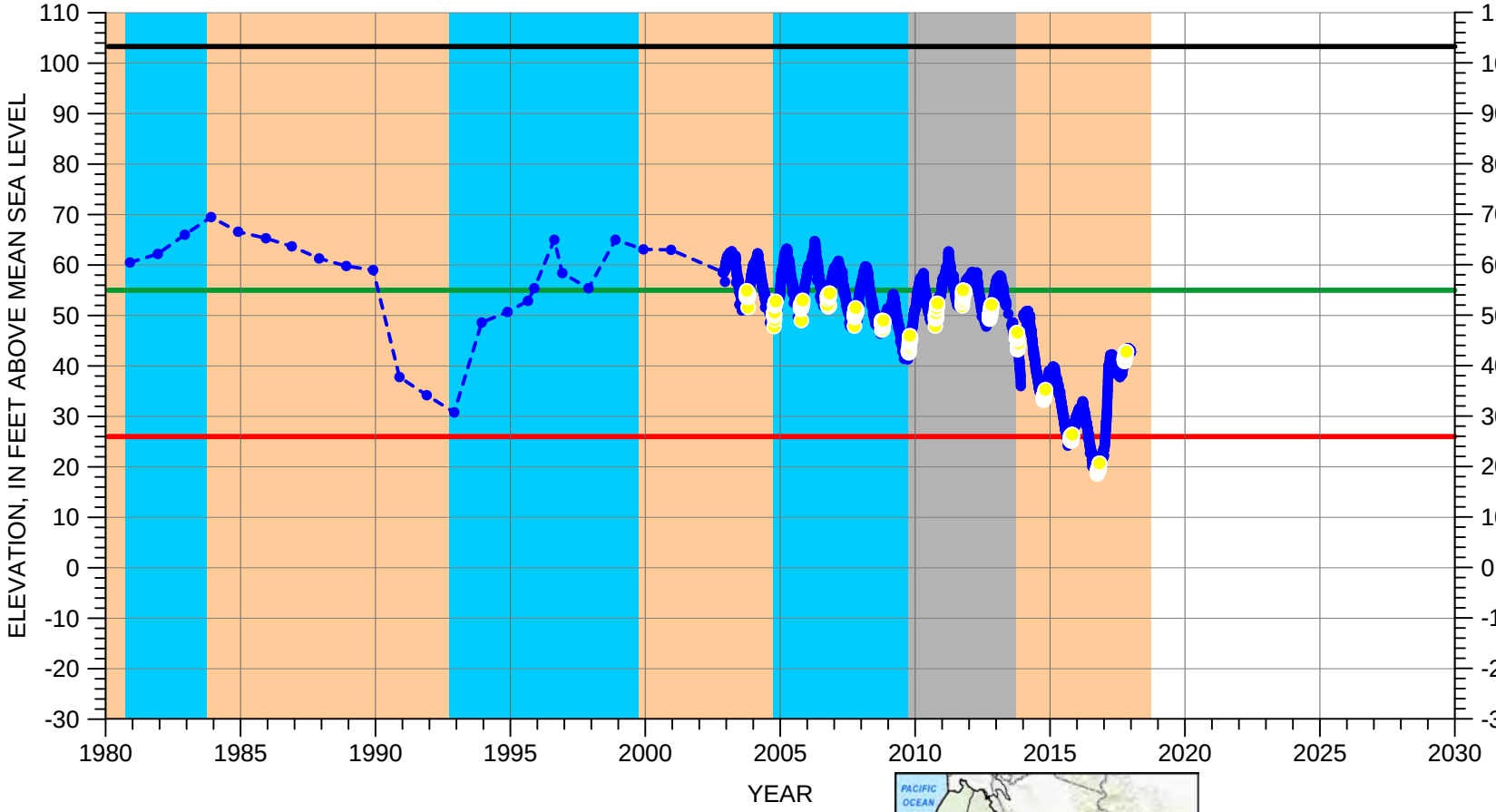
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/04E-15D01

180/400-Foot Aquifer Subbasin
(180-Foot Aquifer)

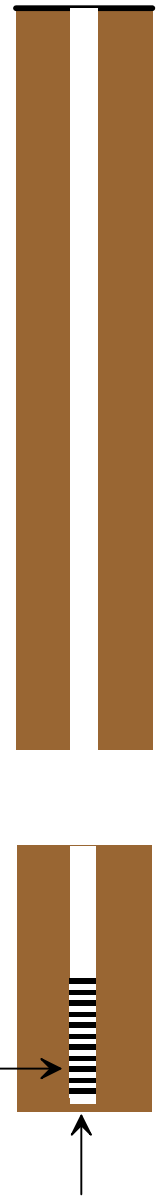


EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET



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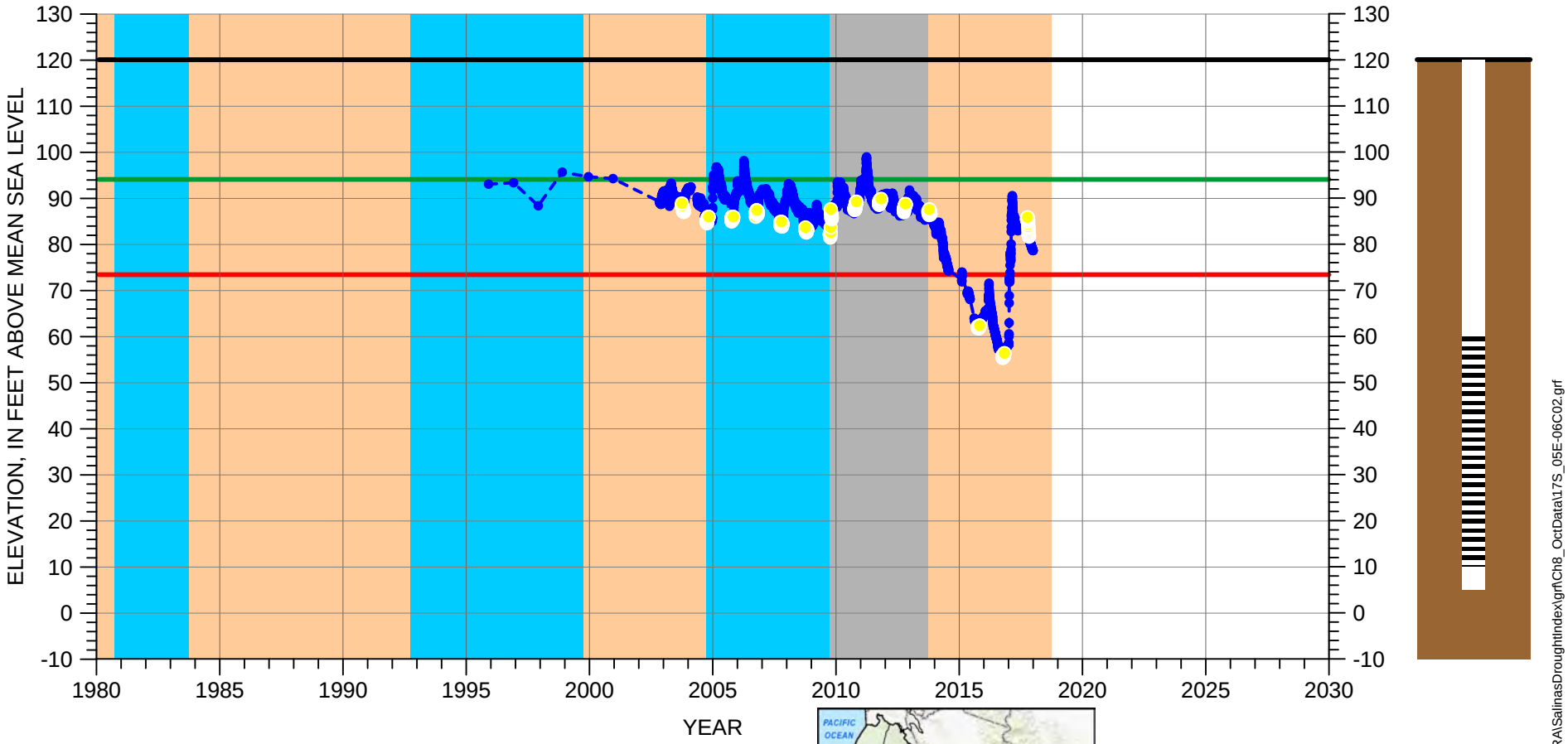
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 17S/05E-06C02

180/400-Foot Aquifer Subbasin
(180-Foot Aquifer)



EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

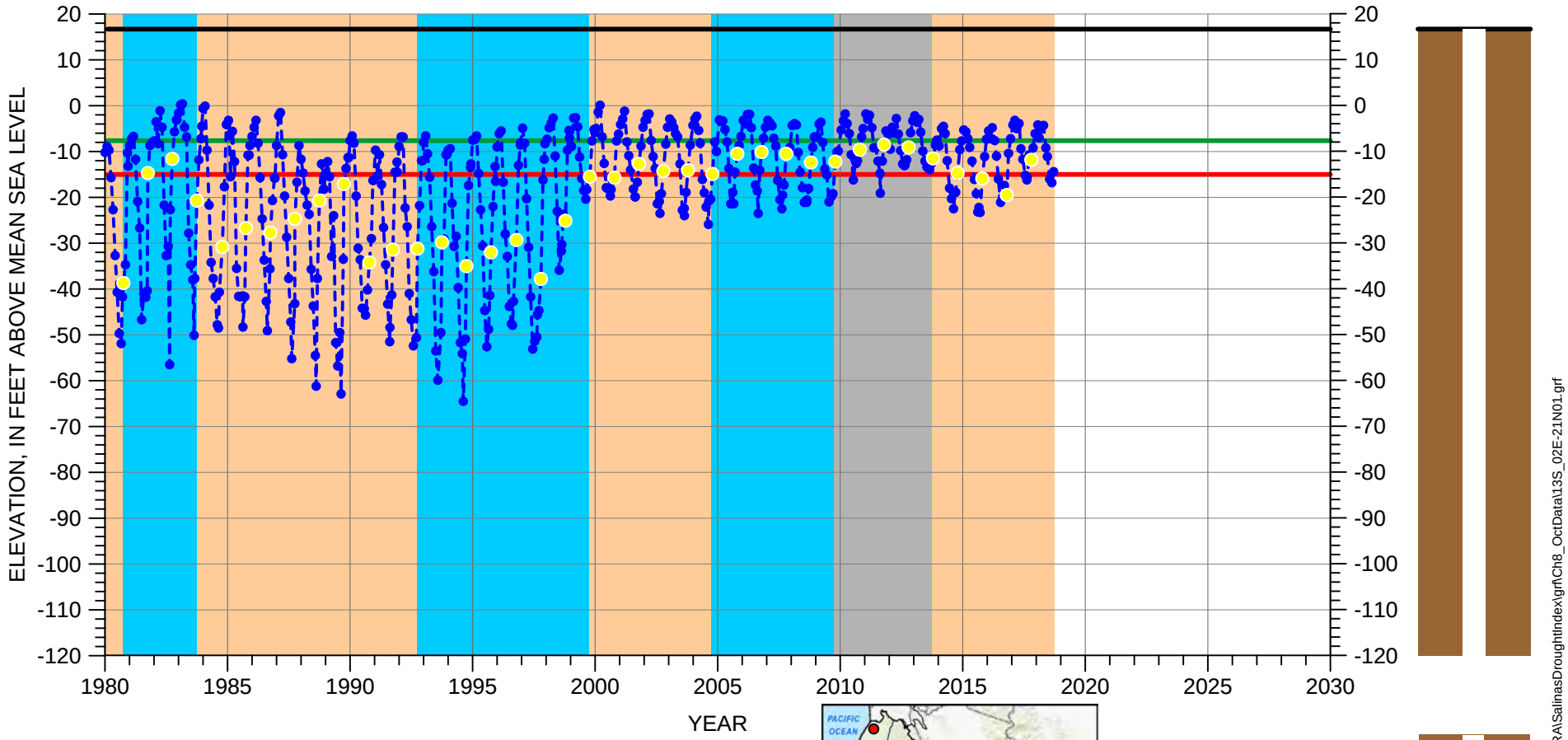
CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET

H:\Salinas Valley\GSP\analysis_Copy\Hydrographs_MCWRA\SalinasDroughtIndex\grf\Ch8_OctData\17S_05E-06C02.grf

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-21N01

180/400-Foot Aquifer Subbasin
(400-Foot Aquifer)



EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

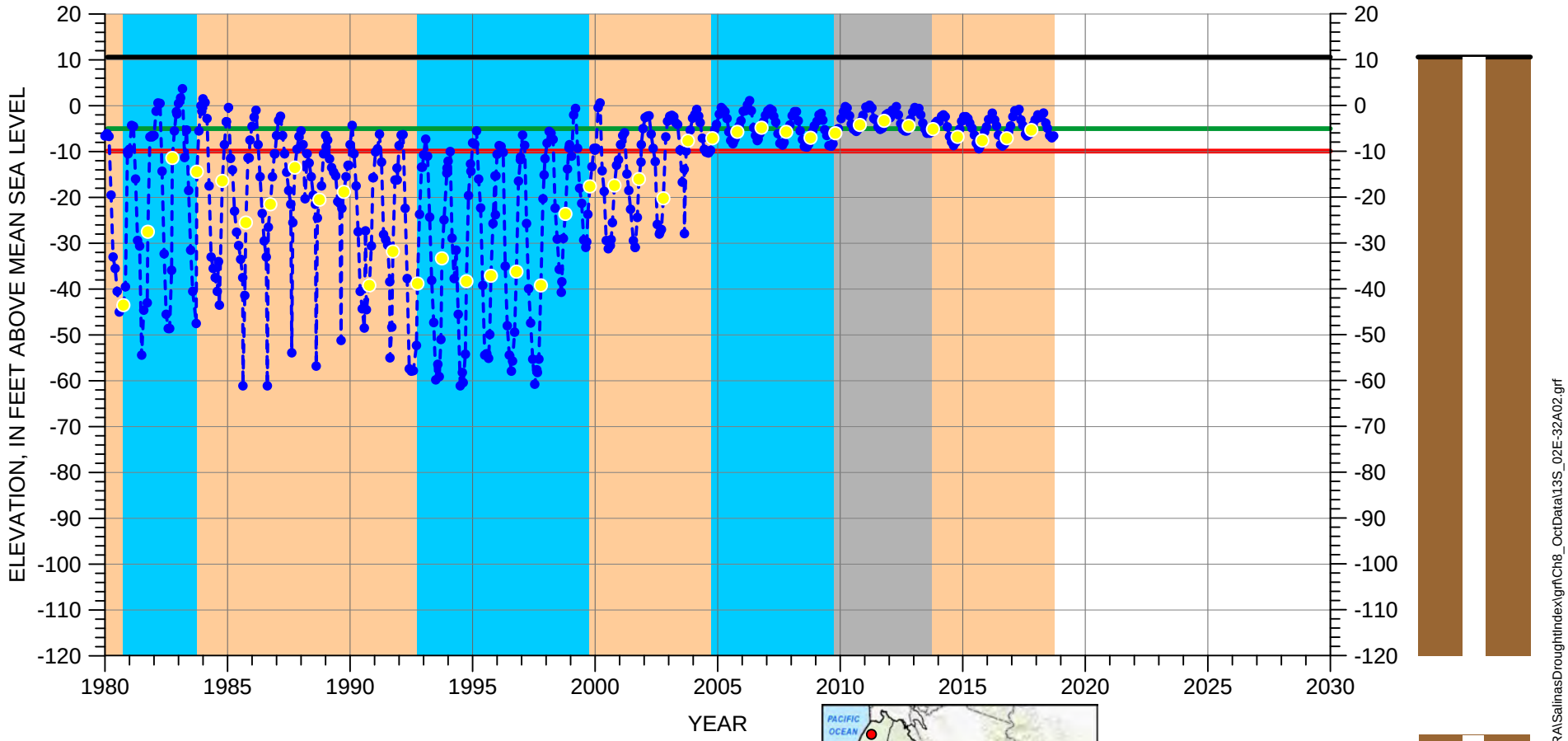
CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET

H:\Salinas Valley\GSP\analysis_Copy\Hydrographs_MCWRA\SalinasDroughtIndex\grf\Ch8_OctData\13S_02E-21N01.grf

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-32A02

180/400-Foot Aquifer Subbasin
(400-Foot Aquifer)



EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET

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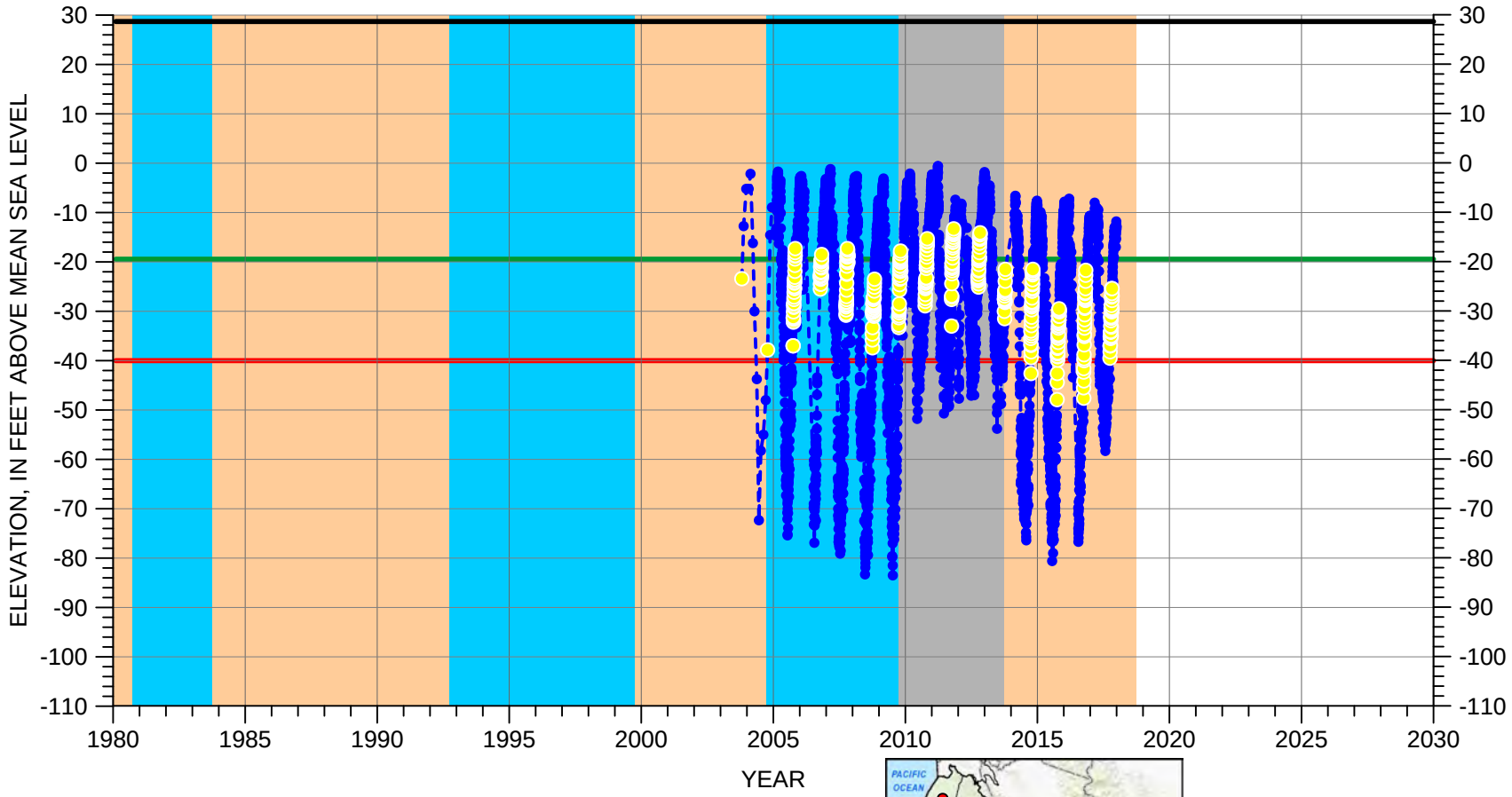
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-03F03

180/400-Foot Aquifer Subbasin
(400-Foot Aquifer)

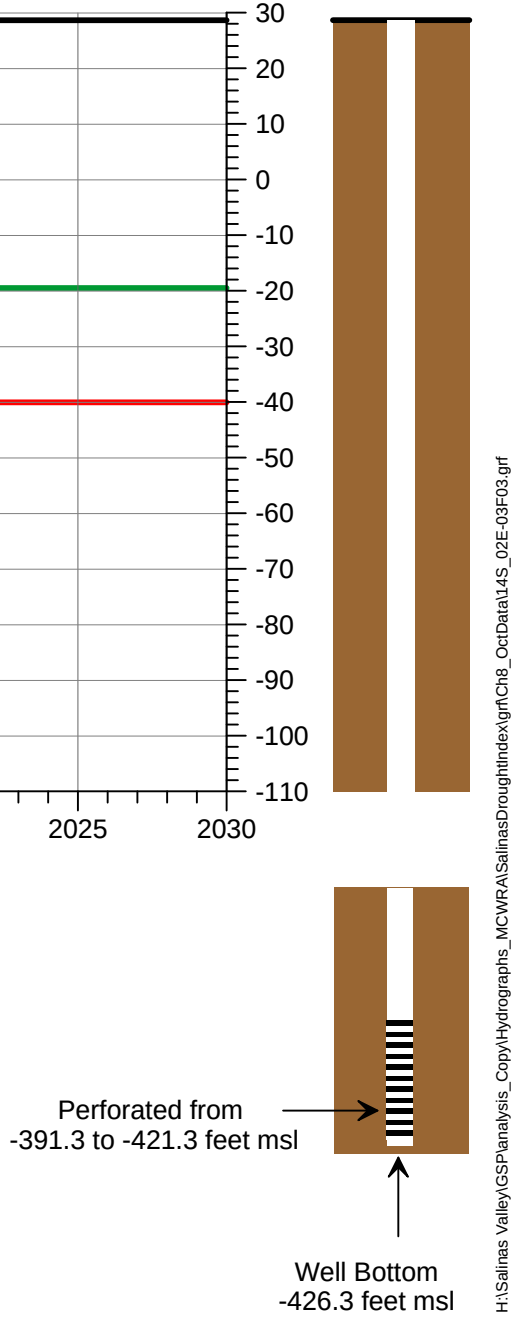


EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET



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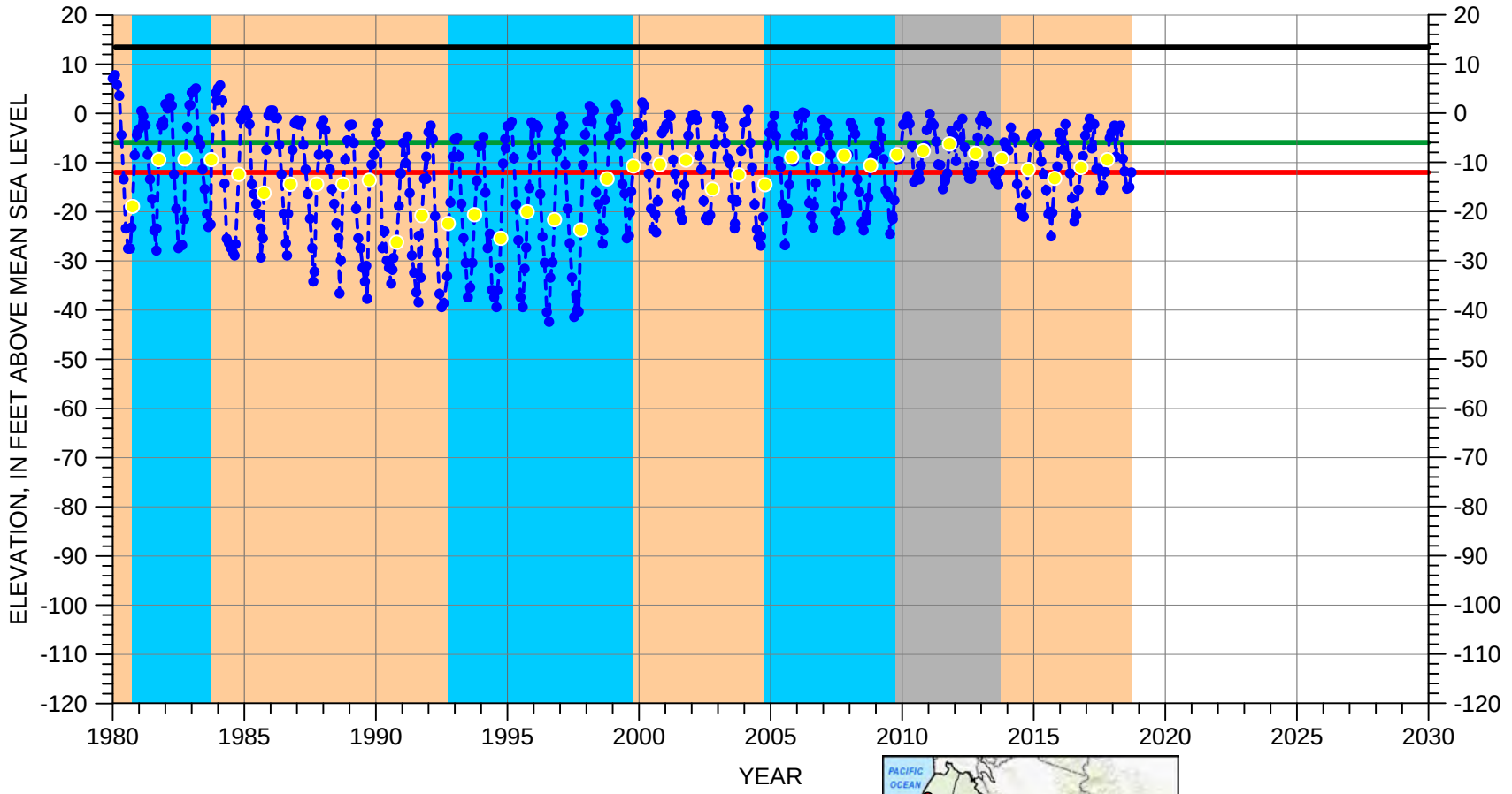
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-08M02

180/400-Foot Aquifer Subbasin
(400-Foot Aquifer)

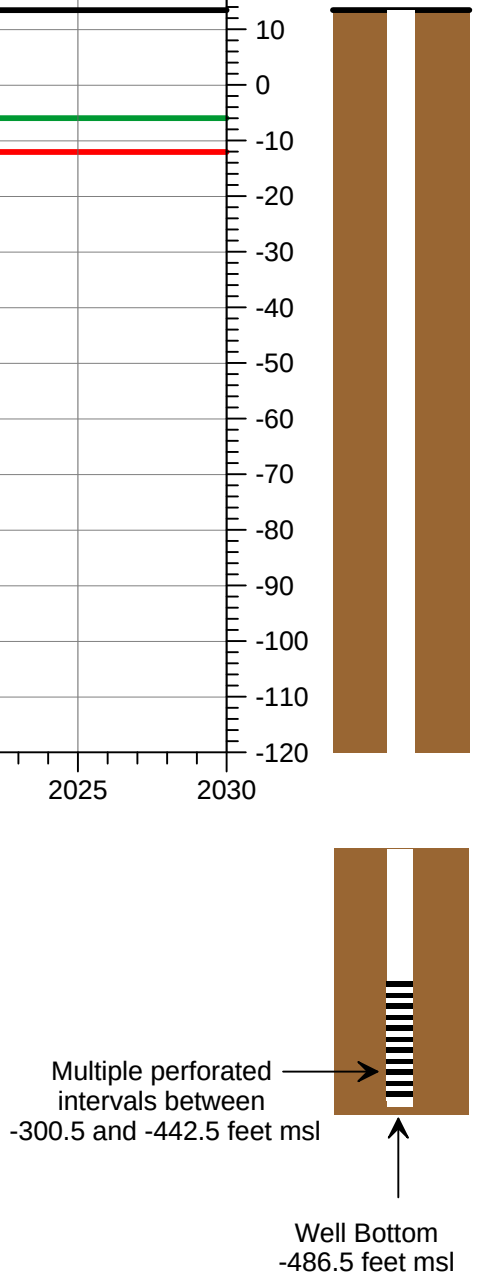


EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET



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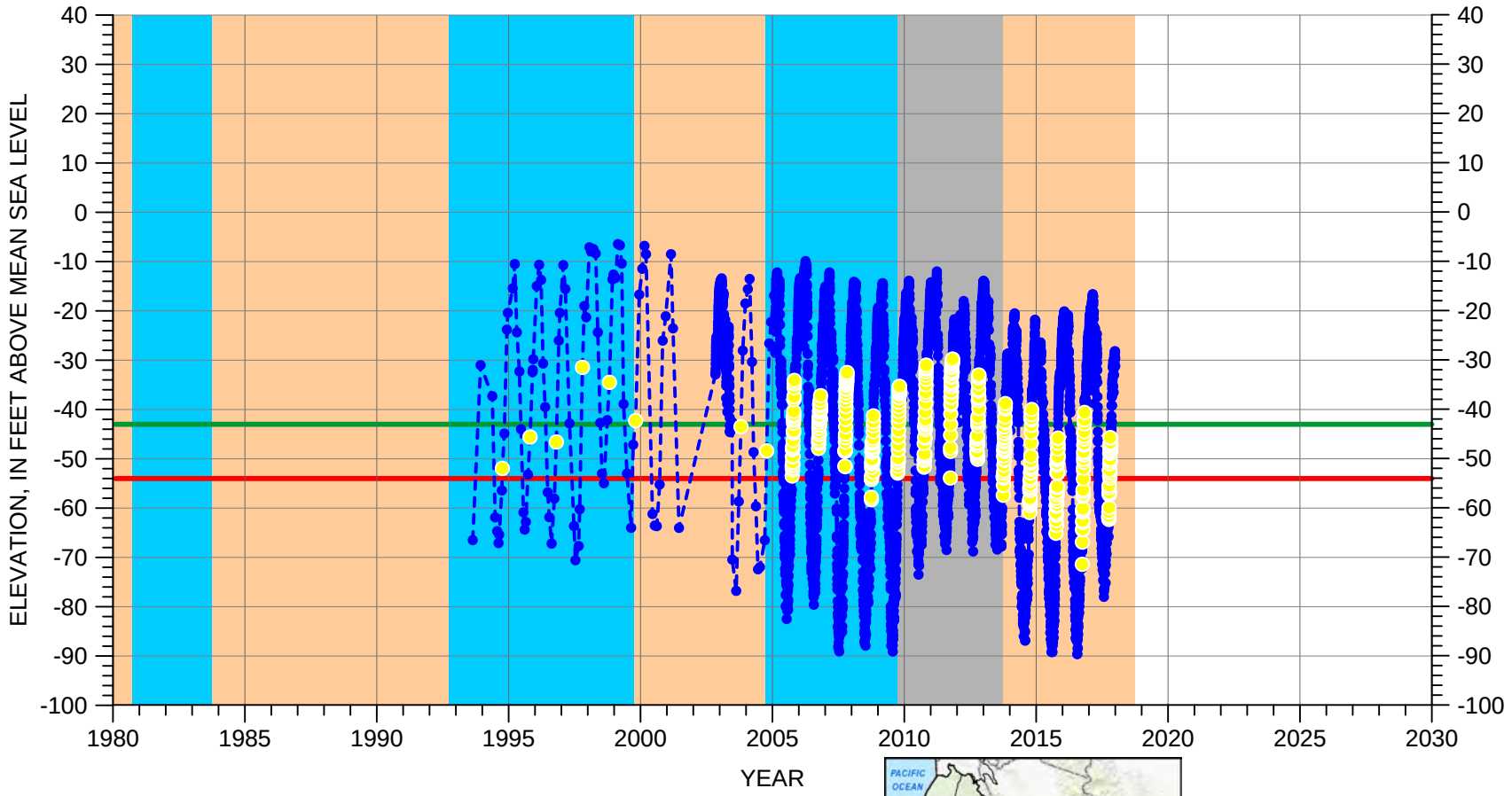
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-12B03

180/400-Foot Aquifer Subbasin
(400-Foot Aquifer)

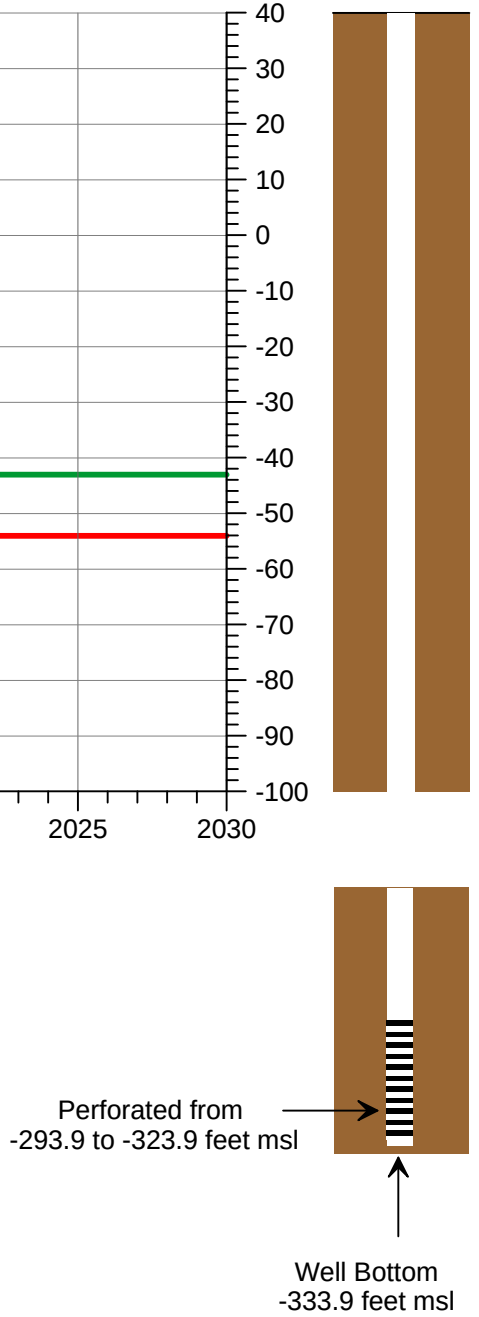


EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE (56.1 FT MSL)
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET



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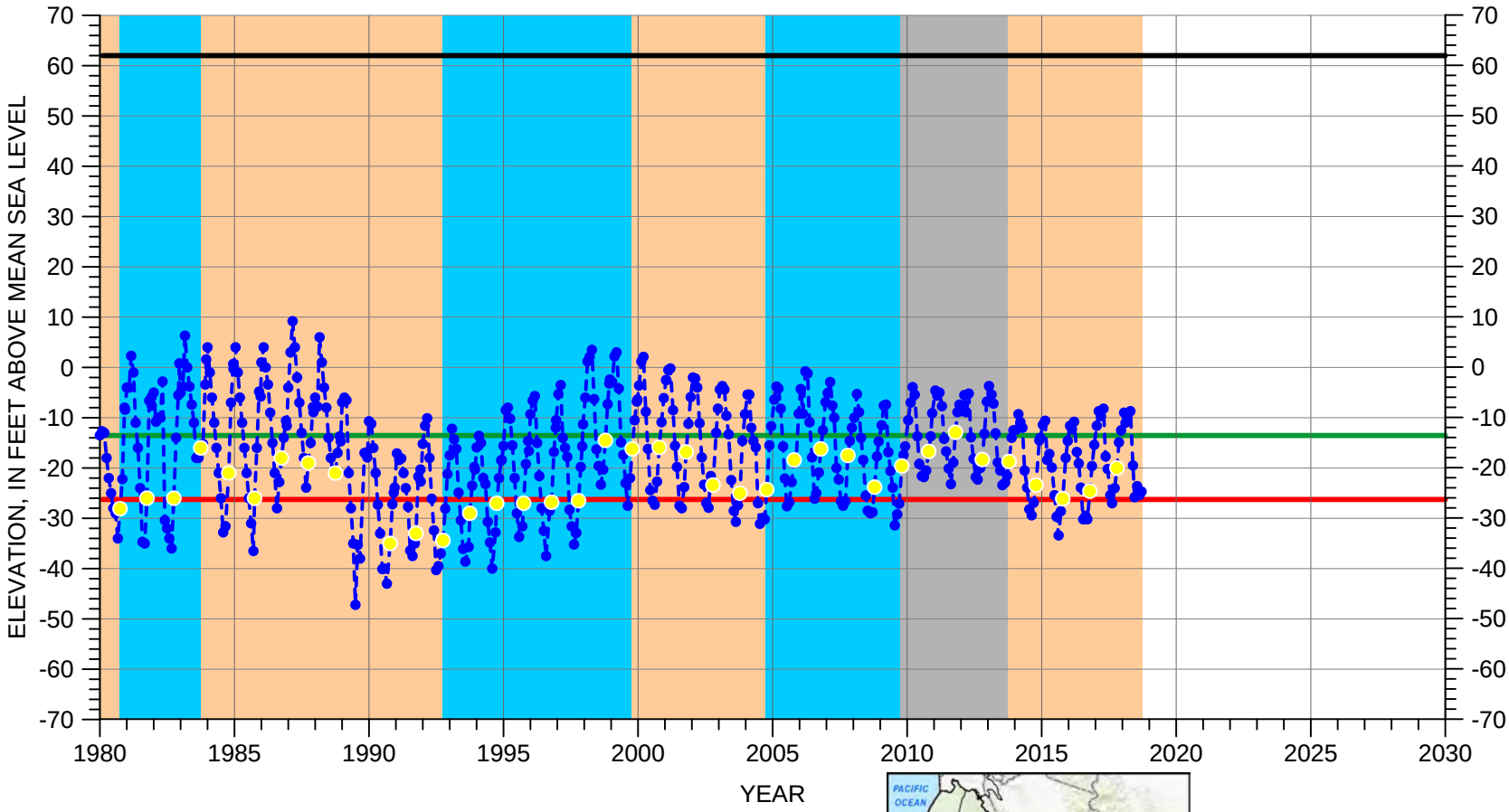
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-12Q01

180/400-Foot Aquifer Subbasin
(400-Foot Aquifer)

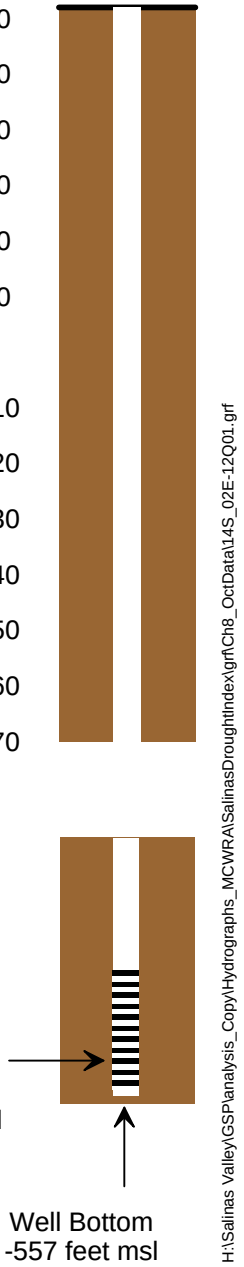


EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET



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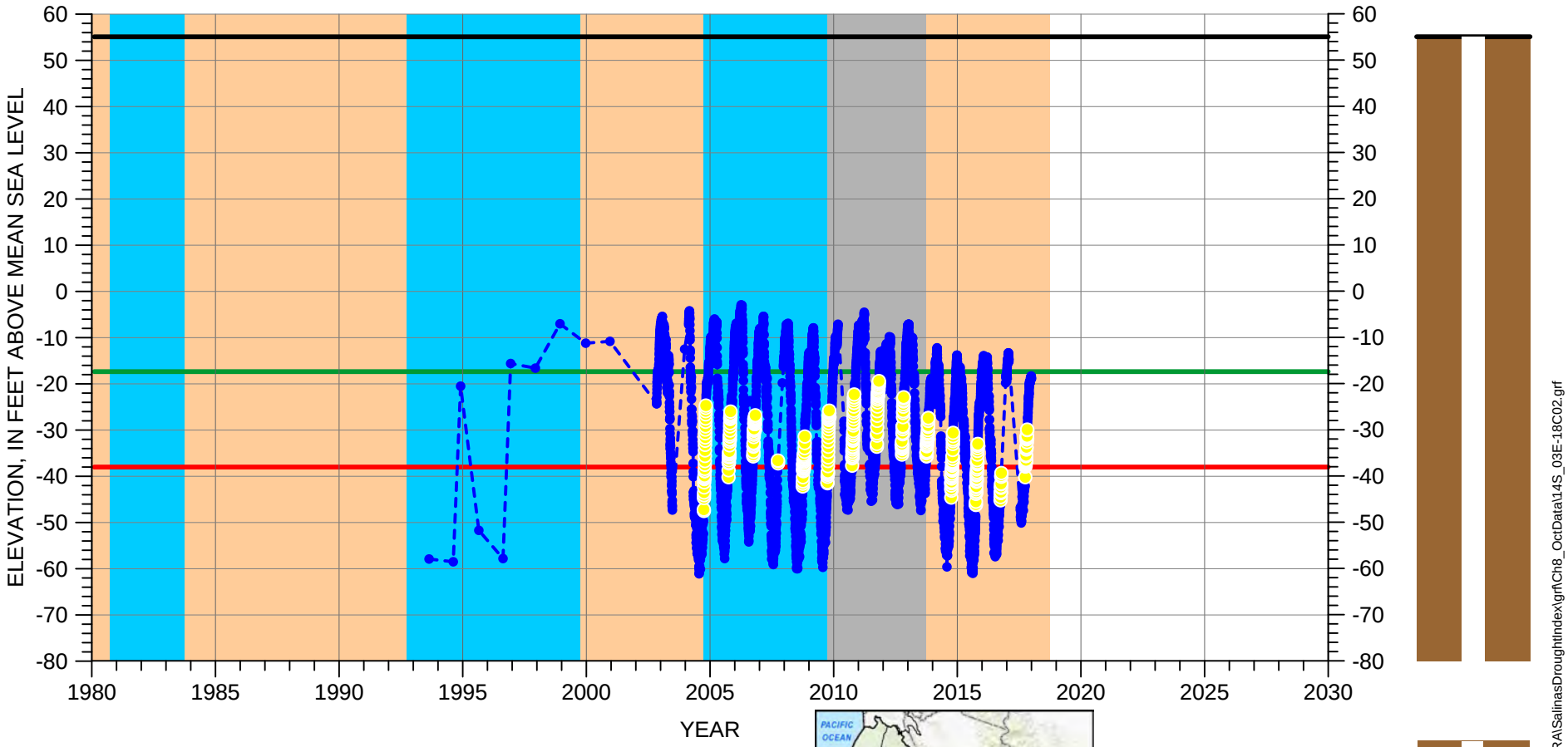
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-18C02

180/400-Foot Aquifer Subbasin
(400-Foot Aquifer)



EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET

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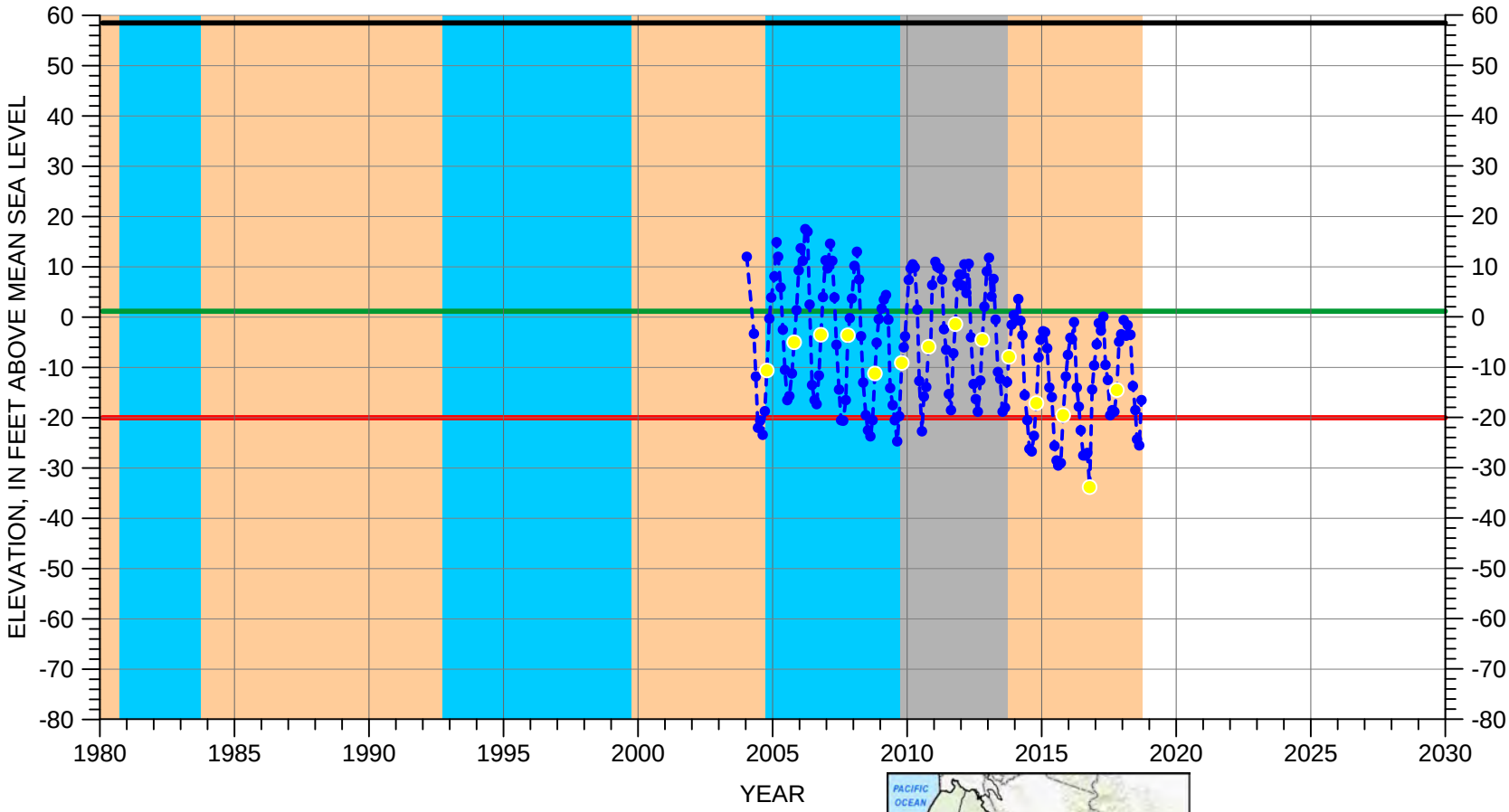
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-16F02

180/400-Foot Aquifer Subbasin
(400-Foot Aquifer)

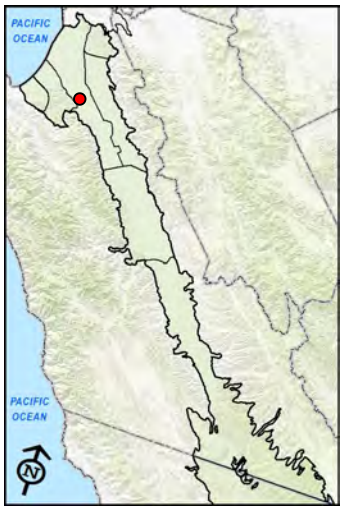


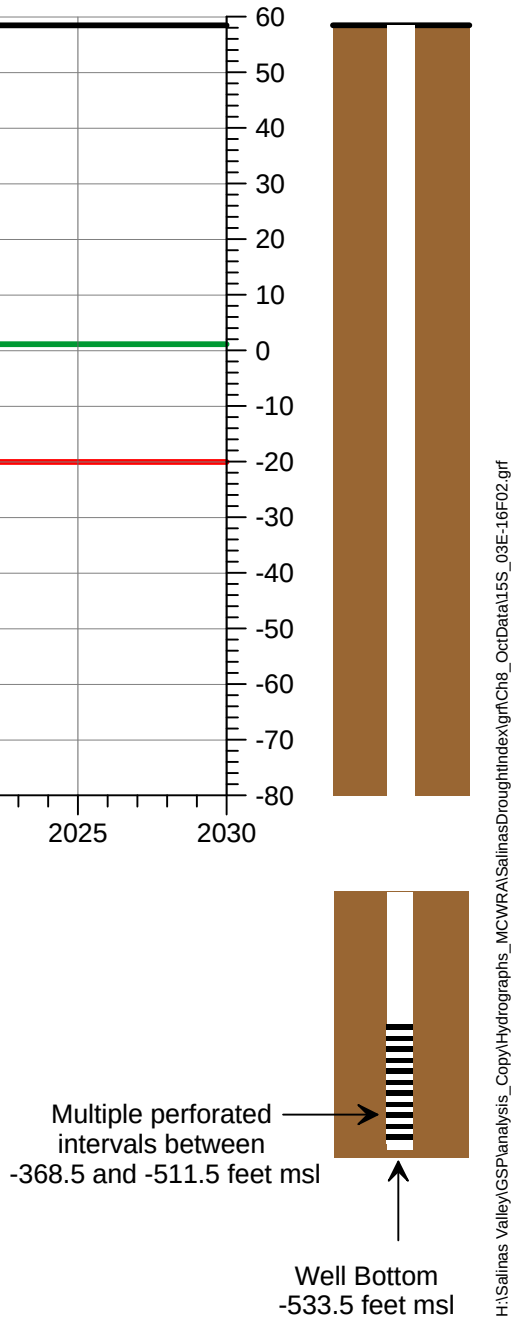
EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET





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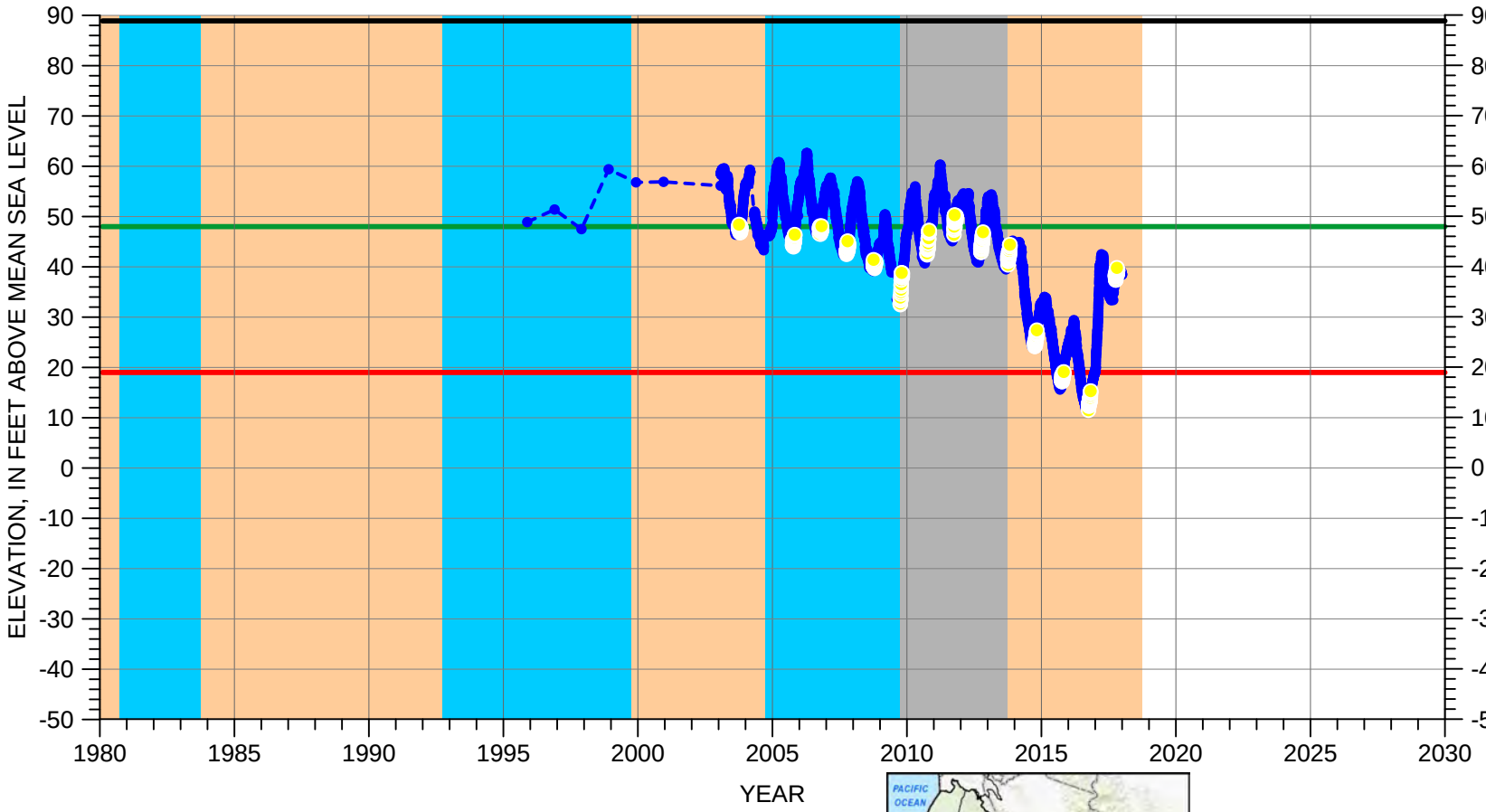
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/04E-08H03

180/400-Foot Aquifer Subbasin
(400-Foot Aquifer)

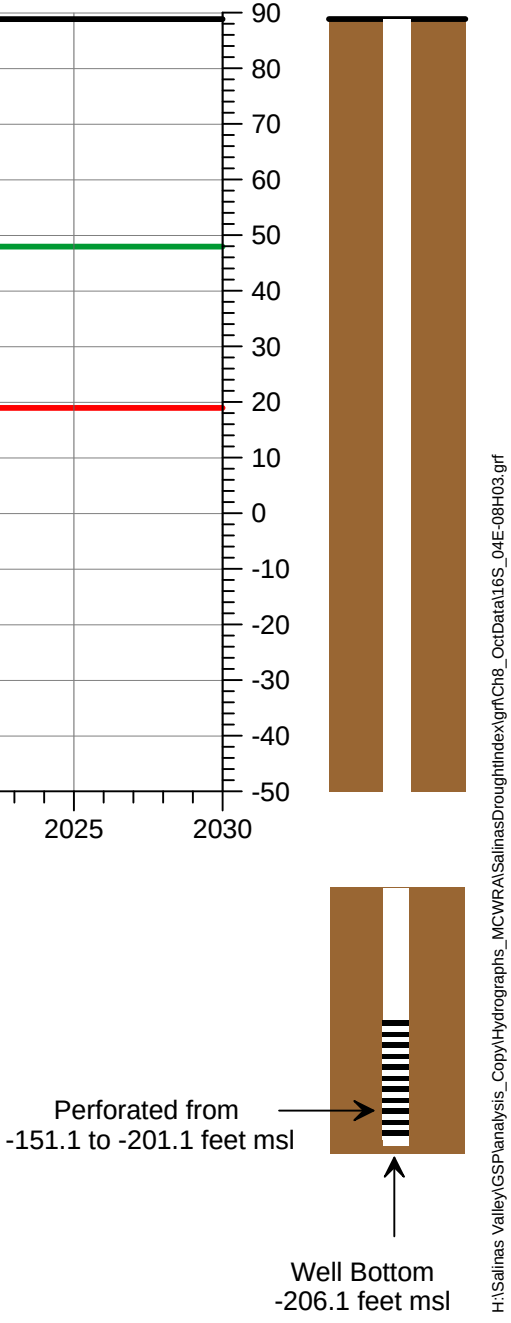


EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET



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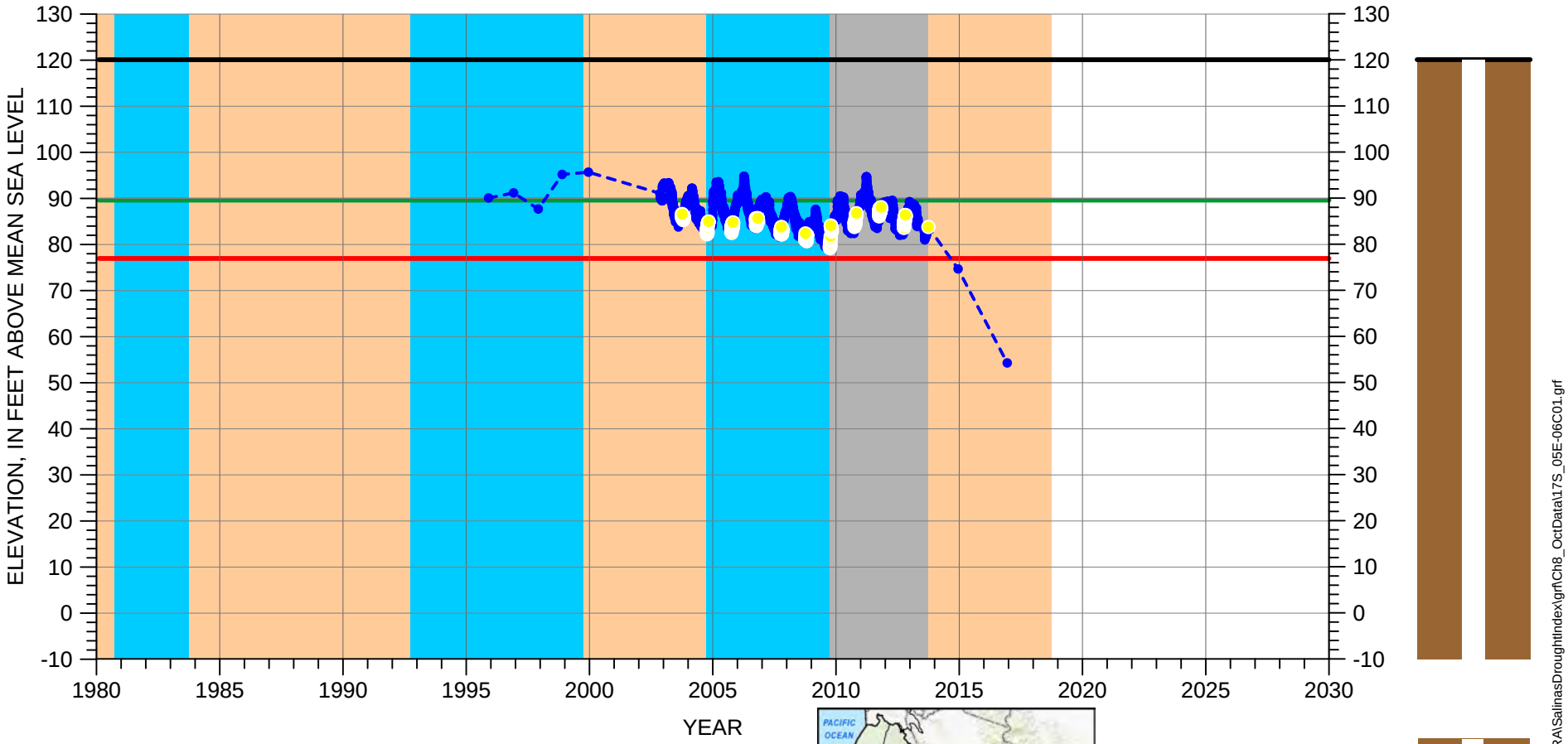
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 17S/05E-06C01

180/400-Foot Aquifer Subbasin
(400-Foot Aquifer)



EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET

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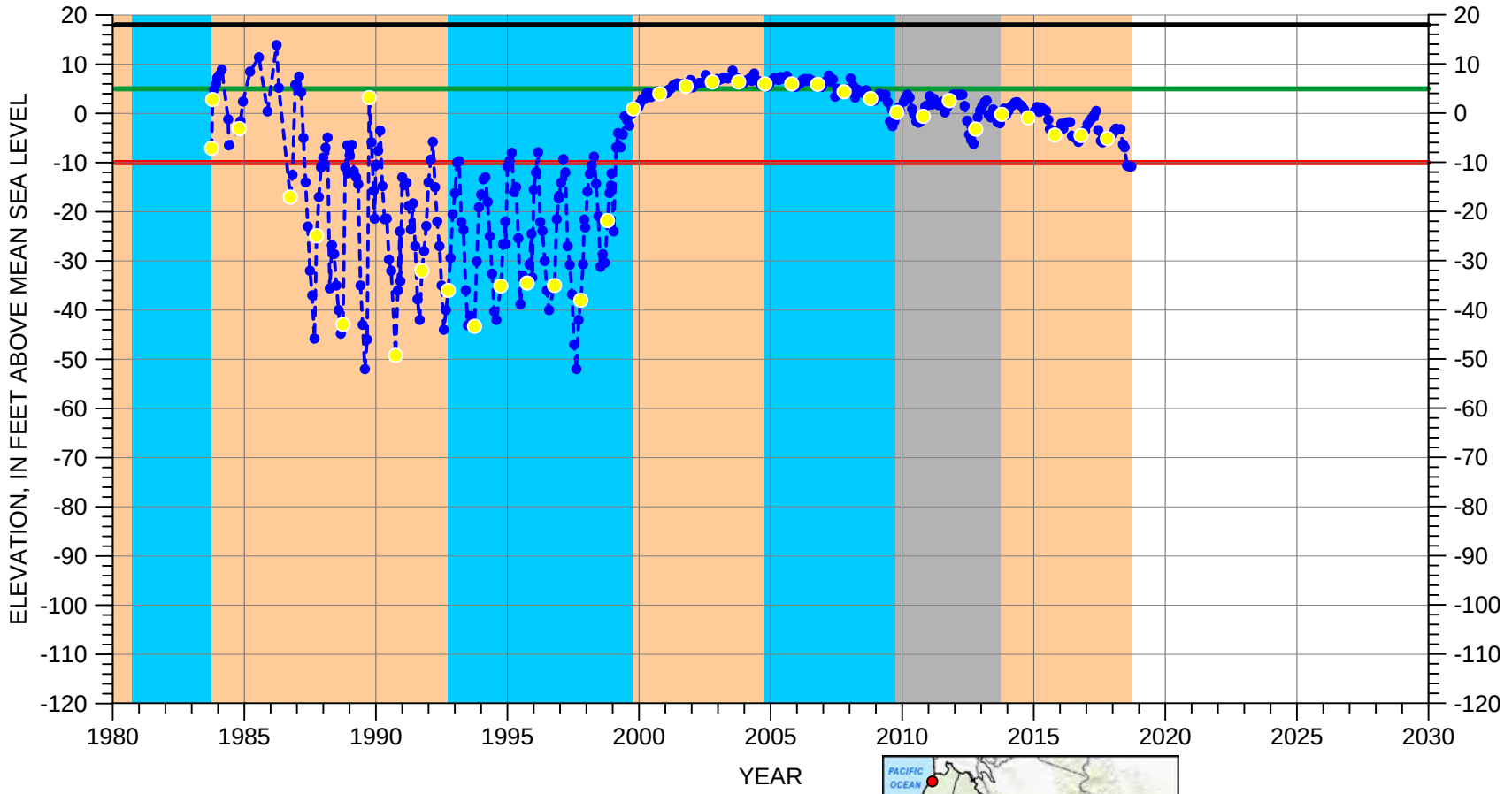
HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-19Q03

180/400-Foot Aquifer Subbasin
(Deep Aquifer)

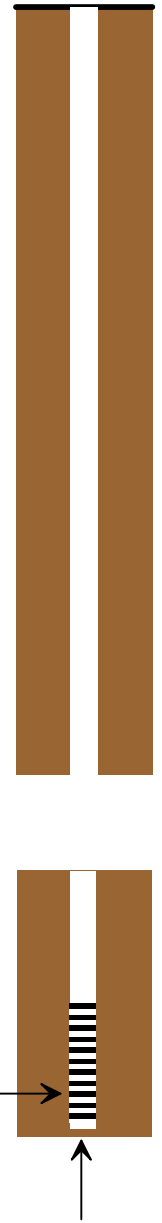


EXPLANATION

- GROUNDWATER ELEVATION
- ESTIMATED ELEVATION
- OCTOBER ELEVATION
- LAND SURFACE
- MEASURABLE OBJECTIVE
- MINIMUM THRESHOLD

CLIMATE PERIOD CLASSIFICATION

- DRY
- AVERAGE/ALTERNATING
- WET



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APPENDIX 9A

ALL MANAGEMENT ACTIONS CONSIDERED FOR GROUNDWATER SUSTAINABILITY PLAN

Management Action	Description	Category
Voluntary Land Purchase/Retirement	Reduce agricultural groundwater pumping through voluntary program that compensates landowners for permanently retiring irrigated land. New land use should be for beneficial use.	
Voluntary Fallowing	Reduce agricultural groundwater pumping through voluntary program to fallow historically-irrigated land for a full year.	
Agricultural Land and Pumping Allowance Retirement	Water charges revenues may be used by the SVBGSA to acquire and retire irrigated land and/or pumping allowances (potentially including carryover credits and recharge credits) to reduce pumping. All acquisitions will be completed on a voluntary basis from willing sellers at negotiated market prices. The SVBGSA would cease irrigation on acquired land to reduce pumping.	Priority
Partial Season Irrigation	Reduce agricultural groundwater pumping through voluntary program to shorten the length of the irrigation season. In practice, this may mean growing fewer crops within a given season.	
Deficit Irrigation	Apply less water than is required for optimal yield to reduce agricultural groundwater pumping.	
Crop Conversion	Transition to less water-intensive crops to reduce agricultural groundwater pumping.	
Individual Transferable Quotas	Reduce groundwater pumping by establishing total allowable pumping allocations among individual pumpers, and authorize quota trading to minimize the economic effects of lower pumping volumes.	
Conservation Credits	Incentivize water conservation by awarding groundwater pumping credits based on reduction in use. Can be carried over for use in future years.	
Quota/Credit Buyback	Reduce annual groundwater pumping by purchasing/leasing quotas and/or conservation credits.	
Incentives for Replenishment	Offer payments and/or conservation quotas for recharge of available surface water. All or a portion of the recharge will be maintained in the aquifer.	
Land Use Restrictions/Easements	Limit future agricultural or urban groundwater pumping by restricting land use or purchasing conservation easements in targeted areas.	
Mandatory Restrictions in CSIP Area	Mandate reduced groundwater pumping in the CSIP Area by passing an ordinance preventing any pumping for irrigating agricultural lands served by CSIP.	Priority
Water Export Limitations	Limit water export from the Subbasin when it is in over-draft conditions.	
Metering/Monitoring	Measure groundwater withdrawals at individual wells to support quantification of individual transferable quotas, conservation credits, and implement withdrawal fees/tiered pricing.	
Nacimiento Water Release Management	Modify reservoir operations	
SW Education/Outreach & Municipal Enforcement	Additional education and outreach efforts for Commercial and Industrial Facilities w/ enforcement by municipalities for violators or IGP non-filers.	
Withdrawal Fees/Tiered Pricing	Charge fees per acre-foot pumped (flat, increasing block, and/or by water use type) to incentivize reductions in groundwater pumping.	
Water Conservation and Stormwater Pollution Education & Outreach	Change perceptions about water use and stormwater discharges to incentivize efficient stormwater capture.	
Fast Track Water Related Project CEQA/Permitting	Streamline permitting process to realize water enhancement projects.	
Modify watershed management practices to optimize runoff, storage and recharge	Controlled vegetation management using goat herds and prescriptive burns.	
Well and Hydrant Flushing Capture	Capture and repurpose "wastewater" associated with flushing activities.	
Forebay/Upper Valley recharge enhancements using re-operated reservoirs	Re-operate reservoirs to allow pulse flows in the Salinas River that provide additional recharge in the unconfined aquifers of the Forebay and Upper Valley.	Priority
Support and Strengthen MCWRA Restrictions on Additional Wells in the Deep Aquifer	MCWRA Ordinance 5302 restricts drilling new wells in the Deep Aquifer in an Area of Impact that is generally northwest of Davis Road. SVBGSA will work with the MCWRA to strengthen the ordinance to prevent any new wells from being drilled into the deep aquifer until more is known about the Deep Aquifer's sustainable yield	Priority
Irrigation Efficiency	Implement on-farm technology to improve irrigation efficiency and reduce groundwater pumping.	
Municipal Water System Leak Detection & Repair	Address municipal water system losses to reduce groundwater pumping or support additional recharge. For systems w/ over 12% water loss annually. (16% is average w/ 75% generally assumed to be recoverable)	
Urban Conservation (indoor/outdoor)	Mandate or incentivize urban conservation	
Municipal Water Conservation Efforts	Widespread adoption of water-saving appliances and fixtures, along with replacement of lawns with water-efficient landscapes, may reduce total residential water use by 30-40 percent in areas not currently implementing these strategies.	
Recycled Water Incentives - Industrial Facilities	Wineries, Produce Production, Breweries, & Other water intensive industrial facility types. Recycle process wastewater and site storm water for onsite reuse.	
Artificial Turf replacement inside City Limits	Subsidize as an incentive.	
Encourage proactive agricultural practices to benefit water quality and limit evaporation	Fertilizer use efficiency/management, use of cover crops, healthy soils, vegetation treatment.	

APPENDIX 9B

ALL PROJECTS CONSIDERED FOR GROUNDWATER SUSTAINABILITY PLAN

Project	Description	Category
Expansion of Castroville Seawater Intrusion Project (CSIP)	Expand the use of recycled wastewater for irrigation, offsetting the need for groundwater and slowing seawater intrusion. Potential source waters include agricultural wash water from Salinas' industrial ponds, Salinas' stormwater, Reclamation Ditch, Tembladero Slough, Blanco Drain and Monterey stormwater. Wastewater from additional municipalities in the Salinas Valley would increase the amount of water available to CSIP.	Preferred
Destroy 8 Wells in the 180/400-Foot Aquifer Subbasin	Destroy the highest priority wells that threaten to allow seawater intrusion to move between aquifers. This will slow or eliminate seawater migration and intrusion into the 400-foot and deep aquifers.	
Pursue Destruction of Additional 134 wells	Destroy the longer list of wells that threaten to allow seawater intrusion to move between aquifers. This will slow or eliminate seawater migration and intrusion into the 400-foot and deep aquifers.	
Seawater Intrusion Barrier - Injection Wells	Push seawater intrusion towards the coast by injecting water into the 180- and 400-foot aquifers. A number of injection wells would be required; as well as sufficient water (recycled) to supply the injection wells.	
Seawater Intrusion Barrier - Extraction Wells	Pull seawater back towards the coast by extracting saline groundwater from the 180- and 400-foot aquifers. Extracted water would either be disposed of in the ocean or desalinated for potable/agricultural use.	Preferred
High river flow capture and injection at mouth of Salinas River	Capture Salinas River water immediately prior to entering ocean and inject it into the 180 and 400 foot aquifers to reduce seawater intrusion. The stormwater may need to be temporarily held in large storage ponds located near the coast before it can be injected.	
Stormwater Capture and Treatment (Municipal)	Municipal agencies build decentralized stormwater recharge projects that increase groundwater recharge instead of allowing stormwater to flow into the Salinas River.	
Stormwater Capture and Treatment (Agricultural and Industrial)	Agricultural and Industrial users build decentralized stormwater recharge projects that increase groundwater recharge instead of allowing stormwater to flow into the Salinas River. This could be set up similarly to Pajaro Valley Water Agency's "net metered recharge" program.	
Rain Collector Dry Wells	A variation on the preceding recharge projects using dry wells instead of recharge basins.	
Installation of Small River Bed infiltration Basins	Small basins adjacent to the Salinas river that slow or retain high river flows for improved infiltration	
Aquifer Storage & Recovery in Salinas Valley	Temporarily inject and store available water in aquifers, either seasonally or during wet years, and recover water during dry season or dry years. Source of water not identified.	
Recharge local runoff from the Eastside	Recharge local runoff from the Gabilan Range and divert it to groundwater recharge basin(s) before it reaches the Salinas River.	Preferred (Move to Alternative)
Inject Diverted Carmel River Water	Use an existing water right held by MPWMD on the Carmel River for 15,000 AF/yr., transport the water to the Salinas Valley, and inject the water into the Salinas valley subbasins for maintenance of groundwater levels, improvement of water quality, and prevention of further seawater intrusion.	Alternative
Use the Upper Portion of the 180/400-Foot Aquifer Subbasin for Seasonal Storage	Conventional groundwater extraction well facilities would be constructed in the upper (i.e., southern) portion of the 180/400-Foot Aquifer Subbasin to provide improved off-peak irrigation season groundwater storage and peak irrigation season supplemental water for supply and environmental needs.	Alternative
Surface spreading or direct injection of Water Right Permit 11043 using SVWP diversions	Use Water Right 11043 to supply recharge ponds or injection wells in the North County. Water would be conveyed from the two Salinas Valley Water Project diversions. A temporary water storage system may be needed prior to injection.	
Surface spreading or direct injection of Water Right Permit 11043 using an eastside conveyance system	Use Water Right 11043 to supply recharge ponds or injection wells in the North County during high winter flow conditions using a dedicated pipeline from San Antonio Reservoir to North County. A temporary water storage system may be needed prior to injection.	
Conjunctive Use Transfer	Build groundwater pumping and conveyance facilities in mid-valley to deliver groundwater to the East Side and 180/400-Foot Aquifer subbasins to offset coastal pumping and seawater intrusion.	
Other Conjunctive Use - Small-scale near-source diversions and blending of surface water.	Divert Salinas River water at a small scale at appropriate locations in the 180/400 Foot Aquifer subbasin to blend with groundwater, reducing groundwater pumping.	
Add dry season conveyance pipeline to reduce need for dry season river flow	A significant amount of dry season river flow is lost to non-native riparian vegeatation. This water loss could be eliminated if dry season flows were conveyed in a pipeline instead of in the river.	
Extract winter flows using Radial collector(s) and inject into 180- and 400-Foot Aquifers	Divert winter flows from the Salinas River using a radial collector and inject the water into the 180/400-Foot Aquifer Sub-basin for maintenance of groundwater levels, improvement of water quality, and prevention of further seawater intrusion.	Alternative (May move to Preferred)

Project	Description	Category
Interlake Connection and Regional Water Conservation Project - Interlake Water Tunnel & San Antonio Spillway Modification	Build a tunnel that diverts water from Nacimiento Reservoir to San Antonio Reservoir, capturing high Nacimiento flows. This project is forecast to deliver up to 21,000 acre-feet per year of new water. This water could be used for Salinas River stream maintenance, delivered in lieu of groundwater pumping, or be injected as a seawater intrusion barrier. Delivering this water in lieu of groundwater pumping will require integration with one of the conjunctive use projects listed above.	
Build Jerrett Dam	The Jerrett dam site is on the Nacimiento River, upstream of Nacimiento Reservoir, on Fort Hunter Liggett Military Reservation property. The dam could be constructed to impound 145,000 acre-feet of water that could be released to the Nacimiento Reservoir. This water could be used for Salinas River stream maintenance; delivered in lieu of groundwater pumping, or be injected as a seawater intrusion barrier. Delivering this water in lieu of groundwater pumping will require integration with one of the conjunctive use projects listed above.	
Arroyo Seco Dam	Construct a dam in the Arroyo Seco River Watershed creating additional surface water storage that could be used in lieu of groundwater pumping. Delivering this water in lieu of groundwater pumping will require integration with one of the conjunctive use projects listed above. Location of this dam and reservoir is unknown.	
Identify Additional Surface Water Storage/Recharge Sites throughout Valley	Create additional surface water storage and recharge locations, such as Carr Lake.	
Groundwater recharge of recycled water	Use recycled wastewater from Monterey One Water for surface spreading or direct injection in the 180/400-foot aquifers to replace groundwater pumping.	
Optimize CSIP	Automate irrigation systems in CSIP to irrigate based on availability rather than on demand. This ensures that all CSIP water is used when it is available.	Preferred
Seasonal storage of of M1W winter effluent	Build storage for treated effluent not used during wet weather to offset pumping in dry season.	
Modify Monterey One Water Recycled Water Plant	Under the M1W Recycled Water Plant Modifications Project, the SVRP will be improved to allow delivery of tertiary treated wastewater to the CSIP system when recycled water demand is less than 5 mgd.	Preferred
Capture of wastewater from River Road and Toro and Pipe to Hitchcock	Increase wastewater availability by connecting new sources to M1W	
Discontinue WWTP Effluent to Ocean: 100% Recycling of all effluent	Recycle 100% of effluent leaving M1W treatment plant for enhanced availability of recycled wastewater to reduce pumping.	
Winter potable reuse water injection	Treat additional secondary wastewater effluent through an expanded Advanced Water Purification Facility (AWPF) at M1W's RTP, and injecting it into the 180/400-foot aquifer subbasin for maintenance of groundwater levels, improvement of water quality, and prevention of further seawater intrusion.	Alternative
Arundo Eradication Phase III	Eradicating Arundo lessens evapotranspiration, leaving more water in the aquifers and the river. Phase III, funded by an additional grant from the Wildlife Conservation Board, will treat an additional 350 acres downstream of Phase II (King City to Soledad). The goal of the program is to eradicate Arundo within 20 years (~1500 acres over 90 miles of river).	Preferred
Arundo Eradication Additional Phases	Eradicating Arundo lessens evapotranspiration, leaving more water in the aquifers and the river. Eradicate Arundo within 20 years (~1500 acres over 90 miles of river). ~1550 acres remaining after Phase III (Soledad to Coast)	
Sedimentation Clearing and Channel Management	Maximize surface water conveyance by removing sediment buildup in the river channels.	
Study additional vegetation evapotranspiration mitigation opportunities	Require vegetation with lower water uptake for all projects.	
Monterey Peninsula Water Supply Project	Take advantage of the MPWSP slant well pumping to pull seawater intrusion back towards the coast.	
Deepwater Desalination	Slow seawater intrusion by replacing groundwater pumping with imported desalinated water. Potential to produce up to 25,000 acre-feet per year. Requires a pipeline from Moss Landing.	
Brackish Water Treatment for Wellheads	Desalinate brackish well water for irrigation, reducing fresh water pumping and allowing more fresh water to push the seawater intrusion front towards the coast. The source of brackish water is still to be determined.	
Desalinate water from the seawater barrier extraction wells	Treat water extracted from the seawater intrusion barrier and allow for its reinjection in the 180-Foot Aquifer and 400-Foot Aquifer	Alternative
Improve SRDF Diversion	The SRDF Diversion improvements include installing a radial collector well to provide additional diversion capacity at the SRDF. The project includes installing additional water storage for the proposed 85 cfs capacity of the SRDF.	Preferred
11043 Diversion Facilities	Construct extraction facilities at both diversion locations and pump the water to the eastside where the water can then be infiltrated into the groundwater basin at known pumping depressions.	Preferred

Project	Description	Category
Forebay/Upper Valley recharge enhancements using Water Right Permit 11043	Use Water Right 11043 for additional stream recharge or flood plain recharge in the unconfined aquifers of the Forebay and Upper Valley.	

APPENDIX 9C
SUMMARY OF PROJECT COST ESTIMATES

Capital and Annualized Costs
Summary Sheet
(Preliminary Cost Estimate)

	Project	Capital Cost	Annual O&M	Total Annualized Cost	Projected Yield (AF/yr.)	Unit Cost/AF
PP1	Invasive Species Eradication	$35,230,000	$325,000	$3,125,000	20,000	$160
PP2	Optimize CSIP Operations	$16,400,000	$200,000	$1,483,000	5,500	$270
PP3	Modify M1W - Winter Modifications	--	--	--	1,300	--
PP4	Expand Area Served By CSIP	$73,366,000	$480,000	$6,219,400	9,900	$630
PP5	Maximize Existing SRDF Diversion	$0	$2,538,600	$2,538,600	11,600	$220
PP6	Seawater Intrusion Pumping Barrier	$102,389,000	$9,776,400	$17,786,300	-30,000	$590
PP7	11043 Diversion Facilities Phase I: Chualar	$47,654,000	$2,296,000	$6,024,000	8,000	$750
PP8	11043 Diversion Facilities Phase II: Soledad	$60,578,000	$2,295,500	$7,034,500	8,000	$880
PP9	SRDF Winter Flow Injection	$51,191,000	$3,624,000	$7,629,000	12,900	$590
AP1	Desalinate Water from Extraction Wells	$341,472,000	$9,890,000	$36,603,400	15,000	$2,440
AP2	Recharge Local Runoff from Eastside Range	$30,049,500	$1,261,000	$3,611,800	3,500	$1,032
AP3	Winter Potable Reuse Water Injection	$35,300,000	$500,000	$3,261,500	2,250	$1,450
AP4	Seasonal Storage in the Upper 180/400-Foot A	$4,937,500	$723,000	$1,109,300	3,000	$370

General Assumptions

Markups

Plumbing Appurtenance Contingency	30%	
General Conditions	15%	
Contractor Overhead and Profit	15%	
Sales Tax	8.75%	
Engineering, Legal, Admininstrative, Co	30%	

General Unit Costs

Electrical Power Rate	0.15	$/kWh	
Labor Rate	100	$/hr	
Land Costs	$45,000	$/acre	
Pipeline Install Costs,<12"	$200	$/LF	Contractor (Garney) Bid, Construction of Feed Water Pipeline and Transfer Pipeline,
Pipeline Material Costs, 16" PVC	$60	$/LF	https://www.watersupplyproject.org/copy-Contractor (Garney) Bid, Construction of Feed Water Pipeline and Transfer Pipeline,
Pipeline Install Costs, 16" PVC	$130	$/LF	https://www.watersupplyproject.org/copy-
Pipeline Material Costs,>12"	$130	$/LF	
Pipeline Install Costs,>12"	$130	$/LF	Contractor (Garney) Bid, Construction of Feed Water Pipeline and Transfer Pipeline,
Pipeline Material Costs,36"	$130	$/LF	https://www.watersupplyproject.org/copy-Contractor (Garney) Bid, Construction of Feed Water Pipeline and Transfer Pipeline,
Pipeline Install Costs,36"	$320	$/LF	https://www.watersupplyproject.org/copy-
Concrete	$1,500	$/CY	Contractor (Monterey Peninsual Engineerig) Bid, Construction of Feed Water Pipeline and Transfer Pipeline, https://www.watersupplyproject.org/copy-
Monterey Pump Station No. 1	$2,527,325	$/Pump St	of-procure-archive Contractor (Monterey Peninsual Engineerig) Bid, Construction of Feed Water Pipeline and Transfer Pipeline, https://www.watersupplyproject.org/copy-
Valley Greens Pump Station	$1,898,100	$/Pump St	of-procure-archive

Capital and Annualized Costs
PP.1 Invasive Species Eradication
(Preliminary Cost Estimate)

SUMMARY					
Line No.	**Description**		**Units**		**Total**
1	Project Yield		acre-feet per year		20,000
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$35,230,000
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$2,800,000
7	Annual O&M Cost		$		$325,000
8	Total Annualized Cost		$		$3,125,000
9	Unit Cost		$/AF/yr.		$160
CAPITAL COSTS					
Line No.	**Capital**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
10	Phase I - Initial Treatment	1800	Acres	$13,500	$24,300,000
11	Phase II - Re-Treatment	500	Acres	$5,500	$2,800,000
12	Phase III - On-Going Monitoring & Maintenance (See O&M)				$0
13	***Subtotal***				$27,100,000
Line No.	**Markups**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
14	Engineering, Legal, Admininstrative, Contingencies			30%	$8,130,000
15	***Total Capital Cost***				$35,230,000
OPERATIONS AND MAINTENANCE					
Line No.	**Markups**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
16	O&M Estmate	1	LS	$325,000	$325,000
17	***Total O&M Cost***				$325,000

NOTES:
1. "Project Yield" based on: Range of 6,000 to 36,000 AF, assumed an average of 20,000 AF
2. "Facility Life" selected based on 25-yr anticipated life of facilities.
3. "Interest Rate" selected within expected range for public-financing options.
4. "Capital Cost" based on: Phase I and Phase II.
5. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.
6. "Annualized Capital Cost" based on facility life and interest rate.
7. "Annual O&M Cost" estimate based on average annual needs for on going monitoring and maintenance (checmical treatment every 3 to 5 years).

Capital and Annualized Costs
PP 2. Optimize CSIP Operations
(Preliminary Cost Estimate)

Line No.	Description		Units		Total
1	Project Yield		acre-feet per year		5,500
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$16,400,000
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$1,283,000
7	Annual O&M Cost		$		$200,000
8	Total Annualized Cost		$		$1,483,000
9	Unit Cost		$/AF/yr.		**$270**

CAPITAL COSTS

Line No.	Capital	Quantity	Unit	Unit Cost	Total Cost
10	Hydraulic Modeling	1	EA	$0	$0
11	Irrigation Scheduling System	1	EA	$1,000,000	$1,000,000
12	Additional Storage Reservoirs, 75 AF	1	EA	$1,200,000	$1,200,000
13	Pipeline - 36" Turnout Into New Basin	400	LF	$400	$160,000
14	Pipeline - 51" Pipe from Basin to CSIP Distribution	6,200	LF	$600	$3,720,000
15	Pipeline - Unknown Size	5,000	LF	$500	$2,500,000
16	Land Cost	12.5	AC	$45,000	$562,500
17	***Subtotal***				$9,142,500

Line No.	Markups	Quantity	Unit	Unit Cost	Total Cost
18	Plumbing Appurtenance Contingency			30%	$1,524,000
19	General Conditions			15%	$1,371,400
20	Contractor Overhead and Profit			15%	$1,371,400
21	Sales Tax			8.75%	$240,000
22	Engineering, Legal, Admininstrative, Contingencies			30%	$2,742,800
23	***Total Capital Cost***				$16,400,000

OPERATIONS AND MAINTENANCE

Line No.	Markups	Quantity	Unit	Unit Cost	Total Cost
24	Irrigation Scheduling System (I&	1	LS	$40,000	$40,000
25	Labor	1	LS	$115,200	$115,200
26	Contingency			30%	$46,600
27	***Total O&M Annual Cost***				$200,000

NOTES:
1. "Project Yield" based on: 3700 AFY from avoided well pumping, 11880 AFY from additional extraction from SRDF.
2. "Facility Life" selected based on 25-yr anticipated life of facilities.
3. "Interest Rate" selected within expected range for public-financing options.
4. "Capital Cost" does not include additional treatment costs.
5. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.
6. "Annualized Capital Cost" based on facility life and interest rate.
7. "Annual O&M Cost" estimate does not include O&M cost for treatment components of project.
8. "Unit Cost" estimate does not include unit cost for treatment components of project.

Capital and Annualized Costs
PP3. Modify M1W Recycled Water Plant - Winter Modifications
(Preliminary Cost Estimate)

Line No.	Description		Units		Total
1	Project Yield		acre-feet per year		1,300
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$1,492,500
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$116,800
7	Annual O&M Cost		$		--
8	Total Annualized Cost		$		$116,800
9	**Unit Cost**		$/AF/yr.		**$90**
CAPITAL COSTS					
Line No.	**Capital**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
10	Construction	1	LS	$1,194,000	$1,194,000
11	Design, CM, Proj Admin, Environmental Review (25% Construction)	1	LS	$298,500	$298,500
12	***Total Capital Cost***				$1,492,500

NOTES:
1. "Project Yield" based on: avoided wet weather groundwater pumping based on historical pumping records in the CSIP area.
2. "Facility Life" selected based on 25-yr anticipated life .
3. "Interest Rate" selected within expected range for public-financing options.
4. "Capital Cost" based on Raftelis, 2018. MCWRA New Source Water Supply Study, Final Report, September.
5. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.
6. "Annual O&M Cost" based on marginal amount assumed in Raftelis, 2018. MCWRA New Source Water Supply Study, Final Report, September.
7. "Unit Cost" estimate does not include unit cost for treatment components of project.

Capital and Annualized Costs
PP 4. Expanded Area Served by CSIP
(Preliminary Cost Estimate)

Line No.	Description		Units		Total
1	Project Yield		acre-feet per year		9,900
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$73,366,000
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$5,739,400
7	Annual O&M Cost		$		$480,000
8	Total Annualized Cost		$		$6,219,400
9	Unit Cost		$/AF/yr.		**$630**
CAPITAL COSTS					
Line No.	**Capital**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
10	Pipeline	68,640	LF	$500	$34,320,000
11	Booster Pump System, 5 MGD	3	EA	$34,139	$102,400
12	Turnouts	26	EA	$2,500	$65,000
13	Booster Station	2	EA	$1,500,000	$3,000,000
14	HDD	800	LF	$750	$600,000
15	***Subtotal***				$38,087,400
Line No.	**Markups**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
16	Plumbing Appurtenance Contingency			30%	$11,426,200
17	General Conditions			15%	$5,713,100
18	Contractor Overhead and Profit			15%	$5,713,100
19	Sales Tax			8.75%	$999,800
20	Engineering, Legal, Admininstrative, Contingencies			30%	$11,426,200
21	***Total Capital Cost***				$73,366,000
OPERATIONS AND MAINTENANCE					
Line No.	**Markups**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
22	Distribution System Maintenance	3500	Acre	$138	$480,000
22	***Total O&M Annual Cost***				$480,000

NOTES:
1. "Project Yield" based on: avoided wet weather groundwater pumping based on historical puming records.
2. "Facility Life" selected based on 25-yr anticipated life .
3. "Interest Rate" selected within expected range for public-financing options.
4. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.
5. "Unit Cost" estimate does not include unit cost for treatment components of project.

Capital and Annualized Costs
PP 5. Maximize Existing SRDF Diversion
(Preliminary Cost Estimate)

Line No.	Description		Units		Total
1	Project Yield		acre-feet per year		11,600
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$0
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$0
7	Annual O&M Cost		$		$2,538,600
8	Total Annualized Cost		$		$2,538,600
9	**Unit Cost**		$/AF/yr.		**$220**
CAPITAL COSTS					
Line No.	**Capital**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
OPERATIONS AND MAINTENANCE					
Line No.	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
10	SRDF Power	1	LS	$441,800	$441,800
11	Treatment Chemicals	1	LS	$155,800	$155,800
12	Treatment other O&M	1	LS	$224,600	$224,600
13	Labor (SRDF, Treatment, Basins)	1	LS	$710,400	$710,400
14	Equipment Repair & Replacement	1	LS	$213,100	$213,100
29	Miscellaneous Allowance	1	LS	$207,100	$207,100
30	Contingency			30%	$585,800
31	***Total O&M Cost***				$2,538,600

NOTES:
1. "Project Yield" based on: 49 cfs pumping 214 days per year at the SRDF with new radial collector well.
2. "Facility Life" selected based on 25-yr anticipated life of facilities.
3. "Interest Rate" selected within expected range for public-financing options.
4. "Capital Cost" includes additional treatment costs.
5. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.
6. "Annualized Capital Cost" based on facility life and interest rate.

Capital and Annualized Costs
PP 6. Seawater Intrusion Pumping Barrier
(Preliminary Cost Estimate)

Line No.	Description		Units		Total
1	Project Yield		acre-feet per year		-30,000
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$102,389,000
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$8,009,900
7	Annual O&M Cost		$		$9,776,400
8	Total Annualized Cost		$		$17,786,300
9	**Unit Cost**		$/AFY		**$590**
CAPITAL COSTS					
Line No.	**Capital**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
10	Well Construction	18	EA	$750,000	$13,500,000
11	Well Pumps and Motors	18	EA	$150,000	$2,700,000
12	Well Head Infrastructure	18	EA	$125,000	$2,250,000
13	Electrical and Instrumentation	1	EA	$3,500,000	$3,500,000
14	Piping (8" to 36")	44,000	LF	$600	$26,400,000
15	Rehab Outfall	1	LS	$2,500,000	$2,500,000
16	Land Access	18	25%	$187,500	$3,375,000
17	Total				$54,225,000
Line No.	**Markups**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
18	Plumbing Appurtenance Contingency			30%	$14,205,000
19	General Conditions			15%	$8,133,800
20	Contractor Overhead and Profit			15%	$8,133,800
21	Sales Tax			8.75%	$1,423,400
22	Engineering, Legal, Admininstrative, Contingencies			30%	$16,267,500
23	**Total**				$102,389,000
OPERATIONS AND MAINTENANCE					
Line No.	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
24	Power	1	LS	$2,652,590	$2,652,600
25	Equipment Repair & Replacement	1	LS	$1,366,200	$1,366,200
26	Operations Labor	1	LS	$3,324,420	$3,324,400
27	Miscellaneous	1	LS	$803,758	$803,800
28	Contingency			20%	$1,629,400
29	Total				$9,776,400

NOTES:
1. "Project Yield" based on: 1000 gpm/well, 22 wells, 365 days project operation (Jan - Dec), 100% project operational utilization.
2. "Facility Life" selected based on 25-yr anticipated life of extraction wells.
3. "Interest Rate" selected within expected range for public-financing options.
4. "Capital Cost" based on: construction $750,000/well, 22 wells, land acquisition at @25%, pumps & motors $150,000/well, wellhead infrastructure $125,000/well, electrical & instrumentation $3,500,000.
5. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.
6. "Annualized Capital Cost" based on well facilities only; estimate does not include capital costs for conveyance and treatment components of project.
7. "Annual O&M Cost" based on well operations and maintenance only; estimate does not include O&M cost for conveyance and treatment components of project.
7. "Unit Cost" based on well facilities only; estimate does not include unit cost for conveyance and treatment components of project.

Capital and Annualized Costs
PP 7. 11043 Diversion Facilities Phase I: Chualar
(Preliminary Cost Estimate)

Line No.	Description		Units		Total
1	Project Yield		acre-feet per year		8,000
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$47,654,000
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$3,728,000
7	Annual O&M Cost		$		$2,296,000
8	Total Annualized Cost		$		$6,024,000
9	**Unit Cost**		$/AF/yr.		**$750**
CAPITAL COSTS					
Line No.	**Capital**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Phase I - Chualar Diversion					
10	Pipeline	23,750	LF	$720	$17,100,000
11	Radial Collector, Booster Pump System (27 MGD firm capacity)	4	EA	$65,000	$260,000
12	Radial Collector, Electrical and Controls	1	LS	$260,000	$260,000
13	Radial Collector, Concrete Structures and Laterals	1	LS	$5,119,000	$5,119,000
14	Infiltration Basins (including land costs)	1	EA	$2,000,000	$2,000,000
15	*Subtotal*				$24,739,000
Line No.	**Markups**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
16	Plumbing Appurtenance Contingency			30%	$7,421,700
17	General Conditions			15%	$3,710,900
18	Contractor Overhead and Profit			15%	$3,710,900
19	Sales Tax			8.75%	$649,400
20	Engineering, Legal, Admininstrative, Contingencies			30%	$7,421,700
21	***Total Capital Cost***				$47,654,000
OPERATIONS AND MAINTENANCE					
Line No.	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
22	Power	1	LS	$441,800	$441,800
23	Other O&M	1	LS	$224,600	$224,600
24	Labor (Diversion Facilities, Basins)	1	LS	$710,400	$710,400
25	Equipment Repair & Replacement	1	LS	$213,100	$213,100
29	Miscellaneous Allowance	1	LS	$175,900	$175,900
30	Contingency			30%	$529,700
31	***Total O&M Cost***				$2,296,000

NOTES:
1. "Project Yield" based on: 42 cfs pumping 120 days per year at both Chualar and Soledad with new radial collector well.
2. "Facility Life" selected based on 25-yr anticipated life of facilities.
3. "Interest Rate" selected within expected range for public-financing options.
4. "Capital Cost" includes additional treatment costs.
5. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.
6. "Annualized Capital Cost" based on facility life and interest rate.
7. "Unit Cost" estimate includes unit cost for treatment components of project.

Capital and Annualized Costs
PP 8. 11043 Diversion Facilities Phase II: Soledad
(Preliminary Cost Estimate)

Line No.	Description		Units		Total
1	Project Yield		acre-feet per year		8,000
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$60,578,000
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$4,739,000
7	Annual O&M Cost		$		$2,295,500
8	Total Annualized Cost		$		$7,034,500
9	**Unit Cost**		$/AF/yr.		**$880**
CAPITAL COSTS					
Line No.	**Capital**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Phase II - Soledad Diversion					
10	Pipeline	31,680	LF	$720	$22,809,600
11	Radial Collector, Booster Pump System (27 MGD firm capacity)	4	EA	$65,000	$260,000
12	Radial Collector, Electrical and Controls	1	LS	$260,000	$260,000
13	Radial Collector, Concrete Structures and Laterals	1	LS	$5,119,000	$5,119,000
14	Infiltration Basins (including land costs)	1	EA	$3,000,000	$3,000,000
15	*Subtotal*				$31,448,600
Line No.	**Markups**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
16	Plumbing Appurtenance Contingency			30%	$9,434,600
17	General Conditions			15%	$4,717,300
18	Contractor Overhead and Profit			15%	$4,717,300
19	Sales Tax			8.75%	$825,500
20	Engineering, Legal, Admininstrative, Contingencies			30%	$9,434,600
21	***Total Capital Cost***				$60,578,000
OPERATIONS AND MAINTENANCE					
Line No.	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
22	Power	1	LS	$441,800	$441,800
23	Other O&M	1	LS	$224,600	$224,600
24	Labor (Diversion Facilities, Basins)	1	LS	$710,400	$710,400
25	Equipment Repair & Replacement	1	LS	$213,100	$213,100
29	Miscellaneous Allowance	1	LS	$175,900	$175,900
30	Contingency			30%	$529,700
31	***Total O&M Cost***				$2,295,500

NOTES:
1. "Project Yield" based on: 42 cfs pumping 120 days per year at both Chualar and Soledad with new radial collector well.
2. "Facility Life" selected based on 25-yr anticipated life of facilities.
3. "Interest Rate" selected within expected range for public-financing options.
4. "Capital Cost" includes additional treatment costs.
5. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.
6. "Annualized Capital Cost" based on facility life and interest rate.
7. "Unit Cost" estimate includes unit cost for treatment components of project.

Capital and Annualized Costs
PP9 SRDF Winter Flow Injection
(Preliminary Cost Estimate)

Line No.	Description		Units		Total
1	Project Yield		acre-feet per year		12,900
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$51,191,000
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$4,005,000
7	Annual O&M Cost		$		$3,624,000
8	Total Annualized Cost		$		$7,629,000
9	**Unit Cost**		$/AF/yr.		**$590**

CAPITAL COSTS

Line No.	Capital	Quantity	Unit	Unit Cost	Total Cost
10	Well Construction	16	EA	$618,340	$9,893,400
11	Well Pumps and Motors	16	EA	$150,000	$2,400,000
12	Well Head Infrastructure	16	EA	$125,000	$2,000,000
13	Electrical and Instrumentation	16	10%	$61,800	$988,800
14	Percolation Basins, Site Civil Work	16	25%	$154,600	$2,473,600
15	Land Access	16	25%	$154,600	$2,473,600
16	Distribution Pipeline (4 mile)	21,120	LF	$650	$13,728,000
17	***SubTotal***				$33,957,400

Line No.	Markups	Quantity	Unit	Unit Cost	Total Cost
18	General Conditions			15%	$5,093,600
19	Contractor Overhead and Profit			18%	$6,112,300
20	Sales Tax			8.75%	$2,971,300
21	Engineering, Legal, Admininstrative, Contingencies			20%	$2,037,400
22	Bonds and Insurance			3%	$1,018,700
23	***Total Capital Cost***				$51,191,000

OPERATIONS AND MAINTENANCE

Line No.	Description	Quantity	Unit	Unit Cost	Total Cost
24	Power	1	LS	$1,152,800	$1,152,800
25	Equipment Repair & Replacement	1	LS	$1,188,000	$1,188,000
26	Operations Labor	1	LS	$211,200	$211,200
27	Miscellaneous	1	LS	$468,200	$468,200
28	Contingency			20%	$604,000
29	***Total O&M Annual Cost***				$3,624,000

NOTES:
1. "Project Yield" based on: 49 CFS radial collector (22,000 GPM) and 50% facility up time.
2. "Facility Life" selected based on 25-yr anticipated life of extraction wells.
3. "Interest Rate" selected within expected range for public-financing options.
4. "Capital Cost" based on: construction $750,000/well, 22 wells, land acquisition at @25%, pumps & motors $150,000/well, wellhead infrastructure $125,000/well, electrical & instrumentation $3,500,000.
5. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.
6. "Annualized Capital Cost" based on well facilities only; estimate does not include capital costs for conveyance and treatment components of project.
7. "Annual O&M Cost" based on well operations and maintenance only; estimate does not include O&M cost for conveyance and treatment components of project.
7. "Unit Cost" based on well facilities only; estimate does not include unit cost for conveyance and treatment

Capital and Annualized Costs
AP 1. Desalinate Water from the Seawater Barrier Extraction Wells
(Preliminary Cost Estimate)

Line No.	Description		Units		Total
1	Project Yield		acre-feet per year		15,000
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$341,472,000
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$26,713,400
7	Annual O&M Cost		$		$9,890,000
8	Total Annualized Cost		$		$36,603,400
9	**Unit Cost**		$/AF/yr.		**$2,440**
CAPITAL COSTS					
Line No.	**Capital**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
10	SWRO Facility	13	MGD	$14,000,000	$182,000,000
11	Source Water Pipeline	58,080	LF	$400	$23,232,000
12	Desalinated Water Pipeline	47,520	LF	$400	$19,008,000
13	Distribution Pump Station	13	MGD	$175,000	$2,275,000
14	***Subtotal***				$226,515,000
Line No.	**Markups**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
15	General Conditions			15%	$33,977,300
16	Contractor Overhead and Profit			18%	$40,772,700
17	Sales Tax			8.75%	$19,820,100
18	Engineering, Legal, Admininstrative, Contingencies			20%	$13,590,900
19	Bonds and Insurance			3%	$6,795,500
20	***Total Capital Cost***				$341,472,000
OPERATIONS AND MAINTENANCE					
Line No.	**Markups**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
21	Desalination O&M	9.3	MGD	$913,400	$8,494,600
22	Electrical power - distibution of	9300000	GPD	$0.15	$1,395,000
23	***Total O&M Annual Cost***				$9,890,000

NOTES:
1. "Facility Life" selected based on 25-yr anticipated life of extraction wells.
2. "Interest Rate" selected within expected range for public-financing options.

Capital and Annualized Costs
AP2. Recharge Local Runoff from Eastside Range
(Preliminary Cost Estimate)

Line No.	Description		Units		Total
1	Project Yield		acre-feet per year		3,500
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$30,049,500
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$2,350,800
7	Annual O&M Cost		$		$1,261,000
8	Total Annualized Cost		$		$3,611,800
9	**Unit Cost**		$/AF/yr.		**$1,032**
CAPITAL COSTS					
Line No.	**Capital**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
10	Pipeline	10,000	LF	$720	$7,200,000
11	Infiltration Basins (including land costs)	8	EA	$650,000	$5,200,000
12	Diversion Facilities	8	LS	$400,000	$3,200,000
13	*Subtotal*				$15,600,000
Line No.	**Markups**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
14	Plumbing Appurtenance Contingency			30%	$4,680,000
15	General Conditions			15%	$2,340,000
16	Contractor Overhead and Profit			15%	$2,340,000
17	Sales Tax			8.75%	$409,500
18	Engineering, Legal, Admininstrative, Contingencies			30%	$4,680,000
19	***Total Capital Cost***				$30,049,500
OPERATIONS AND MAINTENANCE					
Line No.	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
20	Other O&M	1	LS	$150,000	$150,000
21	Labor (Diversion Facilities, Basins)	8	LS	$100,000	$800,000
22	Equipment Repair & Replacement	1	LS	$20,000	$20,000
23	Contingency			30%	$291,000
24	***Total O&M Cost***				$1,261,000

NOTES:
1. "Project Yield" based on: average diversion available during a normal year.
2. "Facility Life" selected based on 25-yr anticipated life of facilities.
3. "Interest Rate" selected within expected range for public-financing options.
4. "Capital Cost" includes additional treatment costs.
5. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.
6. "Annualized Capital Cost" based on facility life and interest rate.
7. "Unit Cost" estimate includes unit cost for treatment components of project.

Capital and Annualized Costs
AP 3. Winter Potable Reuse Water Injection
(Preliminary Cost Estimate)

Line No	Description		Units		Total
1	(Preliminary Cost Estimate)		acre-feet per year		2,250
2	Facility Life		years		25
3	PP 3. SRDF Radial Collector Project		%		6
4	Capital Cost		$		$35,300,000
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$2,761,500
7	Annual O&M Cost		$		$500,000
8	Total Annualized Cost		$		$3,261,500
9	Unit Cost		$/AF/yr.		$1,450

CAPITAL COSTS

Line No	Capital	Quantity	Unit	Unit Cost	Total Cost
10	Injection Well Construction	6	EA	$618,300	$3,709,800
11	Injection Well Pumps and Motors	6	EA	$150,000	$900,000
12	Injection Well Head Infrastructure	6	EA	$125,000	$750,000
13	Electrical and Instrumentation	6	EA	$30,900	$185,400
14	Percolation Basins, Site Civil Work	9	EA	$154,600	$1,391,400
15	Land Access	22	EA	$77,300	$1,700,600
16	Distribution Pipeline (6 mile)	31,680	LF	$400	$12,672,000
17	***Subtotal***				$21,309,200

Line No	Markups	Quantity	Unit	Unit Cost	Total Cost
18	General Conditions			15%	$3,196,400
19	Contractor Overhead and Profit			15%	$3,196,400
20	Sales Tax			8.75%	$559,400
21	Engineering, Legal, Admininstrative, Contingencies			30%	$6,392,800
	Bonds and Insurance			3%	$639,300
22	***Total Capital Cost***				$35,300,000

OPERATIONS AND MAINTENANCE

Line No	Description	Quantity	Unit	Unit Cost	Total Cost
23	Power	1	LS	$3,700	$3,700
24	Equipment Repair & Replacer	1	LS	$324,000	$324,000
25	Operations Labor	1	LS	$24,000	$24,000
26	Miscellaneous	1	LS	$65,500	$65,500
27	Contingency			20%	$83,400
28	***Total O&M Annual Cost***				$500,000

NOTES:
1. "Project Yield" based on: Expanded PWM GWR Expanded project description.
2. "Facility Life" selected based on 25-yr anticipated life of extraction wells.
3. "Interest Rate" selected within expected range for public-financing options.
4. "Capital Cost" based on: construction $618,000/injection well, 6 wells, land acquisition at @25%, pumps & motors $150,000/well, wellhead infrastructure $125,000/well, electrical & instrumentation $3,500,000.
5. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.
6. "Annualized Capital Cost" based on well facilities only; estimate does not include capital costs for conveyance and treatment components of project.
7. "Annual O&M Cost" based on well operations and maintenance only; estimate does not include O&M cost for conveyance and treatment components of project.
7. "Unit Cost" based on well facilities only; estimate does not include unit cost for conveyance and treatment components of project.

Capital and Annualized Costs
AP 4. Seasonal Storage in the Upper 180/400-Foot Aquifer Subbasin
(Preliminary Cost Estimate)

Line N	Description		Units		Total
1	Project Yield		acre-feet per year		3,000
2	Facility Life		years		25
3	Interest Rate		%		6
4	Capital Cost		$		$4,937,500
5	Cost Recovery Factor		--		0.078
6	Annualized Capital Cost		$		$386,300
7	Annual O&M Cost		$		$723,000
8	Total Annualized Cost		$		$1,109,300
9	**Unit Cost**		$/AF/yr.		**$370**
CAPITAL COSTS					
Line N	**Capital**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
10	Well Construction	3	EA	$750,000	$2,250,000
11	Well Pumps and Motors	3	EA	$200,000	$600,000
12	Well Head Infrastructure	3	EA	$125,000	$375,000
13	Electrical and Instrumentation	1	EA	$725,000	$725,000
14	Land Access	1	25%	$987,500	$987,500
15	***SubTotal***				$4,937,500
Line N	**Markups**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
16	General Conditions			15%	$740,600
17	Contractor Overhead and Profit			18%	$888,800
18	Sales Tax			8.75%	$142,600
19	Engineering, Legal, Admininstrative, Contingencies			20%	$987,500
20	Bonds and Insurance			3%	$148,100
24	***Total Capital Cost***				$7,845,000
OPERATIONS AND MAINTENANCE					
Line N	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
25	Electrical power	1	LS	$659,800	$659,800
26	Labor	1	LS	$28,800	$28,800
27	Other ancillary services, equip	1	LS	$34,400	$34,400
28	***Total O&M Annual Cost***				$723,000

NOTES:
1. "Project Yield" based on: 3700 AFY from avoided well pumping, 11880 AFY from additioanl extraction from SRDF.
2. "Facility Life" selected based on 25-yr anticipated life of extraction wells.
3. "Interest Rate" selected within expected range for public-financing options.
4. "Capital Cost" based on: detail below; does not include additional treatment costs.
5. "Cost Recovery Factor" based on anticipated Facility Life and Interest Rate.
6. "Annualized Capital Cost" based on detail below.
7. "Annual O&M Cost" based on well operations and maintenance only; estimate does not include O&M cost for treatment components of project.
7. "Unit Cost" estimate does not include unit cost for treatment components of project.

APPENDIX 9D: MODELING AND ANALYTICAL TOOLS FOR ANALYZING PROJECT BENEFITS

9D.1 Introduction

Chapter 9 of the GSP includes a set of projects and management actions designed to achieve and maintain sustainability in the 180/400-Foot Aquifer Subbasin over the SGMA implementation horizon. To assess the benefits of individual projects, and combinations of projects, to achieve sustainability, quantitative analyses were performed through simplified groundwater model simulations. These simulations included predicted climate change conditions with and without the proposed projects. In addition, a simplified analytical analysis was developed to evaluate the potential design for a seawater intrusion barrier and its capability to stop seawater intrusion.

A numerical groundwater flow model allows for a simplified mathematical representation of the subbasin. Estimated future flow conditions such as pumping rates and recharge rates are model inputs, and an estimate of the resulting groundwater levels and groundwater flow rates are the output from the model.

The purpose of the groundwater flow model analysis is to develop an estimate of the basin conditions after twenty years of GSP implementation for major projects identified in Chapter 9. Comparing model outputs from various future scenarios provides a means of estimating the project impacts on water levels and groundwater flow rates.

9D.2 Background

The groundwater flow model for simulating project impacts should ideally have the following characteristics:

- Model code should be open-source and publicly available
- Data to develop and calibrate the model should be readily available
- The model should have been calibrated to historical and current data

The USGS has been working closely with MCWRA and other stakeholders in the Salinas Valley since 2016 to develop the Salinas Valley Integrated Hydrologic Model (SVIHM) (MCWRA, 2017). The SVIHM is a combined groundwater and surface water flow model based on a publicly available MODFLOW model code. The SVIHM covers the entire Salinas Valley Groundwater Basin. As described by the USGS, the purpose of the SVIHM is tightly aligned with the numerical analysis needs of the GSP, including:

- Assessing water budgets, groundwater level elevations, and the extent of sweater intrusion,
- Assessing potential future conditions in the Salinas Valley, including analysis of future scenarios

The SVBGSA anticipated that the SVIHM would be the primary tool for developing water budgets and assessing project impacts for the 180/400-Foot Aquifer Subbasin GSP. The USGS and MCWRA both believed that the SVIHM model would be completed and available for the GSP, and the SVBGSA entered into an agreement with MCWRA and USGS to use the SVIHM model for GSP development. However, due to unforeseen circumstances, the SVIHM was not available for developing the180/400-Foot Aquifer Subbasin GSP. The USGS did provide a version of the SVIHM to estimate the future water budgets with climate change assumptions. However, this model was not available for assessing project impacts.

Because the SVIHM was not available, the SVBGSA developed a simpler modeling tool for assessing projects and actions. Although the SVIHM remains the preferred model for long-term use by the SVGSA for GSP implementation, the GSP deadline for the 180/400-Foot Aquifer Subbasin GSP required that an alternative model be developed quickly as a screening tool for purposes of assessing project benefits. This screening tool, referred to as the North Salinas Valley (NSV) Model, is a simplified alternative model that is limited to the northern portion of Salinas Valley, and is only intended to be an initial screening tool to evaluate certain individual and combined projects and actions on the 180/400-Foot Aquifer Subbasin.

When the SVIHM model is released for use by the USGS, the SVBGSA will use the SVIHM to confirm and reassess the water budgets and project benefits for the 180/400-Foot Aquifer Subbasin. The SVBGSA expects that the SVIHM will be available sufficiently in advance of the January 2022 deadline for the other Salinas Valley subbasin GSPs, and therefore the SVIHM model will be used develop the other subbasin GSPs and integrate the proposed projects in a valley-wide, programmatic approach.

9D.3 NSV Groundwater Model Description

Recognizing that the SVIHM will be used when it becomes available, the approach to developing the NSV model was to keep the model simple and to rely on previously developed models for the model input data.

The NSV Model uses the MODFLOW 2000 model code (Harbaugh et. al, 2000), a public domain finite-difference model code developed by the USGS that is widely used and well documented. The model was developed using the Visual MODFLOW graphical user interface (Waterloo Hydrologic, version 4.6.0.168) for ease of data manipulation and output visualization.

9D.3.1 Model Domain

Figure 9D-1 illustrates the model domain and the distribution of active cells in relation to the 180/400-Foot Aquifer Subbasin, other subbasins of the northern Salinas Valley, Monterey Bay, and the bounding mountains. Although the results of model simulations are only needed for the 180/400-Foot Aquifer Subbasin, the model was constructed across the entire valley width because some of the subbasin boundaries are transitional, or not easily defined hydrogeologic boundaries. Therefore, the model includes all of the Eastside, Langley, Monterey, and Seaside subbasins. A small strip of the Forebay subbasin is included to ensure that the entire southern boundary of the 180/400-Foot Subbasin is included in the model.

The finite difference grid varies in cell dimensions range from approximately 50 ft to 2,600 feet (Figure 9D-1).

9D.3.2 Model Layers

The NSV Model uses 8 model layers to represent the full aquifer thickness of the northern Salinas Valley. Figure 9D-2 shows a simplified diagram illustrating the model layers and the hydrostratigraphic layers they represent. Model layer 1 is used only to represent sea level in the area of Monterey Bay and is inactive through the rest of the model. Model layers 2, 4, 6, and 8 represent the Shallow water-bearing sediments, the 180-Foot Aquifer, the 400-Foot Aquifer, and Deep Aquifers respectively. Model layers 3, 5, and 7 represent the intervening aquitards between water bearing zones.

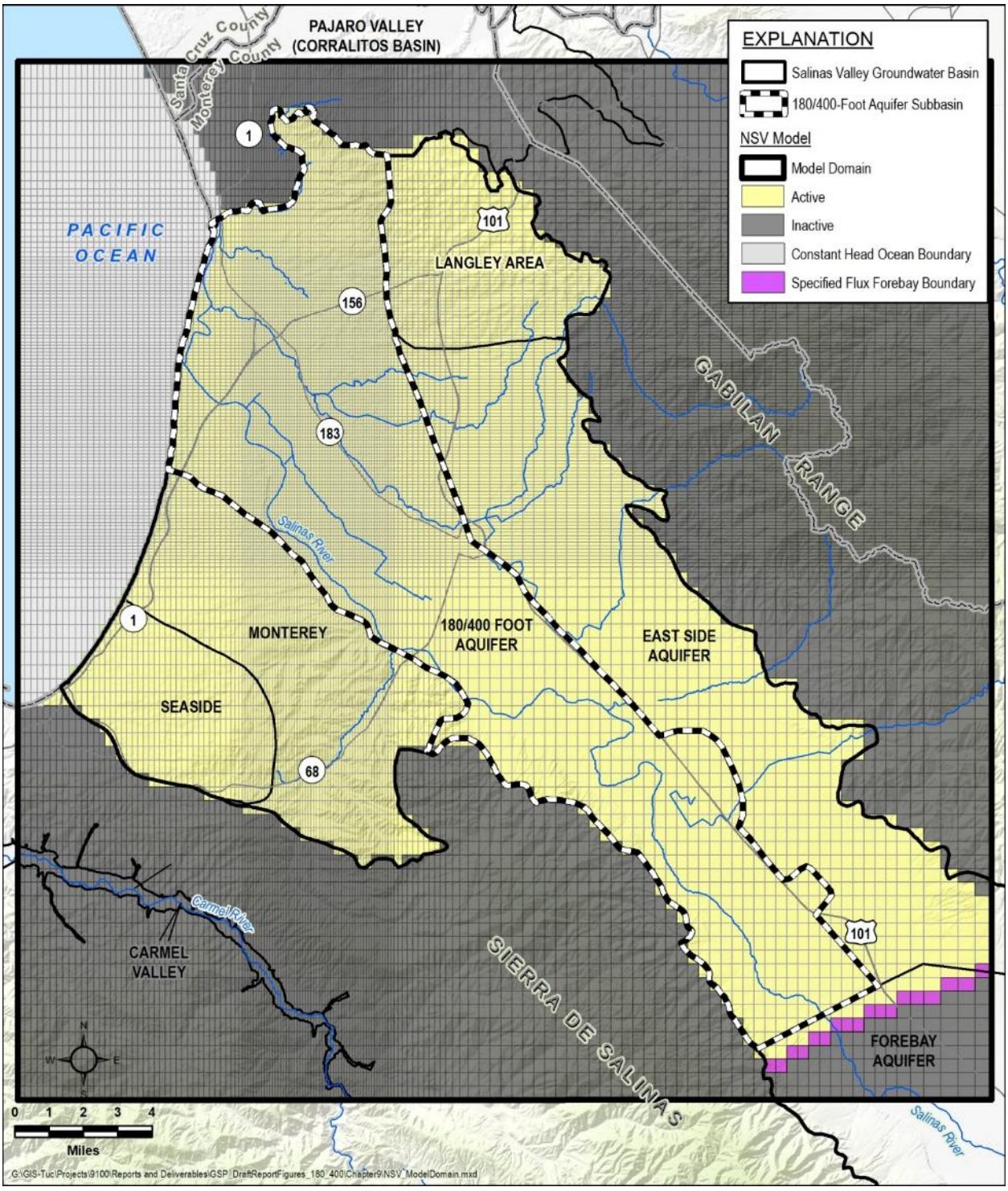

Figure 9D-1. NSV Model Domain and Boundary Conditions

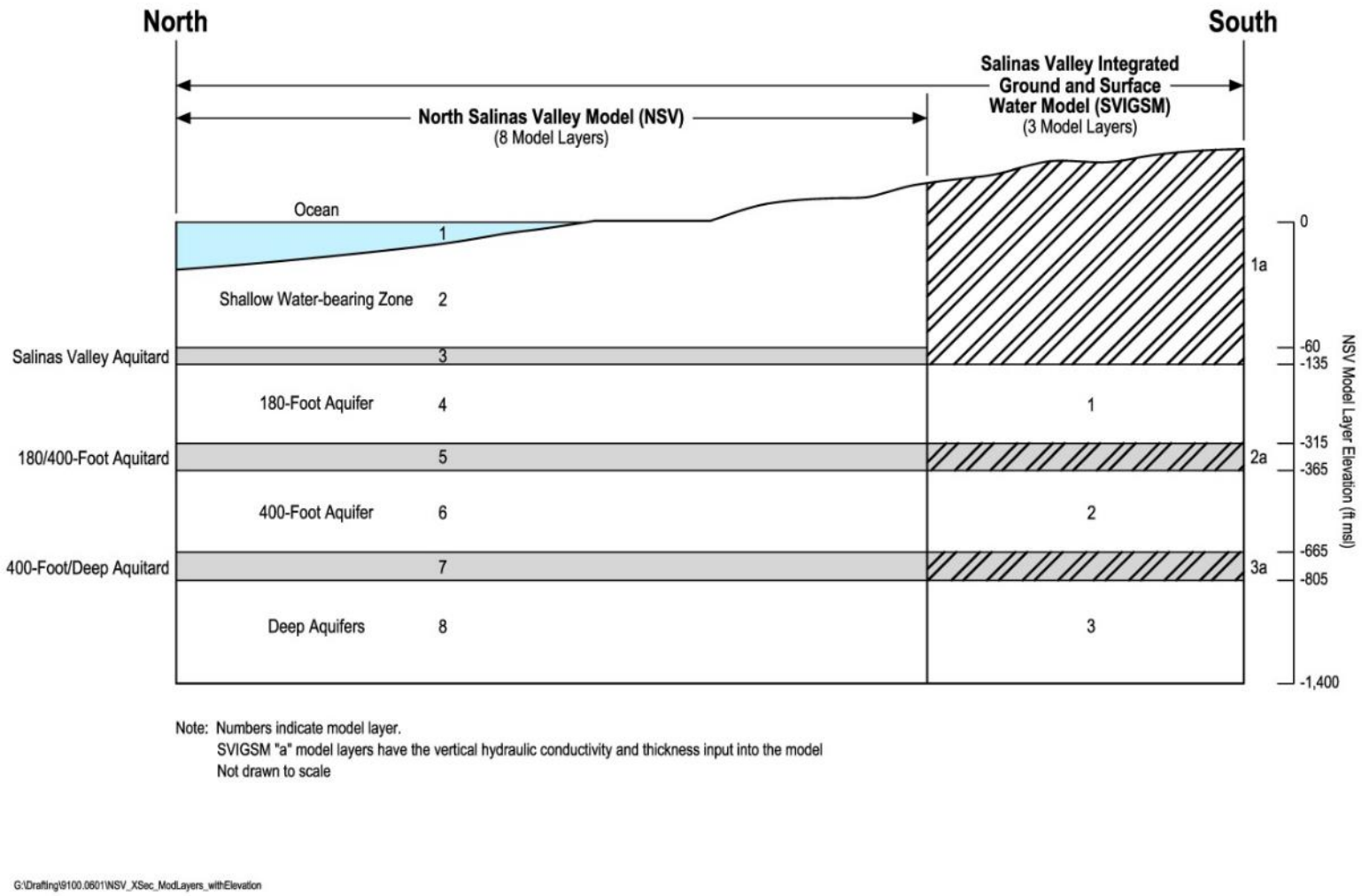

Figure 9D-2: Simplified Diagram of Model Hydrostratigraphic Layers (modified from Geoscience, 2015).

9D.3.3 Hydrogeologic Properties

The model layering and assigned material properties of the NSV model are based on the North Marina Groundwater Models (NMGWM) that were developed by Geoscience (2015) and Hydrofocus (2017) and the SVIGSM model that was updated by Luhdorff and Scalmanini Consulting Engineers (LSCE, 2015) for the Monterey Peninsula Water Project (Environmental Science Associates [ESA], 2015 and 2018). Table 9D-1 summarizes the hydraulic conductivity distribution in the NSV model.

Table 9D-1: NSV Model Hydraulic Conductivity Distribution

Layer	Location	Horizontal Hydraulic Conductivity (feet/day)	Vertical Hydraulic Conductivity (feet/day)
1	Ocean	100	100
2	Shallow Water-bearing Zone	25	0.65
3	Salinas Valley Aquitard	5	0.055
4	180-Foot Aquifer in the 180/400-Foot Aquifer Subbasin	100	0.45
4	180-Foot Aquifer in the East Side Subbasin	10	0.1
5	180/400-Foot Aquitard	7.5	0.075
6	400-Foot Aquifer in the 180/400-Foot Aquifer Subbasin	70	0.7
6	400-Foot Aquifer in the East Side Subbasin	15	1.5
7	400-Foot/Deep Aquitard	2.75	0.0275
8	Deep Aquifers – basin center	37.5	0.275
8	Deep Aquifers – basin margins	10	0.1
2,4,6, and 8	Border between 180/400-Foot Aquifer Subbasin and East Side Subbasin	1	0.1

9D.3.4 Model Boundaries

The model's boundary conditions are based on the hydrogeologic conceptual model for the 180/400-Foot Aquifer Subbasin and are illustrated in Figure 9D-1:

- The southern boundary of the model has a specified flow boundary in layers 4 and 6, representing the northern flow of groundwater from the Forebay Subbasin into the 180/400-Foot Aquifer and the East Side Subbasins. The groundwater flow across this

boundary was initially set at a constant annual rate based on average flows from the SVIHM future water budget. The groundwater was later adjusted to match observed water levels as described below.

- The eastern and western boundaries of the model are no-flow boundaries reflecting the negligible flow of groundwater into the basin from the mountain fronts.
- The northern boundary of the model corresponds to the coastline of Monterey Bay and is simulated by specifying a constant water level of 0.5 ft MSL for of the cells in model layer 1 over the Monterey Bay. The representation allows the seawater intrusion flux to be dependent on water levels in the groundwater basin.

The SVIHM includes internal boundaries that divide the model into subareas known to as farms. In this usage, the word farm does not necessarily imply a particular owner, crop type, or land use. Rather, the word farm is used to identify an area for which the model produces a unified water budget. The SVIHM includes 31 farms; 19 of those intersect the NSV model, as shown in Figure 9D-3. Farm ID 31 represents the Monterey Bay area within the model domain.

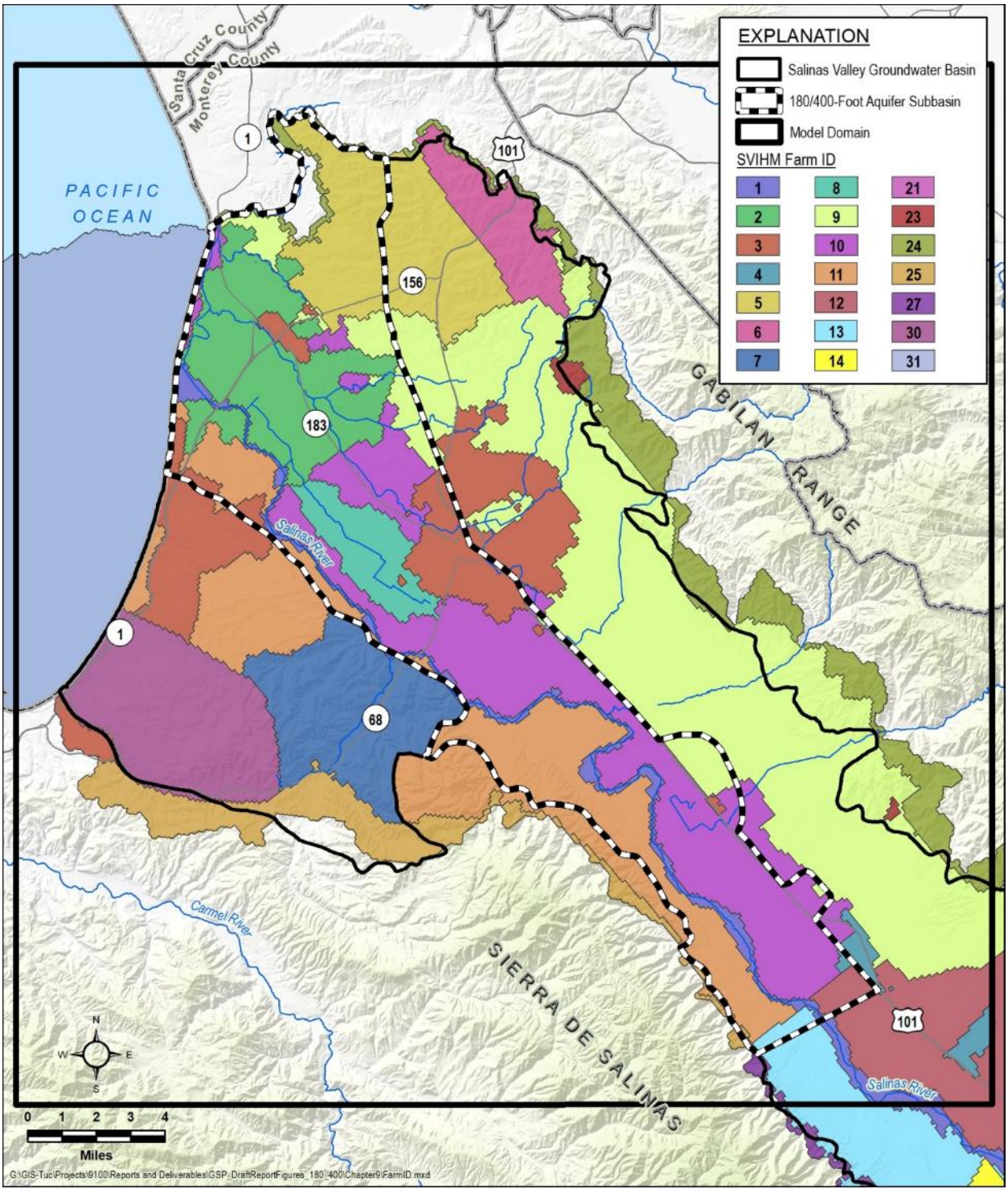

Figure 9D-3. Map View of Farm IDs Within the NSV Model

9D.3.5 Pumping and Recharge

Pumping and recharge values in the NSV model represent average projected baseline conditions. The distributions of pumping and recharge in the model were based on values exported from a version of the SVIHM operational model that incorporates estimated climate change adjustments for the year 2030. For the simplified NSV Model, all pumping and recharge was simulated as constant values reflecting the averages of the 47-year modeling period of SVIHM. Although SVIHM is not yet available for use in simulating the project benefits on a fully transient basis, the estimated pumping and recharge rates in SVIHM were considered the most applicable available estimates for use in the NSV model. The NSV model applies the average annual pumping and recharge rates to 50 annual stress periods representing 50 years of projected conditions.

Groundwater pumping rates were input to the model in two groups to differentiate agricultural and municipal pumping estimates:

- Agricultural pumping rates were estimated using the SVIHM model. This model uses the USGS Farm Package that generates net pumping rates per acre based on land use and crop type. Pumping per acre is specified for each farm ID. Figure 9D-3 illustrates the farm ID designations used in the model input.

- Specified individual municipal wells were input at specific locations and depths in the model with a specified pumping rate for each well based on historical pumping records. These wells are in addition to the groundwater pumping represented by the farm ID pumping, and represent the known pumping for urban use from both municipal and industrial sources.

- Domestic pumping estimates are considered negligible and are not included in the model.

Groundwater recharge was input to the model in two ways:

- The same farm ID designations used for input of pumping were used to specify average annual areal recharge rates per acre, with a specific value assigned to each farm ID based on land use. These recharge estimates were derived from SVIHM output. This recharge value represents the combined influences of precipitation, excess irrigation, and leaking pipelines.

- Salinas River recharge was specified as an averaged per acre value along the Salinas River riparian corridor. A total recharge rate of 70,000 AF/yr. was specified for the Salinas River, based on the average value estimated in SVIHM for the projected water budget. Farm ID 1 represents the riparian corridor and was used to input the river recharge rate into the model.

Table 9D-2 shows the average annual pumping and farm recharge rates by Farm ID.

Table 9D-2: Average Annual Pumping and Recharge Values by Farm ID

Farm ID	Municipal Pumping (AF/yr.)	Farm (agricultural) pumping (AF/yr.)	Farm Recharge (AF/yr.)
1	0	0	2,400
2	819	6,500	13,400
3	35,600	0	900
4	3,500	0	24
5	1,600	110	5,700
6	130	90	1,800
7	1,000	440	2,300
8	0	7,300	4,300
9	1,800	55,000	35,000
10	3,100	50,000	27,000
11	6,600	10,500	9,900
12	426	4,500	2,300
13	0	2,300	1,200
21	76	110	69
23	0	0	86
24	0	0	340
25	100	2	960
27	0	0	20
30	2,300	0	3,400
Total	**57,200**	**136,400**	**111,800**

Note: values are rounded to the nearest 100 AF/yr., and do not necessarily add up to the shown totals.

9D.3.6 Model Adjustments

After the model was constructed based on the NMGWM layering and material properties, and the pumping and recharge rates were input from the SVIHM, the model was run with starting water level conditions approximated to the water level contours of Fall 2017. Based on this initial model simulation, the groundwater flow entering the model at the southern boundary was adjusted to 10,000 AF/yr. so that the simulated water levels were approximately in equilibrium with the observed water levels. No other model calibration was performed.

9D.4 Projects and Actions Simulations

The NSV model was used to simulate the effects of potential projects on the Subbasin and develop quantitative estimates of the potential benefits of the projects. Although the GSP anticipates implementing multiple projects to achieve and maintain sustainability, the initial analysis of project benefits is performed on each project individually to assess relative benefits of each project. All of the CSIP improvement projects were combined into a single simulation.

The benefit of each project was estimated by comparing a project simulation to a baseline, no-project simulation and quantifying the differences in water levels and seawater intrusion rates due to the project. The baseline simulation was the same for all projects. Each project was then simulated with specific modifications to the recharge and pumping inputs to create a simple approximation of the project.

For each project, the potential benefit of the project was quantified by two metrics:

- Maps of the difference in water level between the project and baseline simulations
    - At a model simulation period of 20 years
    - Maps generated for each of the 180-ft and 400-ft aquifer model layers
- The difference in seawater intrusion between the project and baseline simulations
    - At a model simulation period of 20 years
    - Flux into the subbasin at the coastline using a zone budget analysis

Table 9D-3 summarizes the project simulations for each of the simulated projects.

Table 9D-3: Simulation of Project Benefits

	Simulated Project/Scenario	Simulation Approach
1	Invasive Species Eradication	Increase groundwater recharge by 12,000 AF/yr. in Farm ID 1 (riparian corridor)
2	All projects within current CSIP area	Turn off all groundwater pumping in Farm ID 2 (CSIP Area) – 7,300 AF/yr. (6,500 AF/yr. from agricultural and 820 AF/yr. from municipal pumping)
3	CSIP Expansion	Turn off all pumping in Farm ID 2 and Farm ID 8 (total of 14,600 AF/yr.)
5	Salinas River Diversion at Chualar (11043 Water Rights)	Inject 5,000 AF/yr. in the portion of Farm ID 3 (City of Salinas) that is in the East Side Subbasin
6	Salinas River Diversion at Soledad (11043 Water Rights)	Inject 5,000 AF/yr. in southern half of Farm ID 9 (East Side Subbasin)
7	SRDF Winter Injection	Inject 8,000 AF/yr. to Farm ID 10 (180/400-Ft Aquifer Subbasin) and 8,000 AF/yr. to portion of Farm ID 3 in the Monterey Subbasin

The anticipated CSIP expansion area for simulations 3 does not correspond to a specific Farm ID in the model. Farm ID 8 was used to simulate CSIP Expansion because it is in the approximately correct location in the basin and the total pumping rate of 7,300 AF/yr. is approximately equal to the anticipated impact of the CSIP Expansion project.

9D.5 Seawater Intrusion Barrier Evaluation

A seawater intrusion barrier could be designed to either to extract groundwater and produce a hydraulic trough that would intercept seawater intrusion, or to inject groundwater and produce a hydraulic mound that would block seawater intrusion. A barrier project would transect the 180/400-Ft Aquifer Subbasin and the Monterey Subbasin, with an estimated length of 8.5 miles and approximately 75% of the barrier within the 180/400-ft Aquifer Subbasin.

A full evaluation of the barrier sizing in consideration of other projects will require use of the full transient SVIHM model. For the initial estimation of barrier size and cost, the seawater intrusion barrier project was evaluated using analytical methods with the goal of estimating the well spacing and flow rates needed for a hydraulic barrier to prevent seawater intrusion.

The seawater intrusion barrier sizing was developed in the absence of any of the other future projects included in the GSP. The effect of the other projects would be to improve the water balance in the Subbasin and decrease the rate of seawater intrusion, thereby decreasing the flow required at the barrier.

An extraction barrier was evaluated using the analytical solution published by Javandel and Tsang (1987). This solution uses the ambient hydraulic gradient, aquifer transmissivity, and pumping rate per well to calculate the optimal distance for three or more wells on a line to prevent water from flowing between the wells. The hydraulic gradient is based on MCWRA Fall 2017 groundwater contours: 0.0006 in the 180-ft aquifer and 0.001 in the 400-ft aquifer. Transmissivity is based on values in the NSV model: 18,000 ft^2/day in the 180-ft Aquifer and 21,000 ft^2/day in the 400-ft Aquifer.

Using these input values, an 8.5-mile long barrier requires total extraction of approximately 30,000 AF/yr. to produce a trough that prevents flow of groundwater through the barrier. This would require extraction of approximately 22,500 AF/yr. from the 180/400-Ft Aquifer Subbasin, with 7,500 AF/yr. from the 180-ft aquifer and 15,000 AF/yr. from the 400-ft aquifer.

The extraction rate for each well is a function of the well spacing and can be adjusted to fit design requirements for the final barrier. For example, an extraction barrier with 9 wells spaced 5,000 feet apart would require approximately 700 gpm per well in the 180-ft aquifer and 1,400 gpm per well in the 400-ft aquifer. For a barrier with 22 wells spaced 2,000 feet apart, the rates per well would decrease to approximately 300 gpm in the 180-ft aquifer and 600 gpm in the 400-ft aquifer.

The injection barrier was evaluated using the Theis equation and the principle of superposition to estimate the height of mounding produced by a line of several injection wells. The Theis equation was used to estimate the height of hydraulic mounding as a function of distance from a single injection well and then the estimated mounding height at each distance along the barrier was estimated as the sum of the influences from all the wells in the barrier.

Input for this analysis required a designation of the height of the mounding, transmissivity, storage coefficient, pumping rate per well, and an estimated time to reach equilibrium conditions. The minimum mounding height was estimated to be 6.75 ft for the 180-Ft Aquifer and 13.75 ft for the 400-Ft Aquifer in order to compensate for seawater density and the depth of the aquifers below sea level. Transmissivity values of 18,000 ft^2/day for the 180-Foot Aquifer and 21,000 ft^2/day for the 400-Foot Aquifer, and storage coefficient of 0.003 are based on the NSV model. The time to equilibrium mounding was estimated as 30 days. Based on these input parameters and an 8.5-mile barrier with 9 wells (5,00-ft spacing), the estimated injection rate is approximately 46,000 AF/yr., with 34,500 AF/yr. of injection in the 180/400-ft Aquifer Subbasin; divided into 8,700 AF/yr. in the 180-Foot Aquifer and 25,500 AF/yr. in the 400-Foot Aquifer).

9D.6 References

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APPENDIX 11A
BOARD MEMBER ROSTER

LAST NAME	FIRST NAME	REPRESENTING	APPOINTING AUTHORITY	Appt./Reappt.
Brennan	Janet	Environmental Directors	Monterey County Board	3 yr. to 7/1/20
Lipe	Bill	Ag Interest, (Upper Valley)	Monterey County Board	3 yr. to 7/1/22
Stefani	Ron	Disadv. Comm./Public Water System	Castroville CSD	3 yr. to 7/1/22
Adcock	Tom	CPUC regulated representative	Salinas City Council	2 yr. to 7/1/21
McHatten	Michael	South County Cities	So. Co. City/City Selection SubComm. Nom.	3 yr to 7/1/22
Gunter	Joseph	Salinas	Salinas City Council	3 yr. to 7/1/20
McIntyre	Steve	Ag Interest (Forebay)	Monterey County Board	3 yr to 7/1/20
Alejo	Luis	Other GSA Eligible Entity**	Monterey County Board	3 yr to 7/1/20
Chapin Hodges	Caroline	Public Member	Monterey County (SVBGSA nominee)	3 yr. to 7/1/22
Pereira	Colby	Ag Interest (East Side/Langley)	Monterey County Board	3 yr. to 7/1/22
Secondo	Adam	Ag Interest (Pressure)	Monterey County Board	3 yr. to 7/1/20

* Following staggered terms, Directors serve 3 yr. terms, with exception of 2 yr. regular term for CPUC Water regulated company; JPA §6.3

**Not including cities of Salinas, Gonzales, Soledad, Greenfield or King City; nominated by Monterey County, Water Resources Agency, Monterey One Water

APPENDIX 11B
ADVISORY COMMITTEE ROSTER

Interest	Organization	Primary Alternate(s)
Agriculture	Driscoll Strawberry Associates	Emily Gardner Dennis Lebow
	Grower-Shipper Association of Central California	Abby Taylor-Silva
	Monterey County Farm Bureau	Norm Groot Kevin Piercy
	Monterey County Vintners & Growers	Kim Stemler
	Salinas Valley Sustainable Water Group	Chris Drew
	Salinas Valley Water Coalition	Nancy Isakson Steve McIntyre
County and City Governments	City of Salinas	Brian Frus
	City of Gonzales	Harold Wolgamott
	Monterey County	Charles McKee
Disadvantaged Communities and Housing	CHISPA	Alfred Diaz-Infante Paul Tran
	Environmental Justice Coalition for Water	Horacio Amezquita
Environmental	Environmental Caucus	Robin Lee Abigail Hart
	Environmental Caucus (2)	Beverly Bean
	Salinas River Channel Stream Maintenance Programs, River Management Unit Associates, Inc.	*Member pending Board approval*
Industrial	Chevron U.S.A.	Dallas Tubbs Jeff Johnson
Municipal Well Operators and PUC-Regulated Water Companies	Alco	Tom Adcock Adnen Chaabane
	Cal Water Service	Brenda Granillo Greg Williams Michael Bolzowski
Planning / Land Use	LandWatch	Tom Ward Janet Brennan
Rural Residential Well Owners	Rural Residential Well Owner, North County	Robert Burton
	Rural Residential Well Owner, South County	Bing Seid
Water Supply and Management	Castroville Community Service District *Note: Castroville is a disadvantaged community.*	Eric Tynan Ron Stefani
	Marina Coast Water District	Keith Van Der Maaten Patrick Breen Mike Wegley
	Monterey One Water	Mike McCullough
	Water Resources Agency	Howard Franklin
	Seaside Basin Watermaster, Technical Program Manager	Robert Jaques Jonathan Lear

APPENDIX 11C. LIST OF GOVERNANCE MEETINGS

Meeting	Date	Topic
Advisory Committee Regular Meeting	Nov 21, 2019 - 02:00 PM	Draft GSP 180-400 recommend approval to Board - Implementation Plan.
Board of Directors Regular Meeting	Nov 14, 2019 - 03:00 PM	Future palnning schedule for remaining GSP's
Board of Directors Regular Meeting	Oct 10, 2019 - 03:00 PM	Communication Plan Revisions - Marina Coordination Agreement
Executive Committee Regular Meeting	Sep 26, 2019 - 10:00 AM	MGSA Coordination Agreement- review of correspondance
Advisory Committee Regular Meeting	Sep 19, 2019 - 02:00 PM	MGSA Coordiantion Agreement
Board of Directors Regular Meeting	Sep 12, 2019 - 03:00 PM	Chapter 10 and 11 release to Public Review of CSIP projects
Executive Committee Regular Meeting	Aug 22, 2019 - 10:00 AM	MGSA Coordination Agreement
Advisory Committee Regular Meeting	Aug 15, 2019 - 02:00 PM	Chapter 10 and 11 recommend to Board for release
Board of Directors Regular Meeting	Aug 8, 2019 - 03:00 PM	Chapter 9, request County to Appoint Public Board Member
Planning Committee Regular Meeting	Aug 1, 2019 - 10:00 AM	Chapter 10 recommend to Board for release
Advisory Committee Regular Meeting	Jul 18, 2019 - 02:00 PM	Chapter 9 recommend Board to release
Board of Directors Regular Meeting	Jul 11, 2019 - 03:00 PM	Chapter 6 release to Public Arroyo Seco Presentation
Advisory Committee Regular Meeting	Jun 20, 2019 - 02:00 PM	Chapter 6 recommend Board to release
Board of Directors Special Meeting	Jun 10, 2019 - 01:00 PM	Chapter 8 recommend Board to release to public - IRWM Project Review
PLANNING COMMITTEE	Jun 6, 2019 - 10:00 AM	Chapter 6 recommend Board to release
Executive Committee Regular Meeting	May 23, 2019 - 10:00 AM	Recommend Coordination Committee with Monterey County Water Resources
Advisory Committee Regular Meeting	May 16, 2019 - 02:00 PM	Chapter 8 recommend Board to release to public - IRWM Project Review
Board of Directors Regular Meeting	May 9, 2019 - 03:00 PM	Chapter 7 release to Public.- Basin Boundary Modification Outcomes
PLANNING COMMITTEE SPECIAL MEETING	May 6, 2019 - 09:00 AM	Chapter 8 recommend Board to release to public
Planning Committee Regular Meeting	May 2, 2019 - 10:00 AM	Chapter 8 recommend Board to release to public
Executive Committee Regular Meeting	Apr 25, 2019 - 10:00 AM	Basin reprioritization update - update on Arroyo Seco/Greenfield negotiations
Advisory Committee Regular Meeting	Apr 18, 2019 - 02:00 PM	Chapter 7 release to Public.- Basin Boundary Modification Outcomes
Board of Directors Regular Meeting	Apr 11, 2019 - 03:00 PM	Budget Adoption
SVBGSA Planning Committee	Apr 4, 2019 - 10:00 AM	Chapter 7 release to advisory Committee
Executive Committee	Mar 28, 2019 - 10:00 AM	Budget Review
Board of Directors Regular Meeting	Mar 14, 2019 - 03:00 PM	Report
Advisory Committee Regular Meeting	Feb 21, 2019 - 02:00 PM	Chapter 5 release to advisory Committee - fee consdieration
Board of Directors Regular Meeting	Feb 14, 2019 - 03:00 PM	Fee Study - Hydrological Modeling
Executive Committee Regular Meeting	Jan 24, 2019 - 10:00 AM	Fee Study - Hydrological Modeling - Advisory Committee By laws update
Advisory Committee Regular Meeting	Jan 17, 2019 - 02:00 PM	Joint Meeting with Advisory Committee
Board of Directors Special Meeting	Jan 10, 2019 - 03:00 PM	Chapter 4 release to public TNC Presentation on GDE's
Advisory Committee Regular Meeting	Dec 20, 2018 - 02:00 PM	Chapter 4 to Board for reviews
Board of Directors	Dec 13, 2018 - 03:00 PM	Chapters 1-3 fro public Review - MCWD Agreement
SVBGSA PLANNING COMMITTEE REVISED AGENDA	Dec 6, 2018 - 10:00 AM	Chapter 4 to Advisory Committee for review
Advisory Committee	Nov 15, 2018 - 02:00 PM	Chapters 1-3 to Board - MCWD Agreement
SVBGSA Planning Committee	Nov 6, 2018 - 10:00 AM	Chapter 4 to Advisory Committee for review
Advisory Committee	Oct 18, 2018 - 02:00 PM	Fee Development approval - Setting GSP planning schedule
Board of Directors	Oct 11, 2018 - 03:00 PM	Planning dates, Consultant Contract - planning schedule
Executive Committee	Sep 27, 2018 - 10:00 AM	Fee Development approval - Setting GSP planning schedule
SVBGSA BOARD OF DIRECTORS AND ADVISORY COMMITTEE SPECIAL JOINT MEETING AGENDA AND SVBGSA BOARD OF DIRECTORS SPECIAL MEETING	Sep 13, 2018 - 02:00 PM	Joint meeting Board and Advisory agreement with WRA and USGSA
Executive Committee	Aug 23, 2018 - 10:00 AM	Agreement with WRA, Fee schedule, coortdination agreements
Advisory Committee	Aug 16, 2018 - 02:00 PM	Fee development
Board of Directors	Aug 9, 2018 - 03:00 PM	Report on Public Outreach for Sustainable Criteria
Advisory Committee	Jul 19, 2018 - 02:00 PM	Basin Boundary Modification
Board of Directors	Jul 12, 2018 - 03:00 PM	Interlake tunnel report, Advisory Committee appointments
Executive Committee	Jun 28, 2018 - 05:50 PM	Consultant agreement GSP planning process
Board of Directors	Jun 14, 2018 - 03:00 PM	Approval MOU with Water Resources Agency
Board of Directors	May 10, 2018 - 03:00 PM	Joint meeting Board and Advisory agreement with WRA
Board of Directors -Advisory Committee Joint Meeting	April 19, 2018 - 02:00 PM	Meeting with Planning Consultant set Directorn for GSP Development
Executive Committee	Mar 22, 2018 - 10:00 AM	Mar 8 2018 - 03:00 PM
Board of Directors	Mar 8 2018 - 03:00 PM	Consultant Agreement Status Reports Seawater Intrusion Update
Advisory Committee	Feb 15, 2018 - 02:00 PM	Water Bond Presentation Committee member confirmations
Board of Directors	Feb 8 2018 - 03:00 PM	Coordination Agreement Status Reports Seawater Intrusion Update
Advisory Committee	Jan 18, 2018 - 02:00 PM	Mar 8 2018 - 03:00 PM
Board of Directors	Jan 11, 2018 - 03:00 PM	DWR Presentation Brown Act Education
Board of Directors	Dec 14.2017 - 4:00 PM	Seawater Intrusion Report RFQ for consultant to prepare plan

APPENDIX 11D

ISSUES ASSESSMENT

Consensus Building Institute

Sustainable Groundwater Management Act Implementation

Salinas Valley Groundwater Stakeholder Issue Assessment

Developed by Senior Mediators Gina Bartlett and Bennett Brooks, Consensus Building Institute
February 29, 2016

Executive Summary

In fall 2015, the Consensus Building Institute, a neutral nonprofit that helps groups collaborate, conducted a stakeholder issue assessment on forming a groundwater sustainability agency in the Salinas Valley Basin. California's Sustainable Groundwater Management Act requires that the basin identify an agency or group of agencies to oversee groundwater management by 2017 and then develop a plan to manage groundwater by 2020. CBI's role is to *help facilitate* local decision-making, recommending and leading a process that brings together all affected parties in productive dialogue, on forming the groundwater sustainability agency (GSA).

To understand and reflect the range of perspectives and to develop recommendations for the process to form a GSA, CBI conducted 35 in-depth interviews and received 86 individual surveys from a range of stakeholder interests in the Salinas Valley, including governmental (cities and counties), water agencies, agriculture, disadvantaged communities, environmental, business, and community representatives. Given the importance of groundwater in the region's water supply and economy, CBI's methodology is grounded in three core principles: (1) being comprehensive in soliciting input from the range of potentially impacted stakeholders; (2) being transparent in the nature of the feedback and recommendations provided; and (3) drawing on CBI experience and best practices to recommend an approach likely to foster effective and inclusive deliberations. This report presents CBI's assessment findings and recommendations for a transparent, inclusive process on forming a GSA in the Salinas Valley.

Findings

Findings reflect a range of feedback on GSA formation, the process, challenges, and critical issues. In brief, stakeholders articulate:

- Groundwater supply is high stakes; everyone recognizes the importance of forming the GSA successfully.

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160 Delmar Street
San Francisco, CA 94117
telephone (415) 271-0049

www.cbuilding.org

- Interviewees cannot identify any one organization as a likely candidate to serve as the GSA. Many envision multiple organizations coming together under a Joint Power Authority to form a singular GSA.
- The GSA must have the trust of all the interested parties and the technical expertise to develop the plan. The GSA should draw on existing data and studies wherever possible.
- Stakeholders strongly support inclusivity and diversity to build success in the process. Fairly representing all interests would support creating a shared framework of mutual benefit.
- Given that agriculture is the primary economic driver in the area, stakeholders recommend that agriculture have a significant voice in governance and decision-making on GSA formation, yet balancing that voice with urban, cities, county, and other interests.
- Many recognize the need to act to avoid both undesirable results and state intervention.
- Interviewees readily talk about historic tensions and sources of distrust in the region that the process must manage.
- Critical issues are tied to land use and small communities losing water supply because of poor water quality.
- "The Valley is innovative and progressive – it moves ahead to address problems." While interviewees define and view groundwater supply quite differently, everyone concurs that a range of stakeholders must agree on the GSA.

Consensus Building Institute Process Recommendations

Create a Transparent, Inclusive Collaborative Process for Groundwater Sustainability Agency Formation

Stakeholders are broadly unified on several core aspects related to a process for identifying a GSA. It must be transparent. It must be inclusive. It must be accompanied by broad outreach. And it should draw on the best available data.

Convene a Groundwater Stakeholder Forum and Collaborative Work Group

The Groundwater Stakeholder Forum would be a periodic public forum with a range of interests participating that advises on GSA formation. The forum's role would be to shape the overall process. Forum membership would encompass all stakeholders who are interested in groundwater and must be considered under SGMA. The Collaborative Work Group would develop consensus on the proposed GSA structure and recommend adoption by the GSA-eligible agencies. The work group would be a representative body with a focused number of participants (12-20) representing the interests of GSA-eligible agencies and groundwater users. CBI would work with interest groups to identify work group participants. The work group would develop detailed proposals and meet regularly with the Groundwater Stakeholder Forum to share ideas and solicit feedback on proposals. The work group would commit to incorporating forum feedback to the greatest degree possible. The work group could also form ad hoc committees to carry out detailed work. For example, CBI would recommend forming an engagement committee to develop the public engagement plan and a technical committee to begin to prepare for plan development.

Confirm Work Plan
The forum and the work group would have a decision-making work plan to outline its discussion topics. Between February and November 2016, these bodies would work diligently to develop a proposal for GSA formation. These conversations would be punctuated by public engagement activities. In winter 2016/17, the Collaborative Work Group would consult with agency governing boards and the public on the proposals. In spring 2017, the forum and work group would refine the GSA structure based on those consultations. Once the GSA structure was set, the responsible entities forming the GSA would issue public notice and hold a public hearing by spring 2017 before notifying the state in advance of the June 2017 deadline.

Design and Implement a Public Engagement Plan
Given the paramount importance and level of interest in groundwater in the Salinas Valley, CBI would recommend designing and implementing a public engagement plan and suite of activities to create transparency and information about GSA formation for the general public, translating materials and creating radio spots to reach Spanish-speaking communities.

Conclusion
The overarching goal of this effort would be to reach widespread support on forming the groundwater sustainability agency for the Salinas Valley and complying successfully with the Sustainable Groundwater Management Act. The keys to success are creating a transparent, inclusive process that engages interested stakeholders, designing a governance structure that balances interests, supports a vibrant economy, manages groundwater sustainably, and meets SGMA requirements. A viable and broadly supported GSA is the essential first step towards long-term sustainable groundwater management.

Contents

Part 1: Assessment Findings

California's recently passed historic groundwater management legislation requires that groundwater be managed locally to ensure it can be a sustainable resource well into the future.

The legislation, known as the Sustainable Groundwater Management Act, prioritizes groundwater basins in significant overdraft including the Salinas Valley to move forward first. SGMA requires that such areas first identify an agency or group of agencies to oversee groundwater management by 2017 and then develop a plan to manage groundwater use by 2020.

The Consensus Building Institute (CBI) is a neutral non-profit that helps groups engage collaboratively on a wide range of issues. A consortium of interests[1] in the Salinas Valley asked CBI to help all interested parties in the region to address the legislation's initial mandate to form a Groundwater Sustainability Agency (GSA) by June 2017.

This report represents the first step in CBI's work on this effort: an in-depth assessment of stakeholder perspectives on the range of issues and opportunities tied to establishing a GSA. This report presents CBI's assessment findings and recommendations for a transparent, inclusive process on forming a GSA in the Salinas Valley. The report is presented in the following sections:

- ***Approach,*** summarizing CBI's methodology to conduct the assessment
- ***SGMA Context,*** providing a brief scan of the legislation, project impetus, and objectives
- ***Findings,*** presenting findings based on a series of interviews and surveys and a review of relevant background material
- ***Recommendations,*** putting forward a series of process design and decision-making recommendations related to GSA formation.

It is important to note that CBI's role is to *help facilitate* local decision-making on this critical issue, recommending and leading a process that brings all affected parties together in a productive dialogue. The ultimate decision on GSA structure is to be determined entirely at the local level.

Approach

CBI's assessment is intended to understand and then reflect to interested parties the range of perspectives and possible process approaches being considered by stakeholders potentially affected by implementation of the Sustainable Groundwater Management Act (SGMA) in the Salinas Valley.

[1] Consortium members comprised the representatives of the cities, Monterey County, Farm Bureau, Grower Shipper Association, Salinas Valley Water Coalition and Water Resources. Agency. The Consortium was formed solely to jump-start the process by hiring an impartial facilitator. CBI will work with a broad cross-set of interests including agriculture, cities and NGOs to manage the process moving forward.

Given the critical role groundwater plays in the region's water supply and economy and the potential impacts of any change in how groundwater is managed, CBI's methodology is grounded in three core principles: (1) being comprehensive in soliciting input from the range of potentially impacted stakeholders; (2) being transparent in the nature of the feedback and recommendations provided; and (3) drawing on CBI experience and best practices to recommend an approach likely to foster effective and inclusive deliberations.

The findings included in this report are drawn from a wide range of discussions and feedback with Salinas Valley stakeholders. CBI gathered this feedback in two primary ways:

- ***In-depth interviews.*** CBI Senior Mediators Gina Bartlett and Bennett Brooks conducted 35 in-depth interviews with 47 individuals that included cities; agriculture, environmental, and land use groups; water agencies and suppliers; individuals working with disadvantaged communities; and elected officials. Interviewees were confidential (to foster candor) and were conducted either in-person or by phone. (A list of those interviewed as part of the formal assessment process, as well as the interview protocol, is included as an appendix.)

- ***Broad-based survey.*** Given the importance of this topic and to ensure all stakeholders had an opportunity to inform this initial report, CBI also conducted a survey, available online and via email. CBI worked with a range of individuals and entities in the Salinas Valley to invite widespread participation. CBI received 86 individual survey responses. (A copy of the survey is included in the appendix.)

CBI initially worked with the consortium to identify a preliminary stakeholder list. In the initial round, CBI concentrated on interviewing representatives of the local public agencies eligible to serve as the GSA and key interested parties. Once interviews began, participants recommended other stakeholders for the assessment process, many of whom CBI then interviewed. This incremental process continued until Gina and Bennett began to hear similar information with no significant new information put forth. In addition, Gina and Bennett held brief conversations with other interested parties who contacted them or expressed interest in learning more about the process.

Both the interviews and survey focused on a common set of questions intended to provide feedback on the following broad topics: interests, issues, and challenges related to groundwater management; perspectives on GSA formation and structure; and guidance related to process structure and stakeholder involvement. In addition, CBI reviewed background materials related to both SGMA and Salinas Valley groundwater management.

After preparing this report, CBI invited interview participants to review the draft findings and provide feedback to ensure accuracy. CBI will also present the draft findings and recommendations at a public workshop in January. After this, CBI will finalize the report and its recommendations.

Please note that CBI did not attempt to independently validate the claims or concerns of the interviewees or survey respondents. Rather, this report seeks to summarize the range of views, ideas, and concerns expressed. Additionally, this brief report cannot do justice to the deep knowledge, experience, and nuances of the many stakeholders interviewed. Rather, the report tries to reflect back key themes and concerns that help shape the way forward. CBI has sought to present these findings, in our role as a neutral facilitator, as accurately and fairly as possible. Any errors or omissions are the sole responsibility of CBI.

SGMA Context

The Sustainable Groundwater Management Act is a package of three bills (AB 1739, SB 1168, and SB 1319) that provides local agencies with a framework for managing groundwater basins in a sustainable manner. The State has prioritized 127 basins in the state that must comply with SGMA, including the Salinas Valley basin's eight sub-basins. The California Department of Water Resources Bulletin 118 is a report that defines the basin boundaries. Basins that must comply with SGMA have to meet several critical deadlines.

Form a Groundwater Sustainability Agency by June 30, 2017

A local agency, combination of local agencies, or county may establish a GSA. Under SGMA, local agencies with water supply, water management, or land use responsibilities are eligible to form GSAs. A water corporation regulated by the Public Utilities Commission or a mutual water company may participate in a groundwater sustainability agency through a memorandum of agreement or other legal agreement. The GSA is responsible for developing and implementing a groundwater sustainability plan that considers all beneficial uses and users of groundwater in the basin.

A GSA must cover all portions of the basin. The county is responsible for representing the unincorporated areas. Each GSA-eligible agency could form its own GSA; however, DWR will not recognize GSAs with overlapping areas. GSAs with overlap must eliminate overlap to be recognized by the state. If more than one GSA is formed in the Salinas Valley Basin, they would require a coordination agreement.

Develop a Groundwater Sustainability Plan by 2020 or 2022

GSAs must develop a groundwater sustainability plan with measurable objectives and milestones that ensure sustainability. A priority basin must have single plan or multiple coordinated plans. The Salinas Valley sub-basin has areas deemed in critical condition. Basins in critical condition must develop plans by Jan. 31, 2020. Priority basins that are not in critical condition have until Jan. 31, 2022, to develop plans.

Achieve Sustainability in 20 years

SGMA requires basins to achieve sustainability in 20 years. Sustainability is defined as avoiding undesirable results, including significant and unreasonable chronic lowering of groundwater levels, reduction of groundwater storage, seawater intrusion, degraded water quality, land subsidence, and depletion of interconnected surface waters.

State Backstop or Intervention
If a local agency is not managing the groundwater sustainably, SGMA directs the State Water Resources Control Board to intervene to manage the basin until a local agency is able to do so. SGMA calls for State Water Board intervention when a basin fails to meet the stated deadlines.

GSA-Eligible Agencies in the Salinas Valley Basin
A number of local public agencies are eligible to form a GSA in the Salinas Valley. California Water Code 10723.6 stipulates that a combination of local agencies may form a GSA by a joint powers agreement, a memorandum of agreement or other legal agreement. A water corporation regulated by the Public Utilities Commission or a mutual water company may participate in a groundwater sustainability agency though a memorandum of agreement or other legal agreement. Staff will identify the complete list GSA eligible agencies, including PUC-regulated and mutual water companies early in the process. Below is a partial list of agencies that are eligible in the Salinas Valley Basin.

Monterey County
San Luis Obispo County

City of Gonzales
City of Greenfield
City of King
City of Marina
City of Paso Robles
City of Salinas
City of Soledad

Castroville Water Community Service District
Marina Coast Water District
Monterey County Water Resources Agency
Monterey Peninsula Water Management District
San Ardo Water District
San Lucas Water District

Alco Water
California Water Service

Findings
The following summarizes findings from interviews and surveys conducted by the Consensus Building Institute.

GSA Formation
Groundwater supply is high stakes; everyone recognizes the importance of forming the GSA successfully. The people of the Salinas Valley rely almost solely on groundwater for their water supply and livelihoods. Interviewees articulate that sustainability will require a long-term approach: the region needs a continuous source of drinking water for communities and individual well owners. Significant agricultural production in the Valley and tourism in the Peninsula shape the economy and create a complex interdependence between production and business and water for people's daily lives, including the cities and communities that house workers essential to the region's prosperity. While interviewees define and view groundwater supply problems quite differently, everyone concurs that a range of stakeholders must agree on the groundwater sustainability agency. "Fairness and trust are the key to whatever comes out of this process."

"Our primary concern is to maintain the economic driver by managing on a sustainable basis."

No clear candidate exists for the GSA. Interviewees cannot identify any one organization as a likely candidate to serve as the GSA. One person outlined two options: a single GSA for the entire basin or multiple GSAs organized by sub-basin, suggesting that the latter might better manage the varied conditions in each sub-basin. Many anticipate that some type of Joint Powers Authority, merging the responsibilities of existing agencies, may be likely. Suggested examples are the county, one or more cities, and agriculture representatives with some type of advisory body that is inclusive of smaller water systems, domestic well owners, or the general public. One person suggested one vote per acre-owned, and another urged that the GSA avoid duplicating existing processes when possible. Also, most interviewees envision one GSA in the basin in Monterey County. At least one person suggests that one GSA cover the Salinas Valley Basin in both counties. (Many anticipate that the Paso Robles sub-basin would be split at the county line with a separate GSA forming for the San Luis Obispo County portion.) However, no one configuration or entity emerged through the interview process.

"We need an entity that has knowledge to be the GSA and trust of all the interested parties, and the technical expertise to develop the plan." Stakeholders urge that the GSA must rely on science, constructively regulate, and wisely and fairly navigate water supply politics. Interviewees recommend a process based on scientific information and a governance structure that reflects this understanding. Participants would like to see a GSA with a formal regulatory structure with repercussions for failure to abide by agreements. Most recognize that the GSA will need the power and structure to be able to regulate toward sustainability, including levying fees for projects. They would like to see a GSA that can identify and implement management decisions that would achieve sustainability and provide the ability to measure success. Questions that stakeholders recommend for consideration in forming the GSA include: How do we get better knowledge of basin functions? What projects are currently operating and anticipated in the future? What has worked or failed in other areas? How will funding be set up? What fees would the GSA charge?

"The worst situation would be if the GSA is formed without proper internal capacity to carry out its required functions."

Surveys mentioned the need for skilled staff and adequate funding for success. "It will take a skilled director to run the GSA." Interviewees suggest that GSA staff will need to exercise strong leadership and knowledge of water and politics. The GSA would need hydrologists and geo-morphologists. Interviewees suggest that the GSA should be balanced and represent the range of stakeholders in the Salinas Valley Basin. Others counter that stakeholder consensus has not worked so allowing independent experts to make decisions would be preferable. The Monterey Regional Pollution Control Agency is a model that the GSA might replicate. Interviewees suggest that it found a way to balance urban and rural interests.

"The Water Resources Agency acting alone as a GSA would probably not balance agricultural interests with urban, that's why some organizations were hesitant about WRA becoming the GSA." WRA is often mentioned as a likely GSA candidate because its service area overlies the basin, and it manages many water supply projects. However, most interviewees think that WRA needs to *participate in* rather than *serve as* the GSA. Stakeholders' reasons vary: many feel that agricultural interests are dominant, that the cities have no direct representation, and that representing diverse interests at WRA would be difficult; changing WRA's legislative intent to serve as the GSA would be arduous; and shifting WRA to a regulatory role might erode stakeholder trust.

Given that agriculture is the primary economic driver in the area, most interviewees feel that agriculture needs to have a "big voice" in governance. Most concur that balancing the importance of agriculture with all the other interests in governance is critical. Agriculture is clearly recognized as the primary economic driver; it uses "most of the water and will foot much of the bill for any changes needed to manage groundwater sustainably." Interviewees understand that others need representation as well, specifically, the cities, city water suppliers (which are California Public Utilities Commission-regulated water corporations), rural residential well owners, and small mutual water companies. Interviewees articulate the inter-connected nature and need for comprehensive water management because the cities provide the homes for agricultural workers and hospitality workers in the Peninsula. The City of Salinas has a number of residents that rely on jobs in the hospitality industry in the Peninsula. The City sees a direct line between those jobs and the corresponding revenue and supporting successful regional water management.

"Agriculture is going to be focusing in on their needs with 90% of the use in the basin. It's a big majority that you have to listen to. But it doesn't work for the 90% to pump and not be mindful of the impact on the 10%."

Interviewees express fear about achieving balance in decision-making. They express concern about the urban population "outvoting" agricultural interests, and agricultural interests using political power to "outvote" the cities.
Interviewees articulate a strong recognition of inter-dependence and recommend the following considerations for governance:

- Ensure agricultural interests have a significant voice in the dialogue, but balance that voice with urban, cities, county, and other interests
- Represent the major interests: agriculture, cities, domestic water suppliers, community interests, and environmental users of water.
- Consider population
- Consider water use and demand
- Make size of governing body manageable: not too large to be unwieldy

Stakeholder GSA-Formation Process Recommendations

"Inclusivity and diversity will build success." All interviewees suggest that an inclusive, transparent process is critical to success. Everyone agrees that all stakeholders need to come together to collaborate and reach consensus on the GSA. Some express concern that collaboration will be difficult if stakeholders fight over groundwater issues rather than trying to resolve them. Many recommend having all GSA-formation-related meetings open to the public. Also, a few people suggest the importance of holding meetings throughout the Valley to explain the need for the new organizations and request ideas on the governing board, funding, and programs. Some would like to see process agreements so interests participating in GSA formation cannot use what they have learned for lawsuits. To reach Spanish-speaking populations, the outreach effort would need to rely on Spanish radio and television, and many suggested translating all materials.

"The Valley is innovative and progressive – it moves ahead to address problems." While no one thinks collaborating on the GSA will be easy, everyone concurs that stakeholders from different interest groups must work together to figure out the best configuration for forming the GSA. One person suggests looking at cooperative efforts in Napa County as an example. Many believe that stakeholders will be able to successfully form the GSA.

"Fairly represent the interests so we can create a shared framework of mutual benefit." Participants offered a number of suggestions for designing an effective process. Some recommend a focused group to negotiate the GSA complemented by broad transparent outreach. Many suggest starting with a large, inclusive group, anticipating that after the first few meetings, many will defer to a core group to carry out the work. A few recommended establishing committees to work on detailed agreements and proposals for broader group consideration. Several recommended developing a memorandum of understanding on the process so that the public agencies commit to the process of working together, possibly in a joint meeting of the Board of Supervisors and City Councils. Many said they look to CBI to recommend a process design based on its experience and familiarity with best practices.

Stakeholders recommend drawing on existing studies when possible. To manage costs and avoid duplication of effort, people would like the GSA to draw on existing studies. An important first step would be to consider all the data that are currently available and to determine the role of Zone 2c in the GSA.

Challenges to GSA Formation

Many recognize the need to act – to avoid both undesirable results and state intervention. Many understand that groundwater levels are dropping. A few interviewees perceive that some water users, in particular some representatives of agriculture, are resistant to reducing water use. Yet others feel that agriculture has contributed significantly to reducing water use by changing irrigation practices and providing funding and support for water supply projects. Many express hope that

people can move beyond their own self-interests and manage water for the region. Lastly, a lawsuit with the County of San Luis Obispo underway on the Paso Robles sub-basin continues with different views of the role of the underflow form the Salinas River, the outcome of which might affect this effort.

"GSA-forming entities [must] recognize and accept that new ways of addressing the issues are needed (i.e., the status quo is not working)."

Some interviewees suggest that a few stakeholders in the Valley would prefer an adjudicated basin. A few interviewees articulate that adjudication or state intervention is necessary to sustainably manage the basin; in other words, they do not believe the political will exists to ever curtail pumping. One or two interviewees believe that adjudication would remove politics from management, i.e. it would be easier. A few interviewees express frustration that adjudication would be costly and time consuming. Some suggest that if stakeholders are unable to reach consensus on the GSA, some may initiate the adjudicatory process. Some express concern that the State will intervene, regardless, if saltwater intrusion continues.

"If the GSA is going to have authority to impose strict measures to maintain sustainability, there has to be the political will to undertake these."

Many suggest that it is timely to rethink WRA's agreement to keep well data confidential and only provide aggregated data. The GSA will need data to demonstrate sustainability and be in compliance with SGMA. Interviewees anticipate that comprehensive monitoring data will be necessary to support implementation of the groundwater sustainability plan and would prefer to use existing well data where possible.

Interviewees readily talk about historic tensions and sources of distrust in the region. People express differing viewpoints about whether these tensions are "real" or even if they still exist. However, CBI names them here because they are part of the "water narrative" that could affect GSA representation and governance. While a few interviewees suggest strain, most articulate mutual interests among agriculture and urban interests, linking the economy and housing. Most speak of historic tensions between North and South County over water supply, including impacts to groundwater and surface water and cost sharing on water resources projects. However, stakeholders also suggest that many are working together across the whole basin to manage water supply issues. One person cites the Salinas Valley water project (rubber dam) as an example of folks coming together to address issues cooperatively. The other identified division in the county is between the Peninsula and the Valley. Some interviewees suggest that attitudes between the two shape the ability to carry out projects with perceived regional benefit. These perceptions could affect GSA formation, governance structure, and operational effectiveness.

Critical Issues: Land Use, Water Supply, Water Quality and Boundaries

Water and land use are closely connected. Some agricultural representatives suggest that many in agriculture have long believed there is sufficient water. However, with the ongoing drought and other changed conditions, supply constraints have become more evident. A few people would like to limit residential and commercial development in watershed areas to reduce groundwater depletion. Most would prefer that development occur within the cities rather than taking land out of production. Interviewees express different perceptions of how water flows throughout the sub-basins, where recharge may occur, and how pumping in one area impacts another. California Water Service and Alco Water Service, investor-owned water corporations, serve Salinas residents, and California Water serves King City residents as well. Individuals from the North County report an unprecedented dip in water levels in this fourth year of drought. One or two people would like clarification of water rights under SGMA.

Interviewees report that many small communities are losing their water supply, primarily because of water quality concerns. Interviewees identify a number of water quality issues in different parts of the Valley, primarily nitrates in domestic wells, arsenic, and seawater intrusion. Many of these communities are small systems with only several houses connected to wells that tend to be very shallow. The communities tend to be low income or impoverished. The County Department of Public Health monitors water quality in wells, and several local non-profits have been working with community residents to secure reliable potable water supplies. Stakeholders link water supply to quality issues and believe the groundwater sustainability plan has to link them as well, regardless of SGMA requirements.

ONGOING RELATED PROJECTS & STUDIES (partial list)

- Bureau of Reclamation Carmel and Salinas Rivers Study
- Bureau of Reclamation-Funded Drought Contingency Planning in North Salinas Valley
- Castroville Seawater Intrusion Project (CSIP) / Salinas Valley Reclamation Project
- Salinas River Stream Maintenance Program
- Salinas Valley Water Project
- Pure Water Monterey
- Water Resources Agency (WRA) / USGS Groundwater Model Development
- WRA Interlake Tunnel Project

While the Salinas Valley relies on groundwater, a number of projects augment supply, and studies are underway that will inform the groundwater sustainability plan. Surface storage in the Upper Valley controls releases to the Salinas River and provides recharge in that part of the basin. Recycled water projects, including the Castroville Seawater Intrusion Project and Pure Water Monterey, and the Salinas River Diversion Project (rubber dam) are underway to offset groundwater use in North Valley. A Bureau of Reclamation study will characterize the Carmel and Salinas rivers' groundwater basins. The Water Resources Agency has a technical advisory group that is working with USGS to develop a new groundwater model and is evaluating an interlake tunnel between the two surface storage facilities. Stakeholders also report the possibility of additional

water available via State Permit 11403 on the Salinas River. Finally, desalination projects are at various stages of development in the region.

"Ag is the major economic engine in Monterey County. Agriculture has and will continue to pay for the largest percentage of water improvement projects in the basin."

Several discrete boundary issues might affect GSA formation. The California Department of Water Resources' (DWR) Bulletin 118 defines basin boundaries for SGMA implementation. The area known as the "Salinas Valley Basin" is actually made up of 8 sub-basins listed below. Stakeholders mentioned a number of basin boundary issues that could affect GSA formation. DWR is accepting requests to change basin boundaries for technical reasons and for jurisdictional reasons between January and March 2016. The next opportunity to request changes would be in 2018, before the groundwater sustainability plan is due for the Salinas Valley in 2020.

Salinas Valley Sub-Basins Defined by Department of Water Resources Bulletin 118

CASGEM Basin Number	Sub-Basin Name	Stakeholder-Identified Boundary Considerations
3-4.01	180/400 FOOT AQUIFER	▪ Part of Dolan Road is included in Pajaro Basin, which should be in the 180/400 Foot Aquifer. Stakeholder would consider extending 180/400 Foot Aquifer north to County line.
3-4.02	EAST SIDE AQUIFER	▪ *None mentioned.*
3-4.04	FOREBAY AQUIFER	▪ *None mentioned.*
3-4.05	UPPER VALLEY AQUIFER	▪ *None mentioned.*
3-4.06	PASO ROBLES AREA	▪ Separated by County Line. New water district forming via LAFCO in San Louis Obispo County portion. ▪ Hames Valley in Monterey County is included although some think it is a separate hydrologic system.
3-4.08	SEASIDE AREA	▪ Adjudicated. GSA would govern fringe area not covered by adjudication.
3-4.09	LANGLEY AREA	▪ *None mentioned.*
3-4.10	CORRAL DE TIERRA AREA	▪ Portion adjudicated. GSA would govern fringe area not covered by adjudication.

Part 2: Recommendations

Create a Transparent, Inclusive Collaborative Process for Groundwater Sustainability Agency Formation

Stakeholders are broadly unified on several core aspects related to a process for identifying a GSA. It must be transparent. It must be inclusive. It must be accompanied by broad outreach. And it should draw on the best available data. While stakeholders did not articulate broad agreement on a particular process for tackling GSA formation, many are looking to CBI to draw on its expertise and experience elsewhere to put forward a recommended approach. With this is in mind, CBI has crafted a suite of recommendations structured to achieve the following:

- Ensure multiple and ongoing opportunities for meaningful public input and dialogue
- Balance the need for broad participation with the imperative for focused and effective conversations
- Foster cross-interest group discussions on all aspects of GSA design to ensure participants understand and integrate each other's interests and concerns
- Provide sufficient time for thoughtful deliberations without exhausting people's time and resources
- Achieve agreements and reach outcomes within the required timeline

Convene a Groundwater Stakeholder Forum and Collaborative Work Group

Groundwater Stakeholder Forum

The Groundwater Stakeholder Forum would be a public forum with a range of interests participating that meets periodically to advise on the formation of the GSA. The forum's role is to shape the overall process. Forum membership would encompass all stakeholders who are interested in groundwater and must be considered under SGMA. Forum meetings would foster consistent participation and also provide the public an opportunity to learn about and provide input on an ad hoc basis on GSA formation. Spanish translation would be offered at forum meetings. At each forum, the Collaborative Work Group (see below) would share information about work underway and solicit feedback on proposals. Forum discussions would focus on outlining both areas of agreement and divergent views for the Collaborative Work Group to consider; consensus at the Forum would not be required. The Collaborative Work Group would incorporate forum feedback into its proposals that would ultimately become recommendations to the decision-making bodies on the GSA governance structure.

Collaborative Work Group

The Collaborative Work Group's role would be to develop consensus recommendations on the GSA structure. The GSA-eligible agencies would consider those recommendations for adoption. The Collaborative Work Group would be a representative body with a focused number of participants (12-20 individuals) representing the diverse interests of the GSA-eligible agencies and groundwater users. All Work Group deliberations would be open to the public. CBI facilitators

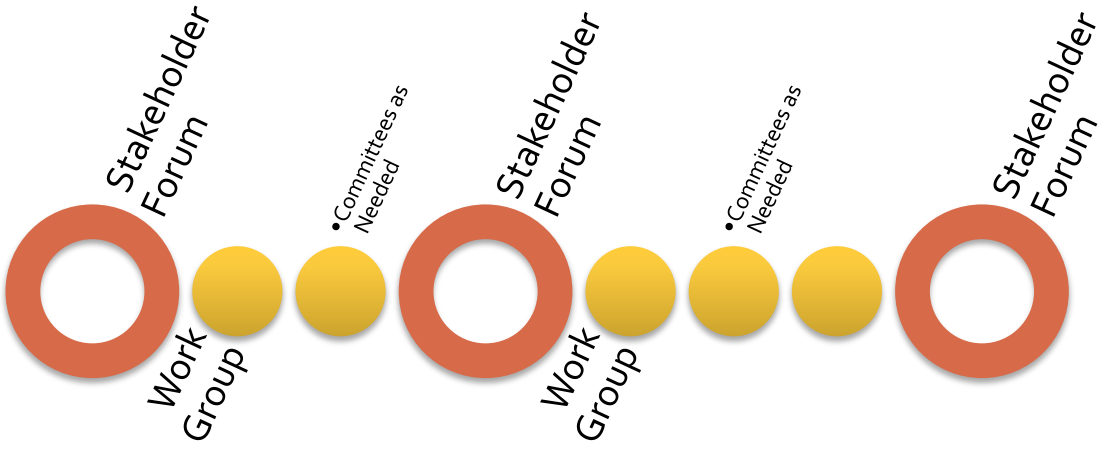
would work with each interest to identify individual representatives able to commit to consistent participation in the Collaborative Work Group. Work group members would commit to attending meetings consistently, with relative frequency as necessary, to develop the recommendations needed to meet the state's deadlines. Representatives would need to be able to represent interests and demonstrate ability to work collaboratively with others and listen and problem solve on GSA formation and governance issues. The work group would review and finalize its membership at an early meeting.

Work Group Participation Criteria

- Strong effective advocate
- Demonstrated ability to work collaboratively with others
- Able to commit time needed for ongoing discussions
- Collectively reflect diversity of interests
- Maintain group size to support focused deliberations

The work group would carry out the detailed work of forming the GSA. The work group would strive for consensus (participants can at least live with the decision) in developing recommendations for GSA formation. Products of the work group would reflect the outcomes of its discussion. The work group would meet regularly with the Groundwater Stakeholder Forum to share ideas and solicit feedback on proposals. The work group would commit to incorporating feedback from the stakeholder forum to the greatest degree possible. Discussion at meetings would be centered on work group members, but with time built in for public comment. However, as noted above, the Groundwater Stakeholder Forum would be the primary venue for sharing information and seeking feedback on proposals for GSA formation in the Salinas Valley.

DIAGRAM: Groundwater Stakeholder Forum, Collaborative Work Group, and Committee Meetings



Committees
CBI would also recommend ad hoc committees come together periodically to manage a specific task. Ad hoc committees would develop options for the Collaborative Work Group to contemplate and refine before sharing with the Groundwater Stakeholder Forum. Ad hoc committees would be small and nimble. Participants would have expertise related to the committee's purpose. Ad hoc committees would also be open to the public.

Engagement Committee: In this initial phase, CBI would recommend an engagement committee form to work with the facilitation team on developing a communication and engagement plan and creating a project web site and public information materials about SGMA and the GSA formation process. As time progresses, materials would focus on making sure interested community members understand and can provide input on the proposed recommendations. The engagement committee would refine all public information materials.

Technical Committee: CBI would also recommend a technical committee convene to examine basin boundaries and begin preparing to develop the groundwater sustainability plan. Since the Salinas Valley Basin must complete its plan by 2020, the technical committee could develop a work plan, including plan requirements and the necessary resources, to develop the groundwater sustainability plan.

Recommended Stakeholder Representation and Participation
CBI would recommend that all stakeholder interests engage in forming the groundwater sustainability agency. CBI would work with interest groups to identify specific individuals to commit to participate in GSA formation. The key interests, that stakeholders suggest and SGMA defines, would include the following:

<u>Local Agencies Eligible to Serve as GSA</u>
- County (Monterey County & San Luis Obispo County)
- Cities
- Water Agencies
- Public Utilities Commission-Regulated Water Companies
- Other Public Agencies

<u>Beneficial Users & Uses</u>
- Agriculture
- Business
- Disadvantaged Communities
- Environmental
- Rural Residential Well Owners

Effective Participation
To conduct a successful process, the parties would commit to the following:

Everyone would agree to address the issues and concerns of the participants. Everyone who is joining in the collaborative process is doing so because she or he has a stake in the issues at hand. For the process to be successful, all the parties

agree to validate the issues and concerns of the other parties and strive to reach an agreement that takes all the issues under consideration. Disagreements would be viewed as problems to be solved, rather than battles to be won. Parties are committed to making a good faith effort to find a collaborative solution (as opposed to seeking resolution in the courts).

Continuity of the conversations and building trust would be critical to the success of the work group. Everyone would agree to inform and seek feedback from their respective group's leadership and constituents about the ongoing dialogue. Meeting scheduling would allow for the work group to inform the stakeholder forum and for work group members to inform and seek advice from their leadership, attorneys, or scientific advisors about the discussions and recommendations.

Decision Making

The Collaborative Work Group and Groundwater Stakeholder Forum would be consensus seeking, striving to reach outcomes that all participants could at least "live with." The Collaborative Work Group would recommend the GSA structure to the GSA-eligible entities in the basin. If more than one agency chooses to participate in the GSA, each agency's governing board would have to adopt or approve the GSA.

If the Collaborative Work Group proved unable to reach consensus on the recommended structure, each GSA-eligible agency could move forward to comply with SGMA by forming one or more GSAs and the required coordination agreements. If no agencies step forward to form the GSA, SGMA stipulates that the county would be the default GSA. In the Salinas Valley, this would need to involve both Monterey County and San Luis Obispo County because the Paso Robles sub-basin extends into San Luis Obispo County. The GSA would be responsible for forming the groundwater sustainability plan. Based on stakeholder feedback, successful GSA formation is considered critical to the ultimate goal of plan development and implementation.

Decision-Making Road Map

The process would move through these stages of organization, information gathering, proposal development, and engagement activities to develop recommendations on forming a groundwater sustainability agency for the Salinas Valley Basin.

Jan-Feb 2016	Feb-April	March-Oct	Oct-Nov	Dec-Mar 2017	March 2017
• **Organization:** • Confirm Process Design & Stakeholder Participation • Develop Work Plan • Organize Committees	• **Information Gathering & Understanding:** • SGMA Requirements & Governance Options • Current Basin Understanding • Basin Boundaries (Applications due to DWR between Jan-March 2016) • Stakeholder Interests	• **GSA Formation Proposal Development** • **Public Enagement Plan and Activities**	• **GSA Formation Vetting Process**	• **GSA Formation Proposal Refinement and Legal Documentation**	• **Public Notice & Hearing**

GSA Formation Proposal Development

To develop and make recommendations on forming the GSA, the Collaborative Work Group would need to explore these topics, engaging the Groundwater Stakeholder Forum to guide its work. Public engagement activities would also occur to solicit input to strengthen proposals.

- Confirm GSA Authorities and Management Responsibilities
- Establish Criteria to Evaluate Options
- Identify GSA-Eligible Agencies and Interest in Participating in GSA
- Understand Potential Options for GSA
- Explore Overarching Governance Structure
- Evaluate Pros & Cons of Different Legal Structures
- Identify Potential Costs of GSA Operations
- Develop Recommendations on Representation, Voting, Financing, Fees
- Agree on Preliminary Proposals
- Vet and Refine Proposals
- Recommend GSA Structure

Design and Implement a Public Engagement Plan

Given the paramount importance of groundwater in the Salinas Valley, CBI would design and implement an outreach plan and suite of activities to create transparency and information about GSA formation for the general public. CBI recommends working with the engagement committee to develop both the plan and its materials. As recommended during the public workshop on the assessment, the engagement plan would include special efforts to reach neighborhood groups, homeowners' associations, and local landowners who own wells. As recommended during the interview process, the public engagement plan would incorporate translation and radio spots to inform Spanish-speakers in the groundwater basin.

Conclusion

The overarching goal of this effort would be to reach widespread support on forming the groundwater sustainability agency for the Salinas Valley and complying successfully with the Sustainable Groundwater Management Act. The keys to success are creating a transparent, inclusive process that engages interested stakeholders, designing a governance structure that balances interests, supports a vibrant economy, manages groundwater sustainably, and meets SGMA requirements. A viable and broadly supported GSA is the essential first step towards long-term sustainable groundwater management.

About the Consensus Building Institute

Founded in 1993, the Consensus Building Institute improves the way that community and organizational leaders collaborate to make decisions, achieve agreements, and manage multi-party conflicts and planning efforts. A nationally and internationally recognized not-for-profit organization, CBI provides collaborative problem solving, mediation and high-skilled facilitation for state and federal agencies, non-profits, communities, and international development agencies around the world. CBI senior staff are affiliated with the MIT-Hard Public Disputes Program and the MIT Department of Urban Studies and Planning. Learn more about CBI at: www.cbuilding.org

Gina Bartlett is a senior mediator at CBI. She has mediated many complex policy issues related to water resources, land use, and natural resources over the last 20 years. She is on the national roster of the U.S. Institute for Environmental Conflict Resolution and has a Master's degree in Conflict Analysis & Resolution. Ms. Bartlett is working on implementation of the Sustainable Groundwater Management Act with the California State Water Resources Control Board and Department of Water Resources, the California Water Foundation, and Sonoma County with three priority basins. You can learn more about Gina at cbuilding.org and reach Gina at 415-271-0049 or gina@cbuilding.org

Bennett Brooks is a senior practitioner who brings deep experience in water resources and high-conflict complex issues, both in California and elsewhere. Over the last 18 years, he has facilitated dozens of complex and highly contentious collaborative dialogues on issues related to water resource conflicts, ecosystem restoration, fisheries, and infrastructure improvements throughout the U.S. He has conducted numerous assessments, designed and facilitated several joint fact-finding panels, and taught a range of negotiations trainings on mutual gains bargaining. Last year, Bennett facilitated a successful dialogue among Central Valley water managers that generated many of the ideas now encompassed in California's groundbreaking groundwater management legislation. Bennett recently facilitated a series of roundtable discussions to better define measurable objectives and triggers related to the six "undesirable results" identified in SGMA. You can reach Bennett at BBrooks@cbuilding.org

Appendix A: List of Persons Interviewed

Interviews alphabetized by last name of interviewee.[2]

1. Tom Adcock, President, and Andrea Schmitz, Water Quality Manager, Alco Water
2. Lew Bauman, County Administrative Officer, Nick Chiulos, Assistant CAO, Les Girard, Chief Assistant County Counsel, and Charles McKee, County Council, Monterey County
3. Brian Boudreau and Beth Palmer, Monterey Downs, LLC
4. Dave Chardavoyne and Rob Johnson, Monterey County Water Resources Agency
5. Rob Cullen, Mayor, King City
6. John Diodati, Department Administrator, Carolyn Berg, San Luis Obispo County Department of Public Works
7. Marc Del Piero, Sherwood Darington, and Richard Nutter, Board Members, Agricultural Land Trust
8. Daisy Gonzalez and Vicente Lara, Environmental Justice Coalition for Water
9. Norm Groot, Monterey County Farm Bureau
10. Abigail Hart, The Nature Conservancy
11. Brett Harrell, Nunes Company and Grower-Shipper Association
12. Dale Huss, Ocean Mist and Sea Mist Farms
13. Nancy Isakson, Salinas Valley Water Coalition
14. Mike Jones, General Manager, California Water Service
15. Margie Kay
16. Roger Maitoso, Arroyo Seco Vineyard
17. Bob Martin, Rio Farms
18. Mike McCullough. Monterey Regional Pollution Control Agency
19. Rene Mendez, City Manager, City of Gonzales
20. Jeanette Pantoja, Environmental Justice Coalition for Water Board and Building Healthy Cities
21. Gary Petersen, Director of Public Works, City of Salinas
22. John Ramirez, Monterey County Department of Public Health
23. Jerry Rava, Rava Ranch
24. Rich Smith, Paraiso Vineyards
25. Sergio Sanchez, Office of Assemblyman Alejo and Hispanic Chamber of Commerce of the Central Coast
26. Steve Shimek, Monterey Coast Keeper and The Otter Project
27. Dennis Sites, Salinas Valley Sustainable Water Group
28. Abby Taylor Silva, Grower-Shipper Association and Monterey County Water Resources Agency Board Member
29. Simon Salinas, Supervisor, Monterey County
30. Dave Stoldt, Monterey Peninsula Water Management District
31. Eric Tynan, General Manager, and Ron Stefani, Board Member, Castroville Community Services District
32. Juan Uranga, Center for Community Advocacy
33. Keith Van Der Maaten, General Manager; Howard Gustafson and Peter Le, Board Members; and Roger Masuda, Attorney, Marina Coast Water District
34. Amy White, Executive Director, LandWatch Monterey County
35. Don Wilcox, Public Works Director, City of Soledad

[2] In addition to the formal assessment interviews, G. Bartlett and B. Brooks held brief conversations with other interested parties who contacted them or expressed interest in learning more about the process.

Appendix B: Interview Protocol & Survey Questions

NOTE: The survey varied slightly to make it easier to capture information in writing, but the questions were essentially the same. Please contact Gina@cbuilding.org or 415-271-0049 if you would like a copy of the survey questions.

Initial Exploration on GSA Formation in Salinas Valley Basin

Confidentiality: *CBI Facilitators will use what we discuss to report back findings without attributing it to interviewee personally; anything that interviewee wishes to stay confidential will remain between the facilitator and interviewee.*

Background

Tell us about your background and/or interests related to groundwater management generally?

What is the role of groundwater in your water supply? How does your organization think about groundwater as part of its water supply future?

GSA Formation and Structure

The first major requirement under SGMA is to form a GSA(s) by June 2017 for medium and high priority basins. What are your primary concerns or interests related to SGMA and GSA formation? Why are these important?

How would you (and your entity) foresee GSA formation moving forward in your basin? Why?

What configurations or options for a GSA would you envision or have you thought about? How would you organize the governance structure? What are the pros and cons related to those options?

What kind of conflict might emerge related to GSA formation? How might the conflict be resolved?

What criteria or considerations would help you evaluate GSA configurations and/or candidates? *(What specific qualities would you envision for a potential GSA? (financial, technical capacity, etc.))*

What special considerations, if any, related to basin boundaries (as outlined in Bulletin 118) should we know about? How might these considerations affect GSA formation, outreach, etc.?

Process and Decision-Making

Who should be involved in deciding on the GSA formation? How should they decide?

If a stakeholder group comes together to work on GSA formation, how would you like to be involved?

Who might be able to represent your interests in these deliberations?

How would you recommend designing a road map to a decision on GSA formation? What steps would you take?

What interest, if any, does your entity have in serving as a GSA?

What agency might you recommend or envision as serving as the GSA(s) or what agencies might come together to serve as a GSA? How might other agencies or stakeholders feel about these possibilities?

What kinds of information might be needed to support decision-making on GSA formation?

Who has credibility to provide technical information?

Internal Decision Making
How will decision making on the GSA configuration/structure occur in your entity?

Who are the key opinion leaders and thought leaders on forming the GSA and managing groundwater within your entity?

What's the best method to keep those leaders abreast of new developments and potential insights?

Stakeholder Engagement
What other stakeholders are important to inform or keep abreast in some fashion on these issues?

How would you recommend engaging those groups/individuals during this phase of the process? Once the GSA is formed?

What kinds of outreach / engagement /activities do you or others already have in place that might involve these stakeholders?

Conclusion
Is there anything else that you haven't mentioned? What advice would you offer or what else would you recommend to move this effort forward?

Who else, if anyone, would you recommend that I interview on these issues?

APPENDIX 11E. DISADVANTAGED COMMUNITIES

Introduction and Purpose of Appendix

Many of the communities in the Salinas Valley Groundwater Basin are classified as Disadvantaged Communities (DACs) and Severely Disadvantaged Communities (SDACs), as well as Economically Distressed Areas (EDAs). The SVBGSA jurisdictional area has well documented DAC-designated areas including seven Census Designated Places (CDPs), 60 Block Groups, and 20 Tracts. Additionally, work conducted by the Greater Monterey County Integrated Regional Water Management (IRWM) Program identified 25 small disadvantaged, severely disadvantaged, and suspected disadvantaged communities in unincorporated areas of the IRWMP region (Greater Monterey County Regional Water Management Group, 2018), which includes the entire SVBGSA area. As many of these communities are dependent on groundwater for drinking water, they face challenges associated with drinking water quality.

The State of California has recognized challenges in providing clean, safe, and affordable drinking water to all of its citizens, especially low-income and minority communities. In 2012, California law AB 685, the Human Right to Water, declared that every person has a right to clean, safe, and affordable drinking water. In 2019, the State further made it a priority by passing SB 200, the Safe and Affordable Drinking Water Fund. In Fiscal Year 2019-2020 alone, it will dedicate $130 million for safe drinking water solutions in DACs that do not have access to safe drinking water.

The Salinas Valley Groundwater Basin is one of the most productive agricultural regions in the world. However, over several decades seawater intrusion and intensive fertilizer use resulting in nitrate contamination have compromised drinking water quality in parts of the Basin. Nitrate contamination in groundwater can pose serious health risks to pregnant women and infants if consumed at concentrations above the maximum contaminant level (MCL) of 10 milligrams per liter (mg/L) nitrate as nitrogen (NO_3-N). Nitrate contamination not only poses health risks, but also results in major costs for small rural communities. This is particularly challenging for the many economically disadvantaged communities in the Basin.

SGMA has limited requirements with regards to improving groundwater quality; the SGMA regulations are written in terms of avoiding degradation (CWC, §354.28 (c)(4)). However, the SVBGSA seeks to engage more constructively with disadvantaged communities moving forward in the subbasin planning processes. SVBGSA maintains excellent relationships with agencies monitoring and addressing water quality issues in the Basin. The purpose of this appendix is to provide background information on the relationship between DACs (including SDACs and EDAs) and groundwater, particularly with respect to the drinking water challenges in the Basin. Unless otherwise noted, the information in this appendix is based on and much is excerpted from

the Integrated Regional Water Management (IRWM) Plan for the Greater Monterey County Region (Greater Monterey Regional Water Management Group, 2018).

Identifying DACs in the Salinas Valley

A Disadvantaged Community (DAC) is defined in the California Water Code (§79505.5(a)) as a community with an annual median household income that is less than 80% of the statewide annual median household income, based on five-year estimates. Further, a Severely Disadvantaged Community (SDAC) is defined as a community with an annual median household income that is less than 60% of the statewide annual median household income, based on five-year estimates. For information on how these designations are determined, see the Greater Monterey County Integrated Regional Water Management Plan (Greater Monterey County Regional Water Management Group, 2018). These designations are significant because in order for a community to be eligible for State grant funds specially allocated for disadvantaged communities, or to be eligible for reduced matching fund requirements, a community must meet one of these strict definitions.

At the same time, the California Department of Water Resources (DWR) also recognizes the existence of communities that are economically challenged but that are not designated as being disadvantaged according to U.S. Census data. These communities have been labeled Suspected Disadvantaged Communities until their status can be proven either way.

In addition to disadvantaged communities, DWR recognizes Economically Distressed Areas. An economically distressed area (EDA) is defined as:

> *…a municipality with a population of 20,000 persons or less, a rural county, or a reasonably isolated and divisible segment of a larger municipality where the segment of the population is 20,000 persons or less, with an annual median household income that is less than 85 percent of the statewide median household income, and with one or more of the following conditions as determined by the department: (1) financial hardship, (2) unemployment rate at least 2 percent higher than the statewide average, or (3) low population density (Water Code §79702(k)).*

Figure 1 shows the communities currently designated as DACs, SDACs, or EDAs in the Salinas Valley. This figure combines census tracts, blocks, and places to give a more complete representation of the communities within this area. Currently, the statewide median household income is $63,783. Therefore, the calculated DAC and SDAC thresholds are $51,026 and $38,270, respectively (see https://water.ca.gov/Work-With-Us/Grants-And-Loans/Mapping-Tools). For example, Castroville has a median household income of $35,000 (Rural Community Assistance Corporation, 2017). Moss Landing is not currently designated as a DAC; however, according to a survey by the California Rural Water Association (2018), its median household income is $47,600.

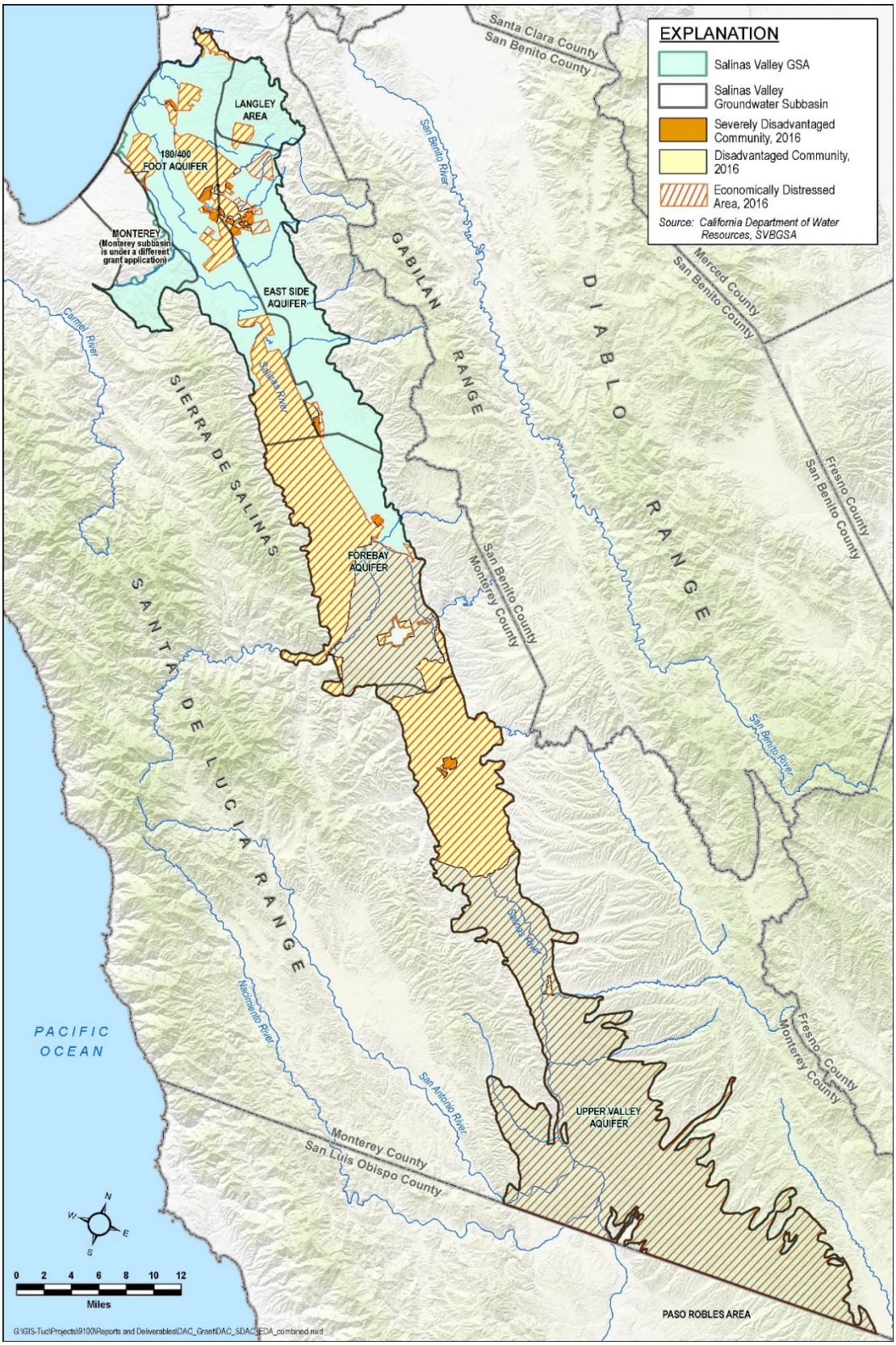


Figure 1. Map of DACs, SDACs, and EDAs in the Salinas Valley Groundwater Basin

As highlighted in the IWRM Plan, small disadvantaged communities in unincorporated areas often have small public water systems that serve fewer than 200 connections. The smallest of these communities have State Small Water Systems (SSWS), which serve between five and 14 connections); Local Small Water Systems (LSWS), which serve between two and four connections; and/or households served by private domestic groundwater wells. There is a significant difference in capacity, water supply, and infrastructure needs between a DAC served by a large water system (e.g., a large disadvantaged community of several thousand people, or a small disadvantaged community served by a large water utility) and a small disadvantaged community served by a small water system or by private wells. The State Water Resources Control Board (SWRCB) summarized these differences in its 2015 report, Safe Drinking Water Plan for California (SWRCB, 2015):

- Small water systems have the greatest difficulty in providing safe drinking water because they are least able to address the threats to public health associated with water quality.
- Larger water systems are better equipped to deal with water quality issues because they have more customers to fund the necessary improvements, have economy of scale, more technical expertise, better management skills and knowledge, are able to solve operational problems internally, and have dedicated financial and business-related staff. They generally have more sophisticated treatment and distribution system operators who are able to react to incidents and changes in treatment conditions that may occur during operations.
- On the other hand, small systems, especially those in disadvantaged communities, have only a small number of customers, which provides them with limited fiscal assets and no economy of scale. They often lack technical expertise, the ability to address many of the issues pertinent to operating a water system, as well as qualified management and financial and business personnel. In many instances, especially for very small water systems, the system operator may be just a part-time position.

Following the Greater Monterey County IRWM Plan, this Appendix includes DACs, SDACs, and EDAs and places an emphasis on small disadvantaged communities for the reasons highlighted by the SWRCB.

Jurisdictional Responsibilities

A number of agencies and groups have existing jurisdictional responsibility over groundwater quality. The SVBGSA will collaborate with these agencies and groups so as to not duplicate efforts or overstep its institutional authority. The following agencies and groups have responsibility over various aspects of groundwater (Greater Monterey County Regional Water Management Group, 2018):

- **Greater Monterey County IRWM Regional Water Management Group** – AB1630 appropriated State grant funds to enable this Group to develop solutions for DACs to be integrated into the broader IRWM planning effort. IRWM is a voluntary, collaborative effort to identify and implement water management solutions on a regional scale to increase regional self-reliance, reduce conflict, and manage water resources. The IRWM planning process brings together water and natural resource managers along with other community stakeholders to collaboratively plan for and ensure the region's continued water supply reliability, improved water quality, flood management, and healthy functioning ecosystems. The Department of Water Resources manages grant programs specifically designated for adopted IRWM Plans including funding for water quality improvement projects.
- **State Water Resources Control Board (SWRCB)** – The SWRCB administers the state's Drinking Water Program as the federally-designated Primary Agency responsible for the administration and enforcement of the Safe Drinking Water Act requirements in California. Prior to July 1, 2014, the California Department of Public Health was designated as the Primary Agency. These requirements are defined in the California Health and Safety Code and Titles 17 and 22, California Code of Regulations. The CDPH continues to maintain the State's Drinking Water and Radiation Laboratory, which serves as the state's principal laboratory as required for primacy under the Safe Drinking Water Act. The SWRCB is responsible for the regulatory oversight of over 7,600 public water systems in California. It may delegate oversight responsibility of public water systems with less than 200 service connections to local county health departments, which it has done in Monterey County.
- **Monterey County Department of Environmental Health (MCDEH)** – Delegated oversight responsibility by the SWRCB, MCDEH is the Local Primary Agency and its Drinking Water Protection Services regulates domestic water systems in the County that serve between two and 199 connections. There are approximately 160 such systems in the County regulated under this program. MCDEH also regulates all well construction in Monterey County.
- **SWRCB and Central Coast Regional Water Quality Control Board** – State policy on water quality control falls under the SWRCB, which is the state water pollution control agency for all purposes under the Clean Water Act (CWC §13160), including drinking water sources from both surface water and groundwater. The SWRCB has nine regional boards, including the Central Coast Regional Water Quality Control Board (CCRWQCB), which is responsible for the day-to-day implementation of the federal Clean Water Act and California's Porter-Cologne Water Quality Control Act in the Central Coast. Together, the State Water Board and Regional Boards are responsible for the protection of the quality of ambient surface and groundwater up to the point where the water enters a drinking water well or surface water intake. The Regional Boards are

responsible for developing and enforcing water quality objectives and implementation plans to protect the beneficial uses of the State's waters. The Regional Boards enforce water quality regulations through the following means.

- **Basin Plan –** Each Regional Board is directed to formulate a water quality control plan, called a Basin Plan, that includes water quality standards under the Clean Water Act. The CCRWQCB implements the Basin Plan in the Central Coast Region, in part by issuing and enforcing waste discharge requirements to individuals, communities, or businesses whose waste discharges can affect water quality, including surface water, groundwater, or wetlands.
- **Waste Discharge Requirements (WDRs) –** WDRs, sometimes simply known as Orders, for discharges to waters of the United States also serve as National Pollutant Discharge Elimination System (NPDES) permits. The SWRCB and CCRWQCB regulate discharges from wastewater treatment and disposal systems under general WDRs. Small, domestic wastewater treatment systems having a maximum daily flow of 100,000 gallons per day (gpd) or less that discharge to land are covered under a statewide general WDR permit for small systems (Order WQ 2014-0153-DWQ). The State and Regional Boards are also responsible for plans and permits related to other uses, such as farming, septic tanks, and larger scale sewage treatment that can also impact the quality of surface and ground waters.
- **Irrigated Lands Regulatory Program (ILRP) –** The SWRCB initiated the ILRP in 2003 to control agricultural runoff's impairment of surface waters. In 2012, groundwater regulations were added to the program. Waste discharge requirements, which protect both surface water and groundwater, address agricultural discharges throughout the Central Coast. Anyone who irrigates land to produce crops or pasture commercially must seek ILRP permit coverage and maintain in good standing with their coalitions.

- **Department of Pesticide Regulation** – The California Department of Pesticide Regulation is responsible for ensure that pesticides do not contaminate the groundwater.
- **Office of Environmental Health Hazard Assessment** – The California Office of Environmental Health Hazard Assessment is responsible for providing the SWRCB with health-based risk assessments for contaminants. These assessments are used to develop primary drinking water standards.
- **California Public Utilities Commission (CPUC)** – The CPUC is responsible for ensuring that California's investor-owned water utilities deliver clean, safe, and reliable water to their customers at reasonable rates. The Water Division regulates over 100 investor-owned water and sewer utilities under the CPUC's jurisdiction; providing water service to about 16 percent of California's residents.

- **Local Agency Formation Commissions (LAFCOs)** – These commissions oversee the expansion of service areas of public agencies, including cities that own or operate public water systems. They can review public agencies to determine if the agency is providing municipal services in a satisfactory manner, including the delivery of safe drinking water.
- **Central Coast Groundwater Coalition (CCGC)** – The CCGC is a non-profit 501(c)5 mutual benefit organization that represents landowners and growers who operate in Monterey, San Benito, Santa Clara, Santa Cruz, San Luis Obispo, and Santa Barbara counties, as well as the northern portion of Ventura County in the Central Coast Region. The CCGC is not a governmental organization like the other jurisdictional agencies, and therefore does not have legal jurisdictional authority. However, the CCGC is the primary organization tasked with fulfilling the groundwater quality regulatory requirements in the Irrigated Lands Regulatory Program (ILRP) of the Central Coast Regional Water Quality Control Board. The organization combines the resources of its members to achieve economies of scale to comply with the regulatory requirements of the CCRWQCB. Between 2013 and 2015, the CCGC characterized the rural drinking water supply and shallow groundwater aquifer in the CCGC region which includes the previously noted six counties. In addition to using data from member wells, CCGC gathered publicly available data generated by the counties and data submitted by landowners and growers who perform individual monitoring as part of the current ILRP. Information collected on tested wells included depth to groundwater and well perforation levels where available. For many wells, quality parameters were collected, such as nitrates and total dissolved solids (TDS). In the groundwater characterization report, the information from the six counties was compiled and analyzed to produce maps showing areas where groundwater quality exceeds drinking water limits for nitrates. This information enabled CCGC to develop an accurate groundwater characterization in 2015 which provides growers, regulators and the public with a better understanding of local aquifers and geology in the six-county region.

DAC Drinking Water Challenges

Drinking water systems are categorized according to the number of service connections:

- Public water systems, which are referred to as municipal public water systems in this GSP for clarity, are water systems that provide drinking water to at least 15 service connections or serve an average of at least 25 people for at least 60 days a year,
- State small water systems are water systems that provide piped drinking water to between five and 14 service connections, and do not regularly serve drinking water to more than an average of 25 individuals daily for more than 60 days out of the year,
- Local small water systems are water systems that provide drinking water to between two and four service connections, and

- Private domestic wells usually provide water to only one or two connections.

Since state small water systems, local small water systems, and private domestic wells face more severe drinking water challenges than public water systems, they are the focus for the following discussion.

Private domestic wells are not regulated by the State. MCDEH requires one-time nitrate testing of newly installed private domestic wells, but there are no additional requirements. The SWRCB's Groundwater Ambient Monitoring and Assessment (GAMA) Domestic Well Project was developed in order to address the lack of domestic well water quality data. The GAMA Groundwater Information System includes numerous datasets that can be downloaded by users. The CCRWQCB also collects domestic well data per Irrigated Lands Regulatory Program (ILRP) groundwater monitoring requirements.

Between October 2013 and August 2014, the CCGC compiled water quality data from 229 samples from domestic and irrigation wells in the Salinas Valley. Data were collected from the GeoTracker GAMA database that includes data from the California Department of Public Health, GAMA-SWRCB data collection efforts and Regulated Sites. Additional data were collected from the USGS National Water Information System data, and data were extracted from the GAMA special study carried out by Lawrence Livermore National Laboratory. In its 2015 *Groundwater Characterization Report* (CCGC, 2015), CCGC made the following conclusions regarding nitrate in the Salinas Valley:

- 41% of wells with nitrate concentrations (or 309 of 758 total wells sampled) had maximum concentrations over the MCL.
- 34% of the land area within the Salinas Valley has nitrate concentrations over the MCL.
- 55% of domestic wells or 121 of 221 total sampled on CCGC-member properties had concentrations exceeding the MCL.

Domestic wells and wells associated with local small and state small water systems are generally more susceptible to nitrate contamination since they are typically shallow and are more likely to be located in rural areas within or adjacent to agricultural areas. They are also more susceptible to potential nitrate contamination from nearby septic systems. Public water systems, on the other hand, tend to access deeper groundwater and are more likely to be located in areas that are less susceptible nitrate contamination. Public water system operators implement regular water quality testing and treatment as necessary, and wells are usually taken out of service once they become contaminated. Funding programs are often available for public water systems, and costs are spread out over a large number of ratepayers over time. When contamination is detected in private domestic wells, treatment options are limited and the individual homeowner will typically have to bear the full cost of addressing the problem (CCGC, 2015).

According to the IRWM Plan, only a very small percentage of domestic wells in Monterey County have been tested through the Central Coast Regional Water Quality Board's groundwater monitoring programs. MCDEH has recently adopted a policy to begin requiring well testing when an application for repair or replacement of a septic system is proposed, which will provide new additional data.

MCDEH Drinking Water Protection Services regulates state small and local small water systems through their Small Water System Program. There are currently 694 local small and 276 state small water systems in Monterey County, which serve about 4,232 connections (Greater Monterey County Regional Water Management Group, 2018).

DACs in the Basin rely primarily on groundwater for their drinking water supply, except for those who rely on bottled water due to unsafe or poor water quality conditions. The primary drinking water problems experienced by small DACs in Monterey County are related to nitrate contamination, seawater intrusion, or other contaminants of concern. Numerous studies over the decades have documented these challenges.

Insufficient water quantity is generally less of a problem in the Salinas Groundwater Basin than poor or unsafe water quality; although poor water quality effectively results in insufficient water supply. During the recent prolonged drought, while Monterey County was classified as experiencing "exceptional" drought, very few water users in the Greater Monterey County IRWM region actually suffered from a lack of water availability. While the drought had immediate impacts on surface water supplies throughout the State, it tended to have a more gradual impact on groundwater supplies. Groundwater quality, rather than quantity, is of primary concern for drinking water supplies in the Salinas Valley Groundwater Basin, particularly nitrate contamination and seawater intrusion.

Nitrate Contamination

Nitrate contamination is particularly problematic in the Salinas Valley Groundwater Basin, where agriculture dominates the landscape. Nitrate is currently extensively monitored and evaluated by the CCGC and is documented in a report submitted to the CCRWQCB (CCGC, 2015). Nitrate contamination in the Salinas Valley was first documented in a report published by the Association of Monterey Bay Area Governments (AMBAG) in 1978. In 1988, a report by the State Water Board documented that nitrate levels in the Salinas Valley groundwater had impaired its beneficial use as a drinking water supply. In a July 1995 staff report, the SWRCB ranked the Salinas Valley as their number one water quality concern due to the severity of nitrate contamination. All of the Salinas Valley cities have had to replace domestic water wells due to high nitrate levels that exceed the drinking water MCL. Maps prepared by the MCWRA indicate that elevated nitrate concentrations in groundwater were locally present through the 1960s, but significantly increased in the 1970s and 1980s.

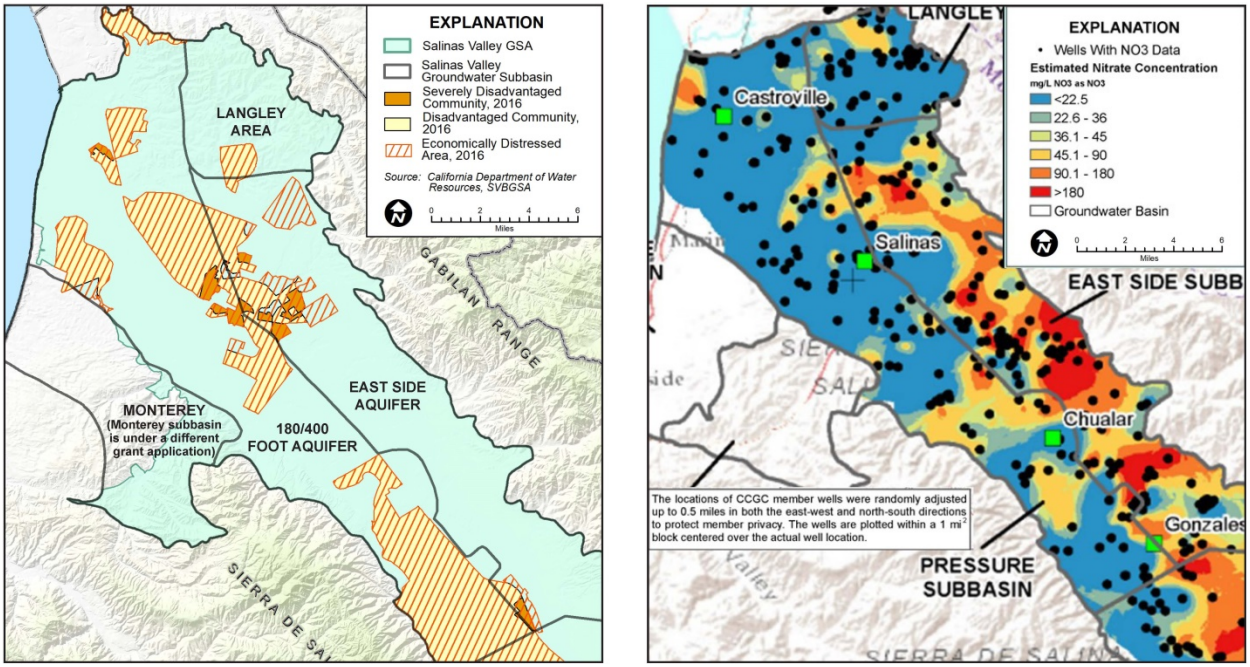


Figure 2. DACs, SDACs, and EDAs in the 180/400-Foot Aquifer Subbasin and Nitrate Concentration Map developed by CCGC (2015)

Seawater Intrusion

Seawater Intrusion is another major water quality concern for DACs and SDACs, primarily impacting coastal communities in the northern part of the Salinas Valley Groundwater Basin. Seawater intrusion has been observed in the 180-Foot and 400-Foot Aquifer Subbasin for over 70 years, and was documented in DWR Bulletin 52 in 1946. By the 1940s, many agricultural wells in the Castroville area had become so salty that they had to be abandoned (Greater Monterey County Regional Water Management Group, 2018). Seawater is high in chlorides. EPA defines the 500 mg/L threshold as an Upper Limit Secondary Maximum Contaminant Level (SMCL). Seawater intrusion is the primary threat to drinking water supplies for many DACs located in the northern coastal portion of the Basin.

Seawater has intruded inland in the 180-Foot and 400-Foot Aquifers, as shown on Figure 3 and Figure 4. Seawater intrusion in the 180-Foot Aquifer covered approximately 20,000 acres in 1995 and had expanded to approximately 28,000 acres by 2010. Since then, the rate of expansion has decreased, with an overlying area of 28,300 acres in 2017. The area overlying intrusion into the 400-Foot Aquifer is not as extensive, with an overlying area of approximately 12,000 acres in 2010. However, between 2013 and 2015, the 400-Foot Aquifer experienced a significant increase in the area of seawater intrusion, from approximately 12,500 acres to approximately 18,000 acres, likely resulting from localized downward migration between aquifers.

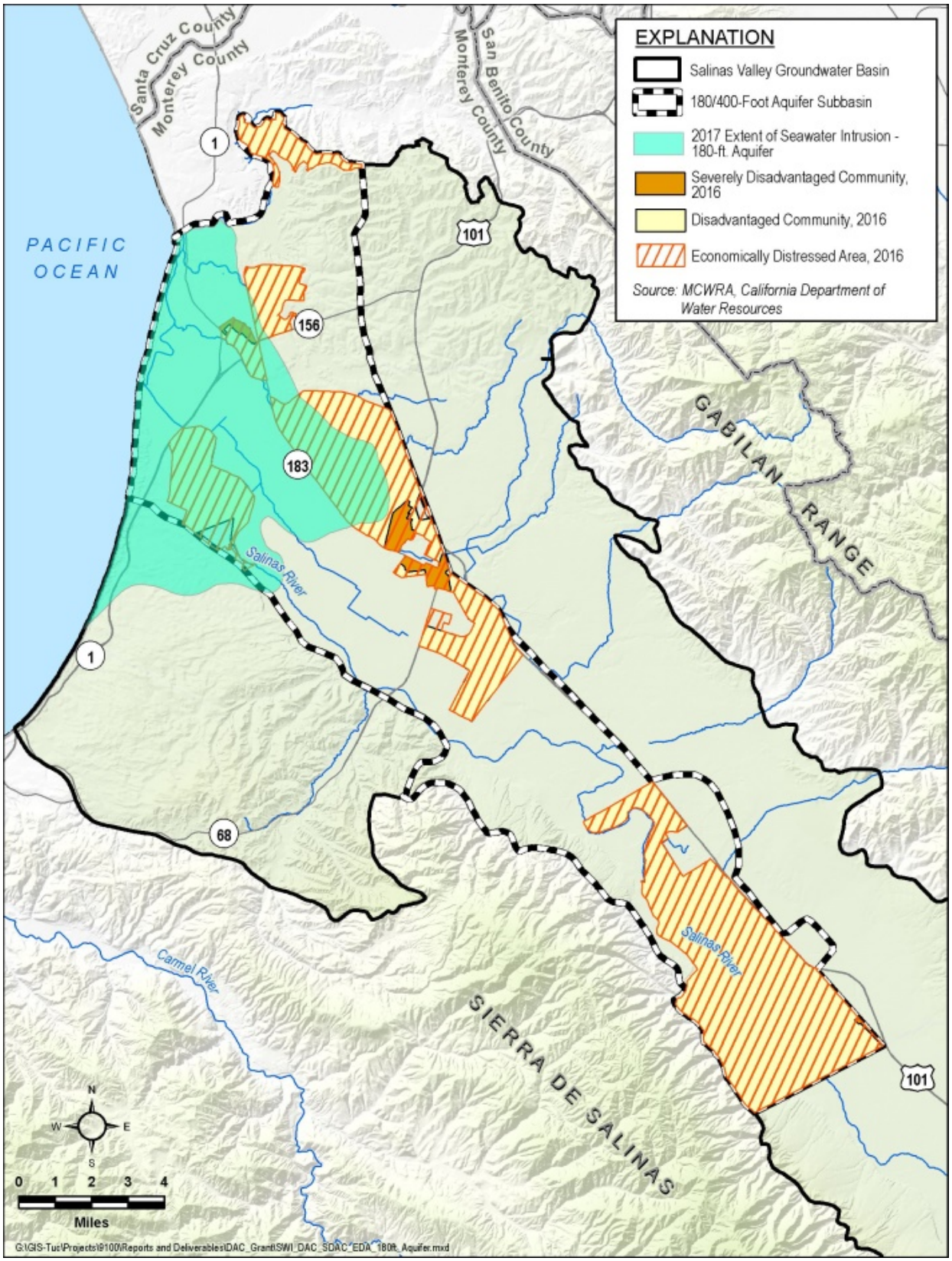


Figure 3. 2017 Extent of Seawater Intrusion in the 180-Foot Aquifer

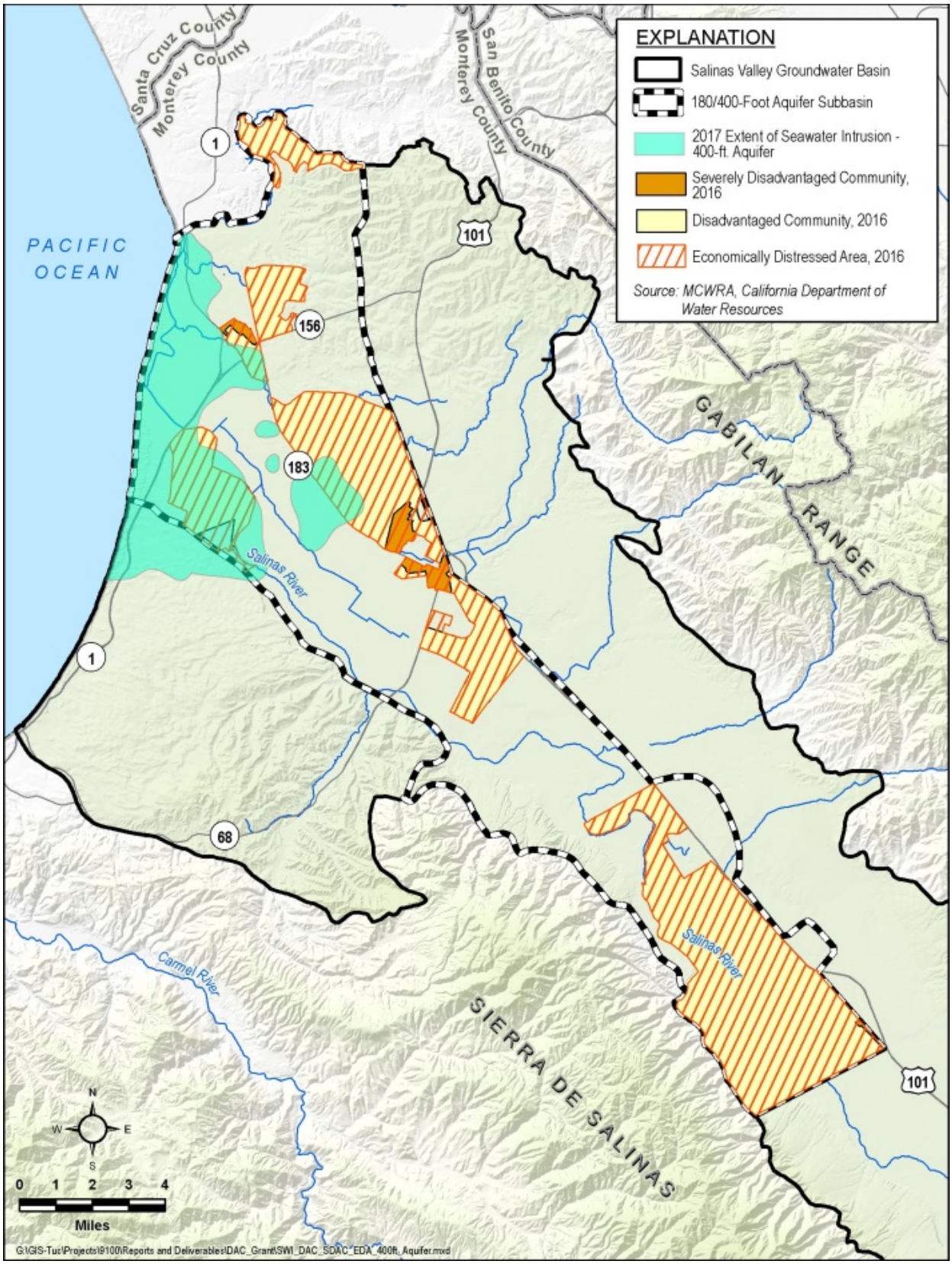


Figure 4. 2017 Extent of Seawater Intrusion in the 400-Foot Aquifer

Other Contaminants of Concern

In addition to nitrates and seawater intrusion, there are a few other contaminants of concern. With the recent passage of Assembly Bill (AB) 1249 (Salas, Chapter 717, Statutes of 2014), the State has recognized the prevalence, and urgency to address, the contamination of drinking water supplies in California by not only nitrate, but specifically by arsenic, perchlorate, and hexavalent chromium. The Greater Monterey County IRWM Regional Water Management Group is currently working with a Technical Advisory Committee, which includes MCDEH and the Central Coast Regional Water Quality Control Board, to identify the extent of nitrate, arsenic, perchlorate, and hexavalent chromium contamination in communities throughout the region. This group will develop a plan to address the contamination from these additional contaminants of concern.

Conclusion

The State of California has recognized the severity of drinking water challenges for DACs with the passage of the 2012 Human Right to Water Act (AB 685), which declared that every person has a right to clean, safe, and affordable drinking water. Further, it emphasized this state-wide focus with the Safe and Affordable Drinking Water Fund in 2019, which provides funding specifically for safe drinking water solutions in DACs that do not have access to safe drinking water.

This appendix highlights the relationship between DACs and groundwater in the Salinas Valley Groundwater Basin, particularly with respect to drinking water. It provides a base for the SVBGSA to engage DACs in a strategic dialogue and support state and local efforts related to drinking water.

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APPENDIX 11F. Salinas Valley Basin Groundwater Sustainability Agency Communication & Public Engagement Plan

BACKGROUND

In 2014, the California State Legislature passed the Sustainable Groundwater Management Act (SGMA). SGMA was enacted in response to a robust scientific understanding that, throughout California, groundwater is being used faster than it's being replenished. SGMA requires that medium- and high-priority groundwater basins and subbasins develop Groundwater Sustainability Plans (GSPs) that outline how subbasins will achieve sustainability in 20 years and maintain sustainability for an additional 30 years.

The Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) was formed in 2017 to implement SGMA locally within the Salinas Groundwater Valley. The SVBGSA is governed by a local and diverse 11-member Board of Directors and relies on robust science and public involvement for decision-making. An Advisory Committee and a Planning Committee have been formed to advise the SVBGSA and these committees represent constituencies that are either not represented on the Board of Directors and/or are considered important stakeholders to developing comprehensive subbasin plans for the Salinas Valley. This governance structure provides for multiple opportunities for engagement in the planning processes the SVBGSA undertakes. Community engagement and transparency on SVBGSA decisions is paramount to building a sustainable and productive solution to groundwater sustainability.

The Salinas Groundwater Valley consists of eight groundwater subbasins, of which six fall entirely or partially under the SVBGSA jurisdiction. One of the eight subbasins, the Seaside Subbasin, is adjudicated and not within the jurisdiction of the SVGBSA. Another subbasin, the Paso Robles Subbasin, lies completely in San Luis Obispo County and is managed by other GSAs. The sixth subbasin is the Monterey Subbasin which is being cooperatively planned for by the SVBGSA and the Marine Coast Water District Groundwater Sustainability Agency (MCGSA). Together, the six Subbasin plans under the SVBGSA will be integrated into the Salinas Valley Integrated Groundwater Sustainability Plan (ISP).

The Communication and Public Engagement Plan addresses the 180/400-Foot Aquifer Subbasin which has been designated by the California Department of Water Resources as "Critically Over-Drafted" requiring a GSP be completed by January 2020 and provided to the Department of Water Resources for approval.

MISSION OF THE SALINAS VALLEY BASIN GSA

The GSA mission is two-fold:

1. Develop a groundwater sustainability plan by 2020
2. Achieve groundwater sustainability by 2040

GOALS OF THE COMMUNICATION PLAN

Ultimately, the success of the 180/400 Aquifer Subbasin Groundwater Sustainability Plan will be determined by the collective action of every groundwater user (that's all of us!). On practical level, this means that in order to meet our ongoing water supply needs, for our drinking water and for our economic livelihoods, we must balance the basin. We know that our current use is unsustainable, and the State has put us on a tight timeline to fix the problem.

Therefore, it is our intention to involve stakeholders and the public early and frequently, and to keep the internal information flow seamless among staff, consultants, committee members, and the Board regarding the goals and objectives of the 180/400-Aquifer Subbasin GSP and associated monitoring and implementation activities. The goals of this communications plan are therefore:

1. To inform the public by distributing accurate, objective, and timely information.
2. To foster open dialogue and stakeholder engagement by hosting opportunities to participate in planning processes and provide feedback.
3. To invite input and feedback from the public at every step in the decision-making process and provide transparency in outcomes and recommendations.
4. To encourage informed Committee recommendations and informed decision-making at the Board.
5. To ensure that the Board, staff, consultants, and committee members have up-to-date information and understand their roles and responsibilities.

PHASES OF COMMUNICATION

Phase 1: GSA Formation (complete)

Phase 2a: Groundwater Sustainability Plan development – 6 subbasin GSPs

- 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan completed January 2020
- Five additional Subbasin GSPs will be undertaken beginning in 2020 through 2022. The Monterey Subbasin GSP will be cooperatively developed by SVBGSA and MCWDGSA.
- Salinas Valley Integrated Sustainability Plan (ISP) development 2022-2023

Phase 2b: Analysis and Determination of Funding Options

- Groundwater Sustainability Fee instituted March 2019

Phase 3: Groundwater Sustainability Plan – Capital Project Funding

Phase 4: Salinas Valley Integrated Sustainability Plan Implementation – 2020-2054

During 2018-2019 the GSA focus was on the completion of the 180/400-Foot Aquifer Subbasin Sustainability Plan and the adopted and implementation of a Groundwater Sustainability Fee. Both these actions will be completed by January 2020. The GSA is now entering additional subbasin planning for five additional subbasins from 2020 through 2022. The focus of this Communications Plan now shifts to continuing with subbasin plan development (Phase 2a) and feasibility of project identification and funding options (Phase 2b and Phase 3 above). At the conclusion of Phase 2 and Phase 3 a Salinas Valley Integrated Groundwater Sustainability Plan will be completed that provides projects and programs for reaching sustainability throughout the entire ISP area by 2040. Phase 4 Plan Implementation will be the focus from 2020 through 2040 with annual reporting and an adaptive management approach to basin conditions, management, and project implementation for the GSPs and ISP.

KEY MESSAGES

"The GSA is on a mission to develop a Groundwater Sustainability Plan by 2020, and achieve groundwater sustainability in the Salinas Valley by 2040. Join us."

Initially, our message points focus on: (1) getting to know your GSA; (2) an overview of groundwater sustainability planning for our community; and (3) how we got here.

We'll expand on the key message as the work evolves, and our talking points will get more specific as the 180/400-Aquifier Subbasin GSP and five other GSPs unfold. These initial talking points are broad enough to consistently come back to over time and will be good pivot points for interviews.

Key Messages: Get to Know Your GSA (& why it's so important)

- The GSA is on a mission to develop a Salinas Valley Integrated Groundwater Sustainability Plan by 2023 and achieve groundwater sustainability in the Salinas Valley by 2040.
- Our groundwater basin is comprised of 6 sub-basins one of which is identified as "Critically Over-Drafted".
- We know that our current use is unsustainable. In order to meet our ongoing water supply needs now and into the future we must balance the basin.
- The State has put us on a tight timeline to fix the problem. We ambitiously accept the challenge.
- In 2020 we'll have a plan in place for the 180/400-foot aquifer and will have scoped projects and programs to bring the subbasin back into balance; then, from 2020 through 2022 we will work on specific sustainability plans for the other five basins. We then have 20 years to implement management actions and projects towards achieving sustainability.
- This matters to everyone. That's why the GSA Board and our advisory and planning committees are made up of diverse stakeholders from every walk of life in the Salinas Valley.

- We have an unprecedented opportunity, and responsibility, to work together collaboratively and develop a science-based Groundwater Sustainability Plan.
- Join us! Visit our website, sign up for updates, and attend the next meeting.

Key Message Points: Groundwater Sustainability Plan

- The 180/400-Foot Aquifer Groundwater Sustainability Plan and Salinas Valley Integrated Sustainability Plan are our 20-year plans to ensure that the Salinas Valley Groundwater Basin will be managed sustainably for our current and future generations.
- Aquifer subbasin planning is not only critical to our future - it's also mandatory. SGMA mandates that a science-based GSPs be developed for the Salinas Valley Basin by 2020 and 2022, and that the plan be implemented by 2040.
- The stakes are high. Should we choose not to act, or fail to meet the 2020, 2022, or 2040 milestones, the State can intervene with required (and hefty) pumping restrictions and extraction fees.
- To meet these milestones, the local GSA has been granted the authority to develop GSPs, monitor and measure the basin and individual wells within the basin, implement capital projects, and assess necessary fees for planning and implementation.
- Six "Sustainability Indicators" will be evaluated in the Plans and used to gauge what we need to do to bring our groundwater supply and demand back into balance.
- Given the hydrologic and geographic diversity of the Salinas Basin, the ISP will identify overlapping projects and programs which benefit the basins. Our planning process includes initiating subbasin planning committees for the subbasins and maintains our governance structure of the board of directors, advisory committee and planning committee.
- Stakeholder engagement is a key component to the development and implementation of the Plan. We encourage and invite the community to get involved. Attend our monthly Board meetings, attend a Subbasin Planning Committee meeting, sign up for our newsletter, or join Gary for one of his coffee chats.

Key Message Points: How We Got Here

- The Salinas Valley Basin GSA is firmly rooted in stakeholder engagement.
- From 2015-2017, local agencies and stakeholders worked with the Consensus Building Institute (CBI) to facilitate the formation of the GSA.
- In 2015, CBI began by conducting a Salinas Valley Groundwater Stakeholder Issue Assessment, which included interviews and surveys and resulted in recommendations for a transparent, inclusive process for the local implementation of SGMA and the formation of the GSA.
- Following the Issue Assessment, The Collaborative Work Group of stakeholders representing a broad range of interests met from March 2016 through April 2017 and developed recommendations on the governance structure, voting, and legal structure of the GSA.
- The Stakeholder Forum was simultaneously held throughout 2016 and served as a critical element for interested stakeholders and the public to learn about and provide input on the GSA.

The Collaborative Work Group integrated input received at the Stakeholder Forum into its recommendations on GSA formation.

- After nearly two years of community engagement led by the top consensus-building professionals in the nation, the Salinas Valley Basin Groundwater Sustainability Agency was formed in April 2017 with a broad and diverse foundation of support.

THE PRESS PROTOCOL

The press is an important partner for getting our message out to the community. We welcome conversations with the press. To maximize our effectiveness in working with the media, a consistent protocol should be followed by all staff, consultants, board members, and committee members.

The Spokesperson(s)

- The primary spokesperson for all media inquiries is the General Manager (GM). Media inquiries should first be directed to the GM to coordinate a response.
- Reporters may want to also interview board and community members. Some board members may enjoy media conversations, while others do not. The GSA will maintain a standby list of a few board and community members, who will be prepared and can be called on for media inquiries.
- In preparation for the interview, the GM and Public Information Officer (PIO) will work closely with the spokespeople in preparation for media interviews. Factual and coordinated talking points will be provided in advance of the interview.

Respond Quickly

- Reporters often work on tight deadlines, and we don't want an opportunity for a feature story to get away. If the media calls, return the call and refer them to the GM at the earliest possible opportunity.

The Back-Up Plan

- If the GM is unavailable and cannot be reached for comment, media inquiries should be directed to the Board's back-up media representative. The Board's representative will contact the PIO to determine whether a response is necessary. If the response is not urgent, offer the media an appointment time for when the GM is available. If it is a time sensitive and urgent matter, a statement will be released from the Board representative in close coordination with the PIO.

"In The News"

- Following the interview or statement, if published, the GM or PIO will circulate the story to the Board and committee members.

SOCIAL MEDIA

Existing well-established social media platforms of our partner agencies and organizations (e.g., Facebook) will be leveraged to share GSA updates and milestones. This action has awaited completion of

the 180/400 Foot – Aquifer Subbasin GSP and will be activated in 2020-2022. The next planning phase for the five additional subbasin GSPs will be undertaken in early 2020.

The PIO will monitor social media sites for mention of the GSA and subbasin planning and implementation efforts. A social media report, including any GSA mentions, positive and negative comments, will be provided to the GM on a monthly basis. Negative posts will be shared and discussed immediately to determine what, if any, response is warranted.

COMMUNICATION GUIDELINES & RESPONSIBILITIES

Board of Directors

Board members should uphold the strongest ethics when communicating about GSA business. The GSA believes that dissenting opinions are valid and important. At the same time, it's crucial that there's no confusion about the official position and decisions of the GSA Board. By serving on the Board, directors agree to act in good faith towards the mission and goals of the GSA at all times. External communications are an inherent part of that responsibility. To avoid confusion in the public, and real or perceived conflicts of interest:

- Board members should strive to communicate fairly and in the best interest of the GSA at all times.
- Board members should not express an opinion (in writing or verbally) on behalf of, or as a member of, the GSA unless authorized by the Board to do so.
- The board-designated spokesperson should not be a spokesperson for another entity with an interest or involvement in ground water.
- Media inquiries should be immediately directed to the GM for a coordinated response.

Committee Members

The Advisory Committee and Subbasin Planning Committees are consensus-seeking and have adopted charters that include communication guidelines. The GSA values the diversity of our committees and understands how difficult it can be to reach agreement. Importantly, committee members are welcome to speak their opinions inside and outside the committee meeting room, but members should take great care to avoid the appearance of speaking on behalf of or as a spokesperson of the GSA. Further, by serving on a committee, members agree to be acting in good faith towards meeting the goals of the GSA. If contacted by the press or an external party concerning Committee discussions, participants are asked to:

- Point out that they are not speaking on behalf of the Committee (unless specifically authorized by the Committee to do so).
- Present their own views and cocientiously refrain from expressing, characterizing, or judging the views of others.
- Avoid using the press as a vehicle for negotiation, confrontation, or grandstanding.

Ambassadors

Ambassadors are community leaders that support the GSA mission and can be counted on to informally speak on-point about the GSA. While Ambassadors are GSA supporters, they also encourage divergent opinions to be shared and heard. Ambassadors may be GSA board or committee members, partner agency staff, elected officials, or members of the public with no official relationship to the GSA. If Ambassadors are approached by the media, they may follow our Media Guidelines above and we can assist with talking points and coordinated messaging as needed. We'll maintain strong relationships with Ambassadors and keep them in-the-know.

Staff & Consultants

The actions of staff and consultants, both on and off work time, are a reflection of the organization and can impact the reputation and credibility of the GSA. Staff and consultants are expected to act and speak with the highest standard of conduct both professionally and personally.

From time-to-time staff and consultants may be asked to provide formal or informal updates on the work of the GSA. All such requests should be brought to the attention of the GM for consideration. All public testimony and statements must be reviewed and pre-approved by the GM.

Affiliates of the GSA should uphold a strong duty of care to the organization's mission and reputation in all external communications, including personal social media posts, public testimonies, and casual conversations. In no circumstances should a personal opinion be misrepresented to be the official position of the GSA.

DECISION-MAKING PROCESS

The Salinas Valley Basin GSA Board of Directors meets monthly. The regularly scheduled board meetings are held on the 2nd Thursday of the month at 3:00 PM. Agendas and meeting details are available online. Board meetings are open to the public.

The GSA Board of Directors is the decision-making body. To facilitate community and stakeholder engagement in the decision-making process, a 25-member Advisory Committee was formed. The consensus-based Advisory Committee is comprised of a diverse range of interests throughout the Salinas Valley, and meets every month to provide input and recommendations to the Board. The Board appoints members to the Advisory Committee based on composition that is representative of the region. Given the hydrologic and geographic diversity of the Salinas Valley, five Subbasin Planning Committees are being developed throughout the Salinas Valley. These Subbbasin Planning Committees will provide even more localized stakeholder input towards the development of the five additional GSPs.

To maintain timely information flow between the committees and the Board, a brief 1-page informational "Committee Key Outcomes" will be prepared following each committee meeting and sent to the Board.

PUBLIC ENGAGEMENT OPPORTUNITIES

Board, Advisory Committee, and Planning Committee meetings are open to the public. The foundation of the Salinas Valley Basin GSA is deeply rooted in stakeholder engagement. Beginning in 2015, local agencies and stakeholders worked with the Consensus Building Institute to conduct a Stakeholder Issue Assessment and develop a broadly supported and agreed upon road map for the establishment of the GSA. The Collaborative Work Group and Stakeholder Forum were instrumental in getting us to where we are today. We intend to continue and build upon this transparent, inclusive public engagement process as we develop the GSP and determine the funding mechanisms necessary to meet the GSA's regulatory responsibilities and achieve groundwater sustainability.

Advisory Committee: Monthly meetings of the Advisory Committee are open to the public.

Local Subbasin Planning Committees: Consultant teams will attend subbasin planning committee meetings to present their findings and interim work products, and to tailor the subbasin GSPs to management areas. Subbasin planning committees will be invited to provide feedback directly to the consultants along the way, and committee recommendations will be carefully considered, tracked, and summarized as part of the subbasin GSPs and ISP.

Interested Parties List: The GSA maintains an Interested Parties List. In addition, we continue to add interested parties to the list on an ongoing basis. Interested parties will be invited to board and committee meetings; GSA staff will also send regular updates to the Interested Parties List (via a monthly e-newsletter and timely updates/ announcements).

Website: The website, https://svbgsa.org/, will be updated and maintained to provide everything that the public will want to know about the GSA and SGMA. The website will include meeting agendas and materials, FAQs, resource links, and consultant work products. Content regarding SGMA and completed plans will be developed and posted in during 2019 – 2020. The website will link associated articles in the broader context of SGMA for additional information and education.

Facebook Page: A Facebook page could provide better real time communication for the next phase of planning for the five subbasins. The overlapping timeline and Subbasin Planning Committees could be organized into a Facebook page framework.

Leveraging Existing Channels of Communication: To expand the GSA's sphere of engagement, we'll partner with existing agencies, committees, and organizations to disseminate information and invite public involvement. GSA staff will request the opportunity to provide articles/updates/announcements for existing social media pages and newsletters (both digital and print). We'll attend board/committee meetings, brief leadership, and coordinate public outreach at key GSA milestones. External organizations include, but are not limited to:

- Water Districts and Utility Companies (California Water Service Company; Monterey Peninsula Water Management District, Cal Am; Monterey One)

- Cities and County
- Chambers of Commerce – Salinas Valley, South County/King City, Latino
- League of Women Voters
- Rotary Clubs
- Strawberry Commission; Leafy Greens Research Board
- Greater Monterey County Integrated Regional Water Management Group
- Grower-Shipper Water & Land Use Committee
- Agricultural Advisory Committee
- Agricultural Land Trust
- Land Watch Monterey County
- Center for Community Advocacy
- COPA (Communities Organized for Relational Power in Action)
- California State University Monterey Bay
- United States Geological Survey

COMMUNICATION TOOLS AND INFORMATIONAL MATERIALS

- Website with current maps, current calendar and overarching plan development flow chart
- Facebook Page regularly updated including meeting dates and Subbasin Planning updates
- Interested Party Email List
- Partner agency/organization social media pages (e.g., Facebook), newsletters (digital and print)
- Annual GSA e-Newsletter
- Timely updates to Interested Party Email List (short *hot off the press* announcements)
- Press Releases: distributed to press, elected and agency officials, and Interested Party List
- 1 to 2-page FAQs for SGMA, SVBGSA, and the GSP
- Project and Program FAQs
- Groundwater Sustainability Fee FAQs
- "In the News" circulation to Board, Committees, and List Serve
- General GSA Talking Points for Board and Committee Members; Talking Points for key milestones, findings, and updates
- Brief "Committee Key Outcomes" - circulated to board and committee members after committee meetings
- Editorial Boards and/or Letters to the Editor
- Open Houses/Forums/Field Trips (meet the consultant team, milestones, periodic GSP updates, etc.)
- Radio interviews and features, particularly Spanish radio

APPENDIX 11G
PUBLIC REVIEW COMMENTS

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW Response	Response
1-3-1			1		11/6/2018	D. Williams notes from November planning committee meeting	Clarify that the 180/400 subbasin is a subbasin.		Page 1 of the PDF and Word document both refer to the 180/400-Foot Aquifer Subbasin.
1-3-2					11/6/2018	D. Williams notes from November planning committee meeting	Clarify what a subbain is and what a GSA is.		Additional explanation added to text.
1-3-3	Section 1.2				11/6/2018	D. Williams notes from November planning committee meeting	Change description of Eastside boundary to "… between this subbasin and the 180/400..."		Text revised
1-3-4	Section 1.2				11/6/2018	D. Williams notes from November planning committee meeting	Correct text to state that the Forebay Subbasin starts at Gonzales		Acknowledged, text revised
1-3-5		Table 3-1			11/6/2018	D. Williams notes from November planning committee meeting	Explain where the Table 3-1 data come from. Describe Idle Cropland (from LandIQ)		Text revised; figure and table will be updated
1-3-6		Table 3-1			11/6/2018	D. Williams notes from November planning committee meeting	Can we discriminate permeant crops from other crops on Table 3-1. Maybe stop differentiating between vineyards and other crops.		Text revised; figure and table will be updated
1-3-7		Table 3-1		3-1	11/6/2018	D. Williams notes from November planning committee meeting	Change the land use to match model land use. Both figure and Table 3-1		Text and table will be revised to be consistent.
1-3-8	3.4.1				11/6/2018	D. Williams notes from November planning committee meeting	Acknowledge the recycled water used in Las Palmas		Text revised
1-3-9			10		11/6/2018	D. Williams notes from November planning committee meeting	the last paragraph Figure number is wrong		Should refer to Figure 2-1; text revised
1-3-10			13		11/6/2018	D. Williams notes from November planning committee meeting	Names of Jurisdictions still don't match between map and text		Text and figures will be checked for consistency
1-3-11			18		11/6/2018	D. Williams notes from November planning committee meeting	When talking about water sources, refer to the SVWP, not just CSIP		Added description of SVWP
1-3-12	3.5				11/6/2018	D. Williams notes from November planning committee meeting	When we talk about the number of existing wells, state that this is from DWR. State that there are other data sources.		Text revised
1-3-13	3.6.1.1				11/6/2018	D. Williams notes from November planning committee meeting	Elminate the "As of 2018".		Text revised
1-3-14				3-4	11/6/2018	D. Williams notes from November planning committee meeting	Remove Cal-Am from the figure		Text revised
1-3-15				3-4	11/6/2018	D. Williams notes from November planning committee meeting	Add Pajaro Sunny Mesa to the figure		The Pajaro Summay Mesa CSD will be added to Figure 3-4.
1-3-16					11/6/2018	D. Williams notes from November planning committee meeting	Always identify data sources throughout the document		Text has been revised to more clearly attribute data sources.
1-3-17	3.7.1				11/6/2018	D. Williams notes from November planning committee meeting	Find citation for Monterey GMP		Comment refes to the Monterey Groundwater Management Plan. Citation added.
1-3-18	3.7.3.2				11/6/2018	D. Williams notes from November planning committee meeting	This section should reference MCWD, not City of Marina		Text revised
1-3-19					11/6/2018	D. Williams notes from November planning committee meeting	Where does MCWD's "allocation" com from on the table that discusses their UWMP		MCWD has an allocation from the Fort Ord Reuse Authority. Text revised.
1-3-20	3.8.7				11/6/2018	D. Williams notes from November planning committee meeting	The second bullet, last sentence is confusing		Text revised
1-3-21					11/6/2018	D. Williams notes from November planning committee meeting	Ask all agencies about the status of the policies in the general plans.		The text was revised to note that plans were summarized based on publically avialable info at time of GSP preparation.
1-3-22		3-4			11/6/2018	D. Williams notes from November planning committee meeting	AMBAG just updated this, are we showing the latest.		Yes, table shows the most recent data.
1-3-23	3.10.6				11/6/2018	D. Williams notes from November planning committee meeting	3.10.6 references Greenfield as a member. It's not.		Correct, Greenfield is not a member. This section addresses all land use plans, not just members.
1-3-24			55		11/6/2018	D. Williams notes from November planning committee meeting	Page 55 references zone 2c. Remove that statement		The reference to Zone 2C is a direct quote out of the Monterey County General Plan
1-3-25					11/6/2018	D. Williams notes from November planning committee meeting	Extraction data only applies to Zones 2, 2A, and 2B. Not 2C or other areas. These will be low estimates. Be sure we state this. Theses are the ONLY extraction numbers, but they are not complete.		Text revised that MCWRA groundwater extraction data are reported for a slightly different area than the 180/400-Foot Aquifer subbasin
1-3-26					12/10/2018	Tom Virsik (PJM Law) email to G. Petersen	At part 3.8, no mention is made of the "regulatory" impact of (1) Ordinance 3790 and (2) the 2017 or 2018 moratorium ordinance on deep aquifer wells.		These are discussed in future sections.

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW Response	Response
1-3-27					12/10/2018	Tom Virsik (PJM Law) email to G. Petersen	The GSP draft seems to understand local regulation is relevant in that it is noting the MCWRA export limitation. The two ordinances may limit operational flexibility of any GSP recommended program or management action, e.g. switching from the 180/400 to the deep.		Comment noted. No change in text required.
1-3-28					12/10/2018	Tom Virsik (PJM Law) email to G. Petersen	GSP draft 3.8.7 The draft GSP includes a General Plan well destruction reference, but that does not seem to be the same as Ordinance 3790's mandatory and time-sensitive destruction. Cites: GSP Emergency Reg 354.8 ©, (d) and (f)		3.8.7 Now refers to Ordinance 3790.
1-3-29			30		12/18/2018	Mike McCullough email to D. Williams	Make sure new name Monterey One Water is used vs Monterey Regional Water Pollution Control Agency (MRWPCA)		Corrected throughout the document.
1-3-30					12/18/2018	Mike McCullough email to D. Williams	Can get an idea of how much water the industries use in and around Salinas. The City should know how much they are extracting each month.		Comment noted.
1-3-31	3.2		10		11/15/2018	Bob Jaques email to D. Williams, G. Petersen	10 under Section 3.2 and to the Management Plan on page 6 under Section 3.2, so that readers will have a general understanding of what is meant by an adjudicated basin, and some specifics about the adjudicated Seaside Basin.		Text added for clarification
1-3-32	3.9		34		11/21/2018	Paul Tran CHISPA email to G. Petersen	Should include the complete language of the settlement agreement in reference to a long-term water supply in the Zone 2C benefit assessment area. This language is contained in the amended Monterey County 2010 General Plan section PS-3.1		Comment noted. No change to text
1-3-33					11/13/2018	Tamara Voss to D. Williams, G. Petersen	Comments received as scanned hand edits in pdf.		Relevant edits in letter were made.

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
4-1	4.3.2					Adam Secondo / SVBGSA Board	Some stakeholders are indicating that there are different water qualities in the deep aquifer	We will check into this.	No public data exist on this that we can put into this report. However, this statement is now included.	
4-2	4.5					Tom Virsik	The chapters present the system as it exists today, which is not necessarily the natural system. Checklist approach vs what is actually needed for sustainability.		There is no intention to attempt to re-create the natural groundwater system.	
4-3	4.4.1					Vera Nelson / EKI for MCWD	Need to be clear about what aquifers are called principal aquifers, particularly the deep aquifer. Also the 180/400. Need to specifically state which ones are principal aquifers.		The deep aquifers are currently identified as principal aquifers. Text has been added to state that the deep aquifers exist in the Monterey subbasin. The extnet of the deep aquifer is now identified as a specific data gap	
4-4	4.4.1					Vera Nelson / EKI for MCWD	Deep aquifers not shown in cross-sections; need to identify data gaps		Deep aquifers are now included in data gaps	
4-5	4.4.2					Vera Nelson / EKI for MCWD	Include tables summarizing K and T for each zone		Data not available for this level of refinment. Chapter 10 includes a program for obtainint T and S data during implementation	
4-6						Emily Gardner	Why was the response to her comment on section 3.4.2 regarding the location of the irrigated cease of water, "no action"?	This may have been a mistake. We should revisit this.	Comment is unclear	
4-7					12/3/18	Anonymous	Should mention nitrates in document and stance of the GSA	Nitrate is in Chapter 5	Nitrate is in Chapter 5	
4-8			32-35		12/3/18	Anonymous	Surprised no mention of nitrates in water quality section. Will the state reject the Plan if it's ignored? Would like to see GSA address it rather than conferring ALL regulatory power to the RWQCB?	Nitrate is in Chapter 5	Nitrate is in Chapter 5	
4-9					12/3/18	Anonymous	Have short section explaining the nitrate problem and provide a map or data about the nitrate in GW. Perhaps carefully states how the GSA intends to work with/defer some responsibility to R3.	Nitrate is in Chapter 5	Figure 5-32 provides a map of nitrate concentrations, and it is discussed in 5.5.3.	
4-10					1/17/19	EKI	Comments received; saved		See discussions below	Draft Hydrostratigraphy Summary_MCWD_2019-01-17_EKI
4-11					2/7/19	Sandi Matsumoto/TNC	The identification of GDEs within GSPs is a required GSP element of the Basin Setting Section under the description of Current & Historical Groundwater Conditions (23 CCR §354.16). Recognizing natural points of discharge (seeps & springs) as GDEs is consistent with the SGMA definition of GDEs1, however, we recommend the identification of GDEs (GDE map Figure 4-11) for the 180-400 Foot Aquifer be moved to Chapter 5: Groundwater Conditions and elaborated upon with a description of current and historical groundwater conditions in the GDE areas.		We have opted to include the identificaiton of GDEs as part of the hydrogeologic conceptual model because GDEs represent natural discharge areas that are addressed in the HCM.	TNC_180-400ftAquifer_Chapter4
4-12					2/7/19	Sandi Matsumoto/TNC	Decisions to remove, keep, or add polygons from the NC dataset into a basin GDE map should be based on best available science in a manner that promotes transparency and accountability with stakeholders. Any polygons that are removed, added, or kept should be inventoried in the submitted shapefile to DWR, and mapped in the plan. We recommend revising Figure 4-11 to reflect this change.		Our assessment of potential GDEs followed the approach developed by TNC. The approach is detailed in Appendix 4A.	TNC_180-400ftAquifer_Chapter4

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
4-13					2/7/19	Sandi Matsumoto/TNC	Best practices for identifying GDEs in GSPs are outlined in detail in Step 1 of The Nature Conservancy's Guidance Document: "Groundwater Dependent Ecosystems under the Sustainable Groundwater Management Act: Guidance for Preparing Groundwater Sustainability Plans". Here are some highlights: • The NC dataset is a starting point for GSAs, and needs to be groundtruthed with aerial photography to screen for changes in land use that many not be reflected in the NC dataset (e.g., recent development, cultivated agricultural land, obvious human-made features). • Grouping multiple GDE polygons into larger units by location (proximity to each other) and principal aquifer will simplify the process of evaluating potential effects on GDE due to groundwater conditions under GSP Chapter 7: Sustainable Management Criteria. • Groundwater conditions within GDEs should be briefly described within the portion of the Basin Setting Section where GDEs are being identified. • When using groundwater levels to confirm that a connection to groundwater in a principal aquifer exists, please refer to Attachment C for best practices in doing so. • Not all GDEs are created equal. ...		Our assessment of potential GDEs followed the approach developed by TNC. The approach is detailed in Appendix 4A.	TNC_180-400ftAquifer_Chapter4
4-14					2/7/19	Sandi Matsumoto/TNC	The basin boundary bottom for the aquifer was determined using the 1970 USGS TDS=3,000ppm contour lines ("usable water" boundary), but groundwater extraction well depth data should also be included in the determination of the basin bottom to prevent extractors with wells deeper than the basin boundary from claiming exemption of SGMA due to their well residing outside the vertical extent of the basin boundary. As noted on page 9 in DWR's Hydrogeologic Conceptual Model BMP2 "the definable bottom of the basin should be at least as deep as the deepest groundwater extractions".		As noted in Section 4.3.2, the base of the Subbasin has been set to be consistent with previous reports. While some wells may be deeper than the identified base, the previous reporets provide the most reasonable estimate of the depth of usable groundwater in the Subbasin	TNC_180-400ftAquifer_Chapter4
4-15	4.4.1				3/26/19	EKI	The GSP Regulations specifically define the term "Principal Aquifer" (California Code of Regulations (CCR) §351 (aa)) and have plan development as well as monitoring network requirements for identified Principal Aquifers. Currently, GSP Section 4.4.1 appears to have included all alluvial deposits/valley fill deposits from ground surface to the bottom of the subbasin in a single Principal Aquifer. As agreed upon during the December 6 Planning Committee Meeting, the 180/400 Foot Aquifer Subbasin GSP should define multiple Principal Aquifers given the definable layers of aquifer and aquitard units in the subbasin. At least one Principal Aquifer should be defined for the Deep Aquifers (i.e. the 900-Foot and 1,500-Foot Aquifers). Per GSP Regulations, groundwater elevation contours, hydrographs, minimum thresholds for seawater intrusion, sufficient monitoring network coverage, etc. should be developed for each Principal Aquifer identified in this GSP.		The 180/400 Foot Aquifer Subbains GSP identifies three principal aquifers: the 180-Foot Aquifer, the 400-Foot Aquifer, and the Deep Aquifers	Preliminary Comments_Chapter4_2019-3-26_EKI

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
4-16	4.4.1				3/26/19	EKI	In addition to the comment above, this section discusses extensive continuous clay layers within the 180/400 Foot Aquifer Subbasin. However, there are existing wells and abandoned wells that are potentially acting as "conduits" for saline water to flow to the lower aquifers1. Airborne electromagnetic analysis conducted in the northern Salinas Valley Basin also showed that there are gaps in the 180/400-Foot Aquitard in the 180/400-Foot Aquifer Subbasin near the coast. Please add a discussion of potential conduits of vertical flow in the Subbasin. This comment was not provided during the December 6 Planning Committee Meeting.		Statement added that the clay layers are not continuous	Preliminary Comments_Chapter4_2019-3-26_EKI
4-17	4.4.2				3/26/19	EKI	180/400 Foot Aquifer Subbasin GSP should provide aquifer properties for each of the defined Principal Aquifers. The GSP should provide storativity, conductivity (per CCR §354.14 (b)(4)(B)), and transmissivity for each Principal Aquifer. We understand that Section 4.7 of the January 2019 update discussed aquifer parameters as a data gap. As agreed upon during the Planning Committee meeting, SVBGSA will obtain these aquifer property parameters from the Water Resources Agency to include in this section. This section could benefit from either a table or description on an aquifer and aquitard basis compiling all the relevant data (e.g. from field tests or models) and		Aquifer specific hydrogeologic properties are generally not available for the 180/400-Foot Aquifer Subbasin. This is identified as a data gap in the GSP. The GSP proposes up to six aquifer tests to fill this data gap.	Preliminary Comments_Chapter4_2019-3-26_EKI
4-18				4-6, 4-7, 4-8	3/26/19	EKI	The Deep Aquifers are unrepresented in cross-sections. Please provide a discussion if this is a data gap. This comment has been noted by and concurred to by SVBGSA during the Planning Committee Meeting. Section 4.7 of the January 2019 update has included information on the deep aquifer as a data gap.		Section 4.7 of the GSP states that the hydrostratigraphy, vertical and horizontal extents, and potential recharge areas of the Deep aquifers are poorly known and that these are an important data gap.	Preliminary Comments_Chapter4_2019-3-26_EKI

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
4-19	4.6.2				3/26/19	EKI	Please add the following text after the second paragraph on Page 33. This comment was not provided during the December 6 Planning Committee Meeting. "Groundwater with a total dissolved solid of 3,000 mg/L or less, is groundwater that is considered to be suitable, or potentially suitable, for beneficial uses in accordance with SWRCB Resolution No. 88-63 as adopted in its entirety in the Central Coast Regional Water Quality Control Board's Basin Plan. California Code of Regulations, Title 23, Section 659 – 669 lists the beneficial uses of surface water, which is also applicable to groundwater. Those beneficial uses include (1) domestic use, (2) irrigation use, (3) power use, (4) frost protection use, (5) municipal use, (6) mining use, (7) industrial use, (8) fish and wildlife preservation and enhancement use, (9) aquaculture use, (10) fish and wildlife protection and enhancement, (11) recreational use, (12) water quality use, and (13) stock watering use. In addition, Water Code Section 1242 states that the storing of water underground constitutes a beneficial use."		Text added as appropriate	Preliminary Comments_Chapter4_2019-3-26_EKI
4-20	4				3/26/19	EKI	See attached document		Reviewed the hydrostratigraphic summary. Incorporated as appropriate.	Draft Hydrostratigraphy Summary_MCWD_2019-01-17_EKI
4-21	4				12/6/18	Heather Lukacs	For the Salinas Valley Basin, we would specifically like you to start by considering at least the following contaminants for inclusion in the GSP and your monitoring network: 1. Nitrate 2. Arsenic 3. Hexavalent Chromium 4. Uranium 5. 123-TCP 6. DBCP 7. (also, chloride and TDS, as others have mentioned) See letter for details		Nitrate, arsenic, 123-TCP, and TDS are considered constituents of concern in the GSP. Hexavalent chromium is not included in the monitoring program because there is not currently an actionable limit. Should the State of California establish an MCL or SMCL for hexavalent chromium it will be added to the list of parameters monitored in the drinking water supply wells. Uranium and DBCP have not been found above actionable levels in supply wells.	HeatherLukacs_WaterQuality for Chapter 4_12.06.2018
4-22	4.3.2				12/21/18	Brian Frus	line 4, Error! Reference source not found should be deleted		Done.	GSP 180_400 Aquifer Comments Chs 4 Salinas Brian Frus 18 12 21
4-23	4.5				12/21/18	Brian Frus	line should read "35,000" acre-feet		Done.	GSP 180_400 Aquifer Comments Chs 4 Salinas Brian Frus 18 12 21
4-24	4.6.1				12/21/18	Brian Frus	Suggest this section state in layperson terms what is happening to the concentrations of the constituents discussed as one moves down the valley (or deeper into either the 180 or 400 aquifers)		Changes in general mineral chemistry with depth or location are not clear, and are not the focus of this GSP. More easily understandable language was added regarding the significance of the water quality information.	GSP 180_400 Aquifer Comments Chs 4 Salinas Brian Frus 18 12 21

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
5-1					2/7/19	Director Secondo	Would like to see in full each Hydrographs...all 2/7/19 comments saved	Yes, they will be added	Individual groundwater level hydrographs have been added after the hydrograph maps.	Comments-Feb 7 2019 Planning Committee
5-2				5-2	2/7/19	Director Granillo	The contour data do not extend all the way to the mountain ranges-there should be a note explaning the gaps, where/why exist.		An explanation has been added.	Comments-Feb 7 2019 Planning Committee
5-3				5-10	2/7/19	Director Granillo	It is difficult to see changes over time in the hydrorgraphs for the 180/400 aquifers.	Copies of the hydrographs will be added immediately following the maps.	Individual groundwater level hydrographs have been added after the hydrograph maps.	Comments-Feb 7 2019 Planning Committee
5-4					2/7/19	Public Comment/Mr Horacio with San Gerardo Community	How is water quality going to be monitored?	This will be detailed in the monitoring chapter.	Question answered	Comments-Feb 7 2019 Planning Committee
5-5					2/7/19	Public Comment/Mr Horacio with San Gerardo Community	When is the assessment going to start?	D Williams replied that's for the implementation once the plans are approved the 180/400 should be approved by December of this year	Question answered	Comments-Feb 7 2019 Planning Committee
5-6				5-26	2/7/19	Public Comment/Heather Lukas with Community Water Center	Why do the nitrates concentrations end in 2007?	D Williams indicated it was based on existing maps which were a series of maps that ended in 2007	Question answered	Comments-Feb 7 2019 Planning Committee
5-7					2/7/19	Public Comment/Heather Lukas with Community Water Center	Asked if the County data can be added as its been updated through fall of 2017. The data missing is the state data & county from private domestic wells. Does GSA consider private wells in terms of monioring water quality?	Les Girard replied only on new wells as part of the new process	These data will be identified in the monitoring chapter as a source for filling data gaps.	Comments-Feb 7 2019 Planning Committee
5-8					2/7/19	Public Comment/Patrick (Marina Coast Water)	How wil DWR handle the existing conditions to change the plans of the permiters on the overdraft?	D Williams said it will not change the Plan due to the existing conditions. The conditions are inherit in the Plans are conditions that can change in the future	Question answered	Comments-Feb 7 2019 Planning Committee
5-9					2/7/19	Public Comment/Tom Virsik	What does SMC stand for?	It stands for Sustainable Management Criteria	Question answered	Comments-Feb 7 2019 Planning Committee
5-10					2/7/19	Public Comment/Tom Virsik	Indicated he wrote a letter sent Feb 6, 2019 via email with details comments on the ISPs. Also commented on the lack of focus of fish flows, reservoir's and environmental aspects	D. Williams that these comments will be addressed in the SMC and fish flows will be addressed and other river rights not in detail only on requirement basis	The acronym is defined in its first usage.	Comments-Feb 7 2019 Planning Committee
5-11					2/7/19	Public Comment/Bill Lipe	Inquired about level of seawater intrusion	D Williams clarified that the current esitmate is approximately 14,000 acre-feet per year.	Question answered	Comments-Feb 7 2019 Planning Committee
5-12					2/7/19	Public Comment/Bill Lipe	Asked if the remainder is throughout the valley outside the 180/400?	D Williams advised there is a table in the ISP that lists the assumed overdrafts by subbasins based on groundwater levels. (The table refered to by D. Williams is Tablve 5-2 of the ISP)	Question answered	Comments-Feb 7 2019 Planning Committee
5-13	5.1.1				2/7/19	Chair McIntyre	Commented on the charts need little more explanation of what the contours mean	D. Williams replied it's a great suggestion to make this more readable	More explanation has been added in the text regarding the meaning of the contours and the contour interval	Comments-Feb 7 2019 Planning Committee
5-14	5.1.1				2/7/19	Director Secondo	Added that it could be less scientific	D Williams agreed this needs to be written less scientific and understandable	Not addressed in this draft. Final document edited to be more understandable.	Comments-Feb 7 2019 Planning Committee
5-15	5.1.2		17		2/7/19	Chair McIntyre	Addressed a typo on page 17: the 2007 should be 20017	D. Williams advised that it will be corrected if wrong	Corrected	Comments-Feb 7 2019 Planning Committee
5-16	5.1.3				2/7/19	Chair McIntyre	Asked if groundwater levels were recovered in 1983 & why they can't be recovered today?	D. Williams said there is no indication that water levels can be recovered to 1983 levels	Question answered	Comments-Feb 7 2019 Planning Committee
5-17	5.1.3				2/7/19	Director Brennan	Added it would be helpful to collaborate on the findings	D. Williams agreed	Question answered	Comments-Feb 7 2019 Planning Committee
5-18	5.1.4			5-13	2/7/19	Heather Lukacs	Asked what is represented on figure 5-13	D. Williams indicated these are graphs that are developed by the Water Resource Agency. Graphs that are to represent an average water level in a subbasin	Question answered	Comments-Feb 7 2019 Planning Committee
5-19	5.4				2/7/19	Heather Lukacs	What is represented on figure 5-10	D. Williams replied it's the cumulative total of water that has been lost from storage over time since the early 1940's	Question answered	Comments-Feb 7 2019 Planning Committee
5-20	5.6				2/7/19	Heather Lukacs	Regional Water Boards required ag water collection on farm domestic wells data is an additional source of groundwater quality data	D Williams replied that the current plan is to monitor groundwater quality it will be collected through the ILRP and Division of Drinking Water	These data will be identified in the monitoring chapter as a source for filling data gaps.	Comments-Feb 7 2019 Planning Committee
5-21	5.6				2/7/19	Mr. Horacio	Asked how much of the water quality are from the agency? Or, if the agency is only checking water levels and not the quality of the water	D. Williams indicated the water agency data in this chapter is water levels that will be used to develop a monitoring plan	Question answered	Comments-Feb 7 2019 Planning Committee
5-22	5.6.3				2/7/19	Director Brennan	How do you differ from seawater and chloride intrusion?	D. Williams pointed out they are related. It is a secondary MCL that needs to meet regulations with the GSA	Question answered	Comments-Feb 7 2019 Planning Committee

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
5-23	5.7				2/7/19	Tom Virsik	May be better to avoid the term 'underflow' due to legal implications	D. Williams advised he may have used the wrong term and meant to say 'subterranean stream' and will correct	Underflow has been replaced with suberranean stream.	Comments-Feb 7 2019 Planning Committee
5-24					2/21/19	Dallas Tubbs	Chevron purchases INSAR data from vendors	D Williams stated there is a significant data gap regarding subsidence that will require future surveys. Will need to assess the cost effectiveness	Comment Noted	2-21-19 Advisory Committee comments Chapter 5.doc
5-25					2/21/19	Bob Jaques	Noted decline in groundwater storage following both the Castroville Seawater Intrusion and Salinas Valley Water projects. He would like the text to comment regarding climactic impact or other factors that contribute to this decline.		Text added for clarification	2-21-19 Advisory Committee comments Chapter 5.doc
5-26	5.3				2/21/19	Bob Jaques	Section 5.3 should include the amount of useable groundwater as well as the groundwater storage loss and mentioned that water would not be included in the useable water data [comments saved]	D. Williams expressed concern that this information may mislead readers into believing that there is adequate water for use without considering implications such as further intrusion. D Williams stated that the water data would be addressed in Chapter 6 which will have a water budget with a sustainable yield number.	Question answered	2-21-19 Advisory Committee comments Chapter 5.doc
5-27	5.4				2/21/19	Bob Jaques	Follow up well head survey of the Seaside Basin showed that it was very economical		Comment Noted	2-21-19 Advisory Committee comments Chapter 5.doc
5-28	5.5				2/21/19	Bob Jaques	May have misunderstood Section 5.5 as he was under the impression that the 180/400 aquifer was recharged by the Salinas River, and the dam was to get water into the river beds	D. Williams stated that the intenet is to provide CSIP supplemental water in lieu of recharge. There is some percolation from the Salinas River but the impact is relatively small compared to the Forebay and Upper Valley	Question answered	2-21-19 Advisory Committee comments Chapter 5.doc
5-29					2/21/19	Howard Franklin	Made the distinction between interconnected water and recharge		Comment Noted	2-21-19 Advisory Committee comments Chapter 5.doc
5-30	5.5				2/21/19	Bob Jaques	Pointed out that one sentence states that groundwater greater than 20 feet below the surface may be interconnected and a following sentence states that groundwater greater than 20 feet below the surface is not interconnected to surface water.	D. Williams state that the contradictory sentence is in error	Contradictory sentences have been fixed	2-21-19 Advisory Committee comments Chapter 5.doc
5-31				5-7	2/21/19	Howard Franklin	Stated that figure 5-7 is the wrong map; it is a copy of the map on figure 5-6. For consideration regarding seawater intrusion and stopping the cone of depression, the WRA contours groundwater separately from seawater intrusion lines, which provide an interesting observation. The change in the cone of depression may be slowing down, but if continuing, would flatten out on the Eastside.		Map in Figure 5-7 was corrected	2-21-19 Advisory Committee comments Chapter 5.doc
5-32					2/21/19	EKI	EKI, on behalf of Marina Coast Water District, requested that the shallow aquifer be considered an aquifer and not removed, and they will submit a letter to that effect. Marina Coast Water is coordinating with Monterey		Comment noted	2-21-19 Advisory Committee comments Chapter 5.doc
5-33					2/21/19	Tom Adcock, G. Petersen, Nancy Isakson, Mr. Stefani	T. Adcock asked whether we would have to identify the aquifer or could simply take the coordination information. G. Petersen stated that the Agency would have to analyze the science. N. Isakson agreed with G. Petersen because there are differing opinions. Mr. Stefani stated that there is some data available from testing performed for two to three years		Question answered	2-21-19 Advisory Committee comments Chapter 5.doc
5-34					2/21/19	H Amezquito		D. Williams in response to H. Amezquito stated that the GSA has the responsibility of showing they are not harming groundwater quality, but is not responsible for mediation or cleanup. The Plan will identify existing water conditions to ensure it is not being made worse. Projects will have their own groundwater monitoring programs	Question answered	2-21-19 Advisory Committee comments Chapter 5.doc

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
5-35					4/4/19	Glenn Church	Comments received [GChurch_Public Comment Chapters 5]		The SVBGSA technical team acknowledges the impacts of seawater intrusion on the 180/400-Foot Aquifer Subbasin, and the need to address this issue during the GSP development and implementation. A data gap analysis for seawater intrusion monitoring is included in Chapter 7. Chapter 8 will address the seawater intrusion with appropriate sustainable management criteria, and Chapter 9 will offer potential solutions to halt seawater intrusion in this area through a combination of projects and management actions.	GChurch_Public Comment Chapters 5
5-36	5.5				4/11/19	The Nature Conservancy	We recommend that interconnections of surface water with groundwater in the Shallow Aquifer be evaluated in this section of the GSP, since the Shallow Aquifer is within the 180/400-Foot Aquifer Subbasin.		Comment noted. Maps of the shallow water bearing zone sediments are not available - analysis was done with the best available science, data and tools.	TNC_180-400ftAquifer_Chapter5 submitted 04.11.2019
5-37	5.5				4/11/19	The Nature Conservancy	The 180-Foot Aquifer and the 400-Foot Aquifers are confined units, thus comparing groundwater levels of <20 feet below the ground surface with wells screened within a confined aquifer is an incorrect approach. This is because the potentiometric surface of a confined aquifer cannot reflect the position of the true water table. Comparing groundwater levels from the shallow (unconfined) aquifer (that exists above the Salinas Valley Aquitard) with the ground surface is a more appropriate approach for identifying ISW in the basin.		Comment noted. Maps of the shallow water bearing zone sediments are not available - analysis was done with the best available science, data and tools.	TNC_180-400ftAquifer_Chapter5 submitted 04.11.2019
5-38	5.5				4/11/19	The Nature Conservancy	We would like to see groundwater conditions evaluated across the range of seasonal and interannual time frames		Comment noted. Long-term averages and seasonal changes will be developed with the groundwater model once it is available	TNC_180-400ftAquifer_Chapter5 submitted 04.11.2019
5-39					4/11/19	The Nature Conservancy	Mapping ISW locations would be best done using contours of depth to groundwater measured from multiple points in time (different seasons and water year types) rather than only from Fall 2013. If data gaps exist in groundwater level contour data over time, these data gaps should be discussed in the GSP section 5.5.1 (Salinas Valley Basin ISP) and section 5.5 (180-400 Foot Aquifer GSP Draft) and reconciled in the Monitoring Network section, so that ISW maps can be improved in future GSPs		Comment noted. Once we have the model, we will be able to do these types of analysis more efficiently and accurately	TNC_180-400ftAquifer_Chapter5 submitted 04.11.2019
5-40					4/12/19	The Nature Conservancy	The use of piezometric head from confined aquifers should be eliminated from these ISW mapping efforts, since they do not adequately reflect the position of the true water table (see last paragraph on p. 38 of Salinas Valley Basin ISP)		Comment noted. Maps of the shallow water bearing zone sediments are not available - analysis was done with the best available science, data and tools.	TNC_180-400ftAquifer_Chapter5 submitted 04.11.2019
5-41					4/13/19	The Nature Conservancy	It is unclear on Figure 5-19 (Salinas Valley Basin ISP) and Figure 5-22 (180-400 Foot Aquifer GSP Draft), whether missing groundwater levels along certain reaches of the Salinas River are due to groundwater levels >20 feet bgs or due to data gaps in groundwater levels. Mapping the position of wells used for the interpolation of groundwater elevation data used to map groundwater level contours near surface water would help provide further clarification.		Maps were developed by MCWRA	TNC_180-400ftAquifer_Chapter5 submitted 04.11.2019
5-42					4/14/19	The Nature Conservancy	Please elaborate on how depth to groundwater contours were developed		Maps were developed by MCWRA	TNC_180-400ftAquifer_Chapter5 submitted 04.11.2019
5-43					4/15/19	The Nature Conservancy	We recommend mapping the gaining and losing reaches onto Figure 5-19 (Salinas Valley Basin ISP) using the data from Figure 5-23 (Salinas Valley Basin ISP). If this is not possible due to insufficient data, then as with the first bullet above, we would like the data gaps to be addressed by the Monitoring Network.		Maps were developed by MCWRA - data gaps are addressed in Chapters 7 and 10.	TNC_180-400ftAquifer_Chapter5 submitted 04.11.2019

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
6-0	6				6/6/2019	Director Brennan	It would be good to note that the Water Budget chapter will be updated when the model becomes available.		Text Added	
6-1	6				6/6/2019	Director Granillo	Questioned the accurate use of the period that included State mandatory restrictions in the water budget,	D. Williams stated that the historical water budget covers to 2014 because that is the date the historical model went to; therefore the projected model started in 2015.	Question Answered	
6-2	6				6/6/2019	Director Secondo	Wondered about the 1964 historical reference.	D. Williams stated that at some point, we refer to historical as 1964 forward because we are looking at data not in the water budget. However, he will review this.	No reference to 1964 found in document. Future water budget is based on 47 year period starting in Octobver 1967	
6-3	6				6/6/2019	Director Secondo	Questioned the validity when comparing current to historical water budgets, because the numbers do not match well.	D. Williams will more clearly point out that the method of creating short term water budgets is good for for long-term periods which average climatic cycles, but not for the short-term water budget when there are a couple of extreme years, and estimates of inflows and outflows do not match.	Text added to Section 6.1 to help clarify the difference between the historical and current water budgets	6/6/19 Planning Committee Minutes, Chapter 6
6-4	6				6/6/2019	Director Secondo	Expressed concern about the 40% error in the current groundwater budget. He would like to include 2012-2014 for average years, although he understands this creates additional work.	2012 throuhg 2014 is part of the historical water budget, the current water budget is for years other than those	Question Answered	6/6/19 Planning Committee Minutes, Chapter 6
6-5	6	43645	33		6/6/2019	Director Secondo	Table 6-29 incorrectly states "2017" average instead of "2070" average	Will correct this typographical error.	Corrected	6/6/19 Planning Committee Minutes, Chapter 6
6-6	6				6/6/2019	Nancy Isakson	Nancy Isakson stated the Chapter should include an explanation of how the the historical water budget is being created when there is no data back 50 years.	Will clarify that the historical data must include at least ten years data, and they have twenty years. He will include the difference between the historical budget and the future budget.	Text added to Section 6.1.	6/6/19 Planning Committee Minutes, Chapter 6
6-7	6				6/6/2019	Director Brennan	Would like to differentiate between the General Plan projects and imminent projects that currently total 23,000 units and that are not all reflected in urban water management plans. She would like a definition of "existing land use."	Check on the presumption on urban growth and if not in the calculations, include a statement about the uncertainties or possible changes to the future water budget based on potential urban growth. Provide a better explanation regarding assumptions on future land use after consulting with the future modeler on what they are including; he believes they can include this.	Text added to state that no urban growth is modeled to remain consistent with USGS model. Additional explanation added regarding the impact of this assumption.	6/6/19 Planning Committee Minutes, Chapter 6
6-8	6				6/6/2019	Director Secondo	Believes we are losing too much on the evapotranspiration (ET) demand.	Would like more feedback on this from Director Secondo	Comment noted	6/6/19 Planning Committee Minutes, Chapter 6
6-9	6				6/6/2019	Nancy Isakson; Director Brennan	State the sustainable yield will be revised based on monitoring.	Will include	Text added to Sections 6.8.4 and 6.10.6	6/6/19 Planning Committee Minutes, Chapter 6
6-10	6				6/6/2019	Directors Brennan and Secondo	Chapter 8 should explain that the future water budget is based on the Salinas Valley Integrated Hydrologic Model (SVIHM) and the historical water budget is based on historical data. Once the SVIHM historical model is received, this will be simpler.	Will explain that the water budgets will correlate better when the historical model is available	Text added to Section 6.1	6/6/19 Planning Committee Minutes, Chapter 6
6-11	6				6/6/2019	Derrik Williams	Typo on Future Water Budget slide/table 6-31	Correct to reflect 2030 and 2070 instead of 2030 and 2030.	Corrected	6/6/19 Planning Committee Minutes, Chapter 6
6-12	6	6-20;6-31			6/6/2019	Director Secondo; Derrik Williams	Director Secondo like to see the current year also.	Will move the 96,000 AFY to this table; could compare all 3 sustainable yields in a single chart	Historical sustainable yield data adde to Table 6-31	6/6/19 Planning Committee Minutes, Chapter 6
6-13	6				6/6/2019	Directors Secondo and Brennan	Director Secondo would like to see the current and projected water budgets together in the report for easier viewing. Director Brennan stated it should be foot noted so as not to mislead the reader, because they are based on different data.		Done	6/6/19 Planning Committee Minutes, Chapter 6
6-14	6	6-4			6/6/2019	Director Secondo	Blanco Drain has a typo in the number (zeros)	Will correct	Corrected	6/6/19 Planning Committee Minutes, Chapter 6
6-15	6	6-25			6/6/2019	Director Secondo	Should it say outflow instead of inflow?		Inflow is correct	6/6/19 Planning Committee Minutes, Chapter 6
6-16	6	6-20			6/6/2019	Nancy Isakson	Would like a comment on Table 6-20 explaining what is included and to what extent.		Comment noted. Table elements are described in the text above.	6/6/19 Planning Committee Minutes, Chapter 6
6-17	6	6-5			6/6/2019	Nancy Isakson; Tom Virsik	Isakson: There is no true river diversion by ag in the pressure area and the results skew accuracy of report.; Virsik: Is there double counting from the WRA and State reports	Relying on reports to the State	Question Answered	6/6/19 Planning Committee Minutes, Chapter 6
6-18	6				6/6/2019	Tom Virsik	Any lower real performance numbers should be used in future instead of projections. On policy issues, the assumptions could come back as management actions. He finds it odd not to use DWR Bulletin 52 appendices. The Plan should be made to work well now and curtailed if beyond what is needed.		Comments noted	6/6/19 Planning Committee Minutes, Chapter 6

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
6-19	6				6/6/2019	Nancy Isakson	Need reconciliation between USGS model that does not include surface water diversion when presenting comparison.	In response to Ms. Isakson, D. Williams stated that the USGS model includes crops that need to be irrigated. However, he cannot answer how much groundwater the USGS model assumes is needed for crops or whether we can figure out if it balances out.	Question Answered	6/6/19 Planning Committee Minutes, Chapter 6
6-20	6				7/10/2019	Community Water Center	**Recommendation 1:** We strongly encourage you to revise your calculations of sustainable yield to include and abate all six undesirable results enumerated in SGMA. Chapter 6's definition of sustainable yield fails to comport with the statutory definition. SGMA explicitly requires that groundwater be managed in a way that avoids negative impacts to beneficial users and all six undesirable results. Those undesirable results include: (1) chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon; (2) significant and unreasonable reduction of groundwater storage; (3) significant and unreasonable seawater intrusion; (4) significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies; (5) significant and unreasonable land subsidence that substantially interferes with surface land uses; and (6) depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of that surface water. I d. § 10721(x). The undesirable results are cumulative, not disjunctive. GSPs must evaluate all six undesirable results, and any interactions between those results, to satisfy SGMA. Current draft of Chapter 6 relies on only one indicator of sustainability and one undesirable result. The proposed draft defines sustainable yield as "an estimate of the quantity of groundwater that can be pumped on a long-term average annual basis without causing a net decrease in storage." See Draft Chapter 6 180/400-Foot Aquifer Subbasin GSP page 24, section 6.8.4 (June 17, 2019, included in advisory committee meeting packet). There is no legal or scientific basis for that definition of sustainable yield. We are concerned that the current sustainable yield calculation fails to inform the public and GSA of the actual net amount of water that can be extracted		Text has been added to explain that the sustainable yield is a long term management number, not the amount of pumping needed to stop current seawater intrusion. The sustainable yield assumes no seawater intrusion once the intrusion has been halted. Therefore, the future sustainable yield DOES take into account all undesireable results. In other words, the future sustainable yield is the sustainable yield once actions have been taken to reach measureable objectives and avoid undesirable results. Prior to the future sustainable yield there will need to be actions taken to come to sustainability.	Chapter 6 Water Budget_CWC Comments, 7/11/19
6-21	6				7/10/2019	Community Water Center	**Recommendation 2:** We request that you release the data and assumptions underlying Chapter 6's sustainable yield calculations, water budget calculations, and groundwater model. We encourage the GSA to ensure compliance with SGMA and California administrative law by releasing the data, methodologies, technical appendices, model assumptions, model inputs/outputs, sources, and all other relevant model parameters when draft chapters are released to the public for review and comment. We request that the GSA ensure that all relevant data is released concurrently with draft chapters for all future draft chapters.		In accordance with SGMA regulations, copies of all reference documents will be uploaded to the DWR website when the final GSP is uploaded.	Chapter 6 Water Budget_CWC Comments, 7/11/19
6-22	6				7/10/2019	Community Water Center	SGMA, California administrative law, and the Brown Act require GSAs to release to the public all data, research, sources, assumptions and inputs, outputs, the formulae applied to those inputs, and the ultimate results of a formula or model as part of the public comment process. 23 CCR §§ 352.4(f) & 354.14. DWR's Draft BMP also encourages transparency in the use and disclosure of models used to support SGMA's requirements. In the context of GSPs, the purpose of public comment is to allow the public to engage meaningfully in the public decision making process, which in turn will strengthen the reliability and accuracy of GSPs. That data must be publicly accessible and is a critical factor in gaining consensus on groundwater projects, groundwater pumping restrictions, potential groundwater fees, prioritization of beneficial uses, and other groundwater regulations. Draft Chapter 6 currently fails to provide the GSA and the public with sufficient background information to support the chapter's sustainable yield calculations and the groundwater model itself.		In accordance with SGMA regulations, copies of all reference documents will be uploaded to the DWR website when the final GSP is uploaded.	Chapter 6 Water Budget_CWC Comments, 7/11/19

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6-23	6				7/10/2019	Community Water Center	Timely disclosing source material and key assumptions is necessary to ensure the GSP is accurate and that the public is able to ground truth those assumptions. For example, during the June 20, 2019, advisory committee meeting, the GSA's consultant informed the public that the proposed "sustainable yield" calculation assumes that the Castroville Seawater Intrusion Project (CSIP) will function "perfectly." Many of those in attendance questioned that assumption, as it is impossible to ensure a project will operate perfectly. Failure to account for the reality that the project will not always operate "perfectly" introduces unquantified uncertainty into the sustainable yield calculation. As a result, the proposed calculation may be inaccurate, which may exacerbate undesirable results—including seawater intrusion—in the subbasin. At a minimum, the GSP must consider alternative calculations that account for the reasonable and foreseeable possibility that the project may operate below "perfect" performance in order to create an accurate accounting of sustainable yield. In fact, in its Draft BMP, DWR explicitly notes that GSPs must acknowledge uncertainty and address how the plan will address that uncertainty. By failing to disclose to the public the assumptions incorporated in draft Chapter 6, the GSP may rely on any number of faulty assumptions that undermine the reliability, reality, and accuracy of the sustainable yield calculation and groundwater model. We are asking the GSA to make all assumptions transparent and clear in the plan itself, to engage stakeholders and the public in discussion of those parameters and assumptions, and to make decisions with knowledge of the limitations of whatever formulae or models are adopted. When DWR reviews plans, it will assess "[w]hether the projects and management actions are feasible and likely to prevent undesirable results and ensure that the basin is operated within its		We agree that the water budgets have uncertainty, and state so in the GSP. We additionally state that the uncertainty will be reduced as addtiional data and tools become avaialble. The existing water budget is based on best available data and methods.	Chapter 6 Water Budget_CWC Comments, 7/11/19
6-24	6				7/10/2019	Community Water Center	It is challenging to provide feedback regarding Chapter 6's models and its sustainable yield calculation without publicly available supporting documentation on how calculations have been made. We request that the GSA immediately: 1. Disclose the technical appendix, supporting documentation and research, groundwater model, sustainable yield formula, methodologies for the groundwater model and sustainable yield formula, and model assumptions and limitations at the time it releases draft Chapter 6 for public review and comment. Disclosure should be made by posting this information to the GSA website and contacting all interested parties. 2. Update its timeline to ensure technical appendices, supporting data and research, and all related information are released when public comment opens for each draft chapter and the final draft GSP; 3. Distribute a revised draft Chapter 6 that includes the Advisory Committee and stakeholders' requested changes.		The appendix has been updated.	Chapter 6 Water Budget_CWC Comments, 7/11/19
6-25	6	6-20			7/11/2019	Thomas Virsik	The current sustainable yield calculation is still absent. That has not changed in any iteration to date. At 6.8.4 the draft Chapter purports to address "sustainable yield" but the text confines itself to the historical sustainable yield, being 95,700 AFY. Table 6-20 at 25/42. (Note that the text right above the table uses a different figure of 97,300 AFY.)		Thank you for catching this. Current sustainable yield has been added to the text and tables.	GSABOD comment 7-11-19

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6-26	6	6-15, 6-30			7/11/2019	Thomas Virsik	FUTURE SUSTAINABLE YIELD STILL BASED ON QUESTIONABLE ASSUMPTIONS. The latter portion of draft Chapter 6 -- using the SVIHM, not reported data -- calculates the future sustainable yield. The assumptions include a two-thirds reduction in seawater intrusion from 10,500 to around 3,500 AFY. Cf. Table 6-30 with Table 6-15. 37/54 and 18/35. Consultant Williams explained that the difference arose from the CSIP projects coming online, i.e., the projects were built and started performing during the historical period while the future projections assumed the projects were preforming at full capacity. My follow-up comment after the explanation was that it was unrealistic to assume the projects would perform perfectly (now and) in the future and not founded on the "best available" data. I and others noted that the Monterey County Resources Agency (MCWRA) has substantial data on the real-world efficiency/performance of the projects. The GSA can obtain that data, (1) disclose and (2) use it in its future projections of water needs. As it stands, the future projections of Chapter 6 are at best aspirational, when ready data exists that could support realistic projections.		The future water budget is based on current assumptions in the SVIHM, which includes a fully efficient CSIP project. These are the best available data for esitmating the future sustainable yield. When the SVIHM becomes available, the SVBGSA can modify assumptions for the CSIP project as necessary.	GSABOD comment 7-11-19
6-27	6				7/11/2019	Thomas Virsik	On the ground reality is not simply preferable, but required under SGMA. As my March 2017 letter noted early on, for a basin in overdraft like the 180/400, SGMA requires calculating the "demand reduction" or other methods to mitigate overdraft. If overdraft is an issue (i.e., overdraft that causes seawater intrusion near the coast), then SGMA requires projecting a reduction of water use that mitigates overdraft. § 354.44(b)(2). For the Salinas Valley, the projection would entail a reduction of localized pumping (the 180/400 subbasin), as reduction of pumping in the other areas have little or no effect. . . . That option must be explored for the GSP to meet SGMA standards. Whether that simple and tailored approach is preferable to other potential ones (given political, fiscal, economic, environmental, etc. factors) is unknown, but SGMA mandates such an approach be included in the GSP. March 2017 letter, pages 6-7. The current iterations of Chapter 6 may not be a sufficient basis for later chapters that address how much pumping reductions, in what areas and at what times, mitigates overdraft (a must-be-included potential "management action" in SGMA nomenclature).		Mitigation of overdraft is included in Section 9.6.	GSABOD comment 7-11-19
6-28	6	6-19			7/11/2019	Thomas Virsik	SURFACE WATER EXTRACTIONS STILL UNRELIABLE "Surface" water reports to the State are public, unlike "groundwater" reports to the MCWRA. Total surface water diversions are quantified but have not been cross-checked to eliminate double-counting. My letter of June 4, 2019 provided a real-world example of a state report from the 180/400 area that the GSA -- but not the public -- can check against the MCWRA data to find out if there is double-counting. Appendix 6A contains the data used to calculate the surface water diversions in draft Chapter 6, but the data is a mere aggregation. There is no reason for the GSA to withhold the public data it obtained from the state database, eWRIMS, that it then aggregated. The order of magnitude of surface pumping reported is not trivial, being around 7,900 AFY on average. 10/27. Changes of similar orders of magnitude have occurred between the initial version of Chapter 6 seen by the Planning Committee to the one before the Board. Updating the draft Chapter because of better data and analyses is good, but it begs the question of why those data command renewed attention while others, e.g., the real-world performance of the CSIP projects and the double-counting of surface/groundwater, do not. (See highlighted examples in GSABOD comment 7-11-19.pdf).		The GSP acknowledges the potential double counting of extractions, and identifies this as an uncertainty in the water budget. Because of the many uncertainties in the historical water budget, it was deterimined that attempting to identify all double counting was not cost effective. The cost effective approach is to refine the water budget with the SVIHM when it becomes availalbe. The SVIHM does not double count surface water diversions and groundwater pumpiong. This is the approach specifically identified in the GSP.	GSABOD comment 7-11-19
6-29	6				7/11/2019	Thomas Virsik	Iterating the data and analyses is good in general, but not when the effort is selectively applied. In its third iteration, draft Chapter 6 still fails (1) to address a key regulatory requirement (explicitly calculating and disclosing overdraft and the current sustainable yield), (2) report and use MCWRA data about the CSIP projects' on-the-ground efficiency and performance, and (3) address doublecounting from surface and groundwater reports.		Chapter 6 discloses overdraft in Sections 6.8.5 and 6.10.5. The important CSIP values, suchas annual deliveries, are included in the GSP. CSIP efficiency has not been calculated by any known entity. Double counting of groundwater extractions and surface water diversions is addressed inthe previous comment.	GSABOD comment 7-11-19

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6-30	6				7/2/2019	Marina Coast Water District	**Estimated Sustainable Yield Inconsistent with SGMA** We recommend that the following language be included: The "sustainable yield estimate" presented in the draft Water Budget chapter does not consider all of the sustainability indicators or sustainable management criteria. As such, it is not equivalent to the quantity of groundwater that can be extracted without causing undesirable results. The plan for achieving sustainability in the basin will be addressed through projects and management actions, where SVBGSA will compare the projected and actual outcomes of project and management actions against sustainable management criteria and ultimately evaluate how much groundwater can be extracted, based upon the projects and management actions that are selected and implemented.		The future sustainable yield DOES take into account all undesireable results. In other words, the future sustainable yield is the sustainable yield once actions have been taken to reach measureable objectives and avoid undesirable results. Prior to the future sustainable yield there will need to be actions taken to come to sustainability.	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19
6-31	6				7/2/2019	Marina Coast Water District	**The 180/400 Subbasin GSP must not preclude the Monterey Subbasin from Achieving Sustainability.** We recommend that the following language be added to the GSP: *Pursuant to GSP Regulation 350.4 (f), the 180/400 Subbasin GSP will consider the effects of its implementation on the adjacent Monterey Subbasin, and its ability to achieve and maintain sustainability.* *"A Plan will be evaluated, and its implementation assessed, consistent with the objective that a basin be sustainably managed within 20 years of Plan implementation without adversely affecting the ability of an adjacent basin to implement its Plan or achieve and maintain its sustainability goal over the planning and implementation horizon."* *The Monterey and 180/400 Subbasins are hydraulically connected. Therefore, the sustainable yield and sustainable management criteria for the 180/400 Subbasin and the Monterey Subbasin must consider the effects of cross-boundary groundwater flows between subbasins and/or the provision of alternative water supplies. The Monterey Subbasin GSP will also include projects and management actions that could benefit both subbasins.*		The 180/400-Foot Aquifer Subbasin GSP will not preclude any surrouning subbasin from achieving sustainability. Similarly, the GSP for any surrounding subbasin cannot preclude the 180/400-Foot Aquifer Subbasin from achieving sustainability.The GSPs for all surrounding subbasins will be developed by January 31, 2022. Until these surrounding GSPs are developed, there is no defintion of sustainability in the surrounding subbasins. Only after the surrounding subbasins establish sustanaible management criteria can the SVBGSA assess whether any one subbasin's plan precludes a neighboring subbasin from achieving sustainability.	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19
6-32	6				7/2/2019	Marina Coast Water District	In addition, we recommend that the following information/language be added to the GSP: **1993 Fort Ord Annexation Agreement** Under the 1993 Fort Ord Annexation Agreement the MCWRA annexed the Fort Ord lands into Zones 2 and 2A and allocated to the Army 6,600 acre-feet per year of potable groundwater from the Salinas Valley Groundwater Basin. The Army paid an annexation fee of $7.4 million to be used by MCWRA to complete the design of the Castroville Seawater Intrusion Project (CSIP). In addition, the Army received a $400,000 credit for money spent on planning and information for the EIR/EIS for CSIP, the Salinas Valley Reclamation Project, and the Fort Ord Annexation. The September 10, 1993 "Annexation Assembly and Evaluation Report for the Annexation of Fort Ord by the Monterey County Water Resources Agency," which was incorporated as Appendix D to the 1993 Annexation Agreement, provides the background and justification for the annexation. The Executive Summary to that report states in part the following: The purpose of this annexation by [MCWRA] is to provide the basis for a long term, reliable, potable water supply to supply the Army's residual mission at Fort Ord after it is realigned per the Base Closure and Realignment Act of 1990. Annexation will also facilitate the disposal and reuse of the portions of Fort Ord not needed to support the Army's residual mission.		GSP implementation will abide by all existing agreements.	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19

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6-33	6				7/2/2019	Marina Coast Water District	**1993 Fort Ord Annexation Agreement (continued)** Section 4, Terms and Conditions of the 1993 Annexation Agreement state the following: 4.c. After execution of this agreement and until Project Implementation4, Fort Ord/POM Annex/RC may withdraw a maximum of 6,600 acre-feet of water per year from the Salinas Basin, provided no more than 5,200 acre-feet per year are withdrawn from the 180-foot aquifer and 400-foot aquifer. The 6,600 and 5,200 acre-feet thresholds correspond to the annual peak (1984) and recent average (1988-1992) amounts of potable water Fort Ord has withdrawn from the Salinas Basin (does notinclude pumpage-from the-non-potable golf course well in the Seaside Basin). …The MCWRA agrees not to object to any Fort Ord/POM Annex/RC withdrawal under 6,600 acre-feet per year, except in compliance with California Water Code Appendix, Chapter 52, Section 22.		Comment noted. GSP implementation will consider all existing water rights and agreements.	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19
6-34	6				7/2/2019	Marina Coast Water District	**1993 Fort Ord Annexation Agreement (continued)** 4.g. Should future litigation, regulation or other unforeseen action diminish the total water supply available to the MCWRA, the MCWRA agrees that it will consult with the Fort Ord/POM Annex Commander. Also, in such an event, the MCWRA agrees to exercise its powers in a manner such that Fort Ord/POM Annex/RC shall be no more severely affected in a proportional sense than the other members of the Zones.		Comment noted.	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19
6-35	6				7/2/2019	Marina Coast Water District	**1993 Fort Ord Annexation Agreement (continued)** 4.h. If prior to Project Implementation, any Fort Ord/POM Annex well (including any located in the Seaside Basin) becomes contaminated with seawater, or is adversely affected by regulatory or legal action, the MCWRA: shall cooperate with the Government in finding an interim water supply; shall assist the Government in any permit processes necessary to obtain such an interim water supply; and shall provide the same services to the Government as it would to any other municipal water supplier in the Zones under similar circumstances. The Government will bear the costs of obtaining such an interim water supply. Such costs will not include the cost of MCWRA staff time in providing services to the Government hereunder. The MCWRA will continue to monitor the rate of seawater intrusion, and will keep the Fort Ord/POM Annex Commander informed as to: the rate of seawater intrusion; the progress of plans for its Project; and the estimated remaining life of the Fort Ord/POM Annex wells. The MCWRA shall pass to the Fort Ord/POM Annex Commander any information they may obtain related to the continuing yield of Fort Ord/POM Annex wells located in the Seaside Basin.		Comment noted.	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19
6-36	6				7/2/2019	Marina Coast Water District	In addition, we recommend that the following information/language be added to the GSP: **1996 Marina Lands Annexation Agreement** Under the 1996 Marina Lands Annexation agreement the MCWRA annexed MCWD's Central Marina service area into Zones 2 and 2A and allocated to MCWD 3,020 AFY from the Salinas Valley Groundwater Basin for use in the Central Marina service area. MCWD paid a net annexation fee of $2,449,410 after receiving a $400,000 credit against the annexation fee. Section 1.1, Purpose, of the 1996 Annexation Agreement states: The purpose of this Agreement and Framework is to help reduce seawater intrusion and protect the groundwater resource and preserve the environment of the Salinas River Groundwater Basin through voluntary commitments by the Parties to limit, conserve and manage the use of groundwater from the Salinas River groundwater basin, and to provide the terms and conditions for the annexation of certain territory in the Marina area to the [MCWRA's] benefit assessment Zones 2 and 2A as a financing mechanism providing additional revenues to the [MCWRA] to manage and protect the groundwater resource in the Salinas River Groundwater Basin and to reduce seawater intrusion.		As stated in the GSP, GSP implementation will abide by all existing agreements; however, SGMA does not require that GSPs detail all existing agreements.	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
6-37	6				7/2/2019	Marina Coast Water District	**1996 Marina Lands Annexation Agreement (continued):** Terms and conditions in Sections 5 and 8 of the Agreement states: 5.1.1 Commencing on the effective date of this Agreement and Framework and continuing until Mitigation Plan Implementation, MCWD will limit its withdrawal of potable groundwater from the Basin for land in the Marina area and outside the former Fort Ord Military Reservation to 3,020 afy of potable groundwater, and only such additional quantities as are permitted by this paragraph 5.1. MCWRA's groundwater resource planning for the existing MCWD service area will be based on the latest information and projections contained in the MCWD Water Plans, using 3,020 afy as a planning guideline for potable water use. 5.1.1.1 After Compliance with all applicable requirements of law, including but not limited to CEQA, MCWD may improve the interconnection between the MCWD water system and the water system serving Fort Ord, to provide for join, conjunctive and concurrent use of all system facilities to serve Fort Ord and other areas served by MCWD, and the other Parties will cooperate on MCWD's increased withdrawal of potable groundwater by up to 1,400 afy from the 900-foot aquifer to enable the increased withdrawals from 5200 afy to 6600 afy for use on Fort Ord, as provided in paragraph 4.c. of the September 1993 Agreement between the The United States of America and the MCWRA. 5.2. No objection by MCWRA to MCWD withdrawals except pursuant to section 22 of Agency Act. The MCWRA shall not object to any withdrawal by MCWD which is mentioned in section 5.1 above, except in compliance with section 22 of the Agency Act. All groundwater withdrawn from the Basin by MCWD may be used only within the Basin.		Comment noted. As stated in the GSP, GSP implementation will abide by all existing agreements.	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19
6-38	6				7/2/2019	Marina Coast Water District	**1996 Marina Lands Annexation Agreement (continued):** 8.1. Equal treatment by MCWRA and MCWD. If future litigation, regulation or other unforeseen action diminishes the total water supply available to MCWRA, MCWRA agrees that it will exercise its powers so that MCWD, Armstrong and Lonestar shall be no more severely affected in a proportional sense than other lawful users of water from the Zones, based on the right before the imposition of any uniform and generally applicable restrictions as described in paragraph 8.2 to use Terms and conditions in Sections 5 and 8 of the Agreement states: 5.1.1 Commencing on the effective date of this Agreement and Framework and continuing until Mitigation Plan Implementation, MCWD will limit its withdrawal of potable groundwater from the Basin for land in the Marina area and outside the former Fort Ord Military Reservation to 3,020 afy of potable groundwater, and only such additional quantities as are permitted by this paragraph 5.1. MCWRA's groundwater resource planning for the existing MCWD service area will be based on the latest information and projections contained in the MCWD Water Plans, using 3,020 afy as a planning guideline for potable water use. 5.1.1.1 After Compliance with all applicable requirements of law, including but not limited to CEQA, MCWD may improve the interconnection between the MCWD water system and the water system serving Fort Ord, to provide for join, conjunctive and concurrent use		Comment noted. As stated in the GSP, GSP implementation will abide by all existing agreements.	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19

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6-39	6				7/2/2019	Marina Coast Water District	**1996 Marina Lands Annexation Agreement (continued):** 8.1. Equal treatment by MCWRA and MCWD. If future litigation, regulation or other unforeseen action diminishes the total water supply available to MCWRA, MCWRA agrees that it will exercise its powers so that MCWD, Armstrong and Lonestar shall be no more severely affected in a proportional sense than other lawful users of water from the Zones, based on the right before the imposition of any uniform and generally applicable restrictions as described in paragraph 8.2 to use at least the quantities of water from the Basin described in paragraphs 5.1., 6.9., and 7.2. MCWRA shall not at any time seek to impose greater restrictions on water use from the Basin by MCWD, Armstrong or Lonestar than are imposed on users either supplying water for use or using water within the city limits of the City of Salinas. MCWD, Armstrong and Lonestar will comply with any basin-wide or area-wide water allocation plans established by the MCWRA which include MCWD, Armstrong and Lonestar, and which do not impose on use of water on the lands described in Exhibits "B", "C", and "D" restrictions greater than are imposed on users either supplying water for use or using water within the City of Salinas, and which satisfy the requirement of paragraph 5.2 of this Agreement and Framework.		Comment noted. As stated in the GSP, GSP implementation will abide by all existing agreements.	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19
6-40	6				7/2/2019	Marina Coast Water District	**Uncertainty in Water Budget Estimate of Groundwater Inflow Components.** There appears to be significant uncertainty in the quantity of each of the groundwater inflow components (streamflow percolation, deep percolation of precipitation, and deep percolation of excess applied irrigation) as evidenced by the variability in the estimate of deep percolation between the Historical (97,300 AFY) and Future Projected (148,000 to 153,000 AFY) water budgets. Further, the conceptualization of sources of inflow to the groundwater system is at odds with the description of recharge sources in the Draft Chapter 4. The amount of recharge stated to occur from the deep percolation sources (97,300 AFY) far outweighs the amount coming from subsurface inflow (20,000 AFY total), which is inconsistent with the description of the recharge sources in Chapter 4. We understand that there is insufficient information currently available to accurately assess these inflow components. As such, we recommend that the GSP acknowledge this uncertainty and identify it as a data gap. The GSP should provide a plan to further assess both deep percolation and other basin inflow components. Doing so may reveal significantly different recharge sources for the shallow unconfined aquifer system versus the deeper aquifer system which could have important management implications and be critical for evaluating the effectiveness of potential recharge projects.		Uncertainty is noted in Chapter 6. As clarified and explained in Chapter 4, the shallow sediments are not considered a principal aquifer (according to the DWR definition) and therefore are not managed by this GSP. The Water Budget in Chapter 6 is the water budget for the entire groundwater system (described in Chapter 4), including the groundwater in the shallow sediments and the principal aquifers - 180/400-Foot Aquifer and Deep Aquifers.	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19
6-41	6				7/2/2019	Marina Coast Water District	**Water budget Information Should be Developed for each Principal aquifer**		Comment noted. The GSP opts to develop a single water budget for the entire Subbasin.	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19
6-42	6				7/2/2019	Marina Coast Water District	**Inclusion of "Baseline Condition" Projected Water Budget**		Comment noted	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19
6-43	6				7/2/2019	Marina Coast Water District	**Qualification of Data Gaps and Uncertainty**		Comment noted	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19
6-44	6.2				7/2/2019	Marina Coast Water District	It appears that in the historical water budget, the surface water budget is limited to just the river channels (i.e., Salinas River, other tributaries, and agricultural drains). It seems that there should be a land surface balance, like there is in the SVIHM-based Projected Water Budget, that estimates precipitation and irrigation percolation based on evapotranspiration (ET) and land use.		Comment noted	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19

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6-45	6.6.2				7/2/2019	Marina Coast Water District	Riparian ET rates were described to be 20 AFY/acre per personal communications with Rhode, whose detailed information was not provided in the Chapter's references. The rates were then assumed to be 16 AFY/acre in the water budget calculation without further justification. Riparian ET rates should be better substantiated, especially since the resulting riparian ET values are significant compared to the average change in storage over the historical period. In addition, it is unclear why riparian ET is considered as an outflow from groundwater, rather than from surface water.		It is unclear whether riparian ET impacts surface or groundwater to a greater extent. The chapter is no longer based on the information provided by Rhode.	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19
6-46	6.8.4, 6.9, 6.10.5, 6.10.6				7/2/2019	Marina Coast Water District	• Tables 6-20 and 6-31: We recommend that these tables show the change in storage and seawater intrusion as negative values. • Table 6-22: A note should be added to Table 6-22 indicating that although seawater intrusion is identified as an inflow to quantify the overall basin water budget, it is not considered pait of the sustainable yield. • Tables 6-27 and 6-28: It is unclear why seawater intrusion is not shown as an inflow component on these tables, given that it is shown as an inflow component in Table 6-25. These tables should be made consistent and clarify that although seawater intrusion is an inflow, it is not considered part of the usable groundwater or sustainable yield. • Section 6.10.5 and Table 6-30: We suggest clarifying that change in groundwater storage discussed here are decreases in groundwater storage.		Some modifications were made as suggested	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19
6-47	6	6-22			7/2/2019	Marina Coast Water District	Table 6-22 shows a decrease of only 600 AFY, on average, of groundwater in storage based on water level declines during the "current period" (2015-2017). This implies no real decline in water levels - is that what is seen?		Yes, this is what is observed according to MCWRA average hydrograph data	MCWD letter to SVBGSA_Chapter 6 Comments, 7/2/19
6-48	6				7/10/2019	Anderson, MC Water Systems	Future model is unrealistic, based on unsound projections, promotes further expansion of high use water operations (farms) does not encourage responsible water conseration practices, and does not factor in urban growth.		This is the best available tool to compute future projected water budgets at this time.	Chapter 6. MOCOW Comments.pdf
6-49	6				7/10/2019	Anderson, MC Water Systems	Precipitation - future projections show the average annual precipitation in the 180/400 basin to be 35% higher in 2030 from the current budget and 41% in 2070. These are not reasonable projections. There is no evidence that average precipitation will ever increase to these levels. Historical data should provide the basis for future precipitation projections.		Precipitation increase is based on DWR climate change factors. Table 6-8 shows that historical precipitation is approximately 114,100 acre-feet per year over the Subbasin. Table 6-24 shows that the predicted precipitation is 135,700 acre -feet in 2030; and 141,200 acre-feet in 2070. This represents an 19% and 24% increase, respectively. It should be noted that the historical and future water budgets were estimated with different tools, and are therefore not strictly comperable. Comperable histocal and future water budgets wiell be developed with the SVIHM becomes available.	Chapter 6. MOCOW Comments.pdf
6-50	6				7/10/2019	Anderson, MC Water Systems	Why does agricultural pumping increase in 2030 and 2070 by 6.5% ad 11.8%, respectively, over historical average pumping amount? How is this consistent with raising groundwater to 2003 levels, minimizing expansion of high water using activities like farming and implementing responsible water conservation practices?		This is the base future projected conditions model, prior to implementing projects and actions, that are described in Chapter 9.	Chapter 6. MOCOW Comments.pdf
6-51	6				7/10/2019	Anderson, MC Water Systems	Why do the models say that land use is assumed to be static and that no urban growth is included in the model simulation? Future urban growth according to LAFCO projections are contained		This is an assumption that is consistent with how DWR recommends to approach the modeling, because it is very difficult to estimate exactly where future land use changes will occur; refinements in land use change projections can be made to the model in a subsequent iteration of the model.	Chapter 6. MOCOW Comments.pdf
6-52	6				8/5/2019	LandWatch	**Substantial uncertainty mandates a conservative estimate of sustainable yield.** We are concerned that the extensive data gaps and high level of uncertainty are inconsistent with the general principle that "groundwater conditions must be adequately defined and monitored to demonstrate that a Plan is achieving the sustainability goal for the basin." We urge that the GSA adopt a conservative estimate of the sustainable yield in developing sustainable management criteria, projects, and management actions.		The GSP acknowledges uncertainties in the historical water budget. The historical water budget is based on best available data and tools. A more accurate historical water budget will be developed when the SVIHM is made available.	LandWatchCommentsChapter6

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
6-53	6				8/5/2019	LandWatch	We also recommend that the GSA further reduce that lower estimate with reference to some quantification of its uncertainty. For example, until the effect of double counting has been resolved, the 95,700 AFY historical budget sustainable yield should be reduced by the best estimate of this double counting error.		The GSP acknowledges uncertainties in the historical water budget. The historical water budget is based on best available data and tools. A more accurate historical water budget will be developed when the SVIHM is made available.	LandWatchCommentsChapter6
6-54	6				8/5/2019	LandWatch	A conservative estimate of sustainable yield here is mandated by the requirement that "sustainable management criteria and projects and management actions shall be commensurate with the level of understanding of the basin setting, based on the level of uncertainty and data gaps." (23 CCR § 350.4(d).) We note that the minimum thresholds for sustainability indicators must be "qualified by uncertainty in the understanding of the basin setting." (23 CCR § 354.28(b)(1).) Measurable objectives must also "be commensurate with levels of uncertainty." (23 CCR § 354.30(c).) The SVGBGSA must "take into account the level of uncertainty associated with the basin setting when developing projects or management actions." (23 CCR § 354.44(d).) And in deciding whether to approve the Plan, DWR must consider "whether sustainable management criteria and projects and management actions are commensurate with the level of understanding of the basin setting, based on the level of uncertainty, as reflected in the Plan." (23 CCR § 354.4(b)(3).)		We disagree thata conservative esitmate of the sustainable yiled is mandated. The historical and future sustaniable yileds are based on best available data and tools.	LandWatchCommentsChapter6
6-55	6				8/5/2019	LandWatch	**Uncertainty must be quantified.**The quantitative discussion of the uncertainty of the historic and current water budgets in section 6.9 only assesses "net uncertainty." The "net uncertainty" concept is in effect limited to a comparison of calculated versus estimated change in storage. The discussion acknowledges that there has been no effort to determine the uncertainty of each historic water budget component. It is not clear that the "net uncertainty" concept adequately reflects the uncertainty that may be caused by data gaps. For example, Chapter 6 now acknowledges as a data gap some amount of unresolved double counting of extractions caused by the practice of reporting extractions as both groundwater pumping and as surface water diversion. Such duplicate reporting would clearly bias the calculated change in storage, tending to minimize it. If this error also biases the estimated change in storage, then the "net uncertainty" concept is an insufficiently robust assessment of uncertainty because it would not account for the duplicate reporting error.1 Alternatively, if the estimated change in storage is independent of historic extraction data, then the relatively small reported "net uncertainty" of the historic budget masks the fact that the calculated storage change actually differs from the estimated storage. Similar considerations would apply to any water budget components for which there are data gaps, depending on whether and how they bias the change in storage determinations.		Comment noted. The GSP acknowledges the potential double counting and notes it as a data gap. The water budgets will be re-assessed when the SVIHM model is available.	LandWatchCommentsChapter6

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
6-56	6				8/5/2019	LandWatch	The “net uncertainty” concept in section 6.9 used to evaluate the historical water budget is an inadequate quantitative measure of uncertainty. Accordingly, it is not clear that the “net uncertainty” calculations actually support the conclusion that the historical budget is “reasonably reliable.” (Chap. 6, p. 28.) There is no quantitative assessment of the uncertainty of the projected water budget in Chapter 6. Section 6.10.8 merely offers the truism that models inherently contain some uncertainty. The projected future water budget cannot be used to manage the basin without some quantitative assessment of its uncertainty. That assessment of uncertainty requires calibration of the model for the projected future water budget based on the historic water budget. In particular, the regulations require that the historical water budget include information that is “sufficient to calibrate and reduce the uncertainty of the tools and methods used to estimate and project future water budget information and future aquifer response to proposed sustainable groundwater management practices over the planning and implementation horizon.” (23 CCR § 354.18(c)(2)(B).) However, we understand that because the USGS has not yet completed the historic model, the modeling of a future water budget has not yet been calibrated with reference to historic data.		Comment noted. The uncertainty and calibration of the model used to determine the water budget will be completed when the SVIHM is available.	LandWatchCommentsChapter6
6-57	6	6-11			7/10/2019	Anderson, MC Water Systems	If no urban growth is included in the model, why does the model project a 7.9% to 11% increase in pumping for urban purposes		The historical and future pumping estimates are based on different sets of assumptions. The historical urban pumping estimates are based on reported pumping. The futre urban pumping estimates are derived from the SVIHM and include estimates of per-capita use as well as pumping changes due to climate change.	Chapter 6. MOCOW Comments.pdf
6-58	6	6-24, 6-25			7/10/2019	Anderson, MC Water Systems	See letter for details. The numbers for deep percolation, stream leakage, underflow, mountain front recharge, are unrealistic and based on unreasonable precipitation projections.		The historical and future water budgets are based on different sets of assumptions. The historical water budget is based on historical reports, and contains significant uncertainty. The futre waer budget is derived from the SVIHM. It is difficult to directly compare components of the historical and future water budgets.	Chapter 6. MOCOW Comments.pdf
6-59	6	6-25			7/10/2019	Anderson, MC Water Systems	Why does seawater intrusion increase from 3,500 af/yr in 2030 to 3,900 in 2070 if sustainability is in the process of being achieved during that timeframe?		The future water budget is based on a no further actions simulation. The SVIHM includes an estimate of reasonable sea level rise. If no further actions are taken, seawater intrusion will increase over time due to sea level rise.	Chapter 6. MOCOW Comments.pdf
6-60	6	6-25			7/10/2019	Anderson, MC Water Systems	2030 and 2070 projected outflows are above and beyond the historical outflow of 129,800 af/yr by 40% and 46% respectively which is even more than the unrealistic projecte increase in rain. Why is this?		The historical and future water budgets are based on different sets of assumptions. The historical water budget is based on historical reports, and contains significant uncertainty. The futre waer budget is derived from the SVIHM. It is difficult to directly compare components of the historical and future water budgets.	Chapter 6. MOCOW Comments.pdf
6-61	6	6-11			7/10/2019	Anderson, MC Water Systems	Why is total pumping (both agricultural and non-agricultural) projected to go up by 25% in 2030 and 31% in 2070? HOW WILL THIS ENABLE GROUNDWATER LEVELS TO BE INCREASED TO 2003 LEVELS AND SALT WATER INTRUSION AREAS TO BE PUSHED BACK TO HIGHWAY 1?		The historical and future water budgets are based on different sets of assumptions. The historical water budget is based on historical reports, and contains significant uncertainty. The futre waer budget is derived from the SVIHM. It is difficult to directly compare components of the historical and future water budgets.	Chapter 6. MOCOW Comments.pdf
6-62	6	6-26			7/10/2019	Anderson, MC Water Systems	Why are the Groundwater Extraction figures in table 6-27 different from the pumping figures?		This has been fixed.	Chapter 6. MOCOW Comments.pdf

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
6-63	6	6-8			7/10/2019	Anderson, MC Water Systems	The model projects 588% to 636% increase in deep percolation above historical deep percolation levels		The historical and future water budgets are based on different sets of assumptions. The historical water budget is based on historical reports, and contains significant uncertainty. The futre waer budget is derived from the SVIHM. It is difficult to directly compare components of the historical and future water budgets.	Chapter 6. MOCOW Comments.pdf
6-64	6				6/18/2019	Virsik	EWRIMS (SURFACE WATER DIVERSION) DATA NOT VETTED The enclosed email explains the simple process the GSA has available to it to determine if the surface water diversions used in the water budgets are "double counting" water. To put it starkly, the publically available statements of water diversion near Speckles sent along with the email claims that the surface water diversion reported to the State is -- in the view of the filer -- actually groundwater. See response to "Additional Remarks" of the State form (enclosed with email). Presumably, the filer (an affiliate/proxy for the well-regarded local ag interest Tanimura & Antle) is also following local requirements and providing the exact same water extraction numbers to the MCWRA per local Ordinance. Unless the GSA compares the (limited) set of eWRIMS data for the 180/400 with the MCWRA groundwater pumping reports for the nearly identical zone (the "Pressure"), the water budget numbers will erroneously assume water users in the 180/400 draw from two separate sources and hence their reduction to meet "sustainable yield" may be inaccurate. SGMA requires the "best available" data and transparency, which would not be met and the Plan may fail at DWR if the GSA continues to ignore the data and simple analytical approach1 at its fingertips. The historical water budget reports surface water diversions on the order of nearly 10,000 AFY, which is a magnitude material to projecting a reliable sustainable yield. Chapter 6 at Tables 6-5 and 6-16, pages 10 and 18.		The GSP acknowledges the potential double counting of extractions, and identifies this as an uncertainty in the water budget. Because of the many uncertainties in the historical water budget, it was determined that attempting to identify all double counting was not cost effective. The cost effective approach is to refine the water budget with the SVIHM when it becomes available. The SVIHM does not double count surface water diversions and groundwater pumping. This is the approach specifically identified in the GSP.	Public Comments, Tom Virsik, Chapter 6 cc'd Derrik Williams.pdf
6-65	6				6/18/2019	Virsik	FUTURE SUSTAINABLE YIELD BASED ON QUESTIONABLE ASSUMPTIONS ABOUT CURRENT PROJECTS The latter portion of draft Chapter 6 -- using the SVIHM, not reported data -- calculates the future sustainable yield. The assumptions include a two-thirds reduction in seawater intrusion from 10,500 to around 3,500 AFY. Cf. Table 6-30 with Table 6-15, pages 36 and 17. Consultant Williams explained that the delta is due (1) to the seawater intrusion projects (CSIP, SRDF) coming online during the historical period and (2) an assumed current and future "100%" level of performance of the. Again, what does the "best available" data show about the efficiency or performance of the MCWRA projects? If the data compiled by the MCWRA for its projects reflect a 50% or a 25% level of efficiency, then the model should use that metric instead of assuming the projects will magically perform far better than they have to date.		The future water budget is based on current assumptions in the SVIHM, which includes a fully efficient CSIP project. These are the best available data for esitmating the future sustainable yield. When the SVIHM becomes available, the SVBGSA can modify assumptions for the CSIP project as necessary.	Public Comments, Tom Virsik, Chapter 6 cc'd Derrik Williams.pdf

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
6-66	6				6/18/2019	Virsik	FUTURE SUSTAINABLE YIELD BASED ON QUESTIONABLE ASSUMPTIONS The latter portion of draft Chapter 6 -- using the SVIHM, not reported data -- calculates the future sustainable yield. The assumptions include a two-thirds reduction in seawater intrusion from 10,500 to around 3,500 AFY. Cf. Table 6-30 with Table 6-15. 34/53 and 15/34. How that significant reduction occurs while projected pumping increases beyond historical levels is not explained. 34/53 (pumping of 86,500 AFY for historical sustainable yield v. pumping of 115,300 to 120,600 AFY for projected). Moreover, the calculated historical sustainable yield in Chapter 6 did not use a total pumping value of 86,500 AFY, but 108,300. Table 6-20 at 22/41. Clearly the two halves of Chapter 6 have not been checked against each other. The "black box" quality of the SVIHM -- at least in its current state when it cannot be publicly peer reviewed by third parties -- undermines the credibility of the 180/400 GSP. A GSP based on assuming seawater intrusion radically decreases while pumping increases strains credulity. It is possible that the model is "correct" per its myriad assumptions and interconnections used to project results, if only one could review and reality test all of them. But at least as recited in draft Chapter 6, its calculation of a 7% reduction in pumping to balance the 180/400 comes across as far-fetched and unrealistic. On the ground reality is not simply preferable, but required under SGMA. As my March 2017 letter noted early on, for a basin in overdraft like the 180/400, SGMA requires calculating the "demand reduction" or other methods to mitigate overdraft. March 2017 letter, pages 6-7. Lacking specific quantification of overdraft in the several water budgets, draft Chapter 6 may not be a sufficient basis for later chapters that address how much pumping reductions, in what areas and at what times, mitigates overdraft (a must-be-included potential		The future sustainable yield is after the basin has met the sustainability goals. Future pumping also depends on projections of future precipitation throughout the Valley. Its interaction with seawater intrusion also depends on where in the Subbasin pumping is occurring, as the water budget does not differentiate spatially but rather are aggregate numbers for the whole subbasin. The water budgets will be checked and rerun when the USGS releases the SVIHM.	Public Comments, Tom Virsik, Chapter 6 cc'd Derrik Williams.pdf
6-67					6/18/2019	Virsik	DATA REFERENCES CONFUSING Draft Chapter 6 states that the 180/400 basin accounts for 7% of the surface water extractions per eWRIMS. 7/26 The data relied upon is listed in Appendix 6-A. ??/58, 62. Data on eWRIMS has always been public and in the current era can be downloaded. 7/26 Yet, the Appendix does not contain the public information on who, where, and when the diversions are occurring. If the omission is due to convenience or time pressures, the next iteration of the chapter should make such data available in the sprit (if not requirement) of transparency. The relevance of the data from eWRIMS is less "who," but where (the intruded area?) and when (winter rains or parched river?), which may impact the mandatory demand reduction analysis, i.e., assuming a 7% reduction, when and in what areas of the 180/400 does one curtail pumping?		Comment noted. This data is not required by SGMA.	Public Comments, Tom Virsik, Chapter 6 cc'd Derrik Williams.pdf

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
7-0					4/18/19	Harold Wolgamott	Stated they report to the State monthly on shallow wells [comments received, saved]	D Williams would like to look at those reports	Chapter revised to include ILRP shallow wells once Ag. Order 4 is released	Chapter 7 Advisory Committee Comments 4-18-2019
7-1					4/18/19	Norman Groot	Inquired about duplication of water quality monitoring already required [comments received, saved]	D Williams stated that he would like to integrate this information and he would appreciate Mr Groot's assistance in filling in some of the data gaps	Question answered.	Chapter 7 Advisory Committee Comments 4-18-2019
7-2					4/18/19	Tom Ward	Had a question about well meter reading	D Williams replied to T Ward and stated well meter reading to confirm pumping data is an option. Added that he hasn't included meter reading because this option will come up in 1-2 months when discussing management actions	Question answered.	Chapter 7 Advisory Committee Comments 4-18-2019
7-3					4/18/19	Nancy Isakson	Thought they were required to provide data for the deep aquifer	D. Williams stated that Howard Franklin has confirmed there is a new ordinance that public reporting is required	Comment noted	Chapter 7 Advisory Committee Comments 4-18-2019
7-4					4/18/19	Nancy Isakson	Stated there were informative comments at the Planning Committee meeting regarding the different ways Ag growers measure for pumping. She would like information on the different methods and accuracy	D Williams stated that this would come up in 1-2 months; by law pumping has to be reported	Question answered.	Chapter 7 Advisory Committee Comments 4-18-2019
7-5					4/18/19	Tom Adcock	Stated that public water systems have a safety issue about publicly disclosing location of water facilities	D Williams will discuss the concern for privacy regarding precise locations with the Department of Water Resources (DWR)	The SVBGSA only discloses the location of wells that are already publicly available, such as MCWRA-owned wells and CASGEM wells.	Chapter 7 Advisory Committee Comments 4-18-2019
7-6					4/18/19	Brian Frus	Asked how critical is the data that the Water Resources Agency is currently collecting confidentially but may become public	D. Williams stated that he does not believe that any of the significant amount of data will be public unless explicitly authorized	Question answered.	Chapter 7 Advisory Committee Comments 4-18-2019
7-7					4/18/19	Howard Franklin	Stated that the data collection essentially has been constrained to seawater intrusion in the coastal area due to funding constraints. This year, they will not include the confidentiality clause in the request for data. Water quality has diminshed since 1941 but there is no measureable susidence.		Comment noted.	Chapter 7 Advisory Committee Comments 4-18-2019
7-8	7				4/18/19	Howard Franklin	Stated that estimating surface water depletion due to groundwater pumping may be difficult for highly managed rivers. Believes groundwater levels and storage is a good approach, but consideration should be given to the historical simulation being worked on.	D Williams stated that this does not mean that this would the primary approach to determining whether we are maintaining current storage	Comment noted	Chapter 7 Advisory Committee Comments 4-18-2019
7-9					4/18/19	May Nguyen	Stated the Environmental Justice Coalition developed a water quality mapping tool that they may have shared with D. Williams for integration with data for this plan. It is available online and will be rolled out the end of this month.	D Williams stated they have not received a response from Monterey County Health Dept for the requested data, and he noted Mr. Adcock's question as to whether well location should be publicized	Received County GW quaility data, however it is not associated with specific well locations. This is a data gap now identified in Chapter 7 that will be addressed during implementation	Chapter 7 Advisory Committee Comments 4-18-2019
7-10					4/18/19	Jeff Johnson	Stated that Mr. Williams mentioned that the current assumption of the relationship between subsidence and depletion needs to be demonstrated. They would like a revision to eliminate the assumption until ample hydrographic and satellite data is available. He referred to the information on data providers that was previously provided to draw our own Salinas Valley graph	We have added the InSAR analysis to the SMC Chapter 8. The SMC chapter is where the analysis suggested by Mr. Johnson belongs.	Comment addressed.	Chapter 7 Advisory Committee Comments 4-18-2019
7-11	7.21				4/18/19	Jeff Johnson	Referenced 7.21 and stated that new CASGEM wells will likely be needed. The last paragraph suggests uncertainty about monitoring. They suggest this is an opportunity for the GSA to recommend that wells be added and that monitoring remain with the Water Resources Agency	D. Williams stated that multiple agencies can provide data to the State under CASGEM	Correction from DW response. All CASGEM wells used in GSP monitoring will be migrated to the GSA as part of the GSP submission process.	Chapter 7 Advisory Committee Comments 4-18-2019
7-12					4/18/19	James Bishop	Stated that the Regional Board is working with the Ag community on regional monitoring for water quality. It would be great for the Regional Board to work with the GSA to avoid duplicate monitoring networks		Comment noted	Chapter 7 Advisory Committee Comments 4-18-2019

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7-13					4/18/19	Diane Kukol	[only response included in Advisory Committee Comments]	In response to Diane Kukol, D Williams estimated that the timing for working together on the Chapter would be near future. He supports the integration of monitoring, but the GSP must be submitted by January 2020. The monitoring system in the Plan may change within a year, which is not problematic. Coordination sooner than that would be great, but the SVBGSA schedule should not drive them	Question answered.	Chapter 7 Advisory Committee Comments 4-18-2019
7-14					4/18/19	Heather Lukacs	Stated that San Luis Obispo should be able to provide data in a quick time frame	D Williams stated they can differentiate between types of wells, but it was rough to differentiate at the time the data was downloaded for the draft chapters	Comment noted.	Chapter 7 Advisory Committee Comments 4-18-2019
7-15					4/18/19	Howard Franklin to Horacio Amezquita	Stated that water elevation monitoring information is on the Water Resources Agency's website		Comment noted	Chapter 7 Advisory Committee Comments 4-18-2019
7-16					4/18/19	Diane Kukol	[only response included in Advisory Committee Comments]	In response to Diane Kukol, D Williams stated they do not have better data than the Irrigated Lands Regulatory Program (ILRP) data. Current requirement is to look at the number of supply wells and see what is happening with them. Our job is to ensure our management does not make it worse. SGMA could be expanded in the future to include monitoring water quality, but that is not advisable during these first couple of years of the legislation	Comment noted	Chapter 7 Advisory Committee Comments 4-18-2019
7-17					4/18/19	Heather Lukacs	Stated that not much is known about shallow aquifers used for drinking water, and this should be considered a data gap. Private domestic wells should be incorporated into the monitoring networks, especially because they count as supply wells		Domestic wells that are regularly monitored as part of the ILRP will be included into the monitoring network for water quality once Ag. Order 4.0 is finalized. This is now explicitely stated in the GSP	Chapter 7 Advisory Committee Comments 4-18-2019
7-18	7				6/10/19	LandWatch	Recommend that GSA adopt an ordinance that requires 1) Independently calibrated and monitored flowmeters on agricultural pumps throughout the Salinas Valley Groundwater Basin; and 2) Annual pumping reports that are independently validated for accuracy. The ordinance should also include strict enforcement provisions that help assure full compliance. LandWatch's comments support these recommendations. We reject the proposed use of the existing monitoring program, as described in Chapter 7, to monitor annual groundwater pumping because it will generate inaccurate results and potentially lead to unfair cost allocations.		Comment noted. Expanding and updateing the well metering sytem is included as an implementation action in Chapter 10.	LandWatchComments_GSPChapter 7.pdf
7-19	7				6/10/19	LandWatch	Ordinance No. 3717 Has Not Been Enforced		Comment noted. Expanding and updateing the well metering sytem is included as an implementation action in Chapter 10.	LandWatchComments_GSPChapter 7.pdf
7-20	7				6/10/19	LandWatch	**Proposed Monitoring in Chapter 7 for Groundwater Agricultural Pumping.** Chapter 7 does not propose to require enforcement of the requirement for flowmeters.		Any additional enforcement mechanisms will be part of the expanded and updated well metering system included as an implementation action in Chapter 10	LandWatchComments_GSPChapter 7.pdf
7-21	7				6/10/19	LandWatch	Electricity Consumption Inaccurately Estimates Water Volumes Pumped		Comment noted	LandWatchComments_GSPChapter 7.pdf

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
7-22	7				6/10/19	LandWatch	There is uncertainty and a potentially serious data gap regarding groundwater pumping in the 180- and 400-foot aquifer subbasin. Chapter 7 ignores the following problems or potential problems with historic and future data collection: Failure to enforce the requirement to submit flowmeter-based pumping data and the use of less reliable means to estimate pumping • Apparent failure to require that flowmeter data be independently calibrated and reported by approved testing organizations on an annual basis • Failure of 5% of known wells to report at all • Potential uncertainty as to the number and location of other wells • Potential confusion if action plans are predicated on a water balance and hydrological model using inaccurate historic data while subsequent compliance benchmarks and fair share contributions are based on more accurate future water use data.		Comment noted. Expanding and updateing the well metering sytem is included as an implementation action in Chapter 10.	LandWatchComments_GSPChapter 7.pdf
7-23	7				6/10/19	LandWatch	To assure that pumping data are complete and verifiably accurate, Chapter 7 should be updated to address the following questions: 1. When will pumping data for the years 2016, 2017 and 2018 be made available? Will it be used to inform the Chapter 6 water balance data and the hydrologic model? 2. Has historic pumping data been systematically or materially misreported? If so, what action should be taken to correct the data and, if necessary, to re-assess the water balance data and hydrologic model? 3. How are current wells mapped? If they are not reliably mapped, how will unmapped wells be identified and pumping reported? 4. How will new wells be tracked? 5. How will the requirement to install flowmeters to and report pumping based on flowmeters be enforced? 6. How will flowmeters be tested and verified for accuracy? 7. How will the requirement for independent reporting of		1. Pumping for 2019 will be made available during the 2020 annual report. Puming for 2016 through 2018 are currently available from MCWRA. 2. We made no attempt to assess if historical pumpoing has been systematcally misreported. Any additional enforcement of pumping data will be discussed and implemented as part of the action items in chapter 10. 3. Current wells are mapped using data from MCWRA. Mapping all wells is an action item in chapter 10. 4. All new wells must be premitted by the County of Monterey, and will be tracked through the permitting system. 5. Any additional enforcement of pumping data will be discussed and implemented as part of the action items in chapter 10.	LandWatchComments_GSPChapter 7.pdf
7-24	7				6/10/19	LandWatch	Chapter 7 should acknowledge that SVBGSA does not need to rely on Ordinance 3717 and MCWRA's limited budget for enforcement. The SVBGSA has the independent statutory authority to mandate reporting and data collection methods and to use its fees to collect essential data.		Comment noted. Any additional enforcement of pumping data will be discussed and implemented as part of the action items in chapter 10.	LandWatchComments_GSPChapter 7.pdf
7-25	7	7.2	4		6/18/19	TNC	The wells listed in the table and proposed for monitoring do not include any wells completed in the Shallow Alluvial or Dune Sand Aquifers. As such, the proposed monitoring well network is inadequate to assess the potential effects of groundwater pumping and management on ISWs and GDEs. This fact should be acknowledged with a cross reference to Section 7.2.4 which describes the proposed work to remedy this situation.		The shallow aquifer and dune sands aquifers are not identified and principal aquifers, and therefore do not require monitoring networks. The chapter identifies two shallow wells that will be installed to verify stream/aquifer interaction assumptions.	TNC_180-400ftAquifer_Chapter7+8.pdf

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
7-26	7.7		23-24		6/18/19	TNC	Please revise this section to reflect what is known and published regarding potential surface-groundwater interactions in the subbasin and related groundwater level and budget trends, identify the existing data gaps, and provide recommendations for an adequate number of monitoring wells to assess surface-groundwater interaction and shallow groundwater level trends.		Limited information is available concerning surface water-groundwater interaction. Chapters 5, 7, 8, and 10 provide a review of the information available and propose to remedy this data gap with the use of the USGS integrated surface water/groundwater model and the installation of shallow groundwater monitoring wells during further investigations.	TNC_180-400ftAquifer_Chapter7+8.pdf
7-27	7.7		23-24		6/18/19	TNC	Please specify what other monitoring data and methods will be implemented to inform a determination whether significant and unreasonable impacts to GDEs are occurring, and explain how they will adequately meet the requirements of 23 CCR §354.34(c)(6) relative to GDEs and ISWs.		This information is provided in Chapters 5 and 8.	TNC_180-400ftAquifer_Chapter7+8.pdf
7-28	7A app		8		6/18/19	TNC	Please include monitoring protocols that meet the requirements of 23 CCR §354.34(c)(6) relative to GDEs and ISWs.		Monitoring protocols will be added in a later version of the GSP when data gaps for this monitoring network are filled and wells have been identified/installed.	TNC_180-400ftAquifer_Chapter7+8.pdf

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
8-1					5/2/19	Director Secondo	Director Secondo suggested including the seven percent in Chapter 8 also as a reference to how it compares to the 112,000 acre feet future long-term sustainable yield		Comment incorporated into Chapter 8	5-2-19 Planning Committee Minutes_Chapter 8
8-2					5/2/19	Tom Virsik	Tom Virsik wrote a letter of concern about the chapters not being completed in order, because it is difficult for the Board to make policy decisions. He questioned whether the DWR would find that the process is transparent with incomplete information		Comment noted. No change to Chapter 8	5-2-19 Planning Committee Minutes_Chapter 8
8-3			11		5/2/19	Director Brennan	Stated that the text is unclear on page 11 as to whether 2003 is the measurable objective unless referencing the quantification	D Williams will state more clearly that the 2003 water level is the mesurable objective	Comment incorporated into Chapter 8	5-2-19 Planning Committee Minutes_Chapter 8
8-4					5/2/19	Director McIntyre		In response to Director McIntyre, D Williams stated that he would prepare a table similar to the handout that Director Brennan distributed today summarizing all minimum thresholds and measureable objectives	Table included as Section 8.5	5-2-19 Planning Committee Minutes_Chapter 8
8-5					5/2/19	Director Secondo	Noted the error messages where the link was broken in the document. Would like the measurable objectives and historical data to be clear throughout the document and would like to express the threshold as a number instead of a percentage due to the small sampling	D Williams stated that we do not have the historical data for the deep aquifer and only have access to one well. D Williams will clarify the minimum thresholds in the deep aquifer and that we have the optoin to change the undesireable result as a number of exceedances instead of a percentage, but that is a policy decison	Question answered	5-2-19 Planning Committee Minutes_Chapter 8
8-6					5/2/19	Director McIntyre	Would like to choose a more recent year such as 2016 rather than 1991 for the Forebay for measurable objectives		Comment not incorporated at this time, as it does not pertain to the 180/400-Foot Aquifer Subbasin GSP	5-2-19 Planning Committee Minutes_Chapter 8
8-7			16		5/2/19	Director Brennan	Noted that the last sentence on page 16 is incomplete. The overhead on the 180/400 foot aquifer includes the Forebay and Upper Valley data, which was confusing	D Williams stated there is an ISP chaper on this. He would like to leave it in context.	No change to Chapter 8	5-2-19 Planning Committee Minutes_Chapter 8
8-8					5/2/19	Director Secondo	Stated that all four graphs for th esubbasins should be in the ISP section and only the 180/400 should be in the 180/400 section	Comment noted	Chapter 8 for the 180/400-Foot Aquifer Subbasin only includes the appropriate graphs	
8-9					5/2/19			D Williams stated that we may want to differentiate between how to address and manage the sustainable criteria in the projects and actions part. Then we may want to revisit this criteria to decide if we are managing differently than this model's assumptions, in which case this may be the wrong number to report. We should revisit these numbers when we are managing, because the numbers are based on how much pumping has to occur to meet crop demand	No change to Chapter 8	5-2-19 Planning Committee Minutes_Chapter 8
8-10			17		5/2/19	Director Brennan	Stated that page 17 references natural recharge versus unnatural recharge, and it would be helpful to have an example		Comment incorporated into Chapter 8	5-2-19 Planning Committee Minutes_Chapter 8
8-11					5/2/19	Director Brennan and Director McIntyre	They would like more robust metering and reporting		Policy Decision included in list of policy issues that the Board must take up.	5-2-19 Planning Committee Minutes_Chapter 8
8-12					5/2/19	Nancy Isakson		D Williams, in response to N Isakson, will add that there is a data gap for domestic reporting for rural residential pumping, e.g. north county that is experiencing water quality issues	Sentence added to section 8.9.2 that identifies this as a possible data gap, but does not comit the SVBGSA to collecting additional groundwater quality data.	5-2-19 Planning Committee Minutes_Chapter 8
8-13					5/2/19	Director Secondo	Recommended considering abandoned wells as a groundwater extraction barrier	Comment noted	No change to Chapter 8	5-2-19 Planning Committee Minutes_Chapter 8
8-14					5/2/19	Tom Virsik	Stated there is not remotely enough information to make policy decisions. A consensus that we are looking at maintaining rather than improving the current situation, and the speaker would like the policy to state that instead of requiring a project	Comment noted - policy considerations for Board	No change to Chapter 8	5-2-19 Planning Committee Minutes_Chapter 8
8-15					5/6/19	Director Secondo	Referred to the statement "no new groundwater quality exceedances" so we should keep it to existing wells	D Williams stated that he would change this to "based on new new exceedances in existing monitoring wells"	Comment incorporated into Chapter 8	5-6-19 PC Special Meeting Minutes_Chapter 8
8-16					5/6/19	Director Brennan	Referred to the statement in the Groundwater Quality Undesirable Result slide, "on average during one year, no groundwater quality minimum threshold shall be exceeded." She asked how zero can be averaged	D Williams stated he will rewrite this as he meant the average of mulitple water quality samples	Comment incorporated into Chapter 8	5-6-19 PC Special Meeting Minutes_Chapter 8
8-17					5/6/19	Nancy Isakson		D Williams, in response to N Isakson, stated he would include the Groundwater Quality Parameters table in Chapter 8	Table incorporated into Chapter 8	5-6-19 PC Special Meeting Minutes_Chapter 8
8-18	8.8.2.3				5/6/19	Nancy Isakson	Wondered where the data for Section 8.8.2.3 came from, given that 8.8.2 states that the dataset does not distinguish between agricultural and domestic and cannot be used for purposes of developing minimum thresholds and measurable objectives	D Williams will check to determine whether his staff made this distinction from the material that they downloaded and whether the statement in 8.8.2 should be deleted	Text revised	5-6-19 PC Special Meeting Minutes_Chapter 8

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
8-19					5/6/19	Director Brennan	Confirmed that the earlier direction was related to existing monitoring system versus new wells.	D Williams stated that he understands that the discussion was regarding existing wells that we have included	No change to Chapter 8	5-6-19 PC Special Meeting Minutes_Chapter 8
8-20					5/6/19	Les Girard	Noted that the requirements of the National Marine Fisheries biological opinion have been withdrawn, but the Water Resources Agency is operating under it as a safe harbor	D Williams will coordinate with Mr. Girard on the accurate phrasing	Text revised	5-6-19 PC Special Meeting Minutes_Chapter 8
8-21					5/6/19	Director Granillo	Director Granillo notes we will see water quality changes with release of summer flows		Comment noted	5-6-19 PC Special Meeting Minutes_Chapter 8
8-22					5/6/19	Director Brennan		D Williams, in resopnse to Director Brennan, stated he will add language that the GSA does not have any authority over the releases from the reservoir	Comment incorporated into Chapter 8	5-6-19 PC Special Meeting Minutes_Chapter 8
8-23					5/6/19	Director Brennan	Would like the policy questions identified	LP: a summary table of policy questions was developed and sent to Gary Petersen on 5/24/2019	No change to Chapter 8	5-6-19 PC Special Meeting Minutes_Chapter 8
8-24					5/6/19	Director Secondo	Asked whether we should be monitoring water quality if we do not control the river flow	D Williams stated there is no problem in looking at the information, but he defers to the Directors	Question answered	5-6-19 PC Special Meeting Minutes_Chapter 8
8-25					5/6/19	Director Secondo	Expressed concern about locking the GSA into monitoring when it does not have the authority	Commnet noted	No change to Chapter 8	5-6-19 PC Special Meeting Minutes_Chapter 8
8-26					5/6/19	Director Granillo	Stated that the language should say there are water quality changes that we cannot impact		Sentence added to section 8.9.4.1	5-6-19 PC Special Meeting Minutes_Chapter 8
8-27			50		5/6/19	Nancy Isakson	Referred to page 50 regarding land owners' property rights next to the river. She would like Mr. Williams to revisit this section because neither the State nor courts have made a determination as to underflow, and the section ignores the overlying groundwater rights.		The text makes no assessment regarding underflow or overlying groundwater rights. The SVBGSA will evaluate water rights within the implementation period of the GSP.	5-6-19 PC Special Meeting Minutes_Chapter 8
8-28		8.8			5/6/19	Nancy Isakson	Questioned whether the amount of acre feet diverted from the Salinas River is that large, e.g. 185,000 acre feet in 2010. Stated that the Salinas Valley Water Coalition's litigation is ongoing and water law should be referenced in this section instead of the opinion that was included. A table of policy issues would help both the Advisory Committee and the Board to identify the policy issues and options	D Williams stated the data is self reported to the State (in response to N Isakson's question regarding Table 8.8)	Table was corrected in Chapter 8 to reflect revised calculations.	5-6-19 PC Special Meeting Minutes_Chapter 8
8-29					5/6/19	Tom Virsik	Stated that skewed diversion numbers may skew the 7% of pumping reduction. The Upper Valley suggests that ignoring surface water distrinctions is not what the DWR is looking for	D Williams responsed that the GSP will not solve all problems and is reiterative. But it should reflect the Agency's priorities	No change to Chapter 8	5-6-19 PC Special Meeting Minutes_Chapter 8
8-30					5/6/19	Nancy Isakson	Stated concern regarding the need for reconciliation	D Williams will note that there may be a data gap in the State Board's diversion reporting that should be addressed in the future	Comment incorporated into Chapter 8	5-6-19 PC Special Meeting Minutes_Chapter 8
8-31					5/1/19	Tom Virsik	The draft Chapters prominently cross-reference to a non-existent Chapter 6 (water budgets). Until Chapter 6 is/are reviewed, it is unfair to opine on draft Chapters 8. For example, one learrns of the "Basin" sustainable yield but not that of the individual Subbasins (other than the 180/400 in its own GSP). That basic information will inform the public on whether the GW levels are set correctly, among other metrics impossible to consider without Chapter 6		Chapter 6 draft has now released - Chapter 8 will be reviewed again after all Chapters have been released for comment	PlanningCommitteeComments_050 12019_TomVirsik.
8-32			17/33		5/1/19	Tom Virsik	In varying degrees, the drafts lack consistency in the use of certain terms, specifically: basin, Basin and subbasin ("sub-basin" is used once). Broadly, it appears that "Basin" is meant to refer to the entire Valley as referenced in (the not yet updated post boundary changes) Bulletin 118. Yet, "Basin" is at times used to refer to what in other parts of the draft Chapters is termed a "subbasin." Cf. e.g. 17/33 (112 K AFY yield for the "Basin" -- the 180/400 with 17/193 (494 K AFY yield for the "Basin" -- an array of subbasins).		We will review the consitency in terminology prior to finalizing all GSP Chapters	PlanningCommitteeComments_050 12019_TomVirsik Note: **xx/yy** in Page (xx represents page of the Chapter and yy is the page of the paginated packet)
8-33			10/26, 10/186		5/1/19	Tom Virsik	The draft content uses a term without (explicity) defining it. At several points, the content references "pumping allowances." See e.g. 10/26 and 10/186. The term needs a definition or reference as it is not a SGMA term of art		The phrase pumping allowance has been removed.	PlanningCommitteeComments_050 12019_TomVirsik

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
8-34			50/66, 50/226		5/1/19	Tom Virsik	A so-called "Report of Referee" is quoted for a point of law. 50/66 and 50/226. That Report comes from a lawsuit being actively litigated, which cannot be precedential in any legal sense. Salinas Valley Water Coalition v. MCWRA et al, 17CV000157 (Monterey County Superior Court). That litigation does not involve the GSA, so its interests and views were absent from the process that led to the Report. Nor is a lawsuit a public or transparent process (in a SGMA sense) where others may influence, correct, or steer the Report based on the best available data. Moreover, that "Report" contains many other findings and views, some of which contradict directly or indirectly other parts of draft Chapters 8. The Report--whether its content is good or bad by whatever metric--should not be relied upon.		Although the Report of Referee I not precidential, it provides guidance for our GSP and is therefore included in the GSP. This GSP is a policy document, not a legal finding.	PlanningCommitteeComments_050 12019_TomVirsik
8-35			57,73, 57,233		5/1/19	Tom Virsik	Surface (water) depletion thresholds are quantified in the draft content. But the relationship of the surface depletion to the sustainable yield is far from clear. Is the amount of depletion part of, in addition to, or bears no relationship to the sustainable yield figure for the Basin (or Subbasin)? See 57/73 and 57/233.		There is not effort to relate surface water depletion to sustainable yield in this chapter. This chpater only addresses sustainable management critera.	PlanningCommitteeComments_050 12019_TomVirsik
8-36			57,73, 51,227, 51/67		5/1/19	Tom Virsik	The sections addressing the surface and groundwater interactions are insufficiently clear or documented. It appears the model is not yet ready for surface water interactions. See 57/73 ("once the calibrated historial SVIHM is made available") and 51/227. The content includes tables and graphics quantifying surface water diversions. See 51/67 et seq and 51/227 et seq. Were surface water diversions from the eWRIMS database taken into account? Are they double-counted with the "groundwater" diversions reported (per Ordinance) to the MCWRA?		Surface water diversions were accounted for in the Water Budget portion of the GSP	PlanningCommitteeComments_050 12019_TomVirsik
8-37			58/74, 58/234		5/1/19	Tom Virsik	Oddly, the two Chapters 8's deviate noticeably at 8.10.4.2 Cf 58/74 with 58/234. In the 180/400 GSP, one of the bullet points states that riparian water rights holders are not regulated. In the ISP version of this section, the bullet point about riparian rights is replaced by one about de minimis pumping. Why the difference? Moreover, there is no lack of riparian pumpers with wells next to the river south of the 180/400, so why is that discussion absent in the ISP? Perhaps both riparian pumpers and de minimis pumpers belong at least in the ISP.		Versions will be reconciled.	PlanningCommitteeComments_050 12019_TomVirsik
8-38			19/195		5/1/19	Tom Virsik	The ISP content lacks information about the newly added Paso Robles formation lands. No blame or fault is asserted -- only that with a lack of data and experience about the substantial "new" lands, the GSP should be explicitly note the "data gap" at this time. Whatever occurs with an Upper Valley GSP, the facts and circumstances may require that the Paso Robles lands be managed differently given the lack of data, i.e. a SGMA management area with its own sustainable yield, etc. The draft Chapter for the ISP should note that option for the Paso Robles lands instead of painting with a broad brush that implies the Paso Robles cannot be developed. See 19/195 (the Paso Robles lands are primarily not currently irrigated).		This comment will be addressed in the Upper Valley GSP.	PlanningCommitteeComments_050 12019_TomVirsik
8-39					5/1/19	Tom Virsik	Conclusion: A great deal of work was put into the current (and all prior) Chapters, but the lack of Chapters 6, a far too hasty treatment of the newly added Paso Robles lands, a lack of clarity on the sources and relationship of the surface diversion numbers to the "groundwater" ones, and possibly incorrect separation of bullet points between the GSP and ISP -- among other noted instances of confusion or inquiry -- militate towards additional revisions before the drafts are further reviewed.	Comment noted	No change to Chapter 8	PlanningCommitteeComments_050 12019_TomVirsik
8-40	8.5.2.3		7		5/16/19	Bob Jaques	1st paragraph - change word *"to"* to from…*"monitoring site is similar to or different from water level thresholds in nearby representative……"*		Comment incorporated into Chapter 8	5-16-19 AC Meeting Packet with Comments from Bob Jaques
8-41	8.5.4.1		15		5/16/19	Bob Jaques	2nd pararaph, text reads *"Over the course of any one year, no more than 15% of the groundwater elevation minimum thresholds shall be exceeded in any single aquifer."* Comment: The same wells should not have their Minimum Thresholds exceeded more than "X" times in any "Y" year period		Text revised	5-16-19 AC Meeting Packet with Comments from Bob Jaques

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
8-42	8.5.4.2		16		5/16/19	Bob Jaques	2nd bullet point under Expansion of de-minimis pumping, text reads, *"Individual de-minimis pumpers do not have a significant impact on groundwater elevations. However, many de-minimis pumpers are often clustered in specific residential areas. Pumping by these de-minimis users is not regulated under this GSP. Adding additional domestic de-minimis pumpers in these areas may result in excessive localized drawdowns and undersirable results."* Comment: This problem should be addressed as it could have a potential impact on the basin.		Comment noted	5-16-19 AC Meeting Packet with Comments from Bob Jaques
8-43	8.5.4.3		16		5/16/19	Bob Jaques	1st paragraph of Effects on Beneficial Users and Land Uses: The same wells should not have their Minimum Thresholds exceeded more than "X" times in any "Y" year period.		Text revised	5-16-19 AC Meeting Packet with Comments from Bob Jaques
8-44	8.6.2		17		5/16/19	Bob Jaques	2nd paragraph, text reads, *"As noted in the regulatory definition of minimum thresholds quoted above, the reduction on groundwater storage minimum threshold is established for the basin as a whole, not for individual aquifers. Therefore, one minimum threshold is established for the entire Basin."* Comment: It doesn't seem very protective of the individual aquifers if the reduction in storage is applied to the basin as a whole without regard to the reduction in storage from each aquifer.		Comment noted. The text has been left as is.	5-16-19 AC Meeting Packet with Comments from Bob Jaques
8-45	8.6.2.6		20		5/16/19	Bob Jaques	3rd bulletpoint: correct spelling from AF to AFY: The current water use factor is assumed to be 0.39 AFY/dwelling unit.		Comment incorporated into Chapter 8	5-16-19 AC Meeting Packet with Comments from Bob Jaques
8-46	8.6.4.2		22		5/16/19	Bob Jaques	2nd bulletpoint under Expansion of de-minimis pumping, text reads, *"Pumping by de-minimis users is not regulated under this GSP. Adding domestic de-minimis pumpers in the Basin may result in excessive pumping and exceedance of the long-term sustainable yield, an undersirable result."* : Comment: This problem should be addressed as it could have a potential impact on the basin.		Comment Noted	5-16-19 AC Meeting Packet with Comments from Bob Jaques
8-47	8.7.2.1		23		5/16/19	Bob Jaques	Comment on 2nd paragraph of the following *"These maps are devloped through analysis and contouring of the values measured at dedicated monitoring wells near the coast, as shown on Figure 8-6 and Figure 8-7."* - Comment: These contours will likely change shape over time, sometimes receding and sometimes advancing further inland. This will complicate determing if this Minimum Threshold has been exceeded.	Comment noted	No change to Chapter 8	5-16-19 AC Meeting Packet with Comments from Bob Jaques
8-48	8.7.2.2		27		5/16/19	Bob Jaques	1st paragraph text reads, "The minimum threshold for seawater intrusion is a single value for the entire Subbasin. Therefore, no conflice exists between minimum thresholds measured at various locations within the Subbasin." Comment: There should be a separate Minimum Threshold for each aquifer.		Text revised	5-16-19 AC Meeting Packet with Comments from Bob Jaques
8-49	8.8.2		31		5/16/19	Bob Jaques	See Item 2. *"They must have previously been found in the Subbasin at levels above the level of concern"* : Why should this be one of the two criteria?		This criterion shows that the constituenets are effectively a potential problem in the basin	5-16-19 AC Meeting Packet with Comments from Bob Jaques
8-50	8.8.2		32		5/16/19	Bob Jaques	Comment on Coliform bacteria COC list elimination: My understanding is that coliform is commonly monitored in water supply wells		These results are not commonly reported.	5-16-19 AC Meeting Packet with Comments from Bob Jaques
8-51	8.8.2		32		5/16/19	Bob Jaques	Comment on Strontium COC list elimination: Since this is listed as a constituent of concern, it seems like it should start being sampled for.		The GSA is not sampling for water quality independently; we are using data from other specific WQ programs; if they don't monitor certain parameters, we will not report them either	5-16-19 AC Meeting Packet with Comments from Bob Jaques
8-52	8.8.2.7		41		5/16/19	Bob Jaques	3rd paragraph under Domestic land uses and users, text reads, *"The degradation of groundwater quality minimum thresholds generally provides positive benefits to the Basin's domestic water users."* Comment: If existing exceedances are basically ignored and allowed to continue, this doesn't provide "positive benefits" to them.		Existing exceedances are not due to GSA actions or GSP implementation, therefore they do not fall under GSA's jurisdication. Other programs are in charge of water quality issues.	5-16-19 AC Meeting Packet with Comments from Bob Jaques
8-53	8.9.1		44		5/16/19	Bob Jaques	1st bulletpoint, text reads, *"Any land subsidence caused by lowering of groundwater levels occurring in the basin is significant and unreasonable."* Comment: Subsidence will not always cause a problem for example, if there is no infrastructure in an area where subsidence occurs, it will not cause any damage.		Comment noted. However, it will be difficult to *a-priori* identify areas where subsidence is acceptable and where it is not.	5-16-19 AC Meeting Packet with Comments from Bob Jaques
8-54	8.9.2.2		46		5/16/19	Bob Jaques	The wording of the following sentence doesn't make sense (see 1st bulletpoint under Chronic lowering), "*...therefore the subsidence minimium thresholds will not compel in a significant or unreasonable lowering of groundwater levels.*"		Text revised	5-16-19 AC Meeting Packet with Comments from Bob Jaques

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
8-55					5/16/19	Steve McIntyre	Perhaps you could word the bullet point concerning the impacts of surface diversions/groundwater pumping on the environment to read: "ground water pumping is assumed not to be unreasonable for environmental flows but this assumption is subject to the process of establishing an HCP" (or something to this affect)		Comment incorporated into Chapter 8	
8-56					5/16/19	Dallas Tubbs	The text describes how the basin will be managed as a whole to prevent undesirable results. Given the criteria set forth in Chapter 8, it seems likely there will be an undesirable result in the 180/400-Foot aquifer. Accordingly, does this mean that there will be basin-wide groundwater pumping limits, and if so, how will those be apportioned?		Each subbasin will have a unique sustainable yield that will drive the pumping limit in the subbasin	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-57	8.5.2.2		7		5/16/19	Dallas Tubbs	The text states: "*Minimum thresholds for groundwatwer elevations are compared to the range of domestic well depths in the Subbasin. Conclusions from the comparison identifies modest impact to domestic wells in both the 180- and 400-foot aquifers.*" Question: Should there be a similar evaluation of the other well categories in the Subbasin to make the minimum thresholds impacts and trade-offs visible?		Only domestic wells were considered because they are commonly the most shallow wells in an area.	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-58	8.5.2.3	8-1	6,7		5/16/19	Dallas Tubbs	See 1st bulletpoint Change in Groundwater Storage: The text states. *"The groundwater elevation minimum thresholds are set at or above existing groundwater elevations* ." We recommend that a "date" column be added to Table 8-1 on page 6, listing the baseline date for each well and measurement.		Because this table (Now Table 8-2) does not include any monitoring data, the date column is not included.	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-59	8.5.2.3		7		5/16/19	Dallas Tubbs	Shouldn't the groundwater elevation minimum threshold be set when the GSP is adopted? Given the time gap between when these elevations were taken, groundwater elevations could be in an undesirable state before the GSP is submitted		We must include minimum thresholds in the GSP. The basin will not be out of compliance when we adopt the plan. The basin is only out of compliance if we exceed minimum thresholds 20 years after adoption.	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-60	8.5.2.3		8		5/16/19	Dallas Tubbs	See 2nd bulletpoint Seawater Intrusion: In addition to text here, it would be helpful to incorporate the MCWRA maps here showing the current areal extent of seawater intrusin (or at least when citing the reference to other locations in the GSP). Please include a discussion of the groundwater gradient because this is the driving force for seawater intrusion		A discussion of seawater intrusion is included in Chapter 5.	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-61	8.5.2.3		8		5/16/19	Dallas Tubbs	Question: If groundwater elevations are maintained at the minimum threshold (i.e. "at or above the existing groundwater elevations") does that mean there will be no further expansion of the areal extent of seawater intrusion?		No. Seawater intrusion will continue if groundwater elevations are simply maintained at current levels.	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-62	8.5.4.1		15		5/16/19	Dallas Tubbs	Undesirable Results: One of the metrics to determine whether the basin is compliant is based on water level measurements. The proposed metric is 15% of wells below the groundwater elevation minimum threshold (or a cluster or wells) yields an undesirable result. One well in this - is already below the threshold, so three additional wells below the threshold would be considered an undesirable result (or less if the wells are in a cluster.) Also, with respect to seawater intrusin, it would seem that the location of the wells plays an important role. As worded, the requirement seems overly restrictive. Without supporting arguments, Chevon proposes the number of well be increased		Comment noted	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-63	8.5.4.1		15		5/16/19	Dallas Tubbs	Questions: (1) Have the 23 existing monitoring wells been deemed to be a statistically meaningful quantity? If not, what is the recommended number of monitoring wells needed in the basin to provide statistically meaningful data?; (2) Given the seemingly small sample size (23 wells), we question if 15% is likely to be too sensitive to be representative of the overall basin; (3) As a hypothetical question, if four wells with an undesirable result are all located at the northern end of the Subbasin, would that require the GSA to take action across the entire Basin, or just the effected Subbasin?		1) no assessment of statistical signficance has been developed. 2) Comment noted. 3) if four wells exceed minimum thresholds anywhere in the subbaisn, it will require the GSA to take action	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-64	8.6.2.6		20		5/16/19	Dallas Tubbs	Under Method for Quantitative Measurement of Minimum Threshold, third bulletpoint: Text states, *"The current water use factor is assumed to be 0.39 AF/dwelling unit."* Please cite the reference that supports the water use factor of 0.39 AF per dwelling unit.		Reference added	5-19-19_180-400_Ch8_Chevon_DallasTubbs

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
8-65	8.6.3.1		21		5/16/19	Dallas Tubbs	Paragraph under Method for Setting Measurable Objectives: This section is unclear (i.e., it reads like the "chicken and egg" conundrum). Please discuss the relationship between storage and pumping.		Although the SMC is called reduction in groundwater storage, the regulations require that the metric be total pumping. The GSP simply follows the regulations.	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-66	8.8.1		30		5/16/19	Dallas Tubbs	Degraded Water Quality SMC, Under 1st bulletpoint: The terms "SMCL" and "MCL" need to be defined in the document.		Comment incorporated into Chapter 8	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-67	8.8.2	8-2	35		5/16/19	Dallas Tubbs	This section describes metrics around water quality. The metrics seem excessively restrictive. For example, *"Zero additional municipal production wells that are in the GSP monitoring program shall exceed the sulface SMCL of 250 mg/L."* The secondarly MCL for sulface (which has to do with taste/odor and not toxicity) should not be metric. Many of the constituents listed in this section are naturally occurring, and some may be just below the MCL or SMCL. If these concentrations increase for a reason besides groundwater withdrawal (including natural variability) it does not make sense to include these. Chevron has concern that the metric requiring "zero additioinal wells" is setting the basin up for failure. Analyticial variability, or bad sampling methods could yield an undesirable result. Interpreting analytical data is much more difficult than water level meaurement data.		This issue is addressed in the Degradation of Groundwater Quality undesirable result section. The undesirable result is based only on exceedences directly caused by the GSA's actions or projects	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-68	8.8.2		31		5/16/19	Dallas Tubbs	The text reads, *"Constituents of concern must meet two criteria: 1. They must have an established level of concern as an MCL or SMCL, or a level that reduces crop production, 2. They must have previously been found in the Subbasin at levels above the level of concern."* Why is the word "previously" inserted in the second bullet point?		The word previously has been deleted.	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-69	8.8.2		32		5/16/19	Dallas Tubbs	The text reads, *"These constituents are monitored with the ILRP wells and are known to cause reductions in crop production when irrigation water includes them in high concentrations."* The term "high concentrations" is ambiguous. Should a specific value be stated for each constituent?		Comment incorporated and question answered	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-70	8.8.2		32		5/16/19	Dallas Tubbs	The text reads *"As noted in Section 5.6.3, based on available information there are no mapped groundwater contamination plumes in the Subbasin."* What is the documentation to support this statement? Also, is seawater intrusion not defined as a plume?		Seawater intrusion is a separete sustainability indicator	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-71	8.8.2.1		36		5/16/19	Dallas Tubbs	As previously mentioned, the zero exceedances expectation is setting up the GSP for failure. Analytical variability, or bad sampling methods could yield an undesirable result. Interpreting analytical data is much more difficult than monitoring water level measurement data. We recommend using historical data to develop a reasonable tolerance band for each parameter.		This issue is addressed in the Degradation of Groundwater Quality undesirable result section. The undesirable result is based only on exceedences directly caused by the GSA's actions or projects	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-72	8.8.2.1	8-3	37		5/16/19	Dallas Tubbs	We note that several of the constituents of concern listed appear to show incorrect MCLs (e.g. chloride, Radon-222, Sulface and TDS). What standard is being used for this information?		Calivornia drinking water standards are used, as specified in Table 8-4	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-73	8.8.4.1		43		5/16/19	Dallas Tubbs	Under *Criteria for Defining Undesirable Results:* To clarify, does this section mean that future projects or management actions SVBGSA might undertake will be executed in such a way that an undesirable result does not occur?		This section does mean that any project or management action undertken by the SBBGSA will not diretly lead to an undesirable result	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-74	8.8.4.2		43		5/16/19	Dallas Tubbs	2nd bulletpoint Groundwater Recharge, text reads, *"Active recharge of imported water or captured runoff could modify groundwater gradients and move one of the constituents of concern towards a supply well in concentrations that exceed relevant limits."* Does this statement mean that ground water recharge can't contain anything that has an MCL above the threshold?		That is correct	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-75	8.9.2.3		47		5/16/19	Dallas Tubbs	3rd paragraph states, *"Therefore, the minimum thresholds in the 180/400-Foot Aquifer Subbasin is zero subsidence."* Setting an absolute value for subsidence is unwise. The minimum threshold should be stated in terms of a subsidence metric measured over time. For example, is 1 cm of change over 40 years unacceptable? We advise waiting until historial InSAR data has been obtained and evaluated prior to setting the minimum threshold. Because ground elevations can change over time unrelated to water extraction, some subsidence may be reasonable depending on the rate of change		Historical InSAR data have now been obtained and are being incorported. We will continue to use the zero subsidence metric, but will incorporate measurement error into our definition of zero subsidence.	5-19-19_180-400_Ch8_Chevon_DallasTubbs

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
8-76	8.10.2		51		5/16/19	Dallas Tubbs	2nd paragraph, text reads, *"However, without good historical data or a numerical model, it is difficult to assess whether and where the stream is connected to underlying groundwater."* Perhaps it would be best to postpone setting a minimum threshold for depletion of interconnected surface water until more data can be captured or a numerical mode is made available.		We must include minimum thresholds in the GSP. This thrshold can be modified as additional data are collected.	5-19-19_180-400_Ch8_Chevon_DallasTubbs
8-77					5/16/19	Gary Petersen	Stated that the Integrated Sustainability Plan is being tabled temporarily.	D Williams stated that the slides still include some of the sustainability indicators for all the Valley	Question answered	2019-05-16 AC Minutes
8-78					5/16/19	Robin Lee	Why aren't the groundwater elevation measurable objectives set to stop seawater intrusion?	D Williams stated the measurable objective is not the same as the groundwater elevation, because intrusion could be stopped by pumping water out as well as by raising water levels.	Question answered	2019-05-16 AC Minutes
8-79					5/16/19	Abby Taylor Silva	How many wells have exceeded the minimum threshold in 2015?	D Williams stated that he would have to report back on how many wells would have exceeded the minimum threshold in 2015	Data now in the Undesirable Results section	2019-05-16 AC Minutes
8-80					5/16/19	Norm Groot	What is the definition of the not to exceed 15% for Undesirable Results?	D Williams stated that the not to exceed 15% he proposes for Undesirable Result can be revisited at least every five years and even before the completion of this process to determine whether we can attain the objectives with the financing we have. A public process would be required	Question answered	2019-05-16 AC Minutes
8-81					5/16/19	Robert Burton	What is the criteria for the representative period selection.	D Williams stated that the representative period was selected to include reservoir operations and wet and dry period, but it could be expanded or contracted. D Williams does not believe the 1992 minimum threshold was an outlier year in Figure 8-1 as there were 3 years that reached this level	Question answered	2019-05-16 AC Minutes
8-82					5/16/19	Bob Jaques	Might be a good idea to not show the same wells that are below the minimum threshold each year	D Williams will note not to add the same wells below the minimum threshold every year so to avoid always penalizing the same people	Text revised	2019-05-16 AC Minutes
8-83					5/16/19	Dallas Tubbs	Is the 15% measurement for undesirable results too low as a representation of the entire basin?	D Williams will note that the 15% measure for undesirable results may be too low if the monitoring wells are not representative of the entire basin	Comment noted	2019-05-16 AC Minutes
8-84					5/16/19	Harold Wolgamott	Should add footage when addressing the 15% Undesirable Results	D Williams will consider Harold's comment "by X feet" to the 15% referenced in Undesirable Results, e.g. 2 feet or 5 feet	No change to text. It would be wiser to simply change the minimum thresholds	2019-05-16 AC Minutes
8-85					5/16/19	Tom Virsik	References his previous written comments. The concentration of exceedances seems to scream a need for a management area	Comment noted	No change to Chapter 8	2019-05-16 AC Minutes
8-86					5/16/19	Heather Lukacs	Stated there should be different management areas for drinking water protections, e.g. it is not acceptable for 15% to be the undesirable result measure.	D Williams stated we will note the question whether we should have management areas near public water supply wells to avoid exceedances around those wells	Comment Noted	2019-05-16 AC Minutes
8-87					5/16/19	?	?	Mr. Williams stated that significant policy question include whether we should expand the existing groundwater pumping reporting requirements and define pumping allowance.	Question answered	2019-05-16 AC Minutes
8-88	8.6.2.6				5/16/19	Abby Taylor Silva	Can we charge de minimis users and require metering? Regarding 8.6.2.6, "Method for Quantitative Measurement of Minimum Threshold" asked about a process for collecting data that is not currently reported.	D Williams stated that we can charge de minimis users but cannot require metering. In response to Taylor Silva's question about collecting data defined under 8.6.2.6, D Williams stated that this is a policy decision in the implementation plan and the reporting system can be expanded, perhaps through the WRA	Question answered	2019-05-16 AC Minutes
8-89					5/16/19	Bob Jaques	Stated the regulations' requirement to report for the basin as a whole is not a good idea and wondered if the GSA could have minimum objectives and thresholds for each aquifer	D Williams stated that setting specific pumping amounts for each aquifer would require more calculations; not doing so could result in other sustainability criteria being violated	Question answered	2019-05-16 AC Minutes
8-90	8.6.2.2				5/16/19	Robin Lee	Asked about Section 8.6.2.2, Depletion of Interconnected Surface Waters, and what if we do not like whiat is going on today.	D Williams asked her to hold the question	N/A	2019-05-16 AC Minutes
8-91					5/16/19	Tom Ward/Howard Franklin	In response to Tom Ward, Howard Franklin stated there are 47 or 48 deep aquifer wells, and they are collecting on most of those wells. They are not all in the pressure area		Question answered	2019-05-16 AC Minutes

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
8-92					5/16/19	Bob Jaques	Stated that the isocontour line could change, and it may be better to say the total area is the measure.	D Williams stated that the regulations say it is line we cannot cross. The map indicates there are not huge fluctuations annually. If we implement certain projects, it could affect the isocontour. We can expand the isocontour to allow some flexibility. But when implementing projects, it may harm other indicators.	Question answered	2019-05-16 AC Minutes
8-93					5/16/19	Howard Franklin	Stated that the 2018 data does not show the isocontour line going backwards and a larger buffer over that should be allowed	Comment noted	No change to Chapter 8	2019-05-16 AC Minutes
8-94					5/16/19	Harold Wolgamott	Suggested moving the isocontour line further inland, halfway between where it is and Highway 1		Comment noted. This is a policy decision to be discussed with Board	2019-05-16 AC Minutes
8-95					5/16/19	Abby Taylor Silva	Asked if the undesirable result could be established year one of projects without knowing what the data would be.	D Williams responded that the DWR is looking for definitive, quantifiable items. Suggests 2017 as a buffer. When we get to the five-year date of the Plan, it could be changed at that point	Question answered	2019-05-16 AC Minutes
8-96					5/16/19	Heather Lukacs	The 2017 year could be reviewed for change five years from now	D Williams stated that it is worth defining the minimum threshold that is currently further inland than 2017, so he would like more feedback. It will depend on the financing to implement a project to stop seawater intrusion	Question answered	2019-05-16 AC Minutes
8-97					5/16/19	Nancy Isakson	She agreed with Heather Lukacs that the 2017 year should be retained to ensure that something is done	Comment noted	No change to Chapter 8	2019-05-16 AC Minutes
8-98					5/16/19	Dallas Tubbs	Would like to think about chain of command and protocols on how to test wells so it is equivalent and replicated well to well	D Williams stated that we are not collecting samples but gathering data from others' samplings	Question answered	2019-05-16 AC Minutes
8-99					5/16/19	Harold Wolgamott	Noted we should only use reliable data	D Williams stated that we would come up with a new list of wells and new minimum thresholds and objectives with every five-year update. They would not use a well redrilled in the same spot	Question answered	2019-05-16 AC Minutes
8-100					5/16/19	Nancy Isakson	Why are nitrates not included as constituents of concern in ag wells	D Williams stated that nitrates were not included because they are pushed into an ag well and do not negatively impact crop production, so the grower would not have to abandon the well	Question answered	2019-05-16 AC Minutes
8-101					5/16/19	Bob Jaques	Stated that we should be sampling for constituents of concern	D Williams responded that under SGMA, we are not sampling but are looking at whether we are causing any harm. The Regional Board is responsible for cleaning up the basin	Question answered	2019-05-16 AC Minutes
8-102					5/16/19	Norm Groot	?	D Williams stated they are setting additional nitrates exceedances at zero unless the DWR does not accept their proposal for undesirable results to be defined as "On average during any one year, no groundwater quality minimum threshold shall be exceeded as a direct result of projects or management actions taken as part of GSP implementation."	Question answered	2019-05-16 AC Minutes
8-103					5/16/19	Horacio Amezquita	Asked when the GSA will address the problem of increasing nitrate concentration and well pollution.	D Williams responded that the GSA would not take this issue on if it is unrelated to SGMA. We are looking at projects that would have an impact on water quality	Question answered	2019-05-16 AC Minutes
8-104					5/16/19	Heather Lukacs	Asked how are we rationalizing missing data because wells are not sampled regularly	D Williams responded that the mandate is to increase water supply without harming water quality using existing data	Question answered	2019-05-16 AC Minutes
8-105					5/16/19	Dallas Tubbs	Commented that absolute subsidence is as important as the rate of change, so the threshold would work in over time	D Williams stated that on May 6, 2019, DWR announced they will provide InSAR data that will show monthly change in ground surface. Stated that the minimum threshold for subsidence would be a very low rate of subsidence and not zero subsidence	Insar data now included in GSP. Decision was to retain zero subsidence with acknowledgment of measurement error	2019-05-16 AC Minutes
8-106					5/16/19	Harold Wolgamott	Agreed with Mr Tubbs and would like a better definition of the minimum threshold definition of no subsidence that impacts infrastructure		Comment noted	2019-05-16 AC Minutes
8-107					5/16/19	Emily Gardner	Asked about the reference to infrastructure	D Williams stated the legislation is written in that way, and there is a decrease in storage in clay where there is no pumping	Question answered	2019-05-16 AC Minutes
8-108					5/16/19			D Williams stated the surface water depletion section includes many policy questions	Commment noted	2019-05-16 AC Minutes
8-109					5/16/19	Robin Lee	Asked whether we agree that the impact on our river flows is significant but not unreasonable	D Williams answered that whether we are having an impact on ecosystems that are groundwater dependent is a different policy question	Question answered	2019-05-16 AC Minutes

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
8-110					5/16/19	Howard Franklin	Stated that the WRA will be redefining how to provide environmental flows, so how do we say the MCWRA is successfully achieving environmental flows in the Salinas River	D Williams responded that the Plan is based on the best data currently available and will be revisited in three to five years	Question answered	2019-05-16 AC Minutes
8-111					5/16/19	Howard Franklin	Objects to the language that they are successfully achieving environmental flows	D Williams considered modifying the language to reflect that the WRA is operating under the NOAA previous biological opinion. It is difficult to say we will not meet those environmental flows if we do not know what they are, but this is a policy issue	Question answered	2019-05-16 AC Minutes
8-112					5/16/19	Nancy Isakson	Questions whether we can say that stream depletion is not unreasonable. In response to D Williams response, she said that is not what she is saying and will provide D Williams with some quoted language	D Williams stated that the statement is open for discussion. Since the structures operate in a way that implicitly understands depletion rates, we have already addressed reservoir depletion rates so it is not unreasonable. However, we could say release less water in Nacimiento and get the same amount of flow if we had less depletion	Question answered	2019-05-16 AC Minutes
8-113					5/16/19	Donna Myers	Stated that “successfully achieving” should be changed to “providing water flows”		Comment incorporated into Chapter 8	2019-05-16 AC Minutes
8-114					5/16/19	Charles McKee	Suggested “successfully provided environmental flows as long as requirements were in place.”		Comment incorporated into Chapter 8	2019-05-16 AC Minutes
8-115					5/16/19	Donna Myers	Asked if the lakes are considered in the statement "Limited recreational opportunities on the Salinas River, therefore groundwater pumping is not unreasonable for recreational flows," and whether this is an accurate statement	DW said lakes are not considered at this point because the pumping is not depleting lakes. However, lakes are a secondary consideration we could address	Question answered	2019-05-16 AC Minutes
8-116					5/16/19	Robin Lee	Asked where the environmental community's concern about habitats is addressed. She is concerned about wells on smaller tributaries that may be depleting ecosystems	D Williams stated that we have mapped potentially dependent ecosystem but not known groundwater dependent ecosystems. This is a policy decision. He has not identified which we want to protect. Implementation could include a project to hire a biologist to visit sites identified by aerial photos to assess whether they are groundwater dependent or not. Then the group could make policy recommendations on importance and establishing policies, but it will take some time. He requested further feedback as to whether we are having an unreasonable impact and how we address groundwater dependent ecosystems or should we address, better understand, and protect them. D Williams invited Committee members to provide additional input as soon as possible for inclusion for the Board's consideration.	Question answered	2019-05-16 AC Minutes
8-117					5/16/19	Harold Wolgamott	Stated that the GSA does not include surface water, e.g., pumping in Chualar would not have environmental factors directly affected	D Williams stated that this raises the question of do we think pumping is significant and unreasonable. If you are pumping from the 400 foot aquifer, it would be hard to say cut back to improve stream flows.	Question answered	2019-05-16 AC Minutes
8-118					5/16/19	Robin Lee	Would like a written description of what Mr. Williams needs to develop good decisions on the ecology.	D Williams stated he is understanding that some people would like to see ecosystems and that we may have overstated the case about no significant and unreasonable impacts. But on the other hand, there is uncertainty whether we can say that it is unreasonable. He’s looking for feedback. He can help guide the Committee, but policy ideas are tough because there is not much data that we can rely upon	Question answered	2019-05-16 AC Minutes
8-119					5/16/19	Robin Lee	Added that we could propose that we get the ecosystem data	D Williams stated we could map them or look at shallow groundwater levels that are within 15 feet to 20 feet, and then we can say we know it is a Groundwater Dependent Ecosystem. Then it becomes a policy decision whether to maintain it as a viable system and whether to implement projects and plans to protect them. D Williams summarized the comment as what is the policy as to whether we are having a significant and unreasonable impact.	Question answered	2019-05-16 AC Minutes

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
8-120					5/16/19	Heather Lukacs	Asked whether the Agency or a standard of law would determine "significant and unreasonable."	D Williams stated that the law says the Agency decides, but there will be disagreement regardless of what is decided	Question answered	2019-05-16 AC Minutes
8-121					5/16/19	Tom Virsik	Stated that the direction should be to make it simpler and less complex	D Williams summarized to focus the discussion on pumping impacts on the 180/400 foot aquifer and not on the entire river.	Question answered	2019-05-16 AC Minutes
8-122	8.2		6 and 7		6/18/19	TNC	In a future draft of the document, please provide more details on how the needs of environmental beneficial users (GDE and ISW ecosystems) will be balanced with other water users in the basin. The sustainability goal should describe how projects and actions will balance environmental water needs and avoid adverse impacts to GDEs and ISWs, how the basin will be operated to maintain or improve these aquatic ecosystems, and an explanation of how the sustainability goal will be achieved within 20 years of implementation of the GSP. For more case studies on how to incorporate environmental benefits into groundwater projects, please visit our website: https://groundwaterresourcehub.org/case-studies/recharge-case-studies/		The minimum thresholds, measurable objectives, and undesirable results for surface water depletions are based on local input and a balance of local concerns. Discussions of impacts on GDEs were held during Advisory Committee meetings and Board of Directors meetings. These criteria may be modified in future versions of the GSP.	TNC_180-400ftAquifer_Chapter7+8
8-123	8.3		7		6/18/19	TNC	This section broadly lists how the chapter was developed, but "publicly available information" and specific stakeholders are not clearly defined or cross referenced to other sections. Please provide or cross-reference this information, including reference to publicly available information regarding GDEs that was researched and how environmental stakeholders were engaged.		Stakeholder engagement is discussed in Chapter 11	TNC_180-400ftAquifer_Chapter7+8
8-124	8.10		59		6/18/19	TNC	Please integrate the following information into this section of the GSP to appropriately establish SMC for ISWs in a way that balances the needs of environmental beneficial users and achieves the basin's sustainability goal to balance all beneficial users of the basin: o The shallow aquifer is indeed a principal aquifer that needs SMC established to prevent adverse impacts to surface water beneficial users. SGMA defines principal aquifers as "aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems" [23 CCR § 351 (aa)]. In addition, more nested/clustered wells are needed in the 180-400 Foot Aquifer area to determine vertical groundwater gradients and whether pumping in the deeper aquifers are causing groundwater levels to lower in the shallow aquifer and deplete surface water.		The shallow aquifer is not considered a principal aquifer. However, the SVBGSA will install shallow wells in the shallow sediments to assess groundwater/river interactions.	TNC_180-400ftAquifer_Chapter7+8
8-125	8.10		59		6/18/19	TNC	As previously mentioned in our April 11 letter regarding Chapter 5 of the Draft GSP, the shallow aquifer in the 180/400 Foot Aquifer and Monterey Subbasins are likely to be supporting GDEs and interconnecting with the Salinas River. Thus, pumping in deeper aquifers can still cause adverse impacts to environmental beneficial users reliant on shallow groundwater. Even if pumping is not occurring in shallow groundwater aquifers, SGMA still requires GSAs to sustainably manage groundwater resources in shallow aquifers, especially those that support springs, surface water and GDEs for current and future uses.		The proposed shallow wells discussed in Chapter 7 are intended to verify and help manage the groundwater/surface water interactions.	TNC_180-400ftAquifer_Chapter7+8
8-126	8.10		59		6/18/19	TNC	Several published references indicate that the 180-Foot aquifer is in direct hydraulic communication with the overlying Dune Sand Aquifer or Shallow Alluvial Aquifer where the Salinas Valley Aquitard is thin or absent.3 These same references indicate aquitards within the 180-/400-Foot aquifer system are known to be locally discontinuous. In addition, the fact that the Salinas is a losing stream and that of 67,000 acre feet are recharged from the stream to the groundwater basin in an average year strongly suggests that the shallow aquifer is hydraulically connected to the underlying pumped aquifer systems.		coment noted. The HCM in chapter 4 specifically notes that the aquitards are thin and discontinuous in places.	TNC_180-400ftAquifer_Chapter7+8
8-127	8.10		59		6/18/19	TNC	The GDE Pulse web application developed by The Nature Conservancy provides easy access to 35 years of satellite data to view trends of vegetation metrics, groundwater depth (where available), and precipitation data. This satellite imagery can be used to observe trends for NC dataset polygons within the 180-400 Foot Aquifer area (Figure 1). Over the past 10 years (2009-2018), NC dataset vegetation polygons have experienced adverse impacts to vegetation growth and moisture which are correlated to declines in groundwater levels (e.g., as indicated by wells GZWA21202, CHEA21208).		Comment noted	TNC_180-400ftAquifer_Chapter7+8

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8-128	8.10.1 - 8.10.2.1		59-61		6/18/19	TNC	These sections explain that the definition of Significant and Unreasonable Conditions, and establishment of Minimum Thresholds and Measurable Objectives is based on considerations related to flows in the Salinas River and specifically the maintenance of minimum flows for the protection of aquatic species and water rights. Steelhead are not the only environmental user that need consideration. A list of freshwater aquatic species identified in the 180-/400-Foot Aquifer Subbasin is included for your reference as Attachment C. There appear GDEs have been omitted, as they are not mentioned or considered. We believe this to be a deficiency, as the Department of Water Resource's NC Dataset Viewer indicates a variety of potential GDE habitats are located in the subbasin along the Salinas River and its tributaries, and not just within the stream. Furthermore, TNC's GDE Pulse Tool (Attachment E) shows declining ecosystem conditions along the Salinas River between 2014 and 2018, including the period after the recent drought (and after the baseline period specified in SGMA). NDVI (which represents vegetation growth) and NDMI (which represents vegetation moisture) coincide with a decline in groundwater levels for NC dataset polygons along the Salinas River west of Salinas (Figure 1). Please include a discussion of how baseline conditions, current trends and potential adverse impacts to GDEs were considered in the definition of significant and unreasonable conditions and establishment of Minimum Thresholds and Measurable Objectives. (see letter for rest of comment)		Additional information on environmental users was added to Chapter 11. The GSA decided not to include the list of freshwater species provided because it was not accurate.	TNC_180-400ftAquifer_Chapter7+8
8-129	8.10.2.4		66-67		6/18/19	TNC	The listing of beneficial uses of interconnected surface water is limited to instream resources of the Salinas River alone. Please expand the listing of beneficial uses and users to address GDEs and ecosystems that are located adjacent to the river and its tributaries. A list of fresh water aquatic species identified in the 180-/400-Foot Aquifer Subbasin is included for your reference as Attachment C. The relationships between GDEs and ecosystems adjacent to the river and its tributaries, and their dependence on interactions with ISW and groundwater, are key to understanding the appropriateness of the subbasin-wide Minimum Threshold for interconnected surface water depletion being proposed for all ISWs, and the extent to which GDEs adjacent to the river should also be considered when establishing the SMC for Chronic Lowering of Groundwater levels. Adjacent or nearby GDEs could be significantly affected by small depletions depending on the depletion rate, their location and the existing surface and groundwater hydraulic gradients. However, even if they are not, these GDEs could still be affected by relatively modest groundwater level declines and likely still need to be considered separately according to groundwater levels under the Chronic Lowering of Groundwater SMC. The discussion of ecological land uses and users should include GDEs and ecosystems adjacent to the river and its tributaries, and their dependence on interactions with ISW and groundwater.		The GSP addresses GDEs as required by regulation. The Board of Directors was informed during open session that they have the abilityto expand the definition of significant and unreasonalbe groundwater elevations to address GDEs	TNC_180-400ftAquifer_Chapter7+8

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
8-130	8.10.2.5		67		6/18/19	TNC	We recommend the streamflow requirements set by the NMFS should be explicitly stated or referenced in the GSP. In addition, any other state, federal or local standards, requirements and guidelines pertaining to the GDE habitats and species identified in the NC dataset or the list of species included in Attachment C should also be discussed or referenced.		As discussed in Section 8.11.1, The U.S. Army Corps of Engineers has re-initiated consultation with the National Marine Fisheries Service on the Biological Opinion. No flow requirements are presently in place, even though MCWRA continues to operate in accordance witht he 2007 biological opinion as a safe harbor practice. The GSP is not required to meet flow requirements, it is only required to assess whether depletions due to pumping are significant and unreasonable. Therefore, there is no need to list flow requirements in this document. The Salinas Valley Water Project Flow Prescription for Steelhead Trout in the Salinas River (MCWRA, 2005) will be included in the list of references uploaded to DWR during GSP submission.	TNC_180-400ftAquifer_Chapter7+8
8-131	8.10.2.6		67		6/18/19	TNC	Modeling/calculation of surface water depletion is the only proposed means to measure the minimum threshold for depletion of ISWs. Ecosystems sensitive to declines in groundwater levels and depletion of interconnected surface waters can experience significant declines in a short period of time depending on their hydraulic function, structure and the species involved. Use of a single calculated value in lieu of measured field data and linkages to other measured hydrogeologic data (such as groundwater levels) leaves a significant data gap that must be filled to assure protection of these resources. Model estimates should be monitored more closely than every five years in order to detect potentially significant effects in a time frame that allows for rapid response and alleviation of ecosystem decline. As discussed, the TNC's GDE Pulse Tool (Attachment E) already shows declining ecosystem conditions along the Salinas River between 2014 and 2018, including the period after the recent drought (and after the baseline period specified in the SGMA). Please discuss how the minimum threshold will be measured in a way that assures protection of GDEs and instream environmental beneficial users.		The GSP does not protect species; it asssesses whehter the depletion of surface water due to pumping is significant or unreasonable. The modeling approach to assessing depletions due to pumping is the approach proposed in the DWR BMP for monitoring.	TNC_180-400ftAquifer_Chapter7+8
8-132	8.5.2.1		8-16		6/18/19	TNC	This section describes the methodology used to establish Minimum Thresholds and Measurable Objectives for Chronic Groundwater Level Decline. Subbasin-wide groundwater levels experienced in 2015 are defined as the Minimum Threshold, and the Measurable Objective was established the subbasin-wide groundwater levels experienced in 1992, which were approximately 1 foot higher. Table 8-1 (PDF pg. 16 of 70) lists "Representative Monitoring Sites" or wells where groundwater levels will be measured and compared to the Measurable Objectives to assess compliance with the plan. It is noteworthy that the table does not include a single well completed in the Shallow Alluvial or Dune Sand Aquifer. Please identify the lack of shallow aquifer monitoring wells as a data gap, and cross reference your plans discussed in Chapter 7 to install a sufficient number of shallow monitoring wells to assess potential undesirable results to GDEs.		The shallow aquifer is not considered a principal aquifer. However, the SVBGSA will install shallow wells in the shallow sediments to assess groundwater/river interactions.	TNC_180-400ftAquifer_Chapter7+8

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8-133	.5.2.3 and 8.6.2.2		17-19 and 27-28		6/18/19	TNC	When groundwater levels are used as an objective, their relationship to other Sustainability Indicators must be discussed. These sections describe the relationship of chronic groundwater level declines and change in groundwater storage, which are measured using groundwater levels, to depletion of interconnected surface waters. The discussion is limited to the potential effect of groundwater levels on stream flows, and the potential effect of groundwater level declines on GDEs is not mentioned. The statement that "minimum thresholds for reduction in groundwater storage is a single value for the entire Basin. Therefore, the concept of potential conflict between minimum thresholds is not applicable" does not recognize the potential presence of ecosystems and GDEs that could be sensitive to relatively minor or localized declines in groundwater levels. The potential effect of groundwater level declines on GDEs depends on the type of vegetation present and its ability to adapt to changing groundwater levels, the local interaction between surface and groundwater, and the nature of regional and local pumping stresses. Specification of a single groundwater level is likely insufficient to assure protection of GDEs in the absence of a monitoring program that encompasses both groundwater levels and related surface conditions.... Revise these sections to include a discussion regarding the effects of potential gw level declines on GDEs and limitations of gw level monitoring alone to assess potential undesirable results to GDEs.		Change in groundwater storage is not measured using groundwater levles. In accordance with the GSP Regulations, the metric for change in groundwater storage is an amount of water that can be extracted. The Board of Directors was informed during open session that they have the abilityto expand the definition of significant and unreasonalbe groundwater elevations to address GDEs. The relationship between change in storage minimum thresholds and sufrace water depletions is discuessed in Sectin 8.7.2.2. The GSP does not protect species; it asssesses whehter the depletion of surface water due to pumping is significant or unreasonable.	TNC_180-400ftAquifer_Chapter7+8
8-134	.5.2.5 and 8.6.2.4		19-20 and 29-30		6/18/19	TNC	The discussion on ecological land uses and users does not include a discussion on GDEs, ISWs, or other uses that benefit aquatic and terrestrial wildlife, ecosystem processes or recreation. A list of fresh water aquatic species identified in the 180-400-Foot Aquifer Subbasin is included for your reference as Attachment C. These sections imply that ecological land uses may benefit secondarily from the potential curtailment of agricultural and domestic land uses, but does no clearly state how these specialized aquatic ecosystems and related beneficial groundwater users would benefit or be protected from further decline or future damage. Please include a discussion explaining how GDEs, ISW-related ecosystems and recreational uses may benefit or be protected by implementation of the proposed Minimum Thresholds and Measurable Objectives. A list of freshwater aquatic species identified in the 180-/400-Foot Aquifer Subbasin is included for your reference as Attachment C.		The GSP does not protect species; it asssesses whether the depletion of surface water due to pumping is significant or unreasonable.	TNC_180-400ftAquifer_Chapter7+8
8-135	8.5.4.3		26		6/18/19	TNC	This section discusses the effects on beneficial users and land uses of criteria used to define undesirable results related to chronic groundwater level decline. Fifteen percent of exceedances is considered reasonable if the wells are widespread through the subbasin. The section acknowledges that significant unreasonable effects could occur in a smaller clustered area due to localized pumping, but does not describe specifically how the proposed regional compliance strategy will identify or address a more localized occurrence. TNC's GDE Pulse Tool (Attachment E) shows declining ecosystem conditions along the Salinas River west of Salinas between 2014 and 2018. This section should be revised to use these data as a basis for addressing how the proposed compliance strategy will address significant and undesirable decline of GDEs at the spatial scale already observed in the GDEPulse data.		Comment noted	TNC_180-400ftAquifer_Chapter7+8
8-136	8.9.2.2		55 (47 in doc due to formatting error)		6/18/19	TNC	This section discusses the relationship between Minimum Thresholds for subsidence and other Sustainability Indicators, including depletion of interconnected surface waters. The GSP states that "thresholds will not change the amount or location of pumping and will not result in a significant or unreasonable depletion of interconnected surface waters". Please expand this section to include a discussion regarding the potential effects of the minimum thresholds for subsidence, which are based on infrastructure, on the hydraulic function of wetlands and other GDEs.		As stated in the text, the threshold of zero subsidence has no negative impact on the minimum threshold for sufrace water depletion	TNC_180-400ftAquifer_Chapter7+8

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
8-137					7/2/2019	Landwatch	**1. Seawater Intrusion** We recommend that the minimum threshold be revised to reflect 2018 data when they are available. As noted in public hearing testimony, seawater intrusion has probably exceeded the 2017 lines identified by the Monterey County Water Resource Agency (MCWRA).		This option was discussed at the Advisory Committee and Board of Directors. The decision by the Board was to stick with 2017 data as the minimum threshold.	LandwatchComments_GSPChapter 8
8-138					7/2/2019	Landwatch	**2. Reduction in Groundwater Storage** We support setting the minimum threshold for depletion based on a scientifically sound sustained yield. The 112,000-acre feet per year (AFY) sustained yield estimate must be revisited as soon as the USGS historical model is available to calibrate the operational model on which this yield is based. In addition, concerns regarding double counting of surface and groundwater raised by other commenters must be resolved because, if accurate, it may significantly reduce the sustained yield. Uncertainty in the historical and current water budgets reflects the differing levels of certainty associated with each component of the water budgets. Although the water budgets may be sufficiently constrained to provide a basis for developing the Groundwater Sustainability Plan (GSP), an important element of the plan is the monitoring program (Chapter 7) that will provide valuable data for improving the water budget during plan implementation. Therefore, the individual components of the historical and current water budgets as well as the overall water budgets should be viewed only as the best current estimates, subject to revision as more information becomes available.		Comment noted; no change currently to Chapter 8.	LandwatchComments_GSPChapter 8
8-139	8			8-2, 8-3	7/2/2019	Landwatch	**3. Reduction in Groundwater Storage and Seawater Intrusion** The groundwater minimum thresholds should be set at the levels that have been determined to be sufficient to prevent seawater intrusion. These levels must clearly be higher than sea level. These levels should be determined based on the most current modeling or groundwater levels that are sufficient to prevent seawater intrusion. If currently modeling is not available, then the 2013 modeling prepared by Geoscience for MCWRA should be used. Chapter 8 sets minimum thresholds and measurable objectives for chronic lowering of groundwater levels. Section 8.6.2 sets a minimum threshold for groundwater elevations at one foot above the 2015 groundwater levels. This proposed level is equal to the 1991-1992 groundwater level, which was the lowest historical level that occurred in the 1967-1998 climatic cycle. (See Chapter 8, Figure 8-2). Figures 8-2 and 8-3 show that the proposed minimum groundwater levels would be well below sea levels in the northern end of the Salinas Valley. This is consistent with the MCWRA groundwater contour maps for 2015, which show that 2015 elevations were in fact well below sea level in the northern Salinas Valley. (Maps available at https://www.co.monterey.ca.us/home/showdocument?id=31284 and https://www.co.monterey.ca.us/home/showdocument?id=31286.)		The minimum thresholds are set independently for each sustianability indicator. All six undesirable results must be avoided simultaneously, therefore there is no need to predicate the groundwater elevation undesireable result on the seawater intrusion undesirable result. Futhremore, groundwater elevations will be different if seawater intrusion is manager thorugh an extraction barrier, or if it is managed through significant managed recharge.	LandwatchComments_GSPChapter 8
8-140	8.6.3			8-4, 8-5	7/2/2019	Landwatch	Section 8.6.3 sets a measurable objective for chronic lowering of groundwater levels that "represent groundwater elevations that are higher than the minimum thresholds" in order to "provide operational flexibility to ensure that the Subbasin can be managed sustainably." This level was set at the 2003 groundwater levels, representing "an average groundwater level from the relatively recent past." Figures 8-4 and 8-5 show that the proposed measurable objective for groundwater levels would be well below sea levels in the northern end of the Salinas Valley. Again, this is consistent with the MCWRA groundwater contour maps for 2003, which show that 2003 elevations were well below sea level in the northern Salinas Valley. (Maps available at https://www.co.monterey.ca.us/home/showdocument?id=19538 and https://www.co.monterey.ca.us/home/showdocument?id=19554.		Comment noted.	LandwatchComments_GSPChapter 8

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8-141	8		17-18		7/2/2019	Landwatch	The Chapter 8 discussion at pages 17-18 appears to justify the minimum thresholds and measurable objectives based on the percentage of wells that would still have 25 feet of water. However, setting minimum thresholds and measurable objectives for groundwater levels at this level would permit continued seawater intrusion because that level is demonstrably insufficient to prevent seawater intrusion. Seawater intrusion occurred throughout the 1967-1998 climatic cycle and has continued to date. It is caused by groundwater levels that are too low to hold back seawater. In its 2013 study for MCWRA, Protective Elevations to Control Seawater Intrusion in the Salinas Valley, Geoscience reported the historic rate of seawater intrusion in various time intervals. (Report available at https://www.co.monterey.ca.us/home/showdocument?id=19642.) Intrusion accelerated over the period 1965 to 1999. (Protective Elevations, p. 5, Table 2.) It has recently accelerated again.		The minimum thresholds are set independently for each sustianability indicator. All six undesirable results must be avoided simultaneously, therefore there is no need to predicate the groundwater elevation undesireable result on the seawater intrusion undesirable result. Futhremore, groundwater elevations will be different if seawater intrusion is manager thorugh an extraction barrier, or if it is managed through significant managed recharge.	LandwatchComments_GSPChapter 8
8-142	8		18		7/2/2019	Landwatch	Geoscience explained that "historical pumping has lowered ground water levels in both the 180-Foot and 400-Foot aquifer systems such that there is a landward hydraulic gradient which has caused extensive sea water intrusion." (Id., p. 4.) The report explains that control of sea water intrusion requires achieving and maintaining "protective elevations," which are defined as "those groundwater elevations which will keep the fresh/salt water interface from migrating inland. ***In the northern portion of the Salinas Valley these elevations need to be above sea level*** and the flow of ground water toward the coast." (Id., p. 6, emphasis added.) The report explains that Geoscience quantified the protective elevations necessary to halt seawater intrusion using the SVIGSM model. Geoscience's report sets out these necessary protective elevations in Figures 9 and 10 for the 180-Foot and 400-Foot Aquifers. ***These protective elevations necessary to prevent seawater intrusion are from 10 to 30 feet above sea level in the northern Salinas Valley.*** As Chapter 8 explains at page 18, "the GSP must describe the relationship between the selected minimum threshold and minimum thresholds for other sustainability indicators (e.g., describe how a water level minimum threshold would not trigger an undesirable result for land subsidence)." In short, the GSP must set minimum thresholds that ensure that all undesirable results are addressed.		The minimum thresholds are set independently for each sustianability indicator. All six undesirable results must be avoided simultaneously, therefore there is no need to predicate the groundwater elevation undesireable result on the seawater intrusion undesirable result. Futhremore, groundwater elevations will be different if seawater intrusion is manager thorugh an extraction barrier, or if it is managed through significant managed recharge.	LandwatchComments_GSPChapter 8
8-143	8		19		7/2/2019	Landwatch	Chapter 8 discusses the relation of seawater intrusion and the minimum threshold for groundwater levels at page 19 as follows: Seawater intrusion. A significant and unreasonable condition for seawater intrusion is seawater intrusion in excess of the extent delineated by MCWRA in 2017. Lower groundwater elevations, particularly in the 180-and 400-Foot Aquifers, could cause seawater to advance inland. The groundwater elevation minimum thresholds are set at or above existing groundwater elevations. Therefore, the groundwater elevation minimum thresholds will not exacerbate, and may help control, seawater intrusion. The discussion is not accurate. The proposed groundwater minimum thresholds and measurable objectives would cause seawater to advance, would exacerbate existing conditions, and would not help control seawater intrusion. The fact that the minimum thresholds are proposed to be higher than existing groundwater elevations or that the measurable objectives are based on average conditions is insufficient. Because historic groundwater levels have caused seawater intrusion, the minimum thresholds and measurable objectives cannot simply be based on historic minimums or averages.		The minimum thresholds are set independently for each sustianability indicator. All six undesirable results must be avoided simultaneously, therefore there is no need to predicate the groundwater elevation undesireable result on the seawater intrusion undesirable result. Futhremore, groundwater elevations will be different if seawater intrusion is manager thorugh an extraction barrier, or if it is managed through significant managed recharge.	LandwatchComments_GSPChapter 8

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8-144	8				7/2/2019	Landwatch	**4. Groundwater Dependent Ecosystems** We recommend that minimum thresholds be established for groundwater dependent ecosystems when the GSP is next updated. As the Nature Conservancy notes in its February 7, 2019 letter to the SVBGSA: California's freshwater biodiversity is highly imperiled. We have lost more than 90 percent of our native wetland and river habitats, leading to precipitous declines in native plants and the populations of animals that call these places home. These natural resources are intricately connected to California's economy providing direct benefits through industries such as fisheries, timber and hunting, as well as indirect benefits such as clean water supplies. Given the inextricable connection between the Salinas River and the Salinas Valley's groundwater supply, SGMA must be successful for a sustainable future for the Salinas Valley in which people and nature thrive.		Comment noted.	LandwatchComments_GSPChapter 8
8-145	8				7/16/2019	CC Regional Board	**Minimum Thresholds Related to Supply Wells.** We recommend that on-farm domestic wells be added to the types of wells included in the Minimum Thresholds (MT) criteria.		There is not enough information currently about on-farm domestic wells to add them to the montoring well networks for water levels.	CC Regional Board comments Salinas Valley 180 400 Ch 8.pdf
8-146	8				7/16/2019	CC Regional Board	**Changes to the ILRP's Groundwater Monitoring Program.** We want to make it explicitly clear that the ILRP's monitoring requirements will change when the new agricultural order (Ag Order 4.0) is adopted; at this time, however, staff are still in the process of determining the monitoring requirements. As such, we recommend the GSP incorporate flexibility to accommodate changes in ILRP requirements that will occur with Ag Order 4.0, particularly regarding domestic well water quality.		Comment noted; additional flexibility on the Ag. Order 4.0 monitoring wells network was included in Chapter 8.	CC Regional Board comments Salinas Valley 180 400 Ch 8.pdf
8-147	8				7/16/2019	CC Regional Board	Another change that may occur under Ag Order 4.0 is the number of irrigation and on-farm domestic wells that are sampled. Currently, the draft chapter establishes the MT and Measurable Objectives (MO) based on the number of wells that are currently included in the ILRP monitoring program, and the baseline for an exceedance is determined by the current number of wells that exceed the water quality threshold. If the number of wells included in the ILRP monitoring program changes under Ag Order 4.0, the number of wells used to determine an exceedance will also need to change. To accommodate changes in the number of wells monitored, we recommend the draft chapter base the MT for an exceedance on a percentage of wells that currently exceed the relevant water quality standard, rather than static numbers.		Comment noted; Chapter 8 includes language that states that the Ag. Order 4.0 will change the ILRP monitoring network and current thresholds are only included for initial estimates as examples on procedure to set up thresholds for the future updated ILRP network.	CC Regional Board comments Salinas Valley 180 400 Ch 8.pdf
8-148	8.5.2.3				7/26/2019	NMFS	**re: depletion of interconnected surface waters** - statement assumes current groundwater elevations do not deplete interconnected surface waters to a level that harms threatened steelhead. The GSP should justify this statement by showing existing conditions avoid surface water depletion that has significant and unreasonable adverse impacts on beneficial uses of the surface water. As suggested by CDFW, GSAs should analyze temporal water needs, spatial water needs, hydrologic variability, water availability, and water quality.		The GSP relies on established flow requirements to determine whether pumping and groundwater elevations are significant and unreasonable, and flow requirements are being met.	NOAA National Marine Fisheries Service Comments on Draft Chapter 8
8-149	8.6.2.2				7/26/2019	NMFS	**re: depletion of interconnected surface waters** - GSP does not document the basis of its findings that the "change in storage minimum threshold will not induce additional depletion of interconnected surface waters and will not result in a significant or unreasonable depletion..." The GSA should explain its findings by showing that existing conditions maintain interconnected surface waters to the extend that they preserve beneficial uses. GSAs should develop conservative thresholds and measurable objectives that err on the side of caution when protecting salmon or steelhead.		The reduction in storage minimum threshold is a Subbasin-wide value established to prevent further reduction in storage, and therefore prevent lowering of groundwater levels. Therefore, the change in storage minimum threshold will not lower groundwater levels and induce additional depletion of interconnected surface waters; and will not result in a significant or unreasonable depletion of interconnected surface waters.	NOAA National Marine Fisheries Service Comments on Draft Chapter 8

Number	Chapter	Table	Page	Figure	Date	Commenter	Comment	DW response	Response	Commenter doc name
8-150	8.10.1				7/26/2019	NMFS	**re: statement beginning "MCWRA currently manages flows in the Salinas River to meet the requirements** of NMFS…" and ending with "…surface water depletion rates are not unreasonable with regards to maintaining flow required in the biological opinion." Statement is inaccurate. We withdrew the biological opinion by letter to the U.S. Army Corps of Engineers and MCWRA on 2/20/19. Relying on MCWRA's reservoir releases to mitigate groundwater use impacts will result in excessive groundwater pumping. We strongly urge the SVBGSA to quantify the impacts of water diversions along the river (including permitted and any unpermitted wells), including assessing shallow alluvial extraction in and around the river, and develop a plan that independently mitigates these impacts. Additionally, the GSP should explain if and how measured streamflows between 1995 and 2005 still "reflect current surface water depletion rates." NMFS questions the GSA's assumption that the 1995-2005 surface water depletion rates accurately reflect current rates, and we strongly urge the GSA to provide additional analysis to support this statement.		The biological opinion (BO) was formally withdrawn, but MCWRA still operates the reservoir releases according to the previous BO flow requirements established. The GSP also identifies a data gap from lack of monitoring wells in the shallow sediments near the river and proposes installation of monitoring wells in the shallow sediments to help better determine if/to what extent there is surface water interconnection.	NOAA National Marine Fisheries Service Comments on Draft Chapter 8
8-151	8				10/10/2019	Landwatch	LandWatch provided a letter in which it states that in general, LandWatch Monterey County supports the sustainable management criteria in Chapter 8. The letter details its opinions on policy options and how they guide the sustainable management criteria.		We have read your letter and these SMCs have been agreed to by the Board of Directors. Which year's data to use was a discussion that was brought up int eh Advisory Committee, who agreed to use the 2017 data. SMCs will be reevaluated after receipt and application of the SVIHM, and changes will be incorporated into a 2-year Interim GSP Update and comment period.	LandwatchComments_GSPChapter 8
8-152	8				11/4/2019	Rural Well Owner P Scholz	Add language that commits that by 2021 the GSA (or MCWRA) will do the studies that SHOULD HAVE BEEN DONE before the "sustainability" criteria was developed. There is absolutely no monitoring well data from the hill areas in the northern part of the 180/400 ft. aquifer. The monitoring wells are located on the flatland areas only. SVBGSA has NO IDEA what the condition of wells are in the hill areas where thousands of rural residents live. They do not know how many wells are already at risk in terms of groundwater level and how the proposed projects and continued high pumping rates could exacerbate those low levels.		The GSP was develope with best available data and tools. The GSP identifies data gaps for the 180-Foot and 400-Foot Aquifers in the northern hill areas of the 180/400-Foot Aquifer Subbasin. Those data gaps will be addressed during the implementation phase of the GSP, and the SVBGSA can adjust the SMCs according to additional data collected.	MOCOWS comment letter 11-3-19
8-153	8.6.2.2				11/4/2019	Rural Well Owner P Scholz	Revise 8.6.2.2 to say: Well depth and groundwater level information for domestic wells over a long-term period has not been provided by the Monterey County Water Resource Agency or other agency. The impact that the proposed groundwater level minimum threshold is likely to have on domestic wells located in the 180/400 ft. sub-basin is not known. Therefore, the reasonableness of the minimum threshold can not be determined.		Minimum thresholds for groundwater elevations are compared to the range of domestic well depths in the Subbasin using DWR's Online System for Well Completion Reports (OSWCR) database. This check was done to assure that the minimum thresholds maintain operability in a reasonable percentage of domestic wells. The proposed minimum thresholds for groundwater elevation do not necessarily protect all domestic wells because it is impractical to manage a groundwater basin in a manner that fully protects the shallowest wells. The average computed depth of domestic wells in the Subbasin is 316.6 feet for the domestic wells in the OSWCR database.	MOCOWS comment letter 11-3-19
8-154	8				11/4/2019	Rural Well Owner P Scholz	There needs to be a commitment that by 2022 private well owners and small water system managers will be notified if their well is located in an area where sea water encroachment is intruding based on increases in chloride and total dissolved solids occurring between 1995 through current time, whether the encroachment exceeds state standards or not		Comment noted. This is not a requirement under SGMA. MCWRA is the agency responsible for monitoring seawater intrusion.	MOCOWS comment letter 11-3-19

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8-155	8				11/4/2019	Rural Well Owner P Scholz	There needs to be a commitment that by 2022 private well owners and small water system managers will be notified if their well is located in an area where ground levels have dropped below the minimum threshold or similar criteria that indicates potential risk of sanding or failing.		Comment noted. This is not a requirement under SGMA.	MOCOWS comment letter 11-3-19
8-156	8				11/4/2019	Rural Well Owner P Scholz	In the chapter regarding implementation, there needs to be a commitment that by 2022 private well owners and small water system managers will receive either in conjunction with #2 and #3 above, or independent of it, notification of funding and/or programs available for water testing, water impurity removal systems and funding for improvements to wells that are in jeopardy of well failure.		Comment noted.	MOCOWS comment letter 11-3-19
8-157	8				11/4/2019	Rural Well Owner P Scholz	In Chapter 8, Table 8.1, is unrealistic in the minimum threshold criteria for chronic lowering of groundwater levels. The level needs to be raised to the groundwater average level for the year 2007. This change is needed because the 2015 level is too close to the lowest gw level in 74 years of history records. Is it not reasonable to "Freeze" the minimum to the bottom that occurred during drought periods where well failures were know to occur. It is clear that severe over-drafting has been occurring for decades as evidenced by massive sea water intrusion. 2015 level is not a reasonable "floor" to prevent continued over-draft / sea water intrusion. The need for a higher minimum threshold is especially true considering the stated intent from GSA officials that measurable objectives do not need to met. They are just "goals".		Comment noted.	MOCOWS comment letter 11-3-19
8-158	8				11/4/2019	Rural Well Owner P Scholz	7). The proposed undesirable result for chronic lowering of groundwater levels in Table 8.1 of 15% exceedance for 2 consecutive years IS MUCH TOO GREAT OF AN EXCEEDANCE. This is especially true because the positive impacts of projects may not be known for decades.		Comment noted.	MOCOWS comment letter 11-3-19
8-159	8				11/4/2019	Rural Well Owner P Scholz	8). Reduction in Storage a). The sustainable yield figure of 112,000 AF/yr shown in Table 8.1 is absolutely not a realistic figure and needs to be drastically reduced. This figure is based on SVBGSA projections from an erroneous future model with unrealistic assumptions and inaccurately executed calculations. Until a realistic model is developed , the sustainable yield in Table 8.1 should be lowered from 112,000 AF/yr to 95,700 Af/yr which is historical sustainability as shown in Table 6-20 as 95,700 AF/yr. Attachment A shows some of the several errors in the Future model used by SVBGSA in calculating future sustainability to arrive at a figure of 112,000 AF/yr. The fact that the model was approved by the Department of Water Resources as a temporary model doesn't mean that is was executed properly or that GSA was required to use it b). The current measurable objective for pumping SHOULD BE SET TO THE HISTORICAL SUSTAINABLE YIELD of 95,700 AF/yr UNTIL IT IS DEMONSTRATED THAT PROGRESS IS BEING MADE TOWARDS ACHIEVING ALL 6 OF THE SUSTAINABILITY GOALS.		The GSP acknowledges uncertainties in the historical water budget. The historical water budget is based on best available data and tools. A more accurate historical water budget will be developed when the SVIHM is made available.	MOCOWS comment letter 11-3-19
8-160	8				11/4/2019	Rural Well Owner P Scholz	9). Sea Water Intrusion- Exceedances There should be NO EXCEEDANCES ALLOWED beyond the 2017 500 mg//L chloride boundary. NOT ON AVERAGE!!. Immediate pumping reductions need to occur immediately upon any intrusion beyond the 2017 line. The plan needs to clearly state that there will not be a "buffer" that allows further intrusion until projects are put into place. Future projects should be devoted to pushing the intrusion back to the measurable objective line.		Comment noted.	MOCOWS comment letter 11-3-19
8-161	8	8.1			11/4/2019	Rural Well Owner P Scholz	Revise Table 8.1 as shown in comment letter #3		Comment noted; SMCs are a decision of the SVBGSA Board.	MOCOWS comment letter 11-3-19

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8-162	8				11/4/2019	Rural Well Owner P Scholz	11). Language needs to be added to the Chapter for Stakeholder Engagement and Public Outreach that more specifically identifies strategies that will be used to inform and engage the public. The existing language is very vague. In addition, not all of the outreach described in the Consensus Building document was carried out. The chapter needs to identify specific data bases that will be used to contact the public, such as the Environmental Health Bureau's small water system list, Monterey County Water Resource Agency's well owner list, and Monterey Resource Agency home owner association lists. The chapter needs to list identified social media that are known by local community organizations such as Prunedale Preservation Alliance, Monterey County Water Systems, Next Door, Prunedale Community Neighborhood Watch, and several others		Thank you for the suggestions for social media and organizations to include in the outreach plan. The CBI study was not a commitment on the part of the SVBGSA, but rather CBI's findings. The SVBGSA is working to improve outreach. Any individuals or organizations can sign up for updates on the listserve on its website.	MOCOWS comment letter 11-3-19
8-163	8.9.2.1		8-48		10/31/2019	Virsik	error in style/formatting		Corrected.	GSPComment(errata) 10-31-19
8-164					11/14/2019	Robin Lee	It is my opinion that the ground water level of sustainable yield has been set at an unsustainable level. The level for sustainable yield should be set at the average depth of domestic wells. This would assure a majority of residential water users would be assured of access to ground water. Ground water depths set near the end of the worst drought in California will not give ground water access to the majority of residential systems. Also, the lower level would put tremendous strains on ground water connected ecosystems.		Comment noted.	Lee_comments on draft GSP 11 14 19
8-165	8	8-1			7/10/2019	Marla Anderson	Why is the minimum threshold in chapter 8 for long-term sustainability of groundwater storage based on the model's over-inflated 2070 precipitation projection instead of the more realistic historical sustainability projection of 95,700 af/yr? 112,000 af/yr is 17% higher than the historical sustainability yield of 95,7500 af/yr identified in Chapter 6, table 6-20. 112 af/yr based should not be considered the sustainable yield in chapter 8. Chapter 8 matrix needs to be changed to the yield to 95,700 af/yr.		The long-term sustainable yields are the sustainable yields after the basin has been brought into sustainability. It was derived from the SVIHM model, which takes into account climate change, among other factors.	Chapter 6. MOCOW Comments.pdf
8-166	8				6/4/2019	Virsik	Chapter 8 revealed that the future sustainable yield of the entire Valley is estimated at 494,000 AFY. Chapter 8 19/196 (at Planning Committee). What is the current sustainable yield for the 180/400? That specific query does not appear addressed in draft Chapter 6. At 8.6.4 the draft Chapter purports to address "sustainable yield" but the text confines itself to the historical sustainable yield, being 95,700 AFY. 22/41. The text equates that to a 10% reduction in pumping from the historical average. The sustainable yield calculation is achieved by subtracting the sum of seawater intrusion and change in storage from the total pumping. Those values come from the chart for the historical groundwater budget. 19/382. Applying the same formula as that used to calculate historical sustainable yield to calculate current sustainable yield from the parallel values in the parallel summary chart (20/39), the current sustainable yield appears to be 52,000 AFY for the 180/400. I.e., delta between inflows and outflows at Tables 6-18, 6-19, and 6-20 (109,300 - 57,300 = 52,000). The reduction in pumping needed to achieve current sustainable yield based on the data in Chapter 6 through section 6.8.4, is near 50%. While sustainable yield is not "sustainability" itself, the omission of the current sustainable yield is troubling, pointing to a failure to meet a core regulatory requirement. Reg. 354.18(b)(5).		The current sustainable yield for the 180/400-Foot Aquifer subbasin is 98,000 acre-fee per year. This has been added to Chapter 6.	Public Comments, Tom Virsik, Chapter 6 cc'd Derrik Williams

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8-167	8				6/11/2019	Virsik	Given the GSA has access to the MCWRA records, it can and must do the same comparison for the limited number of 180/400 eWRIMS statements. Chapter 8 draft Table 8-9. It's simple, yet necessary to meet the "best available" standard. And it leads to a better and more reliable real-world outcome based on accurate water use / yield numbers. No part of the comparison involves determining any "water right" or claim thereto.		The GSP acknowledges the potential double counting of extractions, and identifies this as an uncertainty in the water budget. Because of the many uncertainties in the historical water budget, it was determined that attempting to identify all double counting was not cost effective. The cost effective approach is to refine the water budget with the SVIHM when it becomes available. The SVIHM does not double count surface water diversions and groundwater pumping. This is the approach specifically identified in the GSP.	Public Comments, Tom Virsik, Chapter 6 cc'd Derrik Williams

Number	Chapter	Page	Figure	Date	Commenter	Comment	DW response	Response
9-1	9			7/10/19	Isakson	asked if slides will be posted on website	not at this time but once finished	Question answered
9-2	9			7/10/19	Isakson	all cost must be combined in one financing system? Or depending on the project how will the funding system will be done.	setting up a financing structure, the mechanism hasn't been set. G. Petersen added there will be a couple of mechanism. D. Williams also added that there is several tier's and one tier cost are regulatory fees other cost will be based on area of benefit.	Question answered
9-3	9			7/10/19	Secondo	fee collection, if it will be collected on the property tax or separate group?	Mr. Girard replied it depends on what you allow to be charged on the property tax along with the special assessments on property tax. D. Williams emphasized there are several options.	Question answered
9-4	9			7/10/19	Brennan	Water Charges Framework is based on pumping is it subject to the 218?	Mr. Girard replied no it's not since it's not a special benefit, it's the activity of pumping water, what it's been charged for.	Question answered
9-5	9			7/10/19	Brennan	asked how is the funds going to be collected?	D. Williams clarified the mechanism for collecting the Water Charges Framework the mechanism is yet to be decided. G. Petersen added there will be some projects that need a 218 vote.	Question answered
9-6	9			7/10/19	Secondo	Advised on the need to coordinate on the invasive species eradication since there has been issues taking out invasive species	D. Williams agreed	Question answered
9-7	9			7/10/19	Secondo	who will handle the funding for the CSIP Project?	G. Petersen indicated it will be researched first before its set after the modeling is done and negotiations.	Question answered
9-8	9			7/10/19	Brennan	suggested for the CSIP Projects to be organized as four projects under a major heading as CSIP Projects. And define SRDF (Salinas River Diversion Facility) D. Williams indicated all acronyms will be defined on the final report.		Text modified
9-9	9			7/10/19	Isakson	asked for the Expanded CSIP Area, what is the water source for the Expanded CSIP Area; water right would be needed	D. Williams indicated the water source for the Expanded CSIP Area is the Monterey 1 Water to some degree and river water. Trying to get away from the supplements water wells; agreed and advised that would be a legal matter	Question answered
9-10	9			7/10/19	Girard	clarified on the water rights associated with the water project. The Salinas Valley Water Project didn't grant to the agency any additional water rights, it changed the point of diversion to the SRDF. The original water rights were when the reservoirs and dams were constructed		Comment noted
9-11	9			7/10/19	Franklin	asked for clarification regarding pumping on the CSIP Area is covered in zone 2b ordinance . For CSIP to be successful you need the supplement wells during the dry periods when needed.	D. Williams indicated there is a zone that has limitations and there are growers that have the right to pump wells to supplement from CSIP.	Text clarifies that circumnstance for implementation is that a year round supply of water is avaialble to CSIP.

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9-12	9			7/10/19	Brennan	asked for clarification the CSIP Projects need to go forward before the Management Actions.	D. Williams clarified it does indicate under Management Actions this will be implemented after the CSIP project and will clarify on the report. G. Petersen added there is number of Management Actions that will happen simultaneously with project development. Clarify that there are some Projects and Management Actions that are related to the point that one needs to happen before the other. D. Williams advised there will be an Implementation Schedule on Chapter 10.	Question answered
9-13	9			7/10/19	Lukacs	how was the cost benefit analysis done for all projects; asked for visual of the cost per project	D. Williams indicated it's a rough draft per acre foot, based on the capitol cost will be, annual will be and a 25-year annexation. Looking into each project since some are expensive and others less expensive; will be added in a future chapter.	Question answered
9-14	9	22		7/10/19	Lukacs	how the projects were selected, process and presented to the stakeholders	It was decided after speaking with various Ag Groups and stakeholders.	Question answered
9-15	9			7/10/19	McIntyre	asked on the cost per acre foot, is it per acre feet of all the water in the basin; requested for a clearer description of the cost per acre foot	D. Williams indicated it's the cost per acre foot of delivered water to that project to the area of its benefit; description will be provided in the funding mechanism	Question answered
9-16	9			7/10/19	Isakson	will be helpful to have a better understating of the cost and be presented in a future the presentation	It will be added and presented in the funding structure; Girard added general operations can't be funded with the benefit assessment. Benefit assessment are defined special benefits and determined by an engineer. D. Williams indicated this is the reason we need the mechanism of these projects.	Question answered
9-17	9			7/10/19	Isakson	commented on the Seawater Extraction there is several reports on this and can be used for this project to expedite things	D. Williams agreed it was a good suggestion and will look into.	Comment noted
9-18	9			7/10/19	McIntyre	asked if this was presented to the 180/400 Group and what was the reaction	D. Williams indicated they were satisfied and received good feedback. D. Williams continued with 11043 Water Right is a wet water right with two existing diversion points one in Chualar and Soledad. It mainly benefits	Question answered
9-19	9			7/10/19	Brennan	asked if this conflicts with phase 2 of the Salinas Valley Water project and is the water right in relocation proceedings	L. Girard informed it's still active and it's at the State Water Board for renewal. D. Williams advised he doesn't believe it conflicts with phase 2	Question answered
9-20	9			7/10/19	Lukacs	asked what authority GSA has on the plans with the water rights and the Water Resource Agency.	L. Girard indicated it has the ability to come up with a plan with GSA Agency. Clarification on how to get access on the 11043 Water Right	Question answered
9-21	9			7/10/19	Brennan	commented water from the Carmel River doesn't look like a valuable project if this is a decision from CalAm Water, is the water right to the district.	D. Williams indicated they made an agreement with CalAm to run the water through their pumps. One vote against that	Project removed from Chapter 9

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9-22	9			7/10/19	Secondo	asked if any word on the Jarrett Dam	D. Williams indicated he doesn't have much information on the Jarrett Dam. Potential on the Jared Dam.	Not included in Chapter 9
9-23	9			7/10/19	McIntyre	asked on Alternative Projects the Recharge winter Salinas River flow	It needs to be looked into since it has a diversion point	Question answered
9-24	9			7/10/19	Isakson	on two votes on Recharge winter water right from Carmel River and find out more on the water rights and permits		Project removed from Chapter 9
9-25	9			7/10/19	Franklin	commented on the 11043-water right caution during the wintertime the southern Gonzalez there is an environmental component and to please consider	D. Williams agreed; Isakson added the diversion season isn't winter it was the irrigation time	Comment noted
9-26	9			7/10/19	McIntyre	suggested to propose a two-year period ordinance and consider making a permanent ordinance		Section 9.3.6 modified to reflect extension of two-year oridnance.
9-27	9			7/10/19	Brennan	what's the status of the deep aquifer study	A. Franklin replied this agency funding, it's not a priority unless the funding structure changes; D. Williams indicated this will be a funding questions for the future and will make a recommendation if needed	Question answered
9-28	9			7/10/19	Brennan	added on the propose for landowners to retire their land or pumping allowances	D. Williams indicated it will be said a restriction will be placed for irrigated land. Director Brennan requested to rephrase Change convert land to be consistent with the general plan	Section 9.3.2 modified so that it is consistent with the County General Plan
9-29	9			7/10/19	McHatten	added on retirement land between Soledad and Gonzalez there is purposed annexation that is going forward with LAFCO that can be replaced urban residential that can affect the General Plan with the County	D. Williams indicated they will only be taking Ag sellers that are willing to give up their land but can live on the land.	Question answered
9-30	9			7/10/19	Brennan	asked for the language to be changed on the rural development plan of the Monterey County General Plan	D. Williams indicted will be done	Section 9.3.2 modified so that it is consistent with the County General Plan
9-31	9			7/10/19	McIntyre	pointed out a typing error on section 9.3.3.8 $50,0000 a year for two years should be $100,000	D. Williams indicated it will be corrected	Text modified (Section 9.3.5.8)
9-32	9			7/10/19	Brennan	in terms to comments on registered wells how will it be enforced? Can you transfer between sub-basins? Will it require flow meters? Are you directly pumping to the MWRA or GSA is it a duplication of reporting? What kind of comments are you expecting?	D. Williams said these are details that must be worked out	Question answered
9-33	9			7/10/19	McIntyre	pointed out with the recharge credits does it have return flow	D. Williams indicated no it doesn't have because of the allowances. Recharge credits have return flow.	Question answered
9-34	9			7/10/19	Secondo	do you encourage high water use	If you have a water right it can be done but it's not encouraged	Question answered
9-35	9			7/10/19	Secondo	regarding the ground been farmed before 2017, is that the cutoff date?	It's legal with a cutoff date saying you only have up to a certain date.	Question answered
9-36	9			7/10/19	Isakson	on developing GSA approval for credits or transferring should be added to the list and will there be a limitation on how much any one can pump? Based on the base allowance if you go over then a fee needs to be paid. Isn't the goal of GSA sustainability?	A water right isn't established. The idea of paying an additional fee if your pumping over the allowed amount those funds will be used for projects. The purpose of the higher cost tier so you can achieve sustainability	Question answered