The Board hears public comments from Tim Carrol, Early Wilson, Peggy Breeden, Larry Mead, Stan Rajtora, West Katzenstein, and Judie Decker.

Mr. Helsley comments that albeit valuable, they wouldn't necessarily choose using funds towards this project versus another.

4. **CONSENT AGENDA:**
   a. Approve Minutes of Board Meeting May 16, 2019 and Special Meeting May 30, 2019
   b. Approval of Resolution No. 02-19: Appointing Thomas Bickauskas as PAC representative for Bureau of Land Management (BLM)
   c. Approval of Resolution No. 03-19: Appointing Mallory John Boyd as TAC representative for Business Interests
   d. Approve Expenditures
      i. $12,137.36 – RWG Law
      ii. $26,717.19 and $10,777.02 – DRI
      iii. $89,203.59, $92,542.40, $101,799.45, $104,714.33 – Stetson Engineers
      iv. $747.00 – City of Ridgecrest
      v. $1,309.24 – Reimbursement to IWVWD or Postcard Mailer
      vi. $2,000.00 – Lynn Rickard, Appraisal Fee
      vii. $21,859.99 – Capitol Core Group

Motion made by Mick Gleason and seconded by Scott Hayman to approve Resolution No. 02-19: Appointing Thomas Bickauskas as PAC Representative for BLM. Motion carries unanimously by the following roll call vote:

Director Vallejo	Aye
Director Hayman	Aye
Chairman Kicinski	Aye
Director Page	Aye
Vice Chair Gleason	Aye

Vice-chair Gleason discloses that he has recently taken on a financial relationship with Mallory John Boyd. The relationship is a part-time employee for Mr. Gleason through Kern County. Mr. Boyd's total scope and responsibilities will consist of understanding and forming independent opinions and reporting back to Kern council.

The Board hears public comments from Derek Hoffman regarding Resolution No. 03-19.

Motion made by Scott Hayman and seconded by John Vallejo to approve Resolution No. 03-19: Appointing Mallory John Boyd as TAC Representative. Motion carries by the following roll call vote:

Director Vallejo	Aye
Director Hayman	Aye
Chairman Kicinski	Aye
Director Page	Aye
Vice Chair Gleason	Abstain

Motion made by Mick Gleason and seconded by Scott Hayman to approve Minutes of Board Meeting May 16, 2019 and Special Meeting May 30, 2019, and the following expenditures in the amount of $12,137.36 to RWG Law, $26, 717.19 and $10,777.02 to DRI, $89,203.59, $92,542.40, $101,799.45, and $104,714.33 to Stetson Engineers, $747.00 to City of Ridgecrest, $1,309.24 Reimbursement to IWVWD for postcard mailer, $2,000.00 to Lynn Rickard, and $21,859.99 to Capitol Core Group. Motion carries by the following roll call vote:

Director Vallejo	Abstain
Director Hayman	Aye

Chairman Kicinski	Aye
Director Page	Aye
Vice Chair Gleason	Aye

Don Zdeba clarifies the invoices for Stetson Engineers will be paid once the Proposition 1 Grant reimbursement arrives, which is expected either this week or the following.

5. **PRESENTATIONS ON REQUEST FOR PROPOSALS (RFP) FOR SEVERELY DISADVANTAGED COMMUNITIES (SDAC) WATER AUDIT, LEAK DETECTION AND REPAIR PROGRAM:**

Xylem, M.E. Simpson, and California Rural Water Association provide presentations to the Board in response to the RFP that was distributed by Staff after Board approval. Responses were due by May 23, 2019. All presentations are made available online.

6. **PRESENTATIONS ON REQUEST FOR PROPOSALS (RFP) FOR SEVERELY DISADVANTAGED COMMUNITIES (SDAC) RESIDENTIAL AND COMMERCIAL REBATE PROGRAM:**

WaterWise Consulting President, Ajay Dhawan, provides a presentation in response to the SDAC Program RFP. Responses were due by May 16, 2019; 3:00 p.m.

Mr. Helsley reiterates that the programs are not critical to the development of the GSP, instead the programs are a grant opportunity.

Mr. Page asks that Stetson Engineers find out the eligibility period for the grant monies and if it can be extended.

The previously established Ad-Hoc Committee for Imported Water is to review the proposals and provide a recommendation on which firm to proceed with for both programs at the July 18th Regular Board Meeting.

7. **DISCUSSION AND BOARD APPROVAL OF AMENDMENT TO IWVGA/DESERT RESEARCH INSTITUTE CONTRACT:**

Mr. Helsley reviews the amendment to the contract between IWVGA and DRI. The amendment was made available as a handout for the public and Board Members, as well as posted online.

Director Vallejo asks if all tasks are unbudgeted amounts, to which Mr. Helsley answers yes. However, the first task will be reimbursed by the Brackish Water Group in the amount of $8,235.

Derek Hoffman states for the record that model scenarios 3, 4, 5, and 6 on the flow runs have not been vetted by the TAC or the TAC Ad-Hoc committee prior to presenting to the Board.

The Board hears public comments from Don Decker.

Motion made by Mick Gleason and seconded by Scott Hayman to approve the amendment to the contract between Desert Research Institute and IWVGA. Motion carries unanimously by the following roll call vote:

Director Vallejo	Aye
Director Hayman	Aye
Chairman Kicinski	Aye
Director Page	Aye
Vice Chair Gleason	Aye

8. **WATER REOURCES MANAGER REPORT:**

a. Report/Discussion on Plan of Action and Milestones (POAM):

No update is available.

b. Report on Proposition 1 Grant Status:

Mr. Helsley comments the first invoice was approved on May 9, 2019. The first reimbursement is expected by this week or next; the total payment received will be $335,566.69. The second invoice was submitted on June 13, 2019 and is currently being reviewed by DWR; the total payment to be received is $352,087.42.

c. Report on Pump fee Status/Schedule:

As of June 19, 2019, 52 accounts have been registered and total payment received to date is $315,900.

Stetson Engineers is currently reviewing specific criteria for individual properties to determine if they are de-minimis or non-de-minimis. IWVWD staff will then use the developed checklist to conduct field inspections.

9. **UPDATE ON IWVGA FINANCES**

Mr. Zdeba provides an update on the IWVGA finances.

The Board discusses the costs involved with the Wellntel program, which is $12,000 for the initial costs and $2,000 per year for the upkeep and continued monitoring of the wells.

The Board directs staff to provide a more in-depth, long-term, financial projection at the next IWVGA Meeting.

The Board hears public comments from Don Decker.

Director Page requests that, going forward, any new contracts or proposed work be accompanied by a staff report stating if the item was originally budgeted for and if not, the financial impact of approving the item.

10. **UPDATE ON OUTREACH EFFORTS**

Mr. Zdeba comments on the recent IWVGA mailer that was sent out roughly three weeks ago. The mailer was geared toward urging de-minimis users to register their wells within the IWV basin, specifically Domestic Well Owners. The mailing list staff used was a drastically reduced mailing list previously used for mailers sent to impacted parcel owners within the basin, including San Bernardino, Inyo, and Kern counties. It has since been noted some private well owners with addresses within the service area of the Water District had been removed from the mailing list as a result of filtering the original master list. Since the release of the mailer, no voluntary registration forms have been submitted.

Vice-chair Gleason asks that an item be added to the July meeting agenda addressing mandatory well registration for all, including de-minimis users.

The Board hears public comments from Don and Judie Decker.

11. **BOARD QUESTIONS REGARDING POLICY ADVISORY COMMITTEE (PAC) AND TECHNICAL ADVISORY COMMITTEE (TAC) REPORTS:**

The Board asks PAC and TAC chairs questions with respect to their reports included in the Board Packet.

The Board hears public comments from Judie Decker.

12. **GENERAL MANAGER'S REPORT:**

a. Report on IWVGA's Water Marketer (Capitol Core Group)

Mr. Zdeba reads the project update memorandum provided by Capitol Core Group (CCG) and made available in the Board Packet, distributed to the Public and available online.

b. Discussion and Board Direction regarding Bureau of Reclamation WaterSMART Grant Opportunity

Jeff Simonetti, of CCG, comments this specific grant opportunity is a program which would provide 50% matching funds to an eligible agency, which the IWVGA would be, and would match approximately $130,000 of what the IWVGA has already committed to water marketing strategies.

Mr. Simonetti provides the following example: The IWVGA has already committed funds toward the contract with CCG to research water marketing services, the grant would be able to match everything except the funding sources and direct lobbying; specifically, tasks 1, 2, and 4 would be eligible to be matched.

Mr. Simonetti, on behalf of CCG, believes this grant would be pertinent because it's not just a "move-forward program", it allows you to build on work that has already been completed to-date. He further provides details of the grant.

Due to the deadline to submit an application is July 31, 2019, CCG needs direction from the Board today on how to proceed. Stetson Engineers would need to work with CCG to provide assistance with the grant application. Additionally, if the Board directs CCG to pursue this grant, CCG would need approval to divert approximately 30 hours of work that has already been budgeted from their initial scope of work to focus on applying for this grant.

The Board discusses the additional costs associated with pursuing this grant which roughly estimates as: $2,000 - $3,000 for Stetson Engineers and $6,000 for CCG.

The Board hears public comments from Judie Decker, Renee Westa-Lusk, and West Katzenstein.

Motion made by Scott Hayman and seconded by Ron Kicinski to authorize Capitol Core Group to pursue the WaterSMART grant and authorize staff to do all things necessary in that regard. Motion carries by the following roll call vote:

Director Vallejo	Abstain
Director Hayman	Aye
Chairman Kicinski	Aye
Director Page	Aye
Vice Chair Gleason	Aye

13. **CLOSING COMMENTS:**

Commander Peter Benson provides a letter to the Board regarding the Navy's personnel and historic water use, which was previously requested by the Board, Policy Advisory Committee, and Technical Advisory Committee. The letter and supporting document are available online.

Director Vallejo reiterates the benefit of having a staff report for each agenda item that includes a recommendation from staff on any action items.

14. **DATE AND TIME OF NEXT MEETING –** July 18, 2019; 10:00 a.m.

With no further Board or Public comments, Chairman Kicinski recessed the meeting at 1:44 p.m. for a short break.

The meeting is reconvened into Closed Session at 1:54 p.m.

15. **CLOSED SESSION:**

- CONFERENCE WITH LEGAL COUNSEL - POTENTIAL LITIGATION (Government Code Section 54956.9(d)(2)(e)(1)) Number of cases: Two (2) Significant exposure to litigation in the opinion of the Board of Directors on the advice of legal counsel, based on: Facts and

circumstances that might result in litigation against the IWVGA but which are not yet known to a potential plaintiff or plaintiffs, which facts and circumstances need not be disclosed.

- CONFERENCE WITH LEGAL COUNSEL - REAL PROPERTY NEGOTIATIONS (Government Code Section 54956.8) IWVGA Negotiator: Capitol Core Group Negotiating with: Representatives of Antelope Valley-East Kern Water Agency, Mojave Water Agency, City of Napa and Semitropic Water Storage District Real Property: Miscellaneous Imported Water Supplies

The meeting is called back into Open Session at 3:32 p.m.

No action is taken which would require disclosure under the Brown Act.

16. **ADJOURN:**
Chairman Kicinski adjourns the meeting at 3:34 p.m.

Respectfully submitted,

Lauren Duffy
Clerk of the Board of Directors
Indian Wells Valley Groundwater Authority

EXHIBIT 38

DEPARTMENT OF THE NAVY
NAVAL AIR WEAPONS STATION
1 ADMINISTRATION CIRCLE
CHINA LAKE CA 93555-6100

IN REPLY REFER TO:
11011
Ser PR2/594
7 Nov 18

From: Commanding officer, Naval Air Weapons Station China Lake
To: Indian Wells Valley Groundwater Authority

Subj: INDIAN WELLS VALLEY GROUNDWATER MODEL

Ref: (a) NAWCWD-TP-8811.

1. The Navy contracted with Desert Research Institute (DRI) to develop a digital model of the Indian Wells Valley (IWV) groundwater aquifer, as initially documented in Ref(a). This model has become the basis for the IWV Groundwater Authority's (IWV GA) efforts to develop a Groundwater Sustainability Plan (GSP) pursuant to California State law, the Sustainable Groundwater Management Act of 2014. The Naval Air Weapons Station (NAWS) is an ex-officio, non-voting member of the IWV GA.

2. The Navy supports the transfer of the basin model's maintenance, further development, and configuration management to the IWV GA with a condition of this transfer that the Navy shall be a participant of the model's configuration management process that oversees, recommends, and dispositions any changes to the model's capability and functionality. The Navy will retain its unlimited use license of the basin model to support studies specific and unique to Navy interests and needs. Consequently, there shall be no condition in the relationship between DRI and the IWV GA that prohibits DRI from using the basin model to these ends. Upon the IWV GA's acceptance of these conditions, the Navy will act immediately to inform DRI of the IWV GA's authority to manage the maintenance, development, and configuration management of the basin model.

3. The IWV GA will develop a model management plan, to include configuration management, to ensure proper maintenance and vetting of future requirements requiring change to the model. The Navy shall be a participant of the model's configuration management process that oversees, recommends, and dispositions any changes to the model's capability and functionality.

4. Any questions regarding this letter should be directed to NAWS China Lake Public Works Officer, CDR Peter R. Benson at 760-939-2382.

P. R. BENSON
By direction

EXHIBIT 39

From: (b)(6)
To: (b)(6) USN NAVAIRWARCENWPNDIV (US); (b)(6) (b)(6) NAWS China Lake, (b)
Cc: (b)(6) (b)(6) (b)(6) (b)(6)
Subject: FRWR Request
Date: Thursday, March 07, 2019 17:15:15

(b)(6),

After the TAC meeting, I was approached by (b)(6), the IWVGA chair, and he is also requesting that the Navy provide the FRWR. He is also claiming that it needs to be the main right on which all other allocations are based. With two board members now calling for the FRWR, I further expect that the request for that number will be made public at the next IWVGA board meeting.

(b)(6) and I will make sure to prepare a reply in advance of the meeting.

Additionally, after today's TAC meeting I was informed that a new proposal will be presented during the IWV attorney meeting scheduled for tomorrow. In addition to examining the water rights subject, someone will also be proposing examining the economic impacts that each major stakeholder has on the community to determine allocation rights. This is very much predicated on the China Lake EIA brochures that show we are the largest economic driver in the basin. I have (b)(5)

V/r
(b)(6)
(b)(6)
Naval Air Weapons Station

EXHIBIT 40

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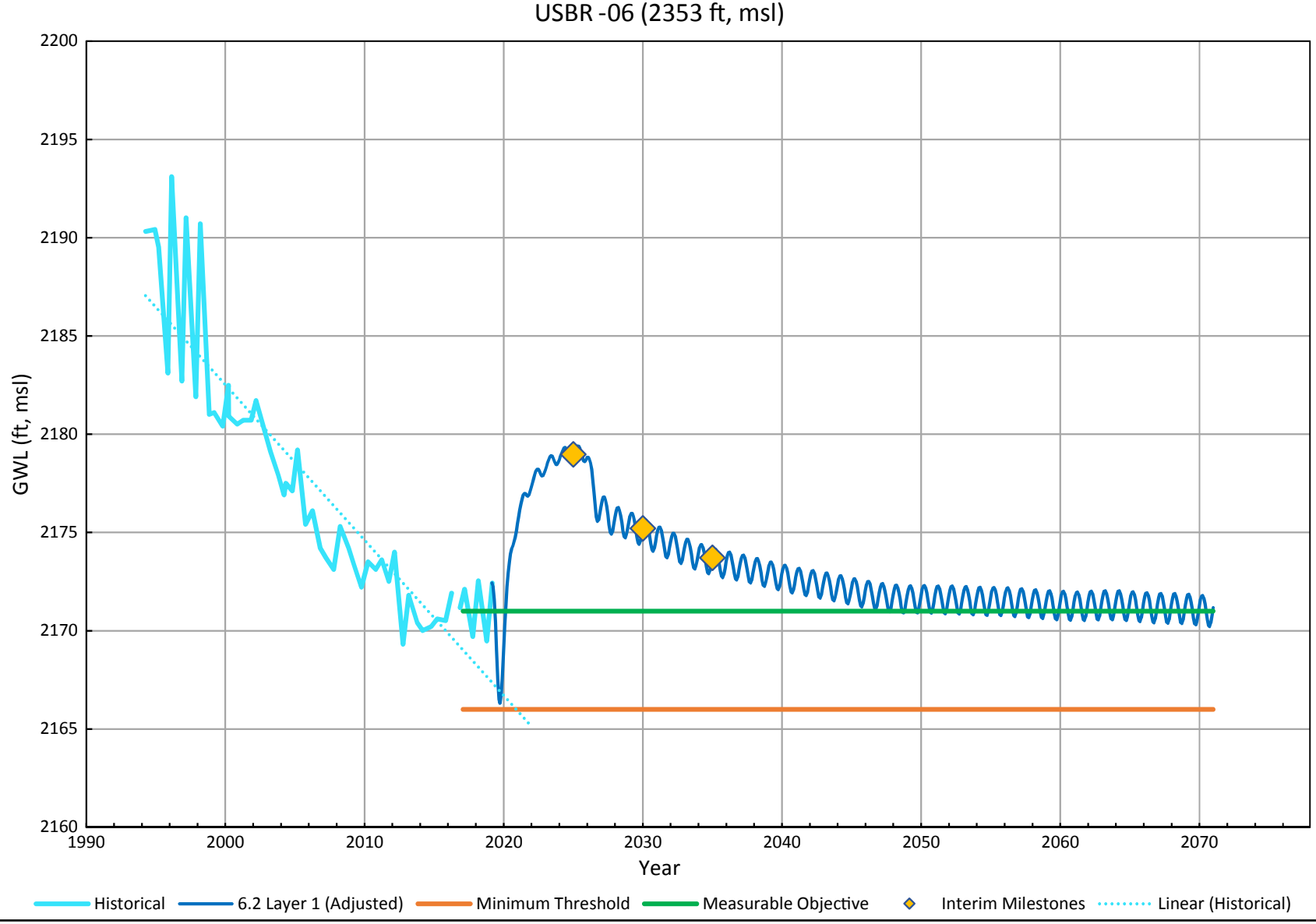

STETSON ENGINEERS INC.

Sustainable Management Criteria: Chronic Lowering of Groundwater Levels

FIGURE 4-5e

EXHIBIT 41

Table 4-5. Sustainable Management Criteria Summary: Degraded Water Quality.

Representative Monitoring Site	Minimum Threshold (mg/l)	2025 Interim Milestone (mg/l)	2030 Interim Milestone (mg/l)	2035 Interim Milestone (mg/l)	Measurable Objective (mg/l)
USBR-01	ND	ND	ND	ND	ND
IWVWD Well 33	500	310	310	310	310
Owens Peak South Well 01	500	300	300	300	300
IWVWD Well 30	500	341	341	341	240
Hometown Water Association Well 01	500	448	448	448	370
IWVWD Well 11	600	546	546	546	530
Sandquist Spa	ND	ND	ND	ND	ND
22B	ND	ND	ND	ND	ND
West Valley Mutual 01	600	511	511	511	500
USBR-06	ND	ND	ND	ND	ND
NR-2	ND	ND	ND	ND	ND

ND = not determined at this time. As baseline TDS sampling data is gathered, these criteria will be established.

4.6.4 Land Subsidence Summary

Table 4-6 below shows the numerical sustainable management criteria established for land subsidence.

Table 4-6. Sustainable Management Criteria Summary: Land Subsidence.

Sustainable Management Criteria	Value at SNORT Alignment (inches/year)
Minimum Threshold	0.09 inches/year

EXHIBIT 42

Introduction to Sustainable Yield Allocation Chart

The Groundwater Authority's (GA) responsibilities are set forth in the Sustainable Groundwater Management Act (SGMA). At its core, SGMA requires that the GA bring the Basin into sustainability through the regulation of groundwater pumping in a manner that is consistent with existing California water rights law. DWR has expressly stated that "SGMA requires local agencies to develop and implement GSPs that achieve sustainable groundwater management by implementing projects and management actions . . ." Consequently, the GA's actual power to achieve sustainability is fundamentally linked to the GA's ability to develop augmentation projects and require that the users of those projects pay their fair share of those augmentation costs.

Accordingly, the attached chart does not reflect a legal determination of anyone's water rights, nor does it prohibit anyone from actually pumping groundwater. This chart merely reflects an analysis of California Water Law to determine the use priorities of the Basin's sustainable yield, which is then used to determine how much, if any, augmentation supply is needed to sustain someone's pumping.

Counsel for the GA have determined that existing water rights law provides the Navy with a Federal Reserve Water Right (Reserve Right) that is superior to all other water rights in the Basin, with the exception of those rights that were in existence at the time at the Base was founded. This water right extends not only to the Base's current pumping, but to all the water that is necessary for the Base to carry out its mission.

Given the Reserve Right's superiority, the GA requested a Navy estimation of its Reserve Right. On June 17, 2019, the Navy formally responded with a response that declined to set forth an express estimation of the Reserve Right. However, the response did expressly provide that the Reserve Right is not limited to the 2,041afy figured provided, in November of 2018, "as the amount of water the installation could agree to use under a GSP."

The response provided the GA with data demonstrating that the Navy's historic water consumption peaked in 1970 at a maximum annual Navy production of 7,988af. The response also provided data demonstrating that the 6,530af was the quantity of water needed to sustain the Navy's current and future mission, including the Navy workforce (military, civilian, contractors and dependents) at the Base.

The Navy's response also expressly provides that, because of the movement of Navy staff and dependents off-Station, "the water requirements of the Navy cannot be determined solely by the Navy's recent direct production amounts". The response further provides that "[s]ince the Navy mission at China Lake requires its workforce, the full Navy water requirements are the combination of the on-Station requirements and those of the Navy workforce and their dependents off-Station."

While Counsel for the GA believe that the provided data could lead to an adjudicated Federal Reserve Water Right of 7,988af, or more, the lower figure of 6,530af in Section 6.0 has been chosen for the purposes of the attached chart.

Next in order of priority are overlying domestic water users that fit the SGMA definition of a de minimus user because their use cannot be limited or reduced under state law. In addition, the GA must recognize the pumping rights of the City of Ridgecrest and Kern County as those rights are superior to all of other overlying owners because public entity rights may not be prescribed against.

Searles Valley Minerals has asserted a claim that it has a water right superior to the Navy's Reserve Right. Given the Navy's sovereign immunity, the GA lacks the authority to conclusively determine the merits of that dispute and as a result 217af for the domestic use in Trona and 2,413af for Searles Valley Minerals operations were chosen for the purposes of the attached chart.

At this point, the sustainable yield of the Basin has been completely allocated and there is no native water left for inferior rights holders. Recognizing that the water used by these inferior rights holders is put to significant and important economic use and to ease the transition from current pumping levels to sustainable pumping levels, the GA proposes to establish a pool of water that will allow the mining of the Basin in the amount of yet to be determined.

Sustainable Yield Allocation

Pumping Group	Current Est Pumping[1]	Current Rpt Pumping[2]	Sustainable Yield Allocation	Carry Over[3]	Allocation w/ Carry Over	Allowed GSP Pumping	Augment Supply Need
Navy	1,450	1,450	6,530	—	1,450[4]	1,450	—
De minimis Wells[5]	800	—	800	0	800	800	0
City of Ridgecrest	373	115.4	339	0	339	339	0
Kern County	18	16.3	18	0	18	18	0
IWVWD	6,507	6,204.9	0	4,461	4,461	6,507	2,046
Inyokern CSD	102	133.3	0	102	102	102	0
Small Mutuals	300	243.6	0	300	300	300	0
Trona DM	217	N/A[6]	0	217	217	217	0
SVM	2,413	2,703.3	0	0	0	2,413[7]	2,413
Meadowbrook Dairy	6,387	4,478.9	0	0	0	Pool[8]	0
Mojave Pistachio	6,400	4,292.2	0	0	0	Pool	0
Quist Farms	693	619.6	0	0	0	Pool	0
Sierra Shadows	765	74.4	0	0	0	Pool	0
Amberglow	62	86.2	0	0	0	Pool	0
Terese Farms (Hovaten)	310	266.8	0	0	0	Pool	0
Hickle	85	5.9	0	0	0	Pool	0
Bellino	50	FTR	0	0	0	Pool	0
Simmons Ranch	918	100.6/FTR[9]	0	0	0	Pool	0
Blubaugh	1	1.8	0	0	0	Pool	0
McGee	400	FTR	0	0	0	Pool	0
Shacklett	1	FTR[10]	0	0	0	Pool	0
Total	28,252	—	7,687	5,080	7,687	12,146	4,459

[1] Current estimated pumping reflects the most current/recent available data and does not represent a single reporting year. Sources of data include 1) Production reported by the Cooperative Group for 2016 (and 2017 when available); 2) Production reported to the WRM directly by pumpers; and 3) Production estimates developed during the development of the Baseline model scenario

[2] This Column reflects pumping reported through the GSP Pumping Fee. Those marked FTR have Failed to Report. What if any impacts the FTR will have on pool allocations has yet to be determined.

[3] In accordance with the priorities and principles of California Water law and communications with the Navy, this column reflects the distribution of the unused portion of the GA estimated Navy Federal Reserve Water Right to the Domestic water providers. Currently, it is estimated that the Navy is directly using 1,450af on the installation which leads to a total Carry Over of 5,080af (6,530 – 1,450 = 5,080). The Navy has reported a potential future need of 2,041af for direct use on the Base. If and when this increase occurs, the Carry Over of 5,080af will be reduced in direct proportion to the increase on the base (6,530 – 2,041 = 4,498).

[4] For the purposes of this chart, the current estimated on Base use 1,450af is used, rather than, the Navy's reported potential future on Base need of 2,041af.

[5] See Water Code Section 10721(e).

[6] SVM does not break their reporting down to this level for the purposes of the IWVGA pump fee. Trona use is included in the SVM reported value.

[7] This reflects the industrial use by SVM and it's listed as a GSP allowed pumping because there is a presumption that SVM can afford the augment costs.

[8] Pool water is listed because there is an educated presumption that Fee for Augmented Supplies will exceed the rate of return for the water.

[9] Failed to Report since May 2019.

[10] In partial compliance with Well Registration.

EXHIBIT 43

Public Comments Made by IWVGA Board Members

Date	Source	Comment
October 1, 2019	Supervisor Mick Gleason, Kern County Board of Supervisors	"I think we are on the very edge of getting that [IWVGA Groundwater Sustainability Plan] done. We need to get it done and get it moving. The satisfaction I will get from that will be significant because we give it to the Navy and say 'you have no worries, we don't have a threat to our base because we have a sustainment plan."
March 29, 2019	Chairman Ron Kicinski, Indian Wells Valley Water District	"I don't believe this board can say to the community, 'Don't grow,'...I don't believe we can or would want to. We're always taking about modest growth—it's tied to the requirement for personnel on the base. We need to be prepared to sustain that."
March 21, 2019	Supervisor Mick Gleason	Mick Gleason said he is "totally supportive" of President Trump's Space Force. "Research and development, weaponization, testing facilities...we would certainly advocate for components of the Space Force to come here. "...whatever [President Trump] thinks would be best served we would be willing able and ready to work with him to satisfy his needs."
March 8, 2019	Supervisor Mick Gleason	"All I know is from my perspective, it's [Navy encroachment letter] a game-changer. Because the strategic imperative is now changed. We need to preserve the Navy's mission in the Indian Wells Valley. And that has implications that dwarf other decisions...now that the letter has been released in my mind, it changes the over-arching strategy of what we are trying to do. Now the strategy is emphatically and clearly and empirically that our job is to preserve the Navy base and to preserve the Navy mission because it is being encroached upon. The way I read it [the letter], their federal reserve right will not just include the water that they are using on the base today but will include all the water required by all their employees and their families."
March 8, 2019	Supervisor Mick Gleason	"We have the infrastructure, the environment, the people and the experience—this is exactly what we do here. Our letter indicates why East Kern is the best place, with all the key pieces, to support the Space Force Initiative and the Space Development Agency."
March 4, 2019	Supervisor Mick Gleason	"...I want the Navy and this community to understand that Kern County, all five supervisors, stand behind you. We will support the Navy and we will support this community in any vote that I make."
February 22, 2019	Chairman Ron Kicinski, Indian Wells Valley Water District	"When the Navy came out formally and said they are considering groundwater an encroachment issue that is something we've got to solve, otherwise they are going

		to say it's encroachment on the mission of the base. And them being the major economic driver of the area, that means a lot...they are the major economic driver and they are in the driver's seat. When they say encroachment, you are encroaching on our mission, who knows what can happen...it means a lot to what we are going to do, how we are going to do it and how fast we need to do it. The point is we can't fail."
April 6, 2018	Supervisor Mick Gleason	"I think the agricultural community has seen its heyday. With SGMA (Sustainable Groundwater Management Act) and recent decisions in water allocations, and politics in Sacramento, agriculture has seen better days."

The Daily Independent

Gleason reflects on time in office, cites reason for not running

By Jack Barnwell
Staff Writer
RidgecrestDI
Posted Oct 1, 2019 at 2:56 PM

Kern County First District Supervisor Mick Gleason won't be seeking another term in office. The retired Navy captain and China Lake commanding officer said Tuesday that after years of public service, it was time to spend more time with his family.

"I think it's just time to go," Gleason said. "I've done two terms, eight years, and I'm satisfied that I had a positive impact on Kern County."

He noted that after talking with his wife, Robynn Gleason, the decision was hard but clear.

"Our family is growing and we have grandkids coming along, so there were other things we want to focus on," Gleason said. He added that between his time in the Navy and as a county supervisor, he's spent 35 years of service.

Gleason took office following the 2012 November election after a long campaign that saw eight candidates vie for the position.

In the November election, he defeated former state senator Roy Ashburn, taking nearly 60 percent of the vote. He took over from Jon McQuiston, who stepped down after a long career.

Prior to that, Gleason served 27 years in the U.S. Navy as a fighter pilot and eventually commanding officer of Naval Air Weapons Station China Lake, from which he retired as a captain. Following retirement, he took senior program manager with General Dynamics and helped launch the China Lake Alliance.

Gleason noted that he had no experience in campaigning back in 2012.

"It was a tough deal, an interesting campaign and I did very well and was fortunate enough to carry the day in a tough campaign against Roy," he said. "Roy was a really good campaigner."

Gleason entered office at a time when Kern County's economy was still riding the boom of high oil prices, but he would also face challenges with budgetary issues like the Kern Medical Center's deficit.

He's also helped preside over the implementation of the Indian Wells Valley Groundwater Authority following the passage of the Sustainable Groundwater Management Act in 2014.

The IWVGA is a joint powers agreement between Kern County, the Indian Wells Valley Water District, the City of Ridgecrest, and San Bernardino and Inyo counties. The former three agencies serve as the core leadership and rotating leadership of the board. The Navy and the Bureau of Land Management serve as non-voting associate members on the board.

SGMA mandates that critically overdraft groundwater basins like the IWV form a groundwater sustainability agency and hammer out a plan that will achieve a sustainable safe yield in the basin by 2040. That plan is due to be submitted to the Department of Water Resources by Jan. 31, 2020.

Remaining goals

Gleason said he has two primary goals in the year he has remaining in office: finish the IWVGA's sustainability plan and drive home the vision of better relations between West and East Kern.

The sustainability plan has been gaining momentum, he said, with draft sections coming out for review by both the IWVGA board and by policy and technical advisory committees.

"I think we are on the very edge of getting that done," Gleason said. "We need to get it done and get it moving. The satisfaction I will get from that will be significant because we give it to the Navy and say 'you have no worries, we don't have a threat to our base because we have a sustainment plan.'"

The Navy has consistently noted that the water issue in the IWV is considered an encroachment issue for NAWS China Lake's mission as a center for weapons systems research, development, acquisition, testing and evaluation. The Navy has also stated it intends to fully participate in SGMA's effort mandated by the state.

Gleason said the IWV plan will require three phases: develop the plan, implement checks and balances within that plan and augmenting the water supply.

"Those checks and balances will have to accommodate changes in climates, water supply, economies, and technology," Gleason said.

Gleason noted augmenting the water supply will take time to develop. Options could include anything from treating the basin's brackish water supply to importing water from outside the basin. Importing water so far looks expensive.

One option involves taping into the Los Angeles Department of Water and Power's aqueduct that carries water from Inyo County to the south. Conceptual costs for infrastructure could cost $55 million. The other option is building infrastructure from the Antelope Valley East Kern Water Agency's connection in California City, which would upward of $170 million.

Neither option includes the cost of water that would need to be purchased.

"How does a community of 35,000 people afford that?" he said. "We don't have the tax base to afford it."

Gleason said any option to augment water supplies will take years to develop and execute.

"Those are going to be some huge lifts to do, but we have time to do it," Gleason said. "We're going to get there, we're going to need help but I think working as a team we can make it happen."

Gleason's other goal is to bring East and West Kern together.

"A unified Kern is something that is achievable and something that is beneficial to all constituents throughout Kern County and the state of California," he said. "We could really do a lot of good stuff if we leverage the best of what we have on both sides of the mountain."

However, he said "that's going to be tough."

Gleason said the dynamics of the county economy are changing. Gov. Gavin Newsom's administration is prepared to roll out stricter regulations on the county's oil industry and agriculture as a whole may be changed by the Sustainable Groundwater Management Act.

Recently, Scott O'Neil, executive director for the Indian Wells Valley Economic Development Corporation, made a presentation to the county Board of Supervisors on the importance of East Kern's economic strength.

O'Neil said it holds potential for renewable energy in the form of solar and wind and a strong aerospace and defense industry leveraged by Mojave Air and Spaceport, China Lake, Edwards Air Force Base and NASA Neil A. Armstrong Flight Research Center.

Gleason noted the district's resiliency, pointing to the 2016 Erskine Fire that ravaged the Kern River Valley. At the time, the Erskine Fire was considered the 15th most destructive fire in the state's history. From June 23 to July 11, it burned 47,8800 acres, destroyed 309 buildings and homes and killed two people.

"It left the Kern River Valley a mess," Gleason said. "I spent days up there after the fire in the shelters with people who lost their homes. It didn't attack wealthy homes, it attacked mobile homes in Southlake."

However, he said he saw Kern County rally together to help, adding that the county's Emergency Operations Center team played the part of heroes in coordinating relief and firefighting efforts.

He said the same applies to efforts shown in Ridgecrest following the July 4-5 earthquakes. Ridgecrest, the IWV, Searles Valley in San Bernadino County and China Lake were rattled by a 6.4 magnitude earthquake July 4 and a 7.1M the following night. With the epicenters located aboard China Lake, the base sustained the most damage, along with Trona.

Dozens of homes and businesses were damaged in Ridgecrest as well, with two homes lost to fire.

"I remember sitting up in the EOC with [Mayor] Peggy [Breeden], [City Manager] Ron Strand and everybody else and watching all the fire engines going one way, the helicopters going another ... my biggest responsibility for that thing was to get out of everybody's way so they could do their job fine."

'Kern County has changed'

Gleason said looking back on his seven years, he said he could solidly say he contributed to the county's transformation.

"Kern County has changed and I think I played a role in that change," he said.

He said the start of it was the Kern Medical Center situation. KMC is the county's public hospital but was also a source of financial distress for the county.

After the troubles came to light in 2013, the board fired KMC's chief executive officer Paul Hensler and began looking at reforms.

"Kern Medical Center was a disaster," Gleason said. "What fixed that disaster was a confluence of a lot of different things .. but the kernel that started everything was that the board of supervisors realized that we are elected officials, not hospital administrators."

He called the board's then-responsibility to oversee all KMC budget decisions "dumb."

The board began implementing changes at KMC when it hired then Bakersfield Mercy Hospital CEO and president Russel Judd as the new head in November 2013. The board hired Judd through a management firm he created and brought on his own team.

Control of KMC transitioned from a county department to the semi-autonomous Kern County Hospital Authority in July 2016.

"Government can change but there has to be a step function to make that change," Gleason said. The hospital's budget woes created that step "that forced us to change the way we managed that hospital," he added.

The second issue that forced change in Kern County was the collapse of oil market prices between mid-2014 and 2016. The county derived a large portion of its tax revenue from the oil industry; when a barrel of oil went from nearly $100 to $40, revenue also began to plummet.

"That caused a massive change in our budget that we had to solve," Gleason said. The county implemented a four-year spending plan that promoted consolidation of services.

"We're just now crawling out of it and it's amazing that we've crawled out of it without reductions in service and we are better operation because of it," Gleason said. "The step was the crash of the oil market and the end result was a learner, more efficient government."

MALDEF lawsuit

Gleason has faced seeing his district changing in the wake of the lawsuit filed by the Mexican American Legal Defense and Educational Fund and the final ruling in 2018.

A lawsuit, *Luna et al v. County of Kern et al*, filed in 2016 claimed that "a redistricting plan adopted in 2011 by the Board of Supervisors violated Section 2 of the federal Voting Rights Act," according to a 2018 MALDEF news release.

MALDEF claimed that "the boundary between District 1 and District 4 unlawfully fractured a large cohesive Latino community, submerging their votes in a larger white electorate in both districts, thereby diluting Latino voters' ability to participate effectively in the political process."

A federal judge sided with MALDEF in February 2018, forcing the county to re-draw the maps. As a result, Gleason's district lost Delano, Shafter and McFarland, which were incorporated into David Couch's District 4. The change required Couch to go through an early re-election process for his seat.

Gleason, meanwhile picked up southwest Bakersfield, including parts of Rosedale, which have very active voters.

The retired Navy captain has never shied away from his feelings on the ruling, calling the re-districting a "gerrymandering of the map" to form to minority districts that reflect Kern's significant Latino population.

"In my opinion, one person wearing a black robe made a decision that impacted all of us in Kern County," he said, referring to U.S. District Court Judge Dale A. Drozd. "He mandated that we gerrymander these districts to satisfy the MALEF lawsuit."

Gleason disagrees with the ruling, adding it's "bad for the county and for the state and the average citizen in the county who just wants to raise a family in a safe environment."

"Instead of creating a blended community where we're all working together to be a better county, he created ethnic battlegrounds and barriers between Hispanic and non-Hispanic communities, which is just stupid," Gleason said.

He called the people behind the MALDEF lawsuit a "thin veneer of political activists who are trying to change America."

He noted that MALDEF misses the point and that most people, regardless of race, "just want to be Americans ... those are the people who vote, not the political activists who are trying to change things."

Outlook on future candidates

Gleason said whoever replaces him as First District Supervisor will need to understand the entire First District, which runs from Rosedale in Bakersfield through Kern River Valley and into East Kern, including the Indian Wells Valley, Ridgecrest and Johannesburg.

"The qualities that person he or she brings to the table are going to be having an open mind and a spirit to work with people to solve problems," Gleason said. He added the person will need to be honest and transparent and have a lot of energy.

"This job, especially for District One, just requires a lot of energy because there is a lot of traveling involved," Gleason said. "There's a lot of people you've got to get to know and a lot of different ways of thinking, cultures and economies."

He noted that while it would be nice to have someone from East Kern take over, it was unlikely to happen.

"It would have to be a really good candidate because the math for District One just doesn't work out," Gleason said. "If you look at that math, District One used to be dominated by Ridgecrest voters."

Prior to the redistricting of the supervisorial districts caused by the MALDEF lawsuit, District One included the Kern River Valley, Delano, McFarland and Shafter and parts of northern Bakersfield. While Delano is the second-largest city in the county, Gleason said Ridgecrest voters consistently turned out to vote compared to Central Valley communities.

He noted that changed with the redistricting when he lost Delano and McFarland and picked up west Rosedale and Bakersfield, where he said eligible voters turn out more.

Gleason said there are no immediate plans to relocate from Ridgecrest. He and Robynn, however, have grandchildren in both Seattle and Pheonix, Arizona and plan to spend more time with them after his term is done.

"We like Ridgecrest," he said. "We're just doing this (not running) because we just need a change in the tempo of our lives."

He added it won't be a full-time retirement.

"I've got to do something, man," he said. "It's too early too tell, but I'm sure that there are plenty of opportunities and I'm looking forward ... and anything I can do to help out Ridgecrest and the Indian Wells Valley, I'm all in."

He added with a laugh, "I think I'm going to try out for the senior PGA Tour. "

The News Review
Ridgecrest, CA

Groundwater board hears importation cost update

Boardmembers question affordability of importing water

IWV Groundwater Authority representatives Robert Lovingood (San Bernardino County), John Vallejo (Inyo County), Ron Kicinski (IWV Water District) and Mick Gleason (Kern County) weigh costs of water importation during last week's meeting — Photo by Laura Austin

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By BRIAN COSNER, News Review Staff Writer

"I just want everybody to understand the costs," said Kern County 1st District Supervisor Mick Gleason on the subject of water importation during last week's Indian Wells Valley Groundwater Authority meeting.

Jeff Helsley of Stetson Engineers delivered an update on the Authority's plan of action and milestones where one of the items was evaluating potential imported water supply sources.

"Is it feasible?" asked Gleason. "Is the water there? Is it something we can achieve … Is it cost-efficient? What did we discover out of spending $153,000 on that item?"

Helsley reported that Stetson, the board's water resources management firm, identified some facilities within reach such as the Antelope Valley-East Kern Water Agency. Stetson has also looked at the costs for acquiring water from the Los Angeles Department of Water and Power.

"We looked at bringing 15,000 acre-feet of water in," said Helsley. "When we started this study, the [Technical Advisory Committee] hadn't gone through a lot of discussion so it's looking nowadays like we might not need that much water, but that's what we looked at."

According to Helsley, it would cost something along the lines of $2,000 per acre-foot of water through the LADWP, or $30 million for 15,000 acre-feet. Bringing water in through AVEK Water Agency would be closer to $3,000 per acre-foot he said, adding that the costs included infrastructure.

"I keep hearing that we hope we don't have to import any water," said IWV Water District Director and GA Chair Ron Kicinski. "I want to go on record saying I don't believe that's possible. The numbers haven't shown that."

Kicinski said that the needs of the water district, NAWS China Lake, Searles Valley Minerals and valley residents – even while reducing agricultural pumping to zero – still exceed the basin's natural recharge.

"I think [importation] needs to be in the discussion," said Kicinski. "Is it 15,000 acre-feet? I don't think that's the number. I think that if we work toward where we're headed, it's more in the neighborhood of 3,000-5,000 acre-feet. And yes, it will be expensive. I don't deny that."

The GA estimates our basin's recharge to be between 7,000-8,00 acre-feet per year, versus pumping between 25,000-30,000 annually. But according to consulting hydrogeologist Tim Parker's hydrogeological conceptual model presentation last week, more data is required to have a better understanding of our water availability.

According to Parker, two data gaps are in a large southwestern portion of the basin that isn't monitored and the amount of water coming in from Sierra Nevada faults.

"The numbers are the numbers. We don't maintain without importation, that's true," said Inyo County Representative John Vallejo. "I think that the purpose of this agency here is to decide what are our sustainability criteria.

"But if those sustainability criteria can't be met … what can the local agencies and local users absorb in terms of costs?

"I think we're getting to the point where people need to put their cards on the table – what can we absorb in terms of cost? Because if users in this basin can't absorb the costs, then we have to look at the worst-case scenario."

Vallejo stressed the importance of modeling the impact on shallow wells as if the GA has no imported water available.

"If we're not planning for that now, then we're just setting ourselves up for failure," he said. "Because our deadline is in December."

"I don't believe this board can say to the community, 'Don't grow,'" said Kicinski. "I don't believe we can or would want to. We're always talking about modest growth – it's tied to the requirement for personnel on the base. We need to be prepared to sustain that."

While concerns about importations feasibility are increasing, the board approved $240,000 for Capital Core Group to proceed with its contract for water marketing consulting services, which includes evaluating potentially viable options for acquiring imported water.

During public comment, Judie Decker said that importation would be a necessity.

"I remember when Apple Valley, Victorville and Hesperia were tiny towns," she said. "I look at Lancaster and Palmdale … they have all grown because of imported water."

Member of the public West Katzenstein verbalized the paradox facing the GA.

"A lot of my friends argue about it," he said. "It's impossible to import water and it's impossible to survive without importing water.

"But [the Sustainable Groundwater Management Act] says you cannot plan on imported water until you know the source of that water and how much water you're going to have in hand — and I suppose we should say if it's affordable as well. So if we put in a plan that assumes we're going to be successful in importing water, that plan might be rejected."

He suggested pursuing imported water, but drafting a plan that didn't rely on its availability.

Mallory Boyd asked if the board was looking into using more recycled water.

"Is it too early to know if the costs are comparable to importing water?" he asked.

Vallejo said recycling water was being discussed at the committee level, but that the costs and details were still in the "conceptual phase."

"This is something I'm glad we're doing," said Gleason in regard to further exploring importation.

"I think we need to wring this out whether it's real or not. We need to have sound logic to support any decision we make."

The approval of water marketing consulting services was included in the IWVGA's 2019 budget, which the board approved during the meeting.

Story First Published: 2019-03-29

The Daily Independent

Supes to Trump: Look at Kern County bases for space

By Jessica Weston
City Editor
Jessica_Weston9
Posted Mar 21, 2019 at 12:01 AM

In a unanimous move, the Kern County Board of Supervisors on Tuesday voted to send a letter to President Donald Trump urging him to consider Naval Air Weapons Station China Lake, Edwards Air Force Base and Kern County in general for key roles in the development of his Space Force, including possibly the placement of an installation.

In doing so, the supervisors join a growing chorus of voices, including Congressman Kevin McCarthy, urging Trump to consider locating part or all of the Space Force facility in the Kern County area.

In a nutshell, the letter signed by all five supervisors expresses support for the establishment of Trump's Space Force while lobbying the president to consider using Kern County locations in establishing the new installation, arguing that because of existing military infrastructure and protected airspace, Kern County is uniquely positioned to offer the resources for a future Space Force installation.

The letter, which is dated March 19, was originally intended for signature by Chairman David Couch but the entire board decided to sign. The letter in its original form with one signature line is available for perusal at the Kern County website at https://www.kerncounty.com/clerk/minutes/bosagenda/2397229/2397250/2397257/2397312/2397347/Establishment%20of%20U.S

The letter to Trump touts Kern County's "long-standing tradition of military innovation and aerospace breakthroughs" and notes that it is home to Edwards Air Force Base and NAWS China Lake, both of which are located in the R-2508 Complex restricted military airspace. It notes that Edwards Air Force base has been serving the country since 1933 and NAWS China Lake since 1943.

It further notes that NAWS is the Navy's largest single landholding, with 85 percent of the Navy's land for Research, Development, Acquisition, Test, and Evaluation (RDAT&E) and 38 percent of the Navy's landholdings worldwide. The letter also references Edwards' crucial role in aerospace history, noting that "[n]early every U.S. Military aircraft since the 1950s has been at least partially tested at Edwards where numerous aviation records have been set and broken."

The letter continues with a respectful recommendation to Trump to "keep Kern County in mind as a home for this vital and innovative new agency." It concludes with a thank you to Trump for leadership and "commitment to securing our preeminence in this new frontier, and for your consideration of allowing Kern County to help turn your vision into a reality."

One member of the public spoke. Mary Ellen Barro described herself as a former aerospace employee and highly recommended the move as providing employment opportunities for Kern County residents among other benefits.

First District Supervisor Mick Gleason said he is "totally supportive" of Trump's Space Force. He added that bringing the Space Force to Kern County could benefit the country as a whole as well as obviously benefiting Kern County itself.

"The fact that we have two of the best military bases on the face of God's green earth here in Kern County and getting that in the forefront of our thinking can only advantage us," Gleason said.

Second District Supervisor Zack Scrivner agreed, noting "I have very little to add to" Gleason's comments.

Both supervisors emphasized the importance of making Kern County residents aware of the distinguished aerospace history of the area. Scrivner noted that there are likely kids in Kern County who don't realize they can "drive an hour east and they can build a spaceship," an apparent reference to the Mojave Air and Space Port.

Gleason: 'We think President Trump's best bet would be to come here'

Gleason spoke to the Daily Independent on Wednesday, endorsing the supervisors' decision.

He described Kern County as the place where the country can find "everything you need to conduct business in a Space Force. We think President Trump's best bet would be to come here."

Gleason said that in his opinion Kern County would be happy to help the effort in any way it can.

"I am sure there are going to be all sorts of people competing for this work," Gleason said. "Research and development, weaponization, testing facilities, the ability to achieve orbit as demonstrated at the Mojave Air and Space Port . . . we would certainly advocate for components of the Space Force to come here."

He added that the supervisors are offering Trump the opportunity "to look at here for the whole spectrum, whatever he thinks would be best served we would be wiling able and ready to work with him to satisfy his needs."

Witt: 'Our tech-driven society relies on free access to space'

National Space Council Users Advisory Group member and retired Mojave Air and Space Port CEO Stu Witt said that since he read an early draft of the presidential directive that established the Space Force, he has been saying that "very wise" economic development corporations are planning on how to attract a significant stake in the future of the Space Force.

Since reading the establishment directive, he said, he noted that economic development corporations around the nation "are putting money behind great new ideas on how to attract a significant piece of the Space Force." Witt added that this process is no different from how areas have always worked to attract other military commands and entities.

As such, Witt weighed in with agreement with the supervisors' letter. "I agree with the Board of Supervisors," he said. "If you don't put your placeholder in and continue that conversation in an aggressive campaign, you are not going to get anything from this. . . . That's going to be a regional campaign to take a long-term stake in the new Space Force."

Witt also spoke about the Space Force in general, which he said he applauds President Trump for establishing.

"This is a new combatant command, with all of the rights and responsibilities of, let's say, the Marine Corps or the Air Force," Witt said.

He compared the Space Force to other branches of the military.

"Just as the Navy is chartered with protecting our free use and enjoyment of the high seas, and that of our allies . . . the Space Force will be doing the same thing in space."

He concluded by emphasizing the importance of this mission.

"Every single banking transaction goes through space," he said as an example of the ubiquity of space technology as controlling everyday life. He urged everyone to think about that.

"Our tech-driven society relies on free access to space. If that were denied, I cannot come to grips with how catastrophic that would be to our western society," he said.

Gamechanger: Gleason reacts to Navy encroachment letter

By Jessica Weston
Posted Mar 8, 2019 at 12:01 AM

Kern County First District Supervisor Mick Gleason▲

Asked about the significance of the recent letter from the Navy to the Indian Wells Valley Groundwater Authority on groundwater encroachment issues, Kern County First District Supervisor and IWVGA board member Mick Gleason did not mince words.

"I think that letter changes the game," Gleason told the Daily Independent Wednesday.

The letter from Naval Air Weapons Station Commander Capt. Paul Dale states that the Navy deems groundwater resources as the No. 1 encroachment issue with the potential to impact missions enabled on and around Naval Air Weapons Station China Lake. It goes on to state that, "Water sustainability is critical to NAWSCL's mission accomplishment." The letter was dated Feb. 20 and delivered to the IWVGA at its most recent meeting.

Gleason spoke about the letter at the IWV Economic Outlook Conference on Feb. 28, stating publicly that he and the supervisors support the Navy.

He elaborated on his point of view during a sit-down interview with the Daily Independent at the county building on Wednesday.

"Those [letters] don't come easily. Those come out of great thought and deliberation by people not even living here. For [the Navy] to come out with a formal declaration of encroachment is a big deal and we are going to have to deal with that and understand it," he said.

"All I know is, from my perspective, it's a game-changer. Because the strategic imperative is now changed. We need to preserve the Navy's mission in the Indian Wells Valley. And that has implications that dwarf other decisions."

Gleason was quick to point out that the mission of the Navy has always been at the forefront of his awareness as both a member of the IWVGA and the Kern County Board of Supervisors, so this is not really something new. He added that the other four supervisors also understand and respect the importance of the Navy's

He said that "now that the letter has been released in my mind, it changes the over-arching strategy of what we are trying to do. Now the strategy is emphatically and clearly and empirically that our job is to preserve the Navy base and to preserve the Navy mission because it is being encroached upon.

"Before, when we did not have that clear articulation of encroachment, we thought it was [encroachment] but we weren't sure. The Navy had to take a position. Now they are taking a position. That means that now from my perspective that I need to take that position. So it changes my focus and puts things more clearly in perspective for me," he said.

He added that all of the Kern County supervisors are on board. Gleason explained that as the county representative to the IWVGA, he has kept the rest of the board informed and that they have always supported the mission of the Navy and understand the significance of the encroachment issue now.

Groundwater Sustainability Plan

The IWVGA's first version of the Groundwater Sustainability Plan is due to the state in less than a year, by January 2020. In a nutshell, this plan is supposed to explain how the groundwater authority intends to balance the critically over-drafted local basin.

Gleason said he fully expects the IWVGA to meet the mandated deadline, although the plan may grow and evolve as time goes on.

"The plan may not be the endgame, but it is going to be a plan that is going to get us airborne," he said. "It is going to set us initial vectors that are going to get us direction."

"I don't think the plan is going to say, 'Here is where we are going to be in 20 years.' I think the plan is going to be in five years, we are going to make this many changes in five years," he added. "It's going to have to be flexible."

The federal reserved water right

Critical to formulating the GSP is something called the federal reserved water right, Gleason said.

He explained that this is the amount of water required by the base to function. Any water rights developed after the federal reserve right was established in 1943 are secondary in nature.

Gleason said that he interprets the letter from Dale as possibly including water for residential use in the surrounding area as being part of this amount – since the base requires workers and workers require housing.

"The way I read it [the letter], their federal reserve right will not just include the water that they are using on the base today but will include all the water required by all their employees and their families," he said.

Gleason said that once the number that makes up the federal reserved water right is revealed by the Navy, it will be critical to determining the GSP.

"The federal reserve right will be the long pole in the tent that the entire GSP will be draped around," he explained – meaning presumably that the formulation of the GSP will have to take into account and be calculated around the Navy's water requirements.

Importing water?

Another hot-button issue is the topic of importing water. Again, Gleason didn't mince words.

"Importing water is going to be extremely expensive," he said. He noted that the community lacks infrastructure and means of transportation other than the Los Angeles Aqueduct, which does not seem a likely prospect for use.

"We have no infrastructure, we have no banking. We have not identified any water molecules for us to import. Nor the way to get it here. We don't understand any of that stuff. We don't understand the cost. How does a 40,000 or 35,000 person tax base pay for the millions of dollars it's going to cost just for the water itself? That means your water bill is going to [increase] dramatically."

Gleason said because of the complexity of the issue the IWVGA is zeroing in on a water marketing firm to hopefully provide expert advice.

He said the plan is for the firm to "scour the countryside and find us water, develop an importation plan of some sort that is going to help us solve our problem."

Gleason added that getting good information on all options is key.

"I think it's important we hire this guy, we spend the money up front to have a thorough analysis because I may be right and I may be wrong, but we need to know," he said.

Gleason also noted that although water augmentation strategies are obviously going to be necessary to balance the basin, he does not see importing water as the sole solution or quick fix for the issue.

Leaders promote East Kern for base of operations in space development

Rebecca Neipp

News Review Staff Writer

A letter dated Feb. 28 to President Donald Trump, co-authored by House Minority Leader Kevin McCarthy, is prompting the administration to consider the high desert as a potential base of operations for the Space Development Agency.

"As stated in the National Security Strategy, space is a vital U.S. interest, and we appreciate that you have directed the Department of Defense to establish the Space Force to ensure that we remain the world's preeminent space power," states the letter, which also bears signatures of Reps. Paul Cook, Devin Nunes, Tom McClintock, Duncan Hunter and Doug LaMalfa.

The letter encourages the president to consider Edwards Air Force Base as the headquarters for the proposed Space Development Agency, and the Naval Air Weapons Station China Lake as the lead for weapons conceptualization and development for the proposed Space Development Agency. Both sit under R-2508 — the largest contiguous restricted airspace in the country.

"Because of these bases' proud legacy of breaking barriers and their consistent track record of delivering cutting-edge solutions to our nation's toughest problems, these men and women embody the necessary culture of innovation and have the technical expertise required to rapidly prototype and field the next generation of space capabilities for our warfighters," continues the letter.

"Both bases provide a central location, near the core of American space industry, to unite the acquirers, contractors, scientists, testers and operators necessary to produce revolutionary space capabilities for the United States and our allies.

"Equally as important, R-2508 provides a refuge to conduct sensitive and classified work, due in large part to the landmass of these bases contained within, and the volume of the secure 'surface-to- space' airspace it affords.

"There is no location better poised to serve as the bedrock of the new Space Development Agency."

Vice President Mike Pence, lead on the newly reestablished National Space Council, toured Mojave Air and Space Port in fall 2017, when he and McCarthy got an inside glimpse of the private companies leading commercial space development out of the local installation.

Other significant players in the region include NASA Armstrong Flight Research Center, the Air Force Research Laboratory's Rocket Lab and U.S. Air Force Plant 42.

"The Space Development Agency could leverage these already existing collaborative relationships to help fulfill its mission in direct support of the National Security Strategy to 'integrate all space sectors to support innovation and American leadership in space,'" reads the letter.

Kern County 1st District Supervisor Mick Gleason said that his office has also drafted a letter of support for the concept.

That letter was recently submitted to the Kern County Clerk of the Board.

Gleason said that he anticipates approval by the Board of Supervisors, with a subsequent draft sent to President Trump from Kern County officials.

"We have the infrastructure, the environment, the people and the experience — this is exactly what we do here," said Gleason, who is also a former commanding officer of NAWS China Lake.

"We have access to space, and multiple agencies that work toward this mission on a weekly basis.

"Our letter articulates why East Kern is the best place, with all the key pieces, to support the Space Force initiative and the Space Development Agency."

Scott O'Neil of the IWV Economic Development Corp. and David Janiec of the China Lake Alliance are also engaged in seeking support for the having a local base for the new agencies.

"We are excited that Congress-man McCarthy has taken the initiative and is out front in support roles for those defense elements in his district," said O'Neil.

"This builds on a long history of space-related development, going back to 1958 when China Lake developed and demonstrated the world's first air-launched orbital booster project, NOTSNIK, in response to the Soviet SPUTNIK satellite," added Janiec.

Story First Published: 2019-03-08

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Groundwater, housing, economics and the U.S. Space Force? Conference covers city/county outlook

BY JESSICA WESTON CITY EDITOR jweston@ridgecrestca.com Daily Independent
Mar 4, 2019

Economic development, new housing and more options in healthcare: these are some of the things on the horizon for people in Ridgecrest and Kern County according to several speakers at the 2019 Indian Wells Valley Economic Outlook Conference on Thursday.

Another intriguing tip: forces at Kern County are planning to lobby President Donald Trump to consider headquartering the U.S. Space Force at NAWS China Lake or at Edwards AFB.

Kern County First District Supervisor Mick Gleason also responded to a recent letter from the Navy to the Indian Wells Valley Groundwater Authority regarding groundwater issues. The letter stated that the Navy considers groundwater resources the number one encroachment issue with the potential to impact missions on and around Naval Air Weapons Station China Lake. Gleason stated publicly that he and the supervisors support the Navy.

Economic development, housing in the city

The city of Ridgecrest may have as many as 403 new multi-family housing units, according to Councilman Michael Mower. Mower, who filled in for Mayor Peggy Breeden as a speaker, said the city is currently working with two developers on bringing in three new apartment complexes.

"These are not going to be built at once. They are all going to be built in stages," he said. "So hopefully we won't get a glut on the market."

Mower said the city is also working with developers in an effort to build new single family housing tracts and working with partners to add more entertainment and fast-food casual establishments. The city is also attempting to expand hospitality services while finalizing plans to bring two national hotel chains.

Ridgecrest by the numbers

Mower gave a demographic breakdown of the city. Ridgecrest has a total population of 28,728. There are 10,669 households with an average household income of $71,515. According to Mower, Ridgecrest has a strong projected population growth of over 10 percent for the next five-year period.

Mower said that he personally thinks the 10 percent growth rate estimate may be a little bit optimistic. He said the numbers are based on projections from the college, the base and the city itself.

He added that the top 36 retail and restaurant establishments in Ridgecrest were evaluated for performance, and 31 percent of the businesses performed above the statewide average for their respective companies and 64 percent of the restaurants are performing above the statewide average.

School options in the area include Sierra Sands Unified School District, Ridgecrest Charter School, Immanuel Christian School, Saint Ann School, Heritage Montessori School, Ridgecrest Adventist Elementary, Opportunities for Learning and, of course, Cerro Coso Community College for secondary education. Mower said that Breeden had wanted to mention the schools.

Ridgecrest has a public transit system, known as Ridgerunner Transit, which combines a traditional fixed-route service with a demand response service for functional needs qualified patients.

"We have a wonderful police department in this town," Mower said, leading to applause. He reported that the Ridgecrest Police Department benefits from volunteers: last year volunteers donated a total of 14,893 hours. RPD also raised $6,000 for the family of five-year-old Kylea Chance to help her family as she battles a rare form of brain cancer.

He touched on the local film industry, which takes advantage of many photogenic local areas.

Mower also reported on the council's recent approval of a parks and recreation assessment district – which would require a successful balloting process to be approved.

"I think quality of life is very important to maintain in Ridgecrest so we have a good reason for people to move here," Mower said.

What's new at Ridgecrest Regional Hospital?

Ridgecrest Regional Hospital CEO Jim Suver reported on the latest updates at RRH.

"So where are we with our new emergency room project?" he asked, rhetorically. "We are now in our third year of waiting for state approval." He noted that this is typical for hospital construction. He said he is hoping things will get moving again for the next phase some time in 2019.

"In one of the more exciting developments, we actually have started discussions with USC about creating a urology clinic," he said. He added the strategy is always to link with academic medical centers that can provide state-of-the-art physicians. "We hope to do some of the more safe procedures at Ridgecrest hospital," including gynecological and prostate procedures.

The cancer program implemented with UC Davis has been very successful, he said. He added that discussions are taking place with a partnership regarding bringing radiation oncology to town.

He said a Mercy Helicopter is stationed in Ridgecrest on a full-time basis. "This is so important, seconds matter," he said.

He added the hospital is in discussions with Liberty Ambulance and the hope is that between the helicopter and the ambulance an integrated emergency medical service can be created. He reiterated that seconds matter and if the service is locally controlled the medical outcomes are expected to be much better.

Suver said the new Pain Management Clinic which was opened recently was created to help with the opiate crisis. He said the clinic is already seeing over 25 patients a day and hopes to expand.

A new emergency room physician group was created under RRH.

"I have come to the conclusion that no one knows better what Ridgecrest wants and needs than probably people who are local," he said.

A new ob/gyn has also started.

Gleason: 'We will support the Navy'

Gleason began by talking about the recent letter from the Navy to the IWVGA.

"We recently got a letter from the Navy directed to the [groundwater authority], which articulated the Navy position with regard to water in the Indian Wells Valley. The letter was clear, it was unambiguous and it was public," he said. The letter stated that the Navy considers groundwater issues as the number one encroachment issue with the potential of impacting the missions at NAWS China Lake.

"The reason I bring that up is because I want the Navy and this community to understand that Kern County, all five supervisors, stand behind you. We will support the Navy and we will support this community in any vote that I make," Gleason said.

Gleason later talked again about the Sustainable Groundwater Management Act and

the IWVGA.

"We have a plan that is due to the state in January 2020. We are getting into the crunch time where we are expecting to see a draft plan for public review in the next few months." The IWVGA meets the third Thursday of every month. He encouraged the public to provide input and get involved.

"We need you there," he said.

US Space Force at China Lake?

In a surprise move, Gleason was joined by Second District Supervisor Zack Scrivner in giving an update on the current status of Kern County. The two share representation of the eastern portion of Kern County. The two emphasized the importance of sharing forces and collaboration in representing East Kern.

In perhaps their most intriguing comment, the two mentioned plans to work together to try to persuade President Donald Trump to utilize NAWS China Lake and/or Edwards Air Force Base as headquarters for the country's Space Force/Space Development Agency.

The topic was brought up as part of a discussion of East Kern Regionalization. Other shared priorities include identifying potential for new businesses, supporting existing industries, attracting and retaining talent and properly utilizing the workforce.

The two supervisors noted that East Kern is home to many unique industries including defense, aerospace, renewables, tourism.

Economic diversification is a priority, not only for East Kern but for all of Kern County, according to the supervisors. Priorities include reducing over-reliance on limited industries and encouraging industries both sides of the mountains to work together to overcome shared challenges such as water shortages and maintaining a skilled workforce.

Gleason also touched on the county's success in its four-year plan to overcome its budget deficit and the challenges of redistricting after the MALDEF lawsuit. The two supervisors said having two votes in East Kern is a critical for good representation. Scrivner also introduced a new term, referring to "the cactus curtain" that separates the eastern and western regions of Kern County.

Gleason also talked about the county budget. After a fiscal crisis was declared in January 2015 the supervisors approved a mitigation plan beginning with fiscal year 2016-2017. Gleason reported that the deficit related to the property tax loss is planned to be resolved by fiscal year 2019-2020. He credited staff with being able to successfully redistribute funds – and bring the end of the deficit into sight – with no drop in services.

Gleason closed by emphasizing his conviction that "the future of Kern County is here."

The Daily Independent

Navy to GA: Groundwater 'No. 1 encroachment issue'

By Jessica Weston
City Editor
Jessica_Weston9

Posted Feb 22, 2019 at 5:48 PM

The Indian Wells Valley Groundwater Authority meeting Thursday ended on a surprise note, when Commander Peter Benson delivered a letter from NAWS Commander Captain Paul Dale. Benson is the non-voting member representing the Department of the Navy on the groundwater authority board.

Dated Feb. 20, 2019, and addressed to the Indian Wells Valley Ground Water Authority Board of Directors, the letter states that it is intended as a formal communication that "Commander Navy Region Southwest (CNRSW), in consultation with U.S. Navy commands located within the Indian Wells Valley, deems groundwater resources as the number one encroachment concern/issue which has the potential to impact missions enabled on and around Naval Air Weapons Station China Lake." It goes on to state that "Water sustainability is critical to NAWSCL's mission accomplishment."

The letter also thanks the Groundwater Authority for recognizing "the unique position of NAWSCL's Federal Reserve Water Rights (FRWR) dating back in time to when the base was established in 1943." It states that the Sustainable Groundwater Management Act statute recognizes that FRWRs shall be respected in full and federal law will prevail in the case of a conflict. It further states that "there is no waiver of sovereign immunity subjecting the Navy to [groundwater] regulation, pumping limitations or fee assessment."

The letter also states that the "Navy's human capital and its ability to recruit and retain talented personnel is integral to these critical national defense missions. We must emphasize the importance of Navy civilian and military personnel's continued access to economically viable potable water as critical to the IWVGWA's implementation of the Sustainable Groundwater Management Act (SGMA)."

The letter gives background on the Navy's successful efforts to reduce water consumption at the installation by 54 percent since 2007 and its cooperative posture with the groundwater authority. It goes into the history and background of SGMA, the critical overdraft status of the IWV groundwater basin and NAWSCL's participation in the Groundwater Authority as a nonvoting liaison to the board, as well as participating in the Technical Advisory Committee and the Policy Advisory Committee, which the letter mistakenly refers to as the "Public Advisory Committee."

The letter does contain conciliatory language, stating that "NAWSCL has a vested interest in participating in the SGMA effort with IWVGWA as lead and responsible for developing a plan for the groundwater basin to achieve a sustainable yield in 20 years." It also states that "Despite these unique federal legal limitations [federal reserve water rights and prevailing federal law], NAWSCL intends to continue to be a good neighbor and work cooperatively with the IWVGWA."

The letter is posted on https://iwvga.org/iwvga-meetings, under 02/21/19 Letter from the Navy.

Kicinski: 'The point is we can't fail'

Indian Wells Valley Water District board member Ron Kicinski serves as chairman of the Groundwater Authority board. Kicinski spoke about the potential implications of the Navy's Feb. 20 letter at the luncheon meeting of the Ridgecrest Republican Women, Federated, on Friday.

Kicinski summarized the letter as stating that groundwater is becoming an encroachment issue, but that the Navy has indicated they want to work cooperatively with and be supportive of the IWVGA.

"When the Navy came out formally and said that they are considering groundwater an encroachment issue that is something we've got to solve, otherwise they are going to say it's encroachment on the mission of the base. And them being the major economic driver of the area, that means a lot," Kicinski said.

He added, "they are the major economic driver and they are in the driver's seat. When they say encroachment, you are encroaching on our mission, who knows what can happen . . . so that was a very important letter that came out."

"It means a lot to what we are going to do, how we are going to do it and how fast we need to do it. The point is we can't fail," he also noted.

Kicinski said the letter indicates the water situation in the IWV has caught the attention of Navy higher-ups at a national level.

"Absolutely," he said in response to a question. "They are watching this very, very closely. That was the origin of this particular letter that just came out. They [Navy high-ranking officers] understand too its importance to national defense . . . it's something that is proof they are watching closely all the way in Washington."

Kicinski said that it is difficult to determine the exact intent of the letter.

"Like anything that comes out of the government, you try to read between the lines," he said.

He later added, "It's sort of like one of those things: 'watch out we are here, in the meantime we want to help you get the problem solved,' " he said as a possible paraphrase of the letter.

"To me it's almost scary, meaning, 'Boy, if you don't solve this we are going to solve it for you,' " he later noted. "I would rather see us work together."

Kicinski had no specific information to address rumors that encroachment issues could allow the government to purchase land to protect the mission of the base.

Kicinski also said that the Navy and China Lake have been helpful to the water effort, including spending a lot of money on research and the Desert Research Institute.

He said that one partial solution might be a recent plan between the economic development corporation, the Navy and the government to start earmarking some of the royalties that the Navy gets from Coso Geothermal for local projects. He said there is a possibility some of these project funds may be able to be used for water issues in Ridgecrest, if the argument can be successfully made that since much of the China Lake workforce lives in Ridgecrest it could be considered a community project.

Kicinski said his talk with the Republican Women was part of a new goal involving public outreach and education on water issues. He asked that anyone who is interested in having him speak to a club or organization give him a call.

The Daily Independent

Gleason muses on MALDEF settlement

By Jack Barnwell
Staff Writer
Posted Apr 6, 2018 at 5:00 AM

'District One got mangled up pretty badly'

In the wake of a settlement agreement between Kern County and the Mexican American Legal Defense and Educational Fund (MALDEF) redrawing county district lines, supervisors are already moving.

That includes First District Supervisor Mick Gleason, who is in the process of organizing things in his Delano and McFarland offices for the eventual hand-off to Fourth District Supervisor David Couch.

"Pending final approval, we have shifted district lines and we are hopeful that the federal judge will approve it," Gleason said.

He expects at least a month before U.S. District Judge Dale Drozd of the Eastern California District signs off on the new map and becomes codified county law.

MALDEF launched a lawsuit against Kern County last year over the then-current district boundaries. The lawsuit claimed the lines — approved in 2011 — denies Latinos a second majority Latino-district and violate the U.S. Voting Rights Act.

Fifth District Supervisor Leticia Perez is the only Latino supervisor on the board.

Drozd apparently agreed in February ruling and ordered Kern County and MALDEF to reach a compromise. Or he would decide the new boundaries. The new map was released in a decision on March 28, which reshapes most of the districts and will force three supervisors — Couch, Second District Supervisor Zack Scrivner and Third District's Mike Maggard — into a November election. Scrivner and Maggard's terms are up, but Couch wasn't set to end until 2020.

Gleason considers the decision a muted victory. MALDEF and the county reach a compromise, and East Kern will still have two seats on the board of supervisors.

But his district gets reshuffled.

"District One got mangled up pretty badly," Gleason said. "We are going to lose Delano, Shafter and McFarland, and some parts of northern Bakersfield like City on the Hills. We are going to pick up the Rosedale and Stockdale area of Bakersfield — a larger piece of west Bakersfield."

He's not happy with the judge's initial ruling, either.

"I think the judge made a bad decision," Gleason, reflecting as well on the anniversary of Dr. Martin Luther King, Jr.'s death. "I think Martin Luther King Jr. would disagree with that decision. I think we have taken a step back from becoming a blended, integrated society. We have politically defined battle lines that one special interest can battle against another."

He's also not comfortable the judge's decision.

"I find it disturbing that one person, just because he wears a black robe, can make decisions to turn the Kern County election process completely upside down. It's bothersome," Gleason said. "Appealing it is another issue. If we appeal it in the federal court, and the higher federal court doesn't issue a stay, we keep going with the decision and we appeal, it goes the Ninth Circuit Court of Appeals."

The Ninth Circuit has been considered one of the more liberal corps of judges in the federal judiciary system.

The new boundaries also shift District One's political leanings decisively right.

"District One is now predominately Republican, perhaps the most Republican district in Kern County," Gleason said. He didn't call that a bad thing, or good.

East Kern a 'go-no go'

Gleason strongly advocated for two districts in East Kern throughout the proceedings, including during his testimony during the lawsuit proceedings. While not thrilled with the ruling, retaining two seats is a victory.

"I wish I could take a victory lap about maintaining two East Kern districts — that's the goodness of the decision — and that was the one thing I could not lose," Gleason said. "That was a go—no go for me."

During a 15-day period in March, the board of supervisors and top staff discussed many solutions on how to handle the settlement.

"One of the fundamental building blocks in the decisions that led to how he drew the map were some the traditions we tried to maintain and keep consistent," Gleason said. One of those, was keeping population density the same and demographics as close as you can, and having two East Kern districts."

Two East Kern districts were agreed on, and after that, Gleason said "it minimized the variations we had adjust."

He added Judge Drozd's findings show a lack of understanding of county-level politics by applying a federal filter to it. The maps included in the judge's findings cut only one district for East Kern.

"He said things like Congressman Kevin McCarthy's area doesn't need two representatives to represent East Kern. If Congressman McCarthy can do it, why can't you?" Gleason said. "It shows a shallow lack of understanding."

Gleason also noted the initial findings found the judge referred to the Air Force and Navy presence in East Kern as one interest, not two.

During testimony, Gleason argued that Edwards Air Force Base and Naval Air Weapons Station China Lake are two separate entities, often with competing interests.

Drozd wrote in his findings that "although the court does not doubt the sincerity of the County's convictions in the purported necessity of two eastern districts, the court is unpersuaded that such a justification may override other legal requirements. The court is unconvinced that a single supervisor would be placed in an impossible position concerning the two military bases, as evidenced by the fact that one congressional representative currently represents both bases. The court, therefore, concludes that this factor should be afforded neutral weight, at best."

Gleason disagrees, noting a difference between federal and county government.

"County government, you're close to the people and in many areas of East Kern that have no incorporated areas. There's Kern River Valley, areas outside of Tehachapi, Rosamond, Inyokern," Gleason said. "Their first level of government is the county."

A former NAWS China Lake commanding officer, Gleason also provided a more nuanced understanding of military operations.

We talked a lot about how they (Air Force and Navy) are competing interests at the county level — maybe at the federal level they are one entity under the DoD budget, but once you get below that it goes Navy, Air Force, Army and they compete for dollars," Gleason said.

Gleason also argues having two East Kern votes on the board makes economical sense.

Future of county in East Kern?

Kern County has gone through tough times economically, ever since the price of oil crashed three years ago. The county drew much of its budget from revenue on oil properties.

"I think the oil industry has busted in the last couple of years and the days of $100 oil is gone. I think the agriculture community has seen its heyday.," Gleason said. "With SGMA (Sustainable Groundwater Management Act) and recent decisions in water allocations, and politics in Sacramento, agriculture has seen better days."

"If you look down the future, it's in Eastern Kern. It's aerospace, it's a $700 billion budget, we have manned space flight coming up," he said. "The growth in Kern County is over here, why would we reduce our government support of those agencies now?"

Alternative energy like wind and solar is poised for expansion as well, Gleason said, should issues of transmission capacity ever be solved

Next steps

It may be at least a month before Drozd gives his final blessing on the new district map.

But Gleason isn't sitting still, like the other supervisors.

"We're going around to prepare for the move and get ahead of it," he said. "We've got some pending issues in Delano and McFarland like the McFarland fire station and we are going to fund it. We are trying to get those issues in the can and work with Dave [Couch] on the transition."

Until the district lines receive the final blessing, Gleason's office will continue managing affairs in the northwest the Kern County communities he represents.

For other districts, Couch will lose areas like Taft but pick up Delano. Scrivner gains more territory, absorbing Taft and Frazier Park, and holds on to Tehachapi, California City, Mojave and Rosamond.

With elections now pushed to November, Gleason thinks Couch and Scrivner will do well against anyone who challenges them.

"I think Dave (Couch) is a formidable politician, campaigner and good guy that he will win a tough race and I think he will prevail," Gleason said. But Couch, popular in Taft, could face different voting component in Delano.

And should he retain his seat in the November election, he'll have to run again in 2020 — when his term should have ended.

"It's freaking insane," Gleason said. "I don't know how it's going to end up."

Maggard's opponent, Bakersfield firefighter Jeff Heinle, was drawn out of the third district with the re-districting. Gleason noted county lawyers are certain Heinle can still run as he filed prior to the judge's finding. If he wins, he'll have to move inside District Three boundaries.

Future of elections

However, with the new shape of Kern County districts, Gleason thinks elections will forever change.

"The people up in the north-central valley want to be regarded as a unique community of interest and I get that," Gleason said. "I think that's a good thing, but I just don't think we need to go to the extremes we've gone to accommodate that."

"There's a better way and that's for everyone to vote," Gleason said. "If people voted, we wouldn't have this problem."

He used his own district as an example.

"We have the second largest city in the county in Delano and fourth in Shafter and they were in my district," Gleason said. "If they voted, they would outnumber the voting population in Ridgecrest significantly, but they don't vote."

Now those Central Valley votes in District One shift to western Bakersfield.

"What we've done is take those 100,000 people and moved them from Delano, Shafter and McFarland down to western Bakersfield in areas like Rosedale, Coffee, Calloway, Fruitvale and those places," Gleason said. "Those people vote — there is a higher propensity voter base than Delano, Shafter and McFarland."

That shift adds a challenge for East Kern if someone from the Central Valley runs for Gleason's seat in 2020.

"What I'm implying is that it will be more difficult in the out years for Ridgecrest to be representative from Ridgecrest," Gleason said. "We need to focus on good candidates. If we have good candidates we'll do OK. If we don't, we'll get creamed."

Luhdorff & Scalmanini
Consulting Engineers

January 8, 2020
File No. 18-1-021

Sent via e-mail: SteveJ@stetsonengineers.com

Mr. Steve Johnson, P.E.
Indian Wells Valley Groundwater Authority Water Resources Manager
Stetson Engineers Inc.
861 S. Village Oaks Drive, Suite 100
Covina, CA 91724

SUBJECT: INDIAN WELLS VALLEY GROUNDWATER AUTHORITY TECHNICAL ADVISORY COMMITTEE MEMBER COMMENTS ON PUBLIC REVIEW DRAFT GROUNDWATER SUSTAINABILITY PLAN

Dear Mr. Johnson:

This letter is being written on behalf of our client, Meadowbrook Dairy ("Meadowbrook"). This letter is submitted in response to the Indian Wells Valley Groundwater Authority (GA) Water Resources Manager's request for input from members of the public (which includes Technical Advisory Committee (TAC) members) on the following items:

1. Public Review of the Draft Groundwater Sustainability Plan Documentation Text
2. Public Review of the Draft Groundwater Sustainability Plan Figures
3. Public Review of the Draft Groundwater Sustainability Plan Appendices

During the review of this public review draft (referenced as the December 2019 draft), we were very disappointed to find that most of the specific comments provide to your office in our November 15, 2019 comment letter (review of the TAC_PAC draft GSP, referenced as the November 2019 draft) were ignored and not addressed at all. We have attached this specific comment letter along with all of our comment letters as attachments (referenced as Attachment 1 through Attachment 5). Please reference Attachment 5 specifically for November 2019 TAC comments.

As mentioned, several times during past TAC discussions and throughout the development of specific sections of the GSP (i.e. Sections 3, 4, 5, 6 and the groundwater modeling efforts), the lack of transparency that has occurred is very disappointing and will become obvious during DWR review, we do however appreciate the opportunity to provide additional comments on these items and as always we look forward to developing a process to reach technical consensus as we move forward through the GSP process.

Our comments are provided below and follow the specific layout of the GSP. Specific comments from review of the November 2019 draft that were not addressed are also included again (referenced as **November 2019 Comments**) in the review of this December 2019 draft.

SIGNATURE PAGE

General Comments:

- Please provide the names of all individuals and their State of California license information (i.e. Stetson, DRI and contractor for responsible for GDE survey work) that will authorize this document.

EXECUTIVE SUMMARY

General Comments:

- **November 2019 Comment** – As requested, why did the TAC not have a chance to review the ES prior to issuing the Public Review Draft?
- ES 1.1 Purpose of Groundwater Sustainability Plan, page ES-1 – Please provide technical references for the statement regarding the overdraft statement.
- ES 1.2 Agency Information, page ES-1, first sentence. Text states basin as a critically overdraft basin of medium priority, but reference 1 states high priority. Please resolve this discrepancy.
- ES 1.2 Agency Information, page ES-2, second paragraph. Please include a statement to explain why other beneficial users (domestic, small and large agricultural interests) were excluded from being involved with the formation of the IWVGA.
- ES 1.2 Agency Information, page ES-3, last paragraph. The TAC was established for the express purpose of giving interested parties a reasonable opportunity to review and conduct a thorough evaluation of each technical element of the GSP did not occur as stated. Examples of these inputs would be the lack of input given to TAC to review specific sections of the GSP, the short-notice given to review critical key documents (sometime the TAC were given no time to review WRM materials ahead of the TAC meetings), the failure of the GA to respond to specific technical comment letters provided during the development of the GSP (**reference Attachment 1 and 4**), the development of a groundwater funded model by the Navy that occurred prior to the formation of the TAC, and unfortunately although known to have several flaws is being used as a tool to develop the future of groundwater use in this basin.
- ES 2.1 General Description and Setting, ES-4, first paragraph, 5th sentence. Please provide a technical reference to support the statement concerning 50 years of overdraft.
- ES 2.3 Water Supply Source, page ES-5, first paragraph. Please include a summary table for all of the water supply users and include a percentage of their use in the basin.
- ES 2.5 Regional Water Management Agencies, page ES-5, first sentence. Why is the text in this sentence bold?
- ES 2.6 Land Use, page ES-6, first paragraph. Why are small and large agriculture not included in the list of lands overlying the basin?

- ES 2.7 Existing Water Resource Monitoring Programs, page ES-6, second paragraph. Please include a list of all entities that helped implement the Indian Wells Valley Cooperative Groundwater Management Group.
- ES 2.7 Existing Water Resource Monitoring Programs, page ES-6, third paragraph. There are other entities that are also conducting groundwater monitoring (i.e. Large Agriculture), and those entities have offered to share that information with other monitoring entities (i.e. IWVGA). Unfortunately, this data exchange has not been a transparent process (i.e. groundwater level data is cherry-picked to align with the non-agricultural interests).
- ES 2.8 Existing Water Resourced Management Programs, page ES-7, first paragraph. Please provide a reference to overdraft statement. In addition, please provide additional information on where the overdraft within the basin is occurring and provide additional details as to why groundwater management specific areas (**reference Attachment 1**) were not implemented to address the basin wide overdraft condition. In addition, please include an additional bullet to highlight the conservation measures agriculture have implemented to reduce groundwater usage.
- ES 3.1.1 Geology and Hydrogeology, page ES-9, first paragraph, third sentence. Please provide evidence to support the statement that there is a strong connection between the shallow aquifer and the deeper aquifer.
- ES-3.1.2 Soils, page ES-9, first paragraph, last sentence. If the additional preliminary soil surveys were conducted, how were they reviewed by the author if they are not digitally available?
- ES 3.1.4 Water Budget and Overdraft Conditions, ES-10, Table ES-1. Please provide additional details as to why IWV defined the 2011 to 2015 time frame to develop the water budget and who determined this was an appropriate methodology given this does not meet the minimum 10 years suggested by DWR and the 2011 to 2015 time frame represents very dry climatic conditions (**reference Attachment 5**).
- ES 3.1.5 Sustainable Yield, page ES-11, first paragraph, third paragraph. DRI was contracted by NAWS to develop the model without direct input from the TAC; therefore, the statement regarding coordination is not correct. Revise sentence to state that DRI, through a sub-contract with NAWS developed the initial estimated long-term natural recharge. As noted by several TAC members, the DRI model conceptually has architectural and structural errors, which will impact the estimates of overdraft. As noted, several times throughout this GSP development process, overdraft should not be quantified as a single value, and will fluctuate based on hydrologic conditions.
- ES 3.2 Reduction of Groundwater Storage, page ES-11, first paragraph. The statement, significant reduction in storage, should be quantified. Please discuss and identify where chronic lowering of groundwater levels and supposed water quality degradation is occurring. Also, regarding land subsidence, the only documented case of any land subsidence is occurring on NAWS property and has become evident throughout the development of the GSP. NAWS has not committed to reduce pumping and instead projects increased pumping, so please explain how subsidence will be addressed?
- ES 3.2.2 Chronic Lowering of Groundwater Levels, page ES-12, second sentence. As stated, groundwater levels remain stable in other locations, please provide additional geographic details to where this is located (i.e. in proximity to North Brown Road).

- ES 3.2.2 Chronic Lowering of Groundwater Levels, page ES-12, third sentence. Please provide reference to how shallow production wells have been impacted. In addition, please provide geographic details to where this is occurring.
- ES 3.2.4 Groundwater Quality Conditions, ES-12, first paragraph. Please include additional details on impacts to groundwater quality from anthropogenic activities.
- ES 3.2.5 Land Subsidence, ES-13, first paragraph. Please clarify if land subsidence is occurring and identify where this is occurring.
- ES 3.2.7 Groundwater Dependent Ecosystems, page ES-13, first paragraph. If GDE's are confined to NAWS property, please provide further details on how GDE's will be addressed, if NAWS is not required to reduce pumping. Should GDE's and land subsidence not be included as a sustainable management criteria, given the IWVGA has no authority to control the entity who is causing these issues?
- ES 3.3 Numerical Model, page ES-14, first paragraph. Please include a statement further defining how the DRI model was peer reviewed. As this author was part of the TAC model ad-hoc group, I would disagree with the statement peer review. Prior to the formation of the TAC, the DRI model was developed without any input from anyone other than NAWS staff. The TAC only reviewed the model documentation after insisting (**reference Attachment 2**) and we were informed from the beginning that there would be no structural changes to the model, which is unfortunate since there are known structural issues with the model (i.e. given current pumping distribution, pumping volumes are overestimated in Layer 1, anisotropy values are not realistic, etc.).
- ES 3.3 Numerical Model, page ES-14, second paragraph. Please include a statement that the solute and transport model was developed but has not been calibrated again observed data and was not reviewed by the TAC model-ad hoc group.
- ES 3.3 Numerical Model, page ES-14, last paragraph. As stated, and documented several times (**see Attachment 3**), Scenario 6.2 should be considered a management action only and is not the only management action that could be implemented to address declining groundwater levels in specific areas of the basin.
- ES 3.4 Existing Monitoring Network and Data Gap Evaluation, page ES-15, first paragraph, second sentence. Please check formatting.
- ES 3.4 Existing Monitoring Network and Data Gap Evaluation, page ES-15, first paragraph, fourth sentence. Please explain why small and large agricultural wells are not part of the current monitoring program.
- ES 3.4 Existing Monitoring Network and Data Gap Evaluation, page ES-15, first paragraph, sixth sentence. Please specify how many monitoring wells are in the El Paso area, and provide a brief synopsis of the general trend of groundwater levels in this area.
- ES 3.4 Existing Monitoring Network and Data Gap Evaluation, page ES-15, second paragraph, fourth sentence. Regarding Sand Canyon, prior to 2019 minimal maintenance occurred until Meadowbrook Dairy assisted in implementing a maintenance program. Please include a sentence to reflect that Meadowbrook Dairy is collaborating on maintaining and participating in the collection of critical surface water data as an in-kind service.

- ES 3.4 Existing Monitoring Network and Data Gap Evaluation, page ES-15, third paragraph, last sentence. In addition to quantifying domestic well water use, domestic well information and water levels should also be included in the data gap analysis.
- ES 3.4 Existing Monitoring Network and Data Gap Evaluation, page ES-16, first paragraph. Are the Seabees licensed by the State of California to design, drill, install and test monitoring wells? What licensed professional provided oversight of the Seabees work?
- ES 3.4 Existing Monitoring Network and Data Gap Evaluation, page ES-16, fourth paragraph, first sentence. Please explain how using limited aquifer property data could impact the predictive quality of the current groundwater model, and also how these uncertainties will influence both the current baseline model and any predictive future scenarios (**reference Attachment 2**).
- ES 3.4 Existing Monitoring Network and Data Gap Evaluation, page ES-16, fourth paragraph. Please check formatting.
- ES 4.1 Sustainability Goal, page ES-16, first paragraph. Please explain why agricultural interests are excluded from the list.
- ES 4.2 Undesirable Results, page ES-17, third paragraph. Other than on NAWS property, where else is land subsidence an issue? Also, given the geographic specific SMCs (i.e. land subsidence within NAWS property, declining groundwater levels within the City of Ridgecrest), why was the concept of Management areas not implemented (**reference Attachment 2**)?
- ES 4.3 Minimum Thresholds, Measurable Objectives and Interim Milestones, ES-9, third paragraph. Table references are incorrect, they are mislabeled and there are 5 tables not 4, please revise accordingly.
- ES 4.3 Minimum Thresholds, Measurable Objective and Interim Milestones, ES-19, Table ES-2. Please provide additional details as to who decided on the minimum threshold and interim milestones for groundwater removed from storage as this was not vetted by TAC.
- ES 4.3 Minimum Thresholds, Measurable Objective and Interim Milestones, ES-20, Table ES-3. Please provide additional details as to who decided on the minimum threshold and interim milestones for groundwater removed from storage as this was not vetted by TAC. In addition, several of these wells have multiple wells installed (i.e. USBR 6 has three wells), is the author referencing USBR-06S, if so, please provide additional descriptions. Also, at selected representative monitoring sites, groundwater levels actually increase, why was this methodology selected?
- ES 4.3 Minimum Thresholds, Measurable Objective and Interim Milestones, ES-20, Table ES-3 (Sustainable Management Criteria for Degraded Water Quality), should be referenced as Table ES-4. Recent groundwater sampling in Sand Canyon had TDS valued greater than 500 mg/L. Given this water quality will increase in TDS as it is percolated through the subsurface, is it reasonable to have TDS values less than 500 mg/L in this basin? Also, please explain in a table legend what ND stands for.
- ES 4.3 Minimum Thresholds, Measurable Objective and Interim Milestones, ES-20, Table ES-5. How will SMC for land subsidence be controlled if NAWS increased pumping and/or is not willing to participate in the GSP implementation?

- ES 5.0 Project and Management Actions, page ES-23, first paragraph. Please include additional explanations as to how Projects and Management Actions were vetted prior to being decided upon.
- ES 5.1 Management Action 1, page ES-23, first paragraph. How was the base period from 2010 to 2014 determined? The term "safe yield" is not defined and should not be part of this analysis, rather the sustainable yield should be evaluated based upon specific SMCs in order to evaluate how management actions will be implemented. Also, as detailed throughout this process, the 7,650 AFY is only an estimate based on a numerical model (which has errors). The allocation plan should be evaluated after collecting additional SMC specific data for a minimum of 5 years. Management Action 1 unfairly targets individuals that do not sit on the IWVGA board (which is primarily made up of non-pumper members). In addition, IWVGA board members selected who has a chance to participate in annual and transient pool allocation, which again is unfair to pumpers and members of the public.
- ES 5.4 Project No. 3: Basin-Wide Conservation Efforts, page ES-26, first paragraph. The text should note that some Large Agricultural interest groups have also adopted conservation measures (i.e. pilot testing other crops).
- ES 5.5 Project No. 4: Shallow Well Mitigation Program, page ES-27, first paragraph. The shallow mitigation program should not be implemented until additional data (i.e. groundwater levels, groundwater pumping, well construction, etc.) is collected, evaluated and then utilized to assess the implementation of developing Management Action No. 1 (**reference Attachment 4**).
- ES 5.7 Project 6: Pumping Optimization Project, page ES-28, second paragraph. As agreed upon by most technically competent members of the IWVGA committees, current pumping in the North Brown Road area is sustainable; therefore landowners who purposely selected this area of the basin to operate are being unfairly forced from their property to allow for other users (who are determined by IWVGA board members) to move into this area and continue to operate. There are other management options that can be utilized to avoid this process (such as developing a physical solution among pumpers within the basin).
- ES 5.8 Conceptual Projects Still Under Consideration, page ES-29. As detailed in our November 2019 comment letter (**reference Attachment 5**), there are additional conceptual projects that should be further studied, refined and evaluated rather than driving non IWVGA pumpers out of the basin. A summary of these projects could include: Utilize groundwater from the El Paso subarea (estimated to be approximately 4,000 AFY); pump and treat current de-designated area groundwater supply from NAWS property, utilize evaporative loses from Coso Geothermal field and SVM, evaluate projects for SVM to treat groundwater in Salt Wells Valley Basin or find alternative sources of useable groundwater.
- ES 6.0 Implementation Summary, page ES-30, first paragraph. Please provide further explanation on how undesirable impacts are being defined and identify where they are occurring.
- ES 6.0 Implementation Summary, page ES-30, second paragraph, second sentence. There are, in fact, several reliable sources of water available, but unfortunately the IWVGA board has purposely chosen not to evaluate these other sources and given the lack of transparency has alienated all non-urban pumpers from developing a physical solution.
- ES 6.2 Cost and Funding, page ES-32, Table ES-4 Estimated GSP Implementation Costs, should be referenced as Table ES-6. Please provide additional specific details as to how financially viable it

will be to implement any of the Management Actions and Projects given the IWVGA's funding gaps and if NAWS is not required to participate in pumping fee. What will the cost impacts be to IWVWD customers and groundwater pumpers, and more importantly are these costs (estimated to result in an increase of several thousand dollars per year per household) realistic.

SECTION 1 – INTRODUCTION

General Comments:

- **November 2019 Comment** - Section 1.2 Sustainability Goal, page 1-3, second paragraph. The sustainability goal is to manage and preserve the IWVGB groundwater resources as sustainable water supply for all beneficial users. To the greatest extent possible, the goal is to preserve the character of the community, and beneficial users, preserve the quality.
- **November 2019 Comment** - Section 1.4 Agency Information, page 1-5, second paragraph. Text should provide additional detail on whether the federal agencies are also voluntarily willing to comply with any decisions with the GSA to impose projects and management actions on federal land in order to ensure the basin is sustainable by 2040.
- **November 2019 Comment** - Section 1.4.1 (Organization and Management Structure of the IWVGA), page 1-5. Include additional details identifying notable exclusions of some beneficial users (i.e. agricultural and environmental interests, whether as voting or non-voting members) and the reason(s) why beneficial users were not included despite this group makes up more than 50% of the pumping in the basin.
- Section 1.4.2 Legal Authority, page 1-8, first paragraph. Please further expand on why members of the IWVGA board (primarily comprised of non-pumpers) decided to exclude most pumpers and also have the powers to implement fees on pumpers that they are attempting to force out of the basin.
- Section 1.4.2.2 Technical Advisory Committee (TAC), page 1-10, first paragraph. Please explain why TAC members were not given the opportunity to review specific sections of the GSP (i.e. 3, 4, 5, 6, the ES and **reference Attachment 4**) prior to the release of the complete draft GSP.
- Section 1.4.2.2 Technical Advisory Committee (TAC), page 1-11, first paragraph. This author disagrees with the statement regarding the incorporation of TAC comments into how GSP content was developed. There have been no written responses from the WRM to any technical comments (delivered through comment letters (**reference Attachments 1 through 5**). In addition, during the development of the draft GSP, there was no formal tracking of TAC specific comments and ultimately all TAC comments were vetted through the WRM (who works directly for the IWVGA board, again who are made up primarily of non-pumpers with).
- **November 2019 Comment** - Section 1.5 Notice of Communication. Although the author references the C&E, DWR is also looking for summary documentation of all meetings, and examples of how all public meetings were advertised (including how specific technical content was distributed to **non-English speaking members of the public**).
- **November 2019 Comment** – Why was the DWR Preparation Checklist not moved from the appendix and incorporated into this section to allow more efficient review by CA DWR?

- Section 1.5.1 Public Outreach, page 1-19. Please include as an appendix a summary of the workshop activities, attendees and comments received. In addition, please replace the bullet format with a summary table, that lists the event, the data and the specific topics covered at the event.

SECTION 2 – PLAN AREA

General Comments:

- **November 2019 Comment** - Section 2.5.2.1 (Kern County), page 2-17, first paragraph. Although the El Paso area is largely uninhabited and current groundwater demand does not require "significant" groundwater extraction, given the increasing trends in groundwater levels to this area over the last decade, future "significant" groundwater extraction could be possible and should be further investigated for potential projects and management actions prior to enforcing perhaps unnecessary or insufficiently supported pumping allocations.
- **November 2019 Comment** - Section 2.5.2.1 Kern County, page 2-17, Table 2-6. Please include a footnote to explain to the reader the designation of Limited Agriculture and Exclusive Agriculture.
- **November 2019 Comment** - Section 2.7.1 Background, page 2-27, last paragraph. Please provide a reference to historic and recent studies regarding overdraft conditions in the basin. Are the current conditions a result of overdraft or removal of temporary surplus (or both)?
- **November 2019 Comment** - Section 2.7.3 Conservation Programs, page 2-29. Please include a detailed section of both water efficiency and demand management measures and practices currently underway by large Agriculture (specifically to Alfalfa operations along north Brown Road).
- **November 2019 Comment** - Section 2.7.6 Groundwater Contamination Cleanup, page 2-37. Please provide additional details on all chemicals of concern (including chemicals per- and polyfluoroalkyl substances (PFAS)) and results of the 2017 sampling that turned up PFAS levels of 8 million parts per trillion (which are the highest in California, and one of the highest globally as noted in the report).
- **November 2019 Comment** - Section 2.7.7.4 IWVGA Policies, page 2-42. Provide additional details on how the extraction fee was calculated.
- Section 2.7.7.4 IWVGA Policies, page 2-44. Please provide specific details on the outreach efforts as part of IWVGA Ordinance 01-19 to reach out to non de minimis and de minimis extractors and based on best available data how many non de minimis and de minimis pumpers have failed to register their wells. In addition, explain the current management process for enforcement for unregistered groundwater extraction facilities.
- Figure 2-4. Please add labels for all major streams, creeks and springs.
- Figure 2-5. Please distinguish between IWVWD pumping wells and CSD wells. Also, please include location of all wells including NAWS wells.
- Figure 2-14. Please include additional details (table insert) summarizing the status of the contaminated site (i.e. active, closed, groundwater, vadose zone, current monitoring activities, etc.).

- Figure labeling needs to be consistent, as an example, Section 2 figure captions are located in the top right-hand side of the page, while figure captions for Section 3 are located on the bottom right hand side of the page.

SECTION 3 – BASIN SETTING

General Comments:

- Section 3.1 Introduction, page 3-1, third sentence. Please check formatting.
- **November 2019 Comment** - Section 3.1 Introduction, page 3-1, first paragraph, third sentence. The descriptive HCM…will be used to describe basin setting "static" conditions. Why is the author using the word "static" here?
- **November 2019 Comment** - Section 3.2 History of Water Use in the Indian Wells Valley, page 3-4, third paragraph. According to the data presented, peak groundwater usage occurred in 1985 (approximately 29,730 AF), not in 2007 (29,430 AF). In addition, significant conservation efforts were made by the Navy (60% reduction), Meadowbrook Dairy (35% reduction), but an increase occurred of 45% IWVWD. Please revise paragraph and tables to reflect peak water usage and conservation measures implemented by all beneficial groundwater users.
- Section 3.3 Hydrogeologic Conceptual Model, page 3-6, first paragraph. Please include a description why more recent geologic and hydrogeologic data (funded in part by CA DWR) was not utilized as part of the GSP (**reference Attachment 1**). In addition, please explain how this data will be incorporated into a revised numerical model and how current management decisions will be refined and or modified if revised modeling activities contradict the current model (that is not utilizing the most current data sets).
- **November 2019 Comment** - Section 3.3.1 (Geology and Hydrogeology), page 3-7, first paragraph, Figures 3-5a and 3-5b. Given the recent amount of new geologic and hydrogeologic information, and concerns about overdraft in this basin, the author should include more recent local geologic information (i.e. SkyTEM, supported financially by DWR and recent installation of new production wells, **reference Attachment 1**). Also please revise cross-section to be in color. Also provide more than just two cross-sections (the minimum required by SGMA). Additional cross-sections should be developed specifically through the North Brown Road Area and include at least one diagonal cross-section (either oriented Northeast-Southwest and/or Northwest-Southeast).
- **November 2019 Comment** - Section 3.3.1 Geology and Hydrogeology, page 3-9, first paragraph. Please provide a more detailed description of the two principal aquifers (i.e. thickness) and how the applicable aquifer characteristics (thickness, permeability, etc.) change throughout the basin.
- **November 2019 Comment** - Section 3.3.1 Geology and Hydrogeology, page 3-9, second paragraph. Regarding USBR (1993) slug test data. Typically slug tests are not very useful as they only represent a very small area within the vicinity of the test location. A sentence should be included to reflect the value of this data.
- Section 3.3.2 Soils, page 3-10, second paragraph. Please include Bullard et al 2019 report into the appendix. As required by SGMA, all reference material used to support the GSP must be included.
- Section 3.3.3.1 Climate and Precipitation, page 3-11, second paragraph, first sentence, please check spelling.

- Section 3.3.3.1 Climate and Precipitation, page 3-11, second paragraph, last sentence. Text states annual precipitation by water year, but reference (No. 26) indicated data by water year were not available. Please clarify and resolve. As detailed under SGMA, this data should be reported as the average for 1980 through 2010 as water year (per DWR) and not calendar year.
- **November 2019 Comment** - Section 3.3.3.1 Climate and Precipitation, page 3-11, second paragraph, Figure 3-9. A paragraph should be included to explain whether the information illustrated on Figure 3-9 was used to select the historical water budget period. Also, these plots should be redone to report data in water years and not calendar year per GSP regulations.
- Section 3.3.3.2 Streamflow and Mountain Front Recharge, page 3-11, first paragraph. Please provide all streamflow data, analysis type (including calculations), field notes, as an appendix for all stream gauging.
- **November 2019 Comment** - Section 3.3.3.2 Streamflow and Mountain-Front Recharge, page 3-13, first paragraph. Mountain front recharge is difficult to quantify and estimate and often has a lot of uncertainty associated with it. Please reference current work on mountain front recharge as part of the Antelope Valley adjudication and provide revised documentation utilizing current methodologies using all recent data (the author should not rely exclusively on others' work).
- **November 2019 Comment** - Section 3.3.3.2 Streamflow and Mountain-Front Recharge, page 3-14, first paragraph. Is there data that proves the statement "There are no significant interconnected surface water systems"? To exclude this SMC, GSP needs to have data to support this. The use of the phrase".....no significant....." implies there are interconnected surface-waters, yet in the opinion of the author they are not significant. They either are or are not interconnected surface waters.
- Section 3.3.3.2 Streamflow and Mountain-Front Recharge, page 3-14, if influent steam TDS concentrations are greater than 500 mg/L is it not realistic to have SMC for water quality set lower than 500 mg/L.
- **November 2019 Comment** - Section 3.3.3.2 Streamflow and Mountain-Front Recharge, page 3-14, first paragraph, fourth sentence "The IWVGB has many natural springs....." if the basin contains springs, then it contains interconnected surface water.
- Section 3.3.4 Water Budget and Overdraft and Overdraft Conditions, page 3-15, first paragraph. Please include a section detailing in plain language terms what a water budget is (i.e. Water budgets are similar to a bank account in that there are inflows, outflows, and a change in the bank account balance or storage. Inflows and outflows in the hydrologic system are largely driven by processes occurring on the land surface. Within the Subbasin, these inflows and outflows are dominated by land use).
- Section 3.3.4.1 Water Budget Elements, page 3-16, first complete paragraph. The USGS BCM model has been issued as a draft and given the large range in recharge estimates would be very useful for this GSP. Please include USGS even as an estimate to Table 3-4.
- Section 3.3.4.1 Water Budget Elements, page 3-16, Table 3-4. Given the range of recharge estimated, baseline model runs should utilize a range, and not just rely on a single recharge estimate, developed by NAWS sub-contractor (**reference Attachment 1**).

- Section 3.3.4.1 Water Budget Elements/Groundwater Pumping, page 3-17, first paragraph. Please provide data as appendix that summarizes the analysis conducted utilizing the McGraw et al. 2016 reference.
- Section 3.3.4.1 Water Budget Elements, page 3-20, second paragraph. With all the various sources of groundwater pumping data described and the known error through the reporting process in previous sections, please provide detail on what quality control measures were implemented, and how this author's comparisons of pumping estimates made over time periods were common to each of the investigations? Also, how did previous studies vary and compare to the Cooperative Group's historical data? Please include additional details on this information in the text and include all analysis as an appendix (**reference Attachment 2**).
- **November 2019 Comment** - Section 3.3.4.1 Water Budget Elements, page 3-20, third paragraph. How was the domestic wells residence average of 1 AFY determined (**reference Attachment 2**)? This should be explained and also how do pumping volumes vary over time. Same comment applies to water use by mutuals and co-ops. Footnote 13 should be expanded upon and included into this paragraph.
- **November 2019 Comment** - Section 3.3.4.1 Water Budget Elements, page 3-18, fourth paragraph. The previous paragraphs sound exclusively promotional for the Navy while a similar tone and content is not provided other non-IWVGA members. There is no mention of the reduction in ag pumping from 1985, 2007 or 2015 like there is for urban discussion or the Navy, why not?
- **November 2019 Comment** - Section 3.3.4.1 Water Budget Elements, page 3-19, second paragraph the last sentence of this paragraph is not supported by any information provided to support it. Unless there is relevant agreed upon information available, please remove the sentence "unless restricted, agricultural use is expected to increase significantly", as this is not necessarily true.
- **November 2019 Comment** - Section 3.3.4.1 Water Budget Elements, page 3-19, second paragraph. Does the current ET value vary on an annual basis? If so, a range should be presented along with any variations associated with dry versus wet climatic conditions.
- **November 2019 Comment** - Section 3.3.4.2 Historical Water Budgets, page 3-21, Table 3-6. The historical water budget spans almost 100 years and does not account for any temporary surplus. This is not a representative period of analysis for evaluating a SGMA historical water budget period because the selection of this long of a period includes different cultural conditions that have occurred over that time frame. This selection of such a long-time frame is not consistent with industry practice in the selection of a representative period that represents average annual historical conditions.
- **November 2019 Comment** - Section 3.3.4.2 Historical Water Budgets, page 3-21, first paragraph. Revise first sentence from "extractions increased" to "extractions occurred." In addition, please explain whether the IWVGA has considered the process described in this paragraph to be related to removal of temporary surplus rather than an overdraft condition.
- Section 3.3.4.2 Historical Water Budgets, page 3-21, Table 3-6. Since there is still outflow from the basin (ET and Interbasin Subsurface Flow), which is similar to what happened in San Fernando), IWVGA should conduct an analysis and consider whether this reduction in storage is not overdraft but removal of temporary surplus.

- **November 2019 Comment** - Section 3.3.4.3 Current Water Budget, page 3-22, first paragraph. For GSP purposes, the "current water budget" follows the historical water budget; it is not a subset of the historical water budget. Since the historical water budget used for the GSP was 1922 through 2016, it is not clear why the current water budget should be 2011 to 2015. In addition, the 2011 through 2015 period corresponds to an extremely dry period in California history and any review of groundwater levels or water budgets is going to show dramatic declines. The selection of this period appears to be a case of "pick a period and pick your answer".

- **November 2019 Comment** - Section 3.3.4.4 Overdraft Conditions, page 3-22. If there is still outflow from the basin to Salt Wells Valley and extensive ET still occurs at the playa, IWVGA must consider whether this is a removal of temporary surplus, and not overdraft.

- Please provide basin wide figures illustrating groundwater elevations for select periods (dry, wet, historic, current, change in groundwater elevation) utilizing all known data sets. Do not just rely on work by others, the author should utilize their own interpolations and include adequate details (utilizing linear and color contour statistical methodologies).

- Section 3.3.4.4 Overdraft Conditions, page 3-23, second paragraph. As mentioned, several times throughout our review of the GSP development process, USBR-6 is not a single well, this location has three different wells, each screened at a specific interval. For the last 5 years, groundwater levels have been stable at the USBR-6S location. There are two other well depths, but they are screened below all major pumping depths in this area. Based on this data, is it rationale to defend that current pumping volumes in and around the Brown Road area are not operating sustainably? Please revise the text to provide a more comprehensive analysis of all wells detailed in this section.

- **November 2019 Comments** - Section 3.3.4.4 Overdraft Conditions, page 3-22, first paragraph, last sentence. Disagree with the author, as you are using a historically dry period, coupled with a period of temporary surplus to conclude overdraft occurs. In addition, the current water budget period should follow historical water budget period, not be part of it (reference GSP Best Management Practices).

- Section 3.3.4.4 Overdraft Conditions, page 3-25. Please include text that details the most current estimated available storage from both the DRI model and recent WRM evaluation. Recent preliminary investigations by others have estimated that usable amount of available storage could exceed 10 million AF.

- Assuming there is approximately 10 million AF of groundwater in storage, and the cumulative change in storage has been approximately 620,000 AF since 1992 (23-year period); this cumulative change in storage, which includes both representative dry and wet years, reflects a rate of approximately 0.3% per year. It would not be reasonable to expect that the available groundwater in storage would be exhausted over any foreseeable time period.

- Section 3.3.5 Sustainable Yield, page 3-26, first paragraph. Please provide written documentation where the IWV TAC estimated the long-term average natural recharge to be 7,650 AFY (**reference Attachment 1**). Several members of the TAC agreed to a range for recharge and attempted to utilize a range as well as sustainable management criteria into analysis (see Attachment). Please remove reference to TAC.

- **November 2019 Comment** - Section 3.3.5 (Sustainable Yield), page 3-26. Please include details on what the estimated sustainable yield would be if climate change is incorporated (as required by SGMA, **reference Attachment 4**)?
- **November 2019 Comment** - Section 3.3.5 Sustainable Yield, page 3-27, Table 3-8. Regarding Outflows, specific to ET. The ET should be separated out to differentiate between ET from vegetation versus ET from China Lake Playa. ET from China Lake is water that could instead be captured by increasing extraction, thereby removing surplus and increasing aquifer storage space. This is water that is being wasted unless it is meeting a reasonable and beneficial use.
- **November 2019 Comment** - Section 3.3.5 Sustainable Yield, page 3-27, Table 3-8. Regarding Outflows, specific to Extractions. Provide information on extraction by water use sector (ag, urban, domestic, and other).
- Section 3.3.5 Sustainable Yield, page 3-27, Table 3-8. Regarding Change of Groundwater Storage. This increase of -4.080 AFY in aquifer storage depletion indicates that sustainability is not being projected beyond 2040 on an annual basis. As described in the text, the water budget is not intended to be a direct measure of sustainability, instead sustainability indicators are used. Given this fact, please incorporate this context into the overall long-range plan on this basin, i.e., focus on sustainability indicators in specific areas of the basin, and then adjust the specific management actions to meet the sustainability metrics without specifically targeting large agriculture where in certain parts of the basins are actually operating (pumping) without having an negative impact on groundwater levels (i.e. USBR 6S groundwater levels are stable).
- Section 3.3.5 Sustainable Yield, page 3-29. The formulation of the water budget should be separated into a ground-surface water budget and a groundwater budget to clarify the water budget dynamics of the basin, or the author could potentially have more sustainable yield in order to reduce the amount of outflow via ET and subsurface flows to Salt Valley to near zero. Please include the equation that was used to estimate sustainable yield. Currently, the author is only assuming that recharge equals sustainable yield when in reality water lost to ET and outflow to Salt Valley should be included. DWR's Draft BMP also indicates that reducing pumping to an estimated basin-wide average annual recharge does not equate to sustainability.
- Section 3.3.5 Sustainable Yield, page 3-29. Why did the author not include climatic variability over the 50-year planning horizon?
- Section 3.4 Current and Historical Groundwater Conditions and Hydrology, page 3-28, second paragraph, third sentence. Please check formatting.
- Section 4.4.1 Reduction of Groundwater Storage. Overdraft is noted to be occurring in specific areas of the basin (as noted in text developed by the GSP author in section 3.4.2); however please include a detailed section on why specific management areas and/or zones were not developed to allow for specific problem areas to be managed separately and not impact areas that are currently operating in a sustainable manner (**reference Attachment 2**).
- Section 4.4.2 Chronic Lowering of Groundwater Levels. Please provide a figure in the main text that illustrates where in the basin groundwater levels are experiencing "significant" declines and also please define "significant". As denoted above, groundwater levels currently being measured by non-GSA board members indicate that groundwater levels are relatively stable (i.e., not significantly declining" and in fact at least two wells that are currently being monitored as part of this GSP are relatively stable).

- Section 4.4.2 Chronic Lowering of Groundwater Levels. Please include a section detailing the location of all domestic wells where groundwater elevation was collected and provide a summary table of how water levels have changed through time. Given several statements in the GSP documentation are made about domestic well water levels being impacted from pumping, it is crucial the GSP author provide defensible data to support these statements.
- **November 2019 Comment** - Section 3.4.4 Groundwater Quality Conditions, page 3-30, first paragraph. Please include a discussion on the distribution of anthropogenic contaminants (i.e. PFASS), and an evaluation for the potential future potable, industrial or other uses of de-designated groundwater (which would require varying degrees of treatment) on NAWS property.
- Section 3.4.4 Groundwater Quality Conditions, page 3-30. Please include a section detailing the location of all domestic wells that were sampled for water quality and provide a summary table of how that water quality has changed through time. Given several statements in the GSP about domestic well water levels and water quality being impacted from pumping, it is crucial the GSP author provide defensible data to support these statements.
- **November 2019 Comment** - Section 3.4.5 Land Subsidence, page 3-33. Please include additional details on actions the Navy is planning to implement to avoid increasing further land subsidence and also provide a detailed approach on how applicable changes to Navy and other pumping would impact other relevant SMC's.
- **November 2019 Comment** - Section 3.4.7 Groundwater-Dependent Ecosystems, page 3-34. Please include additional details on actions the Navy is planning to implement to avoid impacting GDE's which are located primarily if not entirely on Navy property.
- Section 3.4.7 Groundwater-Dependent Ecosystems, page 3-34. Please include a section detailing what other ecological conditions were assessed to determine the conservation value of potential GDE's. Were critical habitats evaluated?
- Section 3.5.1 Initial Model Document, page 3-36, second paragraph. As described in the text, DRI developed the model for NAWS prior to the formation of the TAC, please note this in the text.
- Section 3.5.2 Flow Model Review and Recalibration. Although the TAC model-ad hoc group had the opportunity to review model documentation, no review occurred of any of the model input or output files. In addition, as discussed during several technical meetings, there was no willingness to adjust the structural architecture of the model, which is known to be flawed. Also, please include a statement that described how quality control was maintained within the DRI model team, after the departure of the primary model leader and what QA/QC processes were implemented by the GSP author to ensure technical data related to the model were simulated correctly. Did the GSP author review all input model files prior to implementing a specific model simulation?
- Section 3.5.4 Baseline Conditions, page 3-43, first paragraph the "current" baseline model developed for the initial modeling scenarios, should not be considered a true baseline scenario (**reference Attachment 4**). For the "current" baseline period, a request was made by the WRM to selected producers to estimate potential future pumping over a 50-year period (factoring in growth). This information was compiled and utilized by the WRM in the current groundwater flow model. Subsequent model scenarios have been compared to this "current" baseline model run. Recommend that a "revised" baseline model scenario be developed in accordance with the

GSP Regulations. The exact development of how pumping rates in the "revised" baseline model scenario should be discussed further.

- Section 3.5.4 Baseline Conditions, page 3-43, Table 3-10. Please insert a description as why future climatic conditions were not incorporated into the baseline simulation.
- **November 2019 Comment** - Section 3.5.5 Numerical Model Scenario 6.2, page 3-44. Concerns with Scenario 6 (as well as Scenarios 3-5) have been extensively documented in the public record (**reference Attachment 4**), but largely remain unaddressed and unresolved. Scenario 6.2 includes many built-in assumptions, including for example, imposition of groundwater pumping allocations that require Meadowbrook and other large producers to cease production over a given time period, relocating the IWV Water District's pumping locations to very area of the Basin from which Meadowbrook and others would be eradicated, and importing water, all of which are more accurately described as Projects and Management Actions, and many of which are objectionable, not fully vetted and not agreed upon. Scenario 6.2 is, in other words, more accurately described as a Project and Management Action model scenario, and not a valid framework for a GSP. At a minimum, individual PMA's should instead be specifically identified, detailed in their assumptions, vetted for feasibility and consensus, and then compared to a revised baseline scenario, before being considered for inclusion or implementation in a GSP. As described under the GSP regulations, PMA's should be developed to address sustainability goals, measurable objectives, and undesirable results identified in the Basin. The PMAs developed for the GSP should consider reducing the potential socioeconomic impacts associated with actions required to sustainably manage groundwater in the Basin.
- **November 2019 Comment** - Section 3.5 Numerical Groundwater Model. All documentation related to the model should be included as an appendix. In addition, please provide more details to how the groundwater model is related to the current conceptual understanding of the basin, and where there are known issues where the current flow model does not represent the current conceptual understanding of the basin (i.e. along north Brown Road, Layer 1 in current flow model does not accurately represent the actual lithology (the model underestimates the actual thickness, which would then overestimate the amount of drawdown occurring from pumping in that area). As detailed during several TAC meetings, current groundwater levels (i.e. USBR 6) in North Brown Road have not changed since approximately 2010. Current pumping in the North Brown Road area is estimated to be greater than 15,000 AFY, and recent groundwater data (i.e. USBR 6S, on-going monitoring by large Ag) has not decreased, suggesting that the sustainable yield in the North Brown Road area could be greater than 15,000 AFY. In addition, the El Paso area has increased groundwater levels over the last decade, which by some preliminary estimates equates to approximately 1,000 to 4,000 AFY of additional recharge. This additional recharge could be utilized to supplement existing supplies. Please include a discussion of this and add as a project Concept in Section 5. The potential use of such additional recharge should be seriously considered in informing any "allocation" scheme.
- **November 2019 Comment** - Section 3.5.5 Numerical Model Scenario 6.2, page 3-44, Management Action No. 1. Please explain in more detail how the allocations over a 20-year period to 2040 were determined, how was the "highest beneficial use determined", and why was the highest continual pumping from 2010 to 2014 used for domestic and municipal pumping (which was also an extremely dry period in California).

- Section 3.5.5 Numerical Model Scenario 6.2, page 3-46, last bullet summary item. Although the GSP author considers projects 3, 4 and 5 not relevant, it is critical to at a minimum explain what these Projects included. Please refine and modify text accordingly.
- **November 2019 Comment** - Section 3.5.5 Numerical Model Scenario 6.2, page 3-46, Table 3-11. Why would agricultural water use necessarily increase from 42% (in 2020) to 56% (in 2070)? Please include text to explain or correct error.
- **November 2019 Comment** - Section 3.5.6 Climate Change, page 3-47. Section 354.18(c)(3) of the GSP regulations require climate change be considered. Model inputs for climate projections should be developed using guidelines outlined in the DWR "Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development" document (DWR, 2018).
- Section 3.5.6 Climate Change, page 3-47. Please include a section in the text on how model uncertainty due to climate change was evaluated.
- **November 2019 Comment** - Management Areas Section should be included as detailed in DWR Annotated outline – Please provide a detailed explanation of why management areas were not evaluated and were not determined to be appropriate for this basin to help facilitate groundwater management by the different water use sector, geology and aquifer characteristics. Multiple requests and suggestions were made from TAC members and the public to consider management areas (**Attachment 2**).
- Section 3.6 Existing Monitoring Network and Evaluation, page 3-47. Why is this section included here? This section should be moved to Sustainability Management Criteria Section (as detailed in DWR annotated guideline document).
- Figure 3-2. Specific contour lines are not legible on this figure, please revise. In addition, a digital elevation map should also be included to help the reader better visually illustrate the topography of this area.
- Figure 3-3. Please include additional details as an overlay of the contaminated sites, the approximate location of NAWS property and the El Paso area.
- Figure 3-4a. Please provide additional cross-sections as requested (**reference Attachment 5**).
- Figure 3-5a and Figure 3-5b. Revise figure format to include color and utilize 11 X 17 format. Also, please include the original geophysical logs (as an overlay) next to the lithology for each well.
- Figure 3-5b. As detailed in Figure 3-5a, please include where NAWS area is depicted in the figure.
- Figure 3-9. As detailed in the cumulative departure curves from China Lake, 2010 – 2015 indicates a dry year, and not an average year, and therefore the methodology used to develop the baseline model scenario, and proposed allocation concepts are technically flawed.
- Figure 3-10. Please provide similar hydrograph data for all creeks that are currently being monitored, including Sand Canyon.
- Figure 3-12. As detailed by the hydrographs, groundwater levels measured from USBR-06 shallow have been stable since approximately 2010 and USBR-10 groundwater levels from all depths have been stable since 2000. Please include additional details on this figure to illustrate the change in groundwater elevation for all key wells. Also, please include at least 5 other contour figures (1995, 2000, 2005, 2010), developed by WRM that include the entire area. Please do not rely solely on

others work. Also, please include at least four figures that illustrate the relative change in groundwater levels (i.e. from 2000 to 2005, 2005 to 2010, 2010 to 2015, and 2000 to 2015).

- Figure 3-13. Based on recent water quality data, TDS values in the shallow wells from USBR-6, USBR-10, NR-2, USBR-5 (located in primary ag pumping areas) and NACC-71 have not shown any significant increase in TDS values since at least 1995. MW TTBK-MW12 (located on NWAS property) has shown significant increase in TDS. Please address this comment.
- Figure 3-19. As discussed above, because of the errors in the original structural architecture of the model, and where pumping has been assigned, the model currently overestimates pumping impacts.
- Figure 3-22. Baseline annual and cumulative plots are misleading, as illustrated this baseline is not a true baseline scenario (please include a footnote to identify the assumptions, **reference Attachment 2, 3 and 5**).

SECTION 4 – SUSTAINABILITY MANAGEMENT CRITERIA

General Comments:

- **November 2019 Comment** - Revise entire Section 4 to follow DWR GSP annotated outline as agreed upon among the TAC and WRM. As an example, why are undesirable results presented prior to measurable objectives and minimum thresholds?
- **November 2019 Comment** – Please include a general summary table for sustainable management criteria. The summary table should include the Sustainability Indicator, Minimum Threshold, Measurable Objective and Undesirable Result.
- As noted in Section 3, data gaps and uncertainty are known to exist in the characterization of the hydrogeologic conceptual model and groundwater conditions. Please explain how this uncertainty was considered when developing the sustainable management criteria and how these uncertainties could impact the SMCs presented in this section.
- Section 4.2.3 Sustainability Measures, page 4-4. Please include a description of how sustainable management criteria were developed using information from interested parties and public input.
- Section 4.2.4 Explanation of How Goal will be achieved. Why is the GSP author including a description of PMA before they are introduced? Remove all reference to PMAs and include language that ensures the Plan area meets its sustainable goal by 2040, the GSA proposed projects and management actions (PMAs) described in Chapter 5, to address undesirable results. The projects and PMAs proposed include augmentation projects and management actions that optimize groundwater use in the Subbasin. The sustainability goals will be maintained through proactive monitoring and management by the GSA as described in this and the following chapters".
- Section 4.2.4 Explanation of How Goal will be Achieved, page 4-5, first bullet. Why is the GSP author constantly dismissing water conservation efforts currently being implemented by other users, i.e. large agriculture?
- Section 4.3 Undesirable Results, page 4-7. There is no reference in the introduction in regard to all beneficial use type, please include a statement (as required by GSP regulations).

- Section 4.3.1 Cause of Undesirable Results, page 4-8, last paragraph. Baseline conditions are referenced as no action, but this baseline as defined is not realistic (**Attachment 3, 4 and 5**). A realistic baseline model scenario (utilizing realistic, peer-reviewed data that follows GSP regulations) should be run. As is, the Baseline condition detailed in this report is not realistic and will affect all additional model results and impacts on how various SMCs are set.
- Section 4.3.1.2 Criteria to Define Undesirable Results, page 4-9, second paragraph. Regarding the reference to the NAWS letter, given the concern of encroachment concerns, please state what actions NAWS is taking to reduce those concerns (e.g. what PMA are they willing to support financially).
- Section 4.3.1.2 Criteria to Define Undesirable Results, page 4-9. Again, using the incorrect baseline model scenario will result in overestimating impacts to domestic wells. A baseline model scenario that complies with GSP regulations should have been used. In addition, given the current structural architecture of the model, pumping is overestimated in the upper aquifer (which is were all domestic wells are screened). The domestic well analysis utilized groundwater elevation contours prepared by others and relied on "hear say" from well owners and did not utilize any peer-reviewed verified data and should be considered as a preliminary analysis, which will be further expanded up during GSP implementation.
- Section 4.3.2.1 Cause of Undesirable Results, page 4-10. As detailed in previous comments, the current Baseline (no action) is not realistic and should be modified to a realistic baseline condition in compliance with GSP regulations as all subsequent SMC criteria (i.e. land subsidence) based on this scenario are not accurate (**reference Attachment 3, 4 and 5**).
- Section 4.3.2.1 Cause of Undesirable Results, page 4012, first bullet. Other than NAWS related pumping, what other beneficial users have control on inducing potential land subsidence?
- Section 4.3.3.1 Cause of Undesirable Results, page 4-12. Given the concern of elevated TDS concentrations, please identify where these are occurring and explain why management areas were not implemented to help manage these specific areas (**reference Attachment 2**).
- Section 4.3.4.2 Criteria to Define Undesirable Results, page 4-14. Given that land subsidence is primarily occurring on NAWS property, potential effects are constrained to this area of the subbasin, and NAWS is not required to participate in SGMA, how can land subsidence be alleviated by non-NAWS pumping? A groundwater management area concept could have allowed for local control to help alleviate these area specific problems (**reference Attachment 2**). Please include a description of management areas was not implemented and who decided that.
- Section 4.4 Minimum Thresholds, page 4-15. Please revise this section to align with GSP Annotated Outline, i.e., Measurable Objectives should be first, followed by Minimum Thresholds and then introduce Undesirable Results. In addition, the Monitoring Network detailed in Section 3 should be moved to Section 4.
- Section 4.4.1 Reduction of Groundwater in Storage Minimum Threshold. Since Groundwater levels serve as a proxy for storage, groundwater level minimum thresholds should be presented prior to groundwater storage.
- Section 4.4.1 Reduction of Groundwater in Storage Minimum Thresholds. As required by GSP regulations, Minimum thresholds for reduction of groundwater storage shall be calculated based on historical trends, water year type and projected water use. Reduction in storage in not a

parameter that can be directly measured; rather, change in storage should be calculated from change in change in groundwater levels and aquifer material. The numerical model is one tool, but please utilize additional analysis to evaluate. As an example, develop spatially weighted average differences of groundwater levels and model derived storage.

- **November 2019 Comment** - Section 4.4.1.7 Method of Quantitative Measurement, page 4-19. For comparison purposes, please provide the Theissen weighted average polygon method to historic and current groundwater conditions and include a detailed description and figures in Section 3. This information will then inform the baseline comparison and can be utilized to assess the impacts of future project management actions into the future.
- Section 4.4.2.6 Representative Monitoring Sites, page 4-23, Table 4-1. Please clarify that USBR-06S is the well be designated as the monitoring well, not just USBR-6.
- Section 4.4.2.6 Representative Monitoring Sites, page 4-23, Table 4-1. Include a column detailing the proposed baseline water surface elevation for each well.
- Section 4.4.2.6 Representative Monitoring Sites, page 4-23. Please reference an appendix that contains hydrographs from which minimum thresholds were developed.
- Section 4.4.3.1 Criteria Used to Establish Minimum Thresholds, page 4-24, first paragraph. SGMA water quality objectives focuses on a constituent's contribution due to activities at the land surface rather than on the presence of naturally occurring constituents. Please provide additional details on what information was reviewed to develop TDS as a constituent.
- **November 2019 Comment** - Section 4.4.3 Degraded Water Quality Minimum Thresholds, page 4-24, second paragraph. Please provide further justification on why the author is increasing minimum threshold values to 600 mg/L and 1,000 mg/L in areas with poor water quality. In addition, water quality data for current agricultural wells have not significantly changed since the early 1990's. Significant data already exists to determine minimum thresholds in this area and should also be derived based on beneficial usage. Please explain how postponing the establishment of minimum thresholds impacts proposed management actions and projects—including potentially imposing severe groundwater pumping limitations that would eliminate an entire class of producers—and how such postponement is justified under SGMA, the DWR Regulations and related requirements.
- Section 4.4.3.1 Criteria Used to Establish Minimum Thresholds, page 4-24, first paragraph. Given the known uncertainty in the current solute transport model, why were other methodologies not utilized to evaluate TDS minimum thresholds. As detailed in the text, TDS concentrations are only available for a few GSP monitoring locations. One common methodology would be to calculate the expected concentration of TDS utilizing the trend in annual changes in concentrations (i.e. expected concentration = initial concentration + (Trend concentration X the number of years since initial concentration). Then compare the expected concentration value to the TDS expected value. If the analyzed concentration is lower than expected concentration, then the analyzed concentration is better than expected concentration for that particular year that represents the measurable objective. If the analyzed TDS concentration is higher than the expected concentration, then add the minimum threshold relative change in concentration value to the expected concentration to obtain TDS concentration that, if exceeded would exceed the minimum threshold concentration. Then compare the analyzed TDS concentration to the expected

minimum concentration and is the analyzed concentration is lower than the minimum threshold would not be exceeded.

- Section 4.4.3.6 Representative Monitoring Sites, page 4-27, Table 4-2. Please include a column that details the minimum threshold concentration for each well.
- **November 2019 Comment** - Section 4.4.3.6 Representative Monitoring Sites, page 4-28. Given the potential for additional groundwater extraction from the El Paso area, recommend adding additional wells to this monitoring network.
- Section 4.4.4 Land Subsidence, page 4-29, first paragraph. This section is confusing as an MT of 0.09 inches/year is being proposed, but then a subsequent sentence suggested that setting the MT may not provide total protection. In addition, as detailed above this area is on NAWS property, and therefore if NWAS is not planning to curtail pumping how can subsidence (induced from NAWS pumping) be managed. Other than on NAWS property, is land subsidence an issue for this basin? If not, then suggest removing this SMC from the GSP.
- Section 4.4.4.2 Relationship to Other Sustainability Indicators. If groundwater levels fluctuate from NWAS pumping, then subsidence could occur. Without controlling NWAS pumping, subsidence will more than likely occur in SNORT area.
- Section 4.4.4.6 Representative Monitoring Sites, page 4-30, third paragraph. If land subsidence is going to be part of this GSP, then please list key indicator wells and the subsequent threshold. Thresholds should be both rate of change and groundwater elevation.
- Section 4.5 Measurable Objectives, page 4-31, first paragraph. Present Groundwater elevation data prior to reduction in storage.
- Section 4.5.1 Reduction of Groundwater in Storage Measurable Objective and Interim Milestones, page 4-31. Provide a summary table that presents the interim milestones (5, 10 and 15 yr.) for change in groundwater storage, not the cumulative volume of groundwater removed from storage.
- Section 4.6.1 Reduction of Groundwater in Storage, Table 4-3, page 4-33. Please include a column that details the change in storage and not just the groundwater removed from storage estimates. In addition, since change in storage is directly related to change in groundwater elevations (multiplied by aquifer storage coefficients) and the areal extend of the subbasin, please also reference the wells used to measure groundwater elevation change as part of this analysis.
- Section 4.6.2 Chronic Lowering of Groundwater Levels Summary, Table 4-4. Include a column that contains the baseline (i.e. 2015) groundwater elevation, and date of the baseline measurement.
- Section 4.6.2 Chronic Lowering of Groundwater Levels Summary, Table 4-4. Please provide further justification as to why only 10 wells are proposed to be utilized to monitor sustainable management criteria. DWR has developed specific regulations and guidance documents (reference Monitoring Networks and Identification of Data Gaps BMP) that recommend that in a basin the size of IWV (600 square miles) and pumps more than 10,000 AFY, the minimum number of monitoring well locations should be between 24 and 60. In addition, why would the author not integrate current agricultural well monitoring into the program?
- Section 4.6.2 Chronic Lowering of Groundwater Levels Summary, Table 4-4. Please include the specific well designation that will be utilized, i.e. USBR-06S.

- **November 2019 Comment** - Section 4.6.2 Chronic Lowering of Groundwater Levels. Several monitoring wells listed in the proposed network have groundwater data that indicate groundwater levels have been stable since 2010 (USBR-01, USBR-04), 2012 (USBR-06S), 2014 (USBR-2), and 2016 (NR 2). Why would current pumping in these areas need to be adjusted or reduced since current groundwater levels in these areas indicate that current pumping is sustainable? And if imposed, how does the IWVGA justify the Scenario 6.2 PMA that would eradicate Agriculture and then move the water district and other producers into that very area?
- Section 4.6.3 Degraded Water Quality Summary, Table 4-5. As detailed above, interim milestones for water quality should be described as annual TDS increase. Also, wells designated as ND, TDS concentrations have not been determined at this time. Given this uncertainty, how will water quality SMCs be derived post-GSP?
- Section 4.6.4 Land Subsidence Summary, Table 4.6. In addition to a subsidence rate, please include groundwater elevation data that would also be used as proxy from nearby wells to monitor land subsidence.
- **November 2019 Comment** - Section 4.7.1 GSP Proposed Monitoring Network, page 4-36, first paragraph. Please provide further justification as to why only 10 or 11 wells are proposed to be utilized to monitor sustainable management criteria. DWR has developed specific regulations and guidance documents (reference Monitoring Networks and Identification of Data Gaps BMP) that recommend that in a basin the size of IWV (600 square miles) and pumps more than 10,000 AFY, the minimum number of monitoring well locations should be between 24 and 60.
- Section 4.7.1 Proposed Monitoring Network and Schedule, page 4-36, second paragraph. If the additional 198 wells are going to be utilized to monitoring groundwater level changes and calculate change in storage, then these wells needs to be included as key monitoring wells and applicable SMC's need to be developed for that group as well.
- Section 4.7.1 Proposed Monitoring Network, page 4-37, third paragraph. If there are additional water quality data from GAMA wells, why are they not being included into the list of key water quality monitoring wells?
- Section 4.7.1 Proposed Monitoring Network, page 4-37, fourth sentence. Please provide specific details on how IWVGA will coordinate with U.S. Navy to identify wells that will be monitored to evaluate land subsidence. In addition, please explain how potential reduction in pumping on U.S. Navy property will be implemented.
- Section 4.7 GSP Proposed Monitoring Network, page 4-36. Please include a summary table that lists the well, GPS coordinates, the specific SMC the associated well will monitor, the monitoring frequency and the basis for selecting that specific well(s).
- Figure 4-1. Please include a list of all the NAWS contaminated sites on this figure.
- Figure 4-2. Additional key wells are needed in the NE and SW areas. Based on previous monitoring well location figures, there are data available. Please revise figured to include all monitoring wells needed (per recommendations by DWR) for a basin this size and then pumps in excess of 10,000 AFY.
- Figure 4-5e. Based on the historic hydrograph, groundwater elevations in this well have been stable since 2011, indicating that groundwater pumping in this area is currently sustainable.

Please revise linear historic trend line accordingly and quantify and display both the annual and 5-year change in GWE.

- Figures 4-6a – 4-6f. Please quantify and display annual and 5-year change in TDS concentrations.

SECTION 5 – PROJECTS AND MANAGEMENT ACTIONS

General Comments:

- Section 5.1 Introduction, page 5-1, first paragraph. SGMA defines "sustainable yield" as the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result. Please insert a description that details this information and provide the base period time period.
- Section 5.1 Introduction, page 5-1, second paragraph. Please remove first sentence as the current sustainable yield estimate as mentioned several times throughout the development of this GSP should be further evaluated, provided as a range as this is misleading the reader.
- **November 2019 Comment** - Provide a summary table for each PMA that includes the project, measurable objective expected to benefit, expected benefits to stakeholders, current status, timetable (initiation and completion), estimated cost and permitting and regulatory process.
- Section 5.2.1 Management Action No. 1, page 5-5, last paragraph. Please provide the SGMA code reference for the establishment of a base period. As detailed several times throughout the GSP development process, 2010 – 2015 might not be considered an appropriate base period as this period represents a predominately dry period in California, the base period does not represent long term conditions, etc.
- Section 5.2.1 Management Action No. 1, page 5-6. The allocation and transient pool concept will be determined by IWVGA, which currently only represents select groundwater pumpers (IWVWD and the Navy) in the basin (totaling less than 40% of the pumping in the basin). Please explain how the proposed allocation concept is going to protect those entities that are not represented by IWVGA?
- Section 5.2.1 Management Action No. 1, page 5-6, third paragraph. Please provide additional details on how the 51,000 acre-feet estimate was derived, the individual parties that were involved with developing that estimate. Also, please explain how other pumpers who are not represented on the IWVGA board were involved with evaluating and providing input on this methodology concept.
- Section 5.2.1 Management Action No. 1, page 5-7, second paragraph, fourth sentence. Reference to 37,000 AFY baseline is incorrect and overestimated pumping in the basin. As detailed numerous times in this letter, the referenced baseline should not be considered a baseline, as this assumed "business as usual", which all water users in the basin realized is not possible.
- Section 5.2.1.3 Justification, page 5-9, third paragraph. Without a clear understanding of the FRWR, it will be extremely difficult if not impossible to implement any allocation scheme. As this author has said several times throughout the development of this GSP, all pumping (including from the Navy) needs to be quantified prior to attempting to manage the basin. Water budgets are similar to a bank account in that there are inflows, outflows, and a change in the bank account balance or storage. Inflows and outflows in the hydrologic system are largely driven by processes

occurring on the land surface and it is impossible to estimate the bank account in this basin without qualifying NAWS future pumping demands.

- Section 5.2.1.5 Permitting and Regulatory Process, page 5-11, last paragraph. Please elaborate on how determination, implementation and enforcement of groundwater allocations will occur.
- Section 5.2.1.7 Implementation Process and Timetable, page 5-12, second paragraph. Please explain who is included in the "All groundwater pumpers" category and how domestic de-minimis users and NAWS pumping information will be evaluated, given this is a variable that has not been quantified and would be critical in understanding total volumes pumped from the entire basin.
- Section 5.2.1.7 Implementation Process and Timetable, page 5-12, second paragraph. It is not realistic to only have 15 days to review and provide comments on this document. In addition, the WRM works for the IWVGA, which does not represent all groundwater pumpers in the basin, please provide a detailed process for how this information will be reviewed, and perhaps bring in a third-party state agency to participate in the review.
- Section 5.2.1.8 Legal Authority, page 5-12, last paragraph. Although the GSA has the authority to regulate groundwater extractions, an initial allocation of groundwater extraction or any other limitation on groundwater extraction by the GSA "shall not be construed to be a final determination of the rights to extract groundwater from the basin or any portion of the basin." (Water Code, § 10726.4(a)(2).) In this instance, similar to a physical solution, the management strategy must pay due regard to common law and competing water right claims. (See *City of Santa Maria v. Adam*, (2012) 211 Cal.App.4th 266, 288; *California Am. Water Co. v. City of Seaside*, (2010) 183 Cal.App.4th 471, 480.)
- Section 5.2.1.8 Legal Authority, page 5-13. For each management action and project, please include a section that details how the PMA relates to groundwater sustainability and the expected benefits and metrics. Also include a summary table to detail this process.
- Section 5.3.3 Project No. 3: Basin-wide Conservation Efforts, page 5-33, second paragraph. Why is the WRM excluding large and small agricultural interests from discussing historical, current and proposed future conservation measures that could be implemented?
- Section 5.3.4 Project No. 4: Shallow Well Mitigation Program. Recommend the shallow well mitigation program be established, data collected and then depending on the results of this program allocation, discussions for all groundwater users could be further refined and implemented during the 5-year GSP update.
- Section 5.3.6 Project NO. 6: Pumping Optimization Project. Please explain why IWVGA wants to force agriculture (who are not represented by any IWVGA board members) out of the NW area of the basin (where current pumping is sustainable), and then allow other pumpers (that are represented on the IWVGA board) to move into this area and begin pumping? Is there not a potential conflict of interest in making these management decisions?
- Section 5.4 (Conceptual projects under consideration). Please include an additional project to this list. The project would focus on investigating the potential to utilize surplus groundwater in the El Paso subarea to supplement existing supplies. Preliminary useable groundwater estimates are greater than 4,000 AFY, or even higher if additional volumes are removed from storage. This PMA should be seriously investigated and considered before imposing groundwater pumping limitations or allocations.

- **November 2019 Comment** - Section 5.4.3 Conceptual project under consideration. Please include a project that would focus on treating and using the current de-designated area groundwater supply below NAWS property (which is preliminarily estimated to exceed 500,000 AF). This PMA should be seriously investigated and considered before imposing groundwater pumping limitations or allocations.
- **November 2019 Comment** - Section 5.4.3 Conceptual project under consideration. Please include a project that would evaluate the feasibility to capture current evaporative loses from the Coso Geothermal field and utilize to enhance water in the IWV (which is preliminarily estimated to exceed 10,000 AFY). This PMA should be seriously investigated and considered before imposing groundwater pumping limitations or allocations.
- **November 2019 Comment** - Section 5.4.3 Conceptual project under consideration. Please include a project that would evaluate the feasibility for SVM to treat local groundwater in the Salt Wells Valley Basin (which is preliminarily estimated to exceed 500 AFY).
- **November 2019 Comment** - Section 5.4.3 Conceptual project under consideration. Please include a project that would evaluate the feasibility for SVM to capture current evaporative loses from their facilities.
- Include additional figures to illustrate the approximate location of ALL conceptual projects also under consideration.

SECTION 6 – IMPLEMENTATION PLAN

General Comments:

- **November 2019 Comment** - Section 6.1 Implementation Plan Summary. Please include how stakeholder engagement through the advisory committee activities will be utilized to allow the general public to provide input and develop an exchange amongst a broad range of stakeholders. Develop a schedule (including meeting times, i.e. quarterly) to discuss GSP and GSA activities, provide input and present on items of interest.
- **November 2019 Comment** - Describe how public outreach will continue and provide opportunities for engagement during GSP implementation. This should include providing opportunities for public participation, especially from all beneficial users, at public meetings, providing access to GSP information online, and continued coordination with entities conducting outreach.
- Section 6.3 GSP Implementation Costs and Funding, page 6-5, Table 6-1. Please provide costs for conceptual projects under consideration. This information is critical to ensure that all projects are considered.
- **November 2019 Comment** - Section 6.3.2 Potential Funding Sources, page 6-6. Please provide more detail on the potential funding amount associated with each potential funding source and how that related to applicable projects and management actions.
- **November 2019 Comment** - Section 6.3.2 Potential Funding Sources. Please provide a planning level estimate of annual amount of funds needed to implement GSP projects. Also, prior to implementation of any fee or assessment program needed to fund these projects, please detail the types of assessment studies or other analysis (consistent with regulatory requirements) needed in this section. Notably, the IWVGA's currently imposed GSP development groundwater

extraction fee of $30/AF is among the highest in the State, was not supported by a traditional Proposition 26/218 study or analysis and was imposed over extensive objections raised by many producers and members of the public.

- **November 2019 Comment** - Section 6.4 Periodic Evaluations and Assessment. Please include a summary table for GSP Schedule for Implementation. The table should highlight the high-level activities anticipated for each five-year period. These activities are necessary for ongoing plan monitoring and updates, as well as tentative schedules for projects and management actions.
- **November 2019 Comment** - Provide an additional section, entitled First Five Year Update (2020 – 2025) and identify several key tasks that were identified during the development of the first GSP that need to be further developed or resolved in the five-year GSP update. These could be special studies that need resolution but could not be resolved during the initial GSP development. These could include establishment of metering program, finalizing allocation framework, developing methodology for establishing minimum thresholds for new wells, refining and improving the current groundwater model, mitigation for possible future domestic wells, creating a data gap plan, etc.

APPENDIX (1-A) – GSP MODEL DOCUMENTATION

General Comments:

- Please provide a revised document that includes signatures for all members, as the current version does not.

APPENDIX (1-D) – LISTING OF INTERESTED PARTIES

General Comments:

- Please include a data as to when this list was generated. As is, there are several interested parties' names missing from this list.

APPENDIX (1-E) – COMMUNICATION AND ENGAGEMENT PLAN

General Comments:

- Donna Thomas is no longer associated with the IWVGA PAC, therefore please revise PAC chair, or whoever was in charge of further implementing the Communication and Engagement Plan.

APPENDIX (2-A) – POSSIBLE AND CONFIRMED GROUNDWATER CONTAMINATION SITES

General Comments:

- Please add additional data that approximates both the vertical and horizontal contamination for each contaminated site. As displayed, the data only identified the site and not the lateral and vertical extend of the site contamination.

APPENDIX (3-A) – WATER PRODUCTION DATA

General Comments:

- Please provide a revised table that is complete (through 2017) and estimate the error associated with gathering this pumping information. Please include a graphic to illustrate the change in groundwater usage for each entity from 2000 – 2005, 2005 – 2010, 2010 – 2015 and 2015 – 2017.

APPENDIX (3-D) – GROUNDWATER ELEVATION CONTOUR MAPS AND SELECTED WELL HYDROGRAPHS

General Comments:

- There are no contour maps included in this appendix. Please include contour maps or remove the word contour map from this appendix.
- Also, please revise selected hydrographs to include all current data (through 2018).

APPENDIX (3-E) – SHALLOW WELL IMPACT ANALYSIS

General Comments:

- What independent analysis occurred to verify the 2014 estimate of shallow wells?
- Section 3.0 Changes in Depth to Groundwater. Why did the author rely on KCWA contour maps and not perform their own independent contouring analysis?
- Figure 4 and Figure 5. Please include the well control points used by KCWA to interpolate this information. In addition, also provide a change in groundwater elevation contour map between 2000 – 2005, 2005 – 2010, and 2000 to 2015.
- Please include additional details to how regional pumping changed from 2010 to 2015 in specific areas to correlate pumping to these changes in groundwater levels. According to Appendix 3-A, pumping in 2010 was approximately 27,000 AFY and in 2015 it was 25,000 AFY. Given the reduction in pumping, why would groundwater elevation data not correlate?
- Section 7. Please provide a similar analysis using a realistic baseline scenario (less than 35,000 AFY) as this presents an unbiased review of planned pumping and would align with current annual pumping estimates (approx. 25,000 AFY).

APPENDIX (3-E) – SHALLOW WELL IMPACT ANALYSIS

General Comments:

- Please include a Table of Contents
- Section II.5 Subsidence modeling with MODFLOW, page 267, last paragraph. The author admits that the model overestimated subsidence, which was also observed in several groundwater elevation simulations. This overestimation is related to the model structure and how pumping is allocated into specific layers.

APPENDIX (3-H) – GSP MODEL DOCUMENTATION

General Comments:

- **November 2019 Comment** - The primary authors of this model document should sign, date and stamp this document per California Code of Regulations.
- **November 2019 Comment** - Section 2.4.1, page 2, describe the vertical extension of the General-Head Boundary. Also, provide a figure which illustrates the location of GHB and No-Flow boundary conditions on the perimeter boundaries and a cross section which shows the vertical distribution of the boundary conditions as well.
- **November 2019 Comment** - Section 2.4.3, page 3, describe if the recharge rates are specified only at the highest active layer of the model or only at the first layer. Also, describe briefly why the author did not use "Recharge" package of MODFLOW to simulate the mountain-front recharge and instead, the "Well" package was utilized.
- Based on previous work, transient recharge is not constant (i.e. the same as steady state recharge). Why was this not incorporated into the model to take advantage of additional wet years, which would result in additional water in storage.
- Section 2.4.3, and the associated figure 4 on page 6 implies that there are some recharge boundary conditions on the perimeter boundaries but the figure shows "black lines" everywhere on the perimeter boundary. Provide more transparent description or revise the figure with color lines representing different boundary conditions (No-Flow/GHB/Recharge) on the study domain.
- **November 2019 Comment** - Figure 4, page 24, provide units for the flux values.
- **November 2019 Comment** - Section 2.4.5, page 4, provide a range of depth for the pumping wells.
- Figure 11. Where NAWS pumping wells simulated? If so, please include approximate locations.
- **November 2019 Comment** - Section 2.4.5, page 11, describe the package used for simulating the pumping wells. Is it "Well" package or "MNW" package (Multi-Node Well)?
- Section 2.5.1 Steady-State Model, page 16, vertical anisotropy value is not realistic and will underestimate the impact from pumping. Vertical anisotropy ratio should be closer to 0.1 (or 10% of horizontal hydraulic conductivity) and should also be varied spatially. Please revise model language to address this uncertainty and explain the potential impacts on all model scenarios.
- Section 2.5.1 Steady-State Model, Figure 14. Please include the locations of calibration targets.
- Section 2.5.1 Steady-State Model, Figure 17. Given the error in using unrealistic vertical anisotropy values, and the non-unique solution for this code, please address the uncertainty in this calibration and identify other hydrologic properties that will need to be refined as part of the modeling process, and the impacts this will have and the proposed allocation schemes.
- Section 2.5.2 Transient-Historical Model, Figure 27. In general, simulated groundwater levels are lower than observed groundwater levels. In addition to the error in vertical anisotropy (which would indicate simulated water levels should be less than observed), please explain this model error and the impacts it will have on any model simulations.
- Section 2.6 Sensitivity Analysis. Please revise sensitivity analysis to include vertical anisotropy evaluation. Recommend running at 0.1, 0.5 and comparing to baseline. In addition, given that

this model is being utilized to drive management decisions, please include at least 15 wells to assess simulated heads.

- Section 2.7 Predictive Flow Models, page 39. Reference is made to the baseline flow model simulates a "no action" alternative, where most groundwater withdrawal rates and locations that occurred in 2016 are continued into the future…….These baseline assumptions do not align with the baseline scenario presented in the GSP. Please explain the difference and resolve accordingly.
- Section 2.7 Predictive Flow Models, page 39. There were in fact more than just two predictive flow models run, please present a brief summary of all predictive model scenarios and the applicable inputs and assumptions for each.
- **November 2019 Comment** - Section 3.2, page 13, provide more detailed information about the temporal-resolution of the transport model. The flow model has annual time discretization for the transient model and monthly discretization for the predictive model. What is the time-step of the transport model?
- Section 3.3 Configuration, page 41, third paragraph, third sentence. Please correct reference to Section XX.
- **November 2019 Comment** - Section 3.4, page 14, last line, and the associated figure 36, page 43, simple averaging of simulated TDS value from layers of the multi-screen well is not exactly an appropriate approach, unless the flow rates to the well screens are the same for those layers. The calculation of mean concentration from a multi-screen well is usually based on volumetric flow rates to/from each screen. This flow rate can be captured by using MNW package in modeling the pumping wells (https://pdfs.semanticscholar.org/e8f2/dc3b4aa227532ad74f977b99abf070560321.pdf):

$$C_{average} = \frac{\sum_{i=1}^{n} Q_i C_i}{\sum_{i=1}^{n} Q_i}$$

where Q_i and C_i are flow rates and concentrations for each layer of the multi-screened well, respectively.

- Section 3.4 Initial Boundary Conditions, page 49, Figure 41. Influent concentrations of 350 mg/L are too low. Based on recent surface water sampling data (Sand Canyon), TDS concentrations are greater than 500 mg/L. Please revise analysis accordingly.
- **November 2019 Comment** - Section 3.5, page 50, provide additional graphs to describe the qualitative validation of the model using box and whisker plot of the TDS concentrations (simulated vs. measured) for different time intervals (for example 1920-50, 1951-70, 1971-90, 1991-2016) for shallow (plot #1), intermediate (plot #2), and deep (plot #3) TDS zones. Collect all available measured concentrations for each depth zone, for each time interval, and then compare them with the model's results at the same location and time (As reference, review https://doi.org/10.1016/j.jconhyd.2019.103521 , section 3.1).
- Section 3.5, page 51, Figure 42. For clarification, based on proposed DRI baseline model predictions, there is no annual rate of change for TDS is several areas (not designated as yellow or orange), please clarify this and incorporate into the legend (reference as TDS = no change).

- Section 3.6 Transport Results, page 52, first paragraph, last sentence. Correct reference to Section XX of the GSP report.
- Section 3.6 Transport Results, page 53, Figure 43 and Figure 44. Based on transport results, there is very little change predicted to occur under assuming baseline and model scenario 6.2. Given these results, is there really a TDS issue from pumping occurring in this basin?
- Section 4, page 17, add to the limitation list, that this transport model is qualified only for the purpose of "scenario analysis" and it is not an "absolute predictive model" because the transport model has not been quantitatively calibrated (which increases the uncertainty of the simulated results).
- Section 4, page 17. Please include an explanation why climate change was not evaluated as part of this modeling effort.
- Either address or include a statement as to why not all PMA were evaluated and presented as part of this modeling report (instead they are buried in an appendix). This is critical to ensure sustainability is achieved utilizing one or more PMA's.
- Please note that numerical groundwater models are created based on simplified assumptions used to replicate complex natural systems. Consequently, results are generally subject to errors and limitations due to conceptual misunderstandings of the hydrologic system and uncertainties in estimating aquifer properties and boundary conditions. These uncertainties are due to both spatial and temporal limitations in observation data and the types of observation data available.
- Please include a summary and conclusions section in this report
- Please highlight the sustainability yield calculated from all scenarios and present as a range in AFY.

APPENDIX (4-A) – NAVY LETTER ON ENCROACHMENT CONCERN

General Comments:

- If Navy correspondence is going to be included, please also include all correspondence material from all entities. Including Navy only correspondence indicates favoritism by the IWVGA and will be looked on negatively by DWR.

APPENDIX (5-A) – U.S. NAVY LETTER ON HISTORICAL WATER USE

General Comments:

- This correspondence should be removed and be incorporated as part of the allocation discussion scheduled to occur after the GSP has been submitted in 2020 or allow other beneficial users to provide similar documentation and include into this GSP appendix.

Thank you for considering our comments and recommendations for the December 2019 Draft and we expect that response to all comments from all letters and the public for this review (unlike the November 2019 comments) will be reviewed, categorized and addressed in writing. We look forward to working with you to further produce and implement the Groundwater Sustainability Plan in Indian Wells Valley.

Sincerely,

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Eddy Teasdale, P.G., C.HG
Supervising Hydrogeologist

CC: Adam Bingham (Chair Technical Advisory Committee)

Attachments:

Attachment 1 – Indian Wells Valley Groundwater Authority Technical Advisory Committee Member on March TAC Item (February 22, 2018) – Items presented, included water budget, establishment of baseline, groundwater modeling, transparency, development of annual storage volumes (analytical and numerical methods), groundwater levels, contour maps, overdraft, additional resources,

Attachment 2 – Indian Wells Valley Groundwater Authority Technical Advisory Committee Member on Match TAC Item (dated March 28, 2018) - Items presented included model update, water budget elements and historical pumping, recycled water opportunities, alternative water and imported water opportunities, reporting on production.

Attachment 3 – IWV TAC Comments on Proposed Modeling Scenario 1 (dated January 9, 2019) – Provided comments on Model Scenario 1.

Attachment 4 – Indian Wells Valley Groundwater Authority Technical Advisory Committee Member Comments on September 5, 2019 TAC Items (dated September 12, 2019). Items included draft model documentation appendix, shallow well impact results & sustainable management criteria, concerns about the baseline model scenario and scenario 6.2.

Attachment 5 – LSCE Comment Letter on TAC/PAC GSP Draft (dated November 15, 2019).

Attachment 1

500 First Street
Woodland, CA 95776
(530) 661-0109
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February 22, 2018
File No. 18-1-021

Sent Via E-mail: JeanM@stetsonengineers.com

Ms. Jena Moran, P.G., C.HG
Senior Hydrogeologist
Stetson Engineers Inc.
785 Grand Avenue, Suite 202
Carlsbad, CA 92408

SUBJECT: Indian Wells Valley Groundwater Authority Technical Advisory Committee Member Initial Comments on Water Budget Elements and Initial Groundwater Levels

Dear Ms. Moran:

This letter is submitted in response to the Indian Wells Valley Groundwater Authority (GA) Water Resources Manager Discussion Overview memorandum to the GA Technical Advisory Group (TAC) members, dated February 1, 2018, which was provided for the TAC February meeting. As indicated in that memorandum, Stetson Engineers requested TAC members to provide written initial comments on: (1) Water Budget; (2) Initial Groundwater Levels; and (3) specific Water Resources Manager Questions for TAC Members. We appreciate the opportunity to provide preliminary comments on these subjects to lay groundwork for the next several TAC meetings, and we look forward to developing a process to reach technical consensus as we move forward through the GSP process. Our comments are itemized below based on the three discussion topics outlined in the February 1, 2018 memorandum provided by Stetson Engineers.

Discussion Topic Number 1 - Water Budget

A water budget is defined by SGMA as an accounting of the total groundwater and surface water entering and leaving the basin including the changes in the amount of water stored. Water budgets should be developed based on accepted scientific practices as documented in DWR's Water Budget Best Management Practices. The water budget should be developed based upon best available data, information and science. Water budgets and base period analysis should be arrived at through consensus among the TAC and with the Water Resources Manager. As they are developed, water budgets should be compared to the water budgets from previous studies to evaluate whether the modeling tools produce similar water budget estimates. In accordance with GSP regulations, the evaluation of a base period representing average conditions and for the analysis of sustainable yield should also be derived through TAC and Water Resources Manager consensus.

Historical water budget information should be a primary basis for estimating future baseline conditions of hydrology, water demand and groundwater supply reliability over the 50-year GSP planning and implementation horizon. Historical precipitation, evapotranspiration information should be developed based on best available science and information, and used in developing future baseline hydrology conditions. The uncertainty associated with climate change should be considered and addressed, including through evaluation of climate change scenarios provided by DWR and reliable local data. Per GSP regulations, the most recent land use, evapotranspiration, and crop coefficient information should be evaluated for baseline conditions for estimating future water demands with consideration given to future water demand uncertainty associated with projected changes in local land use planning, and population growth. Likewise, the most recent water supply information should be evaluated for baseline conditions for estimating future surface water supply incorporating the historical surface water supply reliability with consideration given to projected changes in local land use planning and population growth. The projected water budget accounting should also include estimated changes in the projected water budget resulting from planned implementation of the selected projects and should be used to quantify the estimated future baseline conditions of supply, demand, and aquifer response to GSP implementation. The projected water budget assessment in the GSP should also evaluate and identify the level of uncertainty in the projected water budget estimate.

Initial Comments on Topic Number 1 – Water Budget

- A methodology should be developed and agreed upon for how measurements of all groundwater extraction volumes will be calculated, recorded, stored and reported, and to whom.
- The Cooperative Groundwater Management Group has tabulated historical groundwater pumping data back to 1975. To the extent that data is relied upon, the quality control and assurance of that data collection and calculation process should be reviewed and updated where data gaps and data overlap appear to exist, for example:
    - Indian Wells Valley Water District (IWVWD) (which acquired lands and/or pumping from other entities listed on the chart)
    - Naval Air Weapons Station – China Lake (as to conservation efforts listed in the footnotes)
    - Orchards, Private Wells, and various ranches where the data, as currently presented, includes overlap as described in part in the footnotes.
- To account for diverse conditions and water users in the basin, discussion should occur, and decisions should be made as to the appropriateness of developing or utilizing basin management areas within the context of the water budget.
    - GSP Regulations define a management area as, “an area within a basin for which the Plan may identify different minimum thresholds, measurable objectives, monitoring, or projects and management actions based on differences in water use sector, water source type, geology, aquifer characteristics, or other factors” (Section 351).

  - Individual management areas must be coordinated to achieve a basin's overall sustainability goal.
- Groundwater model utilization to support basin water budget.
  - As described in DWR's Groundwater Modeling BMP, the development and use of groundwater model in support of a GSP should promote transparency, coordination and data sharing.
  - Greater transparency and TAC engagement is necessary to achieve "buy-in" on current groundwater modeling efforts in the Indian Wells Valley. We reiterate a previous recommendation that a TAC model review panel be established to peer-review the current groundwater flow and transport model. At the March TAC meeting, dates and times for a TAC model review panel workshop should be established, and individual workshop participants identified. Participants should also include the Desert Research Institute (DRI). I also request to be on the panel.
  - Develop annual change in storage volumes utilizing both analytical and numerical methodologies and evaluate the similarities and differences between the methods.
  - Discuss how climate models, land use and growth production will be incorporated into future model scenarios.

Discussion Topic Number 2 - Initial Groundwater Levels

Through GSP development, gaps in available monitoring data including for groundwater levels, and groundwater quality, should be determined. In addition, potential approaches for filling the gaps, including incorporation of existing wells into GSP monitoring activities, and for construction of new monitoring wells should occur. The GSP groundwater monitoring network should be developed using existing and new infrastructure and coordinated with other GSP efforts including but not limited to:

1) Regular groundwater level collections (e.g., CASGEM, DWR, USGS, local entities);
2) Regular groundwater quality testing required by the California Division of Drinking Water for public supply wells;
3) Project- or industry-specific groundwater quality data collection required by the Regional Water Quality Control Board for regulated facilities (e.g., contamination sites);
4) Existing wells that can be added to the monitoring network; and
5) New dedicated monitoring well installations

Groundwater elevation data, groundwater contour maps, and hydrographs prepared as part of the development of the Hydrogeologic Conceptual Model should be evaluated further in terms of sustainability goals, minimum thresholds, measurable objectives, and sustainable yield. Similarly, the amount of groundwater storage and groundwater storage capacity should be determined relative to sustainability criteria and sustainable yield.

Initial Comments on Topic Number 2 – Initial Groundwater Levels

- Well location names utilized to construct the contour maps references on PLATE7-IWV-GW DEPTH Spring 2015 and PLATE8-IWV-GW ELEV Spring 2015 should be posted on the applicable figure.
- Interpolation and contouring methodologies should be described and discussed.
- TDS values should be considered in contouring as an analogy for evaluating groundwater flow patterns.
- Well information such as depth, well type (production or monitoring well) should be defined within the figure legend.
- Groundwater elevation and change in groundwater elevation figures for both shallow and deep wells should be created and evaluated.
- Groundwater elevation hydrographs for each well should also be posted within the figure to help facilitate future discussions regarding base period selection.
- All available groundwater elevation data (contour maps and hydrographs) should be incorporated into the IWV DMS platform to help facilitate development of future measurable threshold and measurable objective discussion topics.
- It is crucial that groundwater level information will be considered in the establishment of minimum thresholds and measurable objectives for IWV to consider as part of the development of the GSP. Per GSP regulation 354.28, minimum thresholds need to be established for each sustainability indicator at each monitoring site. Exceedance of a minimum threshold is presumed to cause undesirable results. The development of a minimum threshold that is unique to each monitoring facility allows the GSA to utilize historical data in establishing those thresholds that are representative of the monitoring facility location in the basin. The level of effort involved in this task could be significant and depends on the number of existing facilities agreed upon for monitoring of the sustainability indicators that are identified. Although this task may involve a substantial effort in the short term, the long-term benefits for groundwater management in IWV will be pronounced and more accurately account for historical variations and conditions. The recommended minimum thresholds should focus on sustainability indicators and be consistent with the GSP regulations.
- Review and develop a revised GSP applicable monitoring program (as compared to data gaps present in the historical data record conducted as part of the existing scope of work) and identify data gaps related to current monitoring of the sustainability indicators listed below. The review should include frequency of monitoring, monitoring facility locations, and types of data collected. The results of the review should be documented in a monitoring network plan that will focus on the following sustainability indicators that are relevant to:
    - Land Subsidence
    - Chronic Lowering of Groundwater Levels

  - Reduction of Groundwater Storage
  - Degraded Water Quality
- The monitoring network plan should include recommendations for augmentation, as appropriate, of the current monitoring program to ensure compliance with GSP regulations and address data gaps as presented in Article 5, Subarticle 4 of the GSP regulations and how uncertainty in monitoring will be addressed.

Discussion Topic Number 3 - Water Resources Manager Questions for TAC Members Regarding Overdraft as related to future sustainable yield discussion

"Sustainable Yield" is defined as the maximum quantity of water, calculated over a base period representative of long-term conditions in a basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result. As such, the sustainable yield translates to the amount of groundwater pumping that can be sustained without producing significant and unreasonable declines in groundwater storage or other undesirable results. There are three primary methods for estimating sustainable yield: 1) using water budgets; 2) performing change in groundwater storage calculations; and 3) using a groundwater flow model.

The first method looks at water budget components over a balanced hydrologic period in a basin to determine if pumping results in long-term declines in groundwater storage (as determined annually from the balance of total inflows and outflows) or if other sustainability indicator thresholds are being exceeded. Long-term storage decline and/or exceeding other sustainability indicators may indicate a need for specific projects/management actions to meet the basin sustainable yield.

The second method involves looking at changes in the measured groundwater elevations over specific time periods and relating that to changes in groundwater storage over time. An effective way of assessing the change in storage under this method is to utilize groundwater elevation surfaces during spring, when much of the winter recharge has occurred and basin pumping is typically at a minimum, and to compare these spring water levels from year to year. Changes in groundwater storage can be translated to volumes of water lost or gained from year to year in this manner. These changes in groundwater storage over the long-term (or at least multiple years) can then be compared to pumping amounts over the same time periods to determine which time periods resulted in stable conditions when no net depletion of storage occurred (or how much storage was lost compared to total pumping).

The third method involves utilizing a groundwater flow model. The flow model would be the most robust tool to determine sustainable yield, as various management actions and groundwater pumping model inputs can be altered and effects on groundwater storage, streamflow contributions, and subsurface lateral flows can be simulated. The testing of various combinations of management actions/projects and different amounts of groundwater pumping and the evaluation of simulated effects on groundwater storage, streamflow contributions, and subsurface lateral flows would lead to an

estimate of sustainable yield. See comments on Topic Number 1 regarding recommendations for establishing a model review panel.

Comments on Topic Number 3 - Specific Water Resources Manager Questions for TAC Members

The Water Resources Manager's February 1 memorandum asked TAC members to provide comments on two questions: (1) "Is there TAC agreement the basin is over drafted?" (2) "Are there additional studies and/or resources the TAC believes should be considered during the development of the Hydrogeological Conceptual Model?"

GSP Regulation 354.18(b) provides that a water budget shall quantify the following, either through direct measurements or estimates based on data:

> (1) Total surface water entering and leaving a basin by water source type.
>
> (2) Inflow to the groundwater system by water source type, including subsurface groundwater inflow and infiltration of precipitation, applied water, and surface water systems, such as lakes, streams, rivers, canals, springs and conveyance systems.
>
> (3) Outflows from the groundwater system by water use sector, including evapotranspiration, groundwater extraction, groundwater discharge to surface water sources, and subsurface groundwater outflow.
>
> (4) The change in the annual volume of groundwater in storage between seasonal high conditions.
>
> (5) If overdraft conditions occur, as defined in Bulletin 118, the water budget shall include a quantification of overdraft over a period of years during which water year and water supply conditions approximate average conditions.
>
> (6) The water year type associated with the annual supply, demand, and change in groundwater stored.
>
> (7) An estimate of sustainable yield for the basin.

Bulletin 118, Update 1980 defines a groundwater basin as being *subject to critical conditions of overdraft* "when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." It further states that "the adverse impacts do not necessarily occur throughout the entire basin; in fact, water levels may be rising in one portion of the basin, or in one aquifer, even though the basin is in overdraft or subject to critical conditions of overdraft."

Bulletin 118, Update 2003, describes *groundwater overdraft* as a "condition of a groundwater basin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years, during which the water supply conditions approximate average conditions."

It states further that "despite its common usage, the term overdraft has been the subject of debate for many years. Groundwater management is a local responsibility, therefore, the decision whether a basin is in a condition of overdraft is the responsibility of the local groundwater or water management agency."

Under SGMA, all high- or medium-priority basins that have been designated in Bulletin 118 as basins that are *subject to critical conditions of overdraft* must be managed under a GSP by January 31, 2020. Bulletin 118 has identified the IWV basin as one of twenty-one basins in California that are *subject to critical conditions of overdraft*.

First Question: Is there TAC agreement the basin is over drafted? If so, by how much?

- Based upon current and available data and DWR's designation of the IWV basin as a basin that is subject to critical conditions of overdraft, the IWV groundwater basin does presently appear to be experiencing overdraft.
- The *extent* of overdraft, however, requires further analysis and the collection, compilation and evaluation of relevant data, including the elements required by GSP regulation 354.18(b) set forth above. Studies currently underway (e.g. USGS recharge study) will further refine the analysis. As described in Topics 1 and 2 above, more and better refined data is needed for each water budget element, which will be used to define and estimate historic, current and projected potential overdraft.

Second Question: Are there additional studies and/or resources the TAC believes should be considered during the development of the Hydrogeological Conceptual Model?

- Ongoing SkyTEM hydrostratigraphic and water quality data should be incorporated into the refined HCM.
- DRI November 17, 2017 Technical Memorandum detailing updates to the Indian Wells Valley Groundwater model since the 2016 model update.
- Sandia Report (SAND2016-8930) – Frontier Observatory for Research in the Geothermal Energy: Phase 1 Topical Report West Flank of Coso, CA.
- Work with the TAC to create a comprehensive bibliography list of all reference documents and highlight why selected studies are or are not to be utilized (ex. Todd Report).
- When applicable, define the methodology of how extraction and recharge estimates are derived (i.e. directly measured versus equation derived) in prior reports.

Thank you for considering our initial comments and recommendations. We look forward to working with you to further define, develop and produce the Groundwater Sustainability Plan in Indian Wells Valley.

Sincerely,

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Eddy Teasdale, P.G., C.HG
Senior Hydrogeologist

Attachment 2

March 28, 2018
File No. 18-1-021

Sent Via E-mail: SteveJ@stetsonengineers.com

Mr. Steve Johnson, P.E.
Indian Wells Valley Groundwater Authority Water Resources Manager
Stetson Engineers Inc.
861 S. Village Oaks Drive, Suite 100
Covina, CA 91724

SUBJECT: Indian Wells Valley Groundwater Authority Technical Advisory Committee Member Comments on March TAC Items

Dear Mr. Johnson:

This letter is submitted in response to the Indian Wells Valley Groundwater Authority (GA) Water Resources Manager's (WRM) March 6, 2018 request for input from Technical Advisory Committee (TAC) members on the following items:

1. Model Update
2. Water budget elements and historical pumping
3. Recycled water opportunities
4. Alternative water and imported water opportunities
5. Reporting on production pumping
6. July TAC meeting date

We appreciate the opportunity to provide preliminary comments on these items to lay groundwork for the next several TAC meetings, and we look forward to developing a process to reach technical consensus as we move forward through the GSP process. Our comments are itemized below based on the six discussion topics outlined in the March 6, 2018 e-mail correspondence from Stetson Engineers to the TAC.

Discussion Topic Number 1 - Model Update

WRM Request: "Model Update. No input requested at this time. Next update April 5, 2018."

Comments on Topic Number 1 – Model Update

- We look forward to receiving an update from the WRM at the April TAC meeting. As agreed upon at the March TAC meeting, an ad hoc groundwater model group of TAC members has been formed. Members of this ad hoc group include Adam Bingham (representing wholesaler and

industrial use); Eddy Teasdale (representing large agriculture); and Don Decker (representing domestic well users).

- The first task for this group should be to prepare for and attend a groundwater model workshop during the second quarter of 2018 with the model development team and the WRM to discuss the groundwater model inputs, outputs, calibration, sensitivity and uncertainty.
- The second task for this group should be to report back to the TAC, along with recommendations to the TAC and WRM.
- The ad hoc group and TAC should discuss and seek consensus on how climate models, land use and growth production will be incorporated into future model scenarios,
  and how the groundwater model will be utilized to support key GSP components including but not limited to water budgets, any proposed fees, and in-basin water transfers.
- As described in DWR's Groundwater Modeling BMP, the development and use of groundwater model in support of a GSP should promote transparency, coordination and data sharing. TAC members have offered to help develop an agenda for the ad hoc model workshop. As stated during the March TAC meeting, greater transparency and TAC engagement is necessary to achieve "buy-in" on current groundwater modeling efforts in the Indian Wells Valley, particularly because
  groundwater modeling will help the determination and mitigation of undesirable results, and establishing minimum thresholds, measurable objectives and sustainability goals
- The model should be utilized to identify gaps in available monitoring data including for groundwater levels, and groundwater quality. The WRM should outline these gaps and potential approaches for filling the gaps, including incorporation of existing wells into GSP monitoring activities, and construction of new monitoring sites. The GSP groundwater monitoring network should be developed using existing and new infrastructure including but not limited to:
  - regular groundwater level collections (e.g., CASGEM, DWR, USGS, local entities);
  - regular groundwater quality testing required by the California Division of Drinking water for public supply wells;
  - project- or industry-specific groundwater quality data collection required by the Regional Water Quality Control Board for regulated facilities;
  - existing wells that can be added to the monitoring network;
  - new dedicated monitoring well installations;
  - public land subsidence data collected from Continuous Global Positioning Systems sites (CGPS) by the Plate Boundary Observatory (PBO) and the University NAVSTAR Consortium (UNAVCO), which provide land surface elevation data at 15-minute intervals.
  - The monitoring network should be designed and tailored to meet GSP requirements in order to track each applicable sustainability indicator. Monitored wells should be selected and grouped in order to provide representative data for a particular geographic and hydrogeologic condition. Local stakeholder input will be crucial for participation and cooperation in this tailored approach to the monitoring network, especially for

groundwater levels and groundwater quality. The manner in which monitoring data will be compiled and stored in a DMS, and included in the GSP and Annual Reports, should also be addressed.

Discussion Topic Number 2 – Water Budget Elements and Historical Pumping

WRM Request: "Water Budget Elements/Historic Pumping. Received Ad Hoc designation from Adam Bingham. Workshop to be scheduled in June/July. No input requested at this time. Next Update April 5, 2018."

Comments on Topic Number 2 – Water Budget Elements and Historical Pumping

Water budgets should be developed based on accepted scientific practices as documented in DWR's Water Budgets BMP. The best available data and science should be used to develop water budgets for the Indian Wells Valley Groundwater basin over the selected base period of analysis. In accordance with GSP regulations, a base period must be selected so that the analysis of sustainable yield is performed for a representative period, with minimal bias that might result from the selection of an overly wet or dry period while recognizing changes in other conditions including land use and water demands. A preliminary base period assessment should be conducted by the WRM and then reviewed by TAC members. TAC input and recommendations should be incorporated in the final selection of the base period. Projected water budget accounting should also include estimated changes resulting from planned implementation of the selected projects determined through the recycled and imported water tasks and should be used to quantify the estimated future baseline conditions of supply, demand, and aquifer response to GSP implementation. The projected water budget assessment in the GSP should also evaluate and identify the level of uncertainty in the projected water budget estimate.

Future workshop discussions regarding water budget elements and historical and future pumping data should include and or address the following comments:

- To account for diverse conditions and water users in the basin, TAC discussions should occur, and recommendations should be made as to the appropriateness of developing or utilizing basin management areas within the context of the water budget. GSP Regulations define a management area as, "an area within a basin for which the Plan may identify different minimum thresholds, measurable objectives, monitoring, or projects and management actions based on differences in water use sector, water source type, geology, aquifer characteristics, or other factors" (Section 351). Individual management areas must be coordinated to achieve a basin's overall sustainability goal.
- In terms of groundwater levels, the minimum thresholds should be developed based on long-term groundwater level data. Representative wells selected for geographic areas and particular aquifer units (such as management areas) should be used to develop minimum thresholds. For groundwater storage, minimum thresholds should be developed such that groundwater storage changes are maintained within a reasonable limit, pending water year types and planned groundwater management projects. Groundwater quality minimum thresholds will likely be

related to drinking water maximum contaminant levels (MCLs), agricultural limits, and other water quality standards for constituents of interest. A list of water quality parameters specific to the IWV Basin should be used for developing minimum thresholds for groundwater quality constituents.

- The Cooperative Groundwater Management Group has tabulated historical groundwater pumping data voluntarily provided by pumpers dating back to 1975. That data, however, contains several acknowledged gaps and inconsistencies. To the extent that data is relied upon, the quality control and assurance of that data collection and calculation process should be reviewed and updated where data gaps and data overlap appear to exist, for example:
    - Indian Wells Valley Water District (IWVWD) (which acquired lands and/or pumping from other entities listed on the chart)
    - Naval Air Weapons Station – China Lake (as to conservation efforts listed in the footnotes)
    - Orchards, Private Wells, and various ranches where the data, as currently presented, includes overlap as described in part in the footnotes.
- It is critical that data gaps in historic and current pumping figures must be filled before attempting to impose any type of volumetric fee based on pumping.

Discussion Topic Number 3 – Recycled Water Opportunities

WRM Request: "Recycled Water Opportunities. Please provide input on the TAC presentation. Please include all recycled water opportunities for supply and use, known constraints, and input on next steps."

Comments on Topic Number 3 – Recycled Water Opportunities

The preliminary recycled water presentation at the March TAC meeting summarized potential current and future opportunities for the use of recycled water in the Indian Wells Valley. The next step in the analysis is for the WRM to incorporate regulatory, facilities and economic feasibility for each of the identified recycled water opportunities. As detailed below under Topic Number 4, WRM could follow a similar methodology to evaluate recycled water opportunities. All potential recycled water sources should be considered and utilized in the Indian Wells Valley basin, to maximize use of currently available water resources.

Discussion Topic Number 4 – Alternative Water and Imported Water

WRM Request: "Please Provide input on the Imported Water presentation. Please include all imported and alternative water supply opportunities, all storm water capture opportunities, all new water conservation opportunities, information on all constraints, information of potential costs, and suggested next steps."

Comments on Topic Number 4 – Alternative Water and Imported Water

The preliminary potential imported water source presentation at the March TAC meeting summarized current and future opportunities for the utilization of imported water. As noted in the presentation slide deck, another potential imported water source could be through Antelope Valley East Kern Groundwater Bank (AVEK). AVEK does have an existing conveyance system located in Boron, CA (approximately 60 miles south of the City of Ridgecrest). There could be opportunities to convey that water into the Indian Well Valley area or wheel it through the aqueduct, provided that such importation must comply with the Antelope Valley Judgment. Additionally, several ideas were presented at the March TAC meeting to increase domestic and landscaping water use effiency, modeled after examples in other desert regions such as Nevada and Arizona. Best management practices for water use efficiency in those and other areas should be considered for implementation in the Indian Wells Valley.

The WRM has an existing $125K task order to develop an alternative water and imported water feasibility report. Next steps should involve conducting an evaluation of the alternatives. The evaluation of each alternative should be documented using a common template. To aid with comparisons, the same methodology should be used for all alternatives to allow for efficient analysis and documentation. A "scorecard" approach is one effective way to analyze a range of alternatives across several criteria. This approach helps organize both the qualitative and quantitative information to inform decisions. An example proposed evaluation criteria is provided in Table 1:

Table 1: Example Evaluation Criteria Categories and Sub-Categories

Primary Evaluation Criteria	Proposed Associated Evaluation Sub-Criteria
Water Supply Availability and Quality	• Amount of water available to meet Basin Needs • Water availability throughout the year and in dry and wet years • Amount of treatment or complexity of alternative to provide potable level water quality
Supply Impact, Reliability and Flexibility	• Timeliness and impact to protect GW basin and prevent seawater intrusion. • Reliability of supply over the long-term (e.g. 20 year period). • Flexibility for expansion and/or adaption to climate change.
Environmental Permitting Considerations	• Environmental Issues and anticipated support for the alternative by environmental regulatory agencies • Potential environmental benefits in addition to groundwater protection • Complexity and/or effort for the permitting process
Legal and Implementation Considerations	• Ability of the basin to obtain water rights or regulatory approval for the supplemental supply • Complexity of property and right-of-way acquisition for associated facilities and pipelines • Dependency on partners or other agencies, where there could be a

Primary Evaluation Criteria	Proposed Associated Evaluation Sub-Criteria
	risk of non-participation • Potential for technical innovation and implementation.
Customer/ Stakeholder Acceptability and Benefit	• Anticipated support for the alternative by users • Potential to provide a higher level of public safety during disaster • Potential to provide benefits to other local groundwater users or the broader community
Financial and Funding Considerations	• Potential opportunities for cost-sharing or grant funding • Ability to finance the proposed alternative
Project Costs	• Relative Capital Cost • Relative Operations and Maintenance (O&M) Cost • Relative Unit cost of Water ($ per Acre-Foot of supply)

The proposed evaluation categories could include the related sub-criteria, described in Table 1, to help make the scoring as specific and objective as possible. Since most of these criteria do not have quantifiable values, they could be evaluated and scored based on a relative set of factors described below. The criteria considerations could be scored on a scale of 1 to 5; in which 1 is the lowest or least favorable score and 5 is the highest or most favorable score. Each sub-criterion is scored separately and then the score is rolled into a total criterion score. The criterion scores are weighted and summed to provide a total score for each proposed alternative.

The presentation of the alternative scores could be color coded to help the reader visualize the more favorable and less favorable criteria scores that make up an alternatives total score. Table 2 below shows potential color coding of the associated scores that relate to specific project criteria and objectives.

Table 2: Example Color Code Presentation for Evaluation Criteria

Color-Coded Key	More Favorable, More Feasible, or Beneficial (Score = 5)	Moderately Favorable, Moderately Feasible, or Neutral (Score = 3)	Less Favorable, Less Feasible, or Flawed (Score = 1)

DISCUSSION OF ALTERNATIVE EVALUATION CRITERIA

The following sections describe how each criterion could be evaluated.

Water Supply Availability and Quality

This criterion considers the ability of this alternative to meet all or a portion of the supplemental water supply objectives. The alternative may need to be combined with another alternative if it does not produce sufficient supplemental supply over a multi-year period. Generally, the larger amount of water supply, the more favorable the scoring.

The criterion considers reliability of the supplemental supply over a year-long period and through different hydrologic cycles. Water that is consistently available throughout the year and from year to year is generally considered more favorable.

The criterion also considers complexity of the alternative to provide water. This alternative would include required natural or engineered treatment but would also include the complexity of implementation (such as negotiating water transfers or exchanges).

Supply Impact, Reliability and Flexibility

This criterion considers the timeliness and impact to the groundwater basin. This criterion also should consider reliability, defined by the Department of Water Resources as "how much one can count on a certain amount of water being delivered to a specific place at a specific time" and depends on the availability of water from the source, availability of the means of conveyance, and level and pattern of water demand at the place of delivery. A reliable source would have the ability to provide sufficient water, year-round for at least 20 years, to assist with the goals of restoring the groundwater basin. Generally, the more reliable the source of water is, the more favorable the scoring.

Additionally, this criterion considers flexibility in terms of the ability for expansion such that a project or program is not over-sized. Examples of flexibility include a project that can be phased-in such that the volume of water it produces is not exceedingly greater or lower than the original need. This could also address adaptation to climate change and changed conditions requiring more or less water for the basin. Generally, the more flexible the project is, the more favorable the scoring.

Environmental Permitting Considerations

This criterion considers environmental needs and requirements under CEQA. For alternatives that do not have existing CEQA documentation, the alternative will be ranked based on known environmental conditions and/or the anticipated environmental impacts for the area and the concerns associated with similar alternatives.
This criterion also looks at the environmental benefits an alternative could provide such as groundwater protection, habitat restoration, reduced energy demands, etc.

Legal and Implementation Considerations

This criterion should consider the ability of the basin to obtain water rights or regulatory approval for the supplemental supply, as well as the complexity of property and right-of-way acquisition for associated facilities and pipelines, and the complexity of finding suitable locations with respect to private well owners and separation requirements for non-potable water injection. This criterion considers also considers strategic partnerships with other agencies, including ways to maximize regional water resources and needs.

Customer/Stakeholder Acceptability and Benefit

This criterion considers factors that are important to water producers and users.

It considers the potential benefits the alternative may provide to other groundwater users or the broader community.

Financial and Funding Considerations

This criterion considers how the users would fund a project over its lifespan and the basin's financial positioning to cover the cost to evaluate, build, operate, maintain, and replace assets. This also addresses cost saving opportunities for the users including cost sharing (splitting the cost with other project partners) and receipt of grant funding.

This criterion also considers the financial ability to fund multiple alternatives if a single project cannot meet the quantity of water needed to meet the water shortage needs.

Project Costs

This criterion considers the estimated capital cost of the alternative and the annual operations and maintenance costs (such as electrical, chemical, and labor). This criterion considers the cost-effectiveness of an alternative and the relative unit cost of water (annual cost for the project divided by the annual production) in dollars per Acre-Foot of water ($/AF).

RECOMMENDED WEIGHTING OF CRITERIA

Once the alternatives are explored and evaluated based on a set of criteria, the next step is to generate a "scorecard" to score and rank the back-up supplemental supply alternatives. The evaluation criteria could have different weightings based on the relative importance of the criteria to meet the basins goals and objectives. An example of the scorecard approach is included below:

Benefits of Scorecard Approach Alternatives Based Analysis

- Alternatives can to be analyzed using a common criterion set that organizes both qualitative and quantitative information
- Decision makers can establish a weighting system based on goals and objectives.
- Sensitivity analysis can be performed to weigh other criteria more heavily (such as cost, water supply availability, customer acceptability, etc.) to evaluate the effects of the alternative's overall total score and ranking.
- Will help the users in the basin develop several different portfolios of options that could include one alternative or several alternatives to meet the goals and objectives.

Discussion Topic Number 5 – Reporting of Production

WRM Request: "Reporting of Production. Jim Worth, attorney, requests TAC input on estimating pumping where there is no water meter. Please provide input. WRM requests broad input on ensuring complete and accurate pumping information is provided to the Authority, guidance from TAC for well owners who would like to voluntarily install a water meter (reference, costs, etc.), and reporting of pumping for assessment purposes (format, due dates, Authority administration, etc.)."

Comments on Topic Number 5 – Reporting of Production

As detailed in Comment response number 2, The Cooperative Groundwater Management Group has tabulated historical groundwater pumping data voluntarily provided by pumpers dating back to 1975. That data, however, contains several acknowledged gaps and inconsistencies. To the extent that data is relied upon, the quality control and assurance of that data collection and calculation process should be reviewed and updated where data gaps and data overlap appear to exist. In addition, a standard operating procedure should be developed to ensure that data is being collected and reported in a consistent manner from all pumpers.

- If production rates and volumes are not directly recorded by a direct inline flow meter, then efforts should be planned to make this happen and develop procedures for monitoring production. Lacking direct measurements, a combination of alternative methods are typically used such as historical electrical usage (assuming the well is on its own electric meter or that more than one well doesn't supply just one home) and land use data to estimate groundwater usage.
- All users, including "de minims users" should be required to report or develop a method to estimate pumping. Estimated pumping from the group described as "domestic well owners" is currently estimated to be between 800 to 1,730 AFY. This range in domestic pumping volumes is greater than 10% of some of the current estimates of the basin's sustainable yield. Therefore, every effort should be utilized to accurately measure the current and future use of this group's usage in this basin. Additionally, it has been acknowledged in TAC meetings that not all the "domestic well owners" necessarily qualify as "de minimis" users. A "de minimis extractor" is defined in SGMA as a person who extracts, for domestic purposes, two acre-feet or less per year. These three criteria must be evaluated and confirmed for all pumpers claiming de minimis use: (1) that the person extracts groundwater; (2) that the extraction is not historically more than two acre-feet per year; and (3) that **all** of that person's water use is for domestic purposes. Additionally, any change or expansion of use by a de minimis user must be regularly tracked and reported. The WRM should consider utilizing a reporting form similar to those used in other basins by which "small pumpers" or "de minimis" users claim to qualify. That reporting would then need to be verified by the WRM through other means such as those described above.
- Initial discussions of a potential volumetric fee structure to cover GSP related costs has begun Therefore, it is critical that historic, current and future pumping rates and volumes are

accurately measured and reported correctly by all users of groundwater in the basin. Standard measurement and reporting protocols should be developed and agreed upon. At a minimum, monthly pumping volume data should be collected and reported utilizing agreed upon standards.

- Evaluate the potential implementation of alternatives to volumetric pumping fees, such as land-based fees, well registration fees, standby fees, development-related and all other potential funding mechanisms that do not unduly burden any particular group or pumper

Discussion Topic Number 6 – TAC meeting date for July 2018

WRM Request: "Please coordinate through Adam Bingham to provide a few alternative TAC meeting dates for July 2018."

Comments on Topic Number 6 – TAC meeting date for July 2018

The monthly TAC scheduled meetings occurs on the first Thursday, which coincidentally in July is a federal holiday (July 4th). As requested, alternative dates should include PAC coordination and could be:

- Monday (7/2); Tuesday (7/3), Monday (7/9), Tuesday (7/10), Wednesday (7/11), Thursday (7/12) or Friday (7/13)

Thank you for considering our initial comments and recommendations. We look forward to working with you to further define, develop and produce the Groundwater Sustainability Plan in Indian Wells Valley.

Sincerely,

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Eddy Teasdale, P.G., C.HG
Senior Hydrogeologist

Attachment 3

Transmittal

DATE: January 9, 2019 PROJECT: 18-021

TO: Steve Johnson, P.E.
Indian Wells Valley Groundwater Authority - Water Resources Manager

FROM: Eddy Teasdale, P.G., C.HG

SUBJECT: **IWV TAC COMMENTS ON PROPOSED MODELING SCENARIO 1**

THE FOLLOWING ITEMS ARE BEING FORWARDED:

Item	Number	As Requested	For Your Review	Comments
Table 1. Proposed Modeling Scenario 1 – Option A	1	X	X	

COMMENTS:

Please find the enclosed Proposed Modeling Scenario 1, which includes my TAC Member comments to the Water Resources Manager's proposed modeling scenarios presented to the TAC at the January 3, 2019 TAC meeting. Please note the scenario details and explanatory footnotes that are included in this Proposed Modeling Scenario 1. If you have any questions, please let me know. Otherwise, please utilize the enclosed for the first model run.

LSCE

Table 1. Proposed Modeling Scenario 1 - Option A[1]								
Use	**Owner**	**Amount (AFY)**	**Year**	**Recharge (AFY)**	**Recycle (AFY)**	**Imported Water (AFY)**	**Storage Change (AFY)**	**Scenario Details**
Large Ag	MBD	12,303	2020	7650	0	0		*Utilize 2020 Estimated Pumping and Annual recharge of 7,650 AFY*
	Mojave	6,054						
Small Ag	Small Ag	3,278						
Other Irrigation, Dust Control	Kern County	18						
	City of Ridgcrest	407						
Municipal & Domestic	IWVWD	6,518						
	Inyokern CSD	191						
	Mutuals	354						
	DOM	832						
Mining	SVM	2,907						
Federal	Navy	2,041						
Total (2020)[2]		**34,903**		**7,650**	**--**	**--**	**(27,253)**	
Large Ag	MBD	8,612	2025	7,650	700	0		*30% reduction in pumping for all users, Except the Navy Pumping; Recycled Water (700 AFY)[4]*
	Mojave	4,238						
Small Ag	Small Ag	2,295						
Other Irrigation, Dust Control	Kern County	13						
	City of Ridgcrest	285						
Municipal & Domestic	IWVWD	4,563						
	Inyokern CSD	134						
	Mutuals	248						
	DOM	582						
Mining	SVM	2,035						
Federal	Navy	2,041						
Total (2025)[3]		**25,044**		**7,650**	**700**	**--**	**(16,694)**	
Large Ag	MBD	8,612	2031	7,650	700	15,000		*No Change to Pumping; Supplemental Recharge Project (15,000 AFY)[6]*
	Mojave	4,238						
Small Ag	Small Ag	2,295						
Other Irrigation, Dust Control	Kern County	13						
	City of Ridgcrest	285						
Municipal & Domestic	IWVWD	4,563						
	Inyokern CSD	134						
	Mutuals	248						
	DOM	582						
Mining	SVM	2,035						
Federal	Navy	2,041						
Total (2031)[5]		**25,044**		**7,650**	**700**	**15,000**	**(1,694)**	
Large Ag	MBD	8,612	2033	7,650	700	15,000		*Cliff Pumping for selected Tree Crops (Concept Provided to the TAC by the WRM on January 3, 2019); Recycle Water (700 AFY); Supplemental Water (15,000 AFY)[6]*
	Mojave	4,238						
Small Ag	Small Ag	2,295						
Cliff Pumping[7]		**(10,000)**						
Other Irrigation, Dust Control	Kern County	13						
	City of Ridgcrest	285						
Municipal & Domestic	IWVWD	4,563						
	Inyokern CSD	134						
	Mutuals	248						
	DOM	582						
Mining	SVM	2,035						
Federal	Navy	2,041						
Total (2033)[8]		**15,044**		**7,650**	**700**	**15,000**	**8,306**	

Notes:

1 Proposed Modeling Concept: Utilize 2020 Baseline Pumping Volumes and Recharge (7,650 AFY) until 2025. In 2025 through 2031, Recycle (700 AFY), Reduction in Pumping forAll Users, except Navy, Recharge (7,650 AFY). Starting in 2031, No Change to Total Pumping (i.e. same pumping volumes as 2025) or Recharge (7,650 AFY); Supplemental Water Supply (15,000 AFY). Starting in 2033, Cliff Pumping concept for Select Tree Owners (reducing demand by 10,000 AFY), No Other Changes to other Pumpers (i.e. same pumping volumes as 2025), Recharge (7,650 AFY), Recycle Water (700 AFY) and Supplemental Water (15,000 AFY).

2 Utilize 2020 Estimated Baseline Pumping Summarized and Presented to the Technical Adisory Committee (TAC) Meeting on January 3, 2019 by the Water Resources Manager (WRM).

3 30% reduction in pumping for Large Ag (MBD - Alfalfa, Mojave), Small Ag, Mun, Domestic, other irrigation and Mining (SVM); No change to Navy Pumping; Recycle Water (700 AFY).

4 700 AFY Recycle Water Injected for Direct Use as Presented to the TAC Committee Meeting on January 3, 2019 by the WRM

5 No Change to Pumping; Supplemental Recharge Project (15,000 AFY).

6 Imported Water Storage Recovery Project of 15,000 AFY, as Presented to the TAC Committee on January 3, 2019 by the WRM.

7 Implement Cliff Pumping Concept As Presented to the TAC Commitee on January 3, 2019 by the WRM. Cliff Pumping Participants Will Not Participate In Ramp Down Pumping, but will be required to stop pumping in 2033. WRM to identify Ag (Tree Crops) Users participating in Cliff Pumping Concept.

8 Utilize Cliff Pumping Concept, as presented to the TAC Commitee by the WRM on January 3, 2019. Cliff Pumping for selected Tree Crops (WRM to identify cliff pumping participats, Selected Pumpers Will Not Participate In Ramp Down); Recycle Water (700 AFY); Supplemental Water (15,000 AFY).

Attachment 4

Luhdorff & Scalmanini
Consulting Engineers

September 12, 2019
File No. 18-1-021

Sent via e-mail: SteveJ@stetsonengineers.com

Mr. Steve Johnson, P.E.
Indian Wells Valley Groundwater Authority Water Resources Manager
Stetson Engineers Inc.
861 S. Village Oaks Drive, Suite 100
Covina, CA 91724

Indian Wells Valley Groundwater Authority Technical Advisory Committee Members
c/o Water Resources Manager

SUBJECT: INDIAN WELLS VALLEY GROUNDWATER AUTHORITY TECHNICAL ADVISORY COMMITTEE MEMBER COMMENTS ON SEPTEMBER 5, 2019 TAC ITEMS

Dear Mr. Johnson:

This letter is being written on behalf of our client, Meadowbrook Dairy ("Meadowbrook"). This letter is submitted in response to the Indian Wells Valley Groundwater Authority (GA) Water Resources Manager's (WRM) September 5, 2019 request for input from Technical Advisory Committee (TAC) members on the following items:

1. Draft Model Documentation Appendix (DRI, August 2019)
2. Shallow Well Impact Results & Sustainable Management Criteria (WRM Presentation, September 5, 2019)

With respect to each of these discussion items, we reserve the opportunity to provide further comments as more detailed information is provided by the WRM, including for example, further comments on draft GSP materials and chapters, and in response to comments offered by other TAC members. Please distribute this letter to the TAC members prior to the October TAC meeting.

We appreciate the opportunity to provide preliminary comments on these items that lay the groundwork for the forthcoming Groundwater Sustainability Plan (GSP), and we look forward to developing a process to reach technical consensus as we move forward through the GSP process.

DISCUSSION TOPIC NUMBER 1 – DRAFT MODEL DOCUMENTATION APPENDIX

General Comments:

- Final model documentation should include a detailed table of contents and adhere to requirements of the GSP Regulations and DWR Modeling Best Management Practices.
- Model documentation should include at a minimum the following details presented in an organized report format. An example format has been provided below:
    - Executive Summary
    - Introduction
        - Background
        - Objectives and Approach
        - Report Organization
            - Model Code Section
            - Model Development Section
                - Spatial Discretization and Model Layering
                - Temporal Discretization
                - Climate
                - Groundwater Pumping
                - Off-Season Irrigation
                - Land Use
                - Crop Coefficients
                - Soil Type
                - Boundary Conditions
                - Aquifer Properties
                - Geological Framework
                - Simulation
                - Upscaling Hydraulic Parameters
                - Hydraulic Conductivity
                - Storage
                - Initial Conditions
                - Calibration
            - Groundwater Flow Model Results Section
                - Aquifer Parameters (Hydraulic Conductivity, Storage Coefficients)
                - Model Calibration
                    - Statistical Measures of Model Fit
                    - Hydraulic Head (Groundwater levels)
                    - Model Water Budget
                    - Land Surface System
                    - Groundwater System
                    - Estimate of Sustainable Yield

    - Model Sensitivity
- Predictive Model Development Section
    - Baseline Model
        - Model Period and Hydrology
        - Model Geometry (Stress-Periods)
        - Climate
        - Groundwater Pumping
        - Boundary Conditions
        - Initialization
        - Climate Change
        - Model uncertainty due to climate change should be evaluated in accordance with Section 354.18(c)(3) of the GSP regulations and the DWR "Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development" document (DWR, 2018).
- Projects and Management Actions Section
    - Utilize model to evaluate Projects and Management Actions considered by IWVGA as part of GSP preparation described in Project and Management Actions Section of GSP.
- Solute Transport Model Development Section
    - Porosity
    - Dispersion and Diffusion
    - Temporal Discretization
    - Initial Conditions
- Solute Transport Model Results Section
    - Calibration Results
    - Solute Budget
    - Residual Error Descriptive Statistics
- Conclusions & Recommendations Section
- Model Uncertainty and Limitations Section
- References Section

DISCUSSION TOPIC NUMBER 2 – SUSTAINABLE MANAGEMENT CRITERIA

General Comments on Shallow Well Impact Summary Slides (Agenda Item 3bi)

Given very limited site-specific (i.e. field verified, well construction information (age/depth/quality) and groundwater usage) domestic well information has been utilized in the current Shallow Well Impact Analysis, a much more reliable data is necessary in order to consider and evaluate any management action that would be implemented to address shallow well impacts. Current efforts to require registration of domestic wells is underway; however, based on the lack of current responses on the domestic well survey, domestic site-specific well information will not be available until after 2020 at the earliest (assuming

individual well owners respond). Implementation of the management actions built into Model Scenario 6 would jeopardize tens if not hundreds of millions of dollars of business investments and business value of the named "Non-Domestic Group" by, for example, forcing those producers including Meadowbrook to entirely cease pumping. It is unfathomable that the GSP would implement such harsh management actions in order to try to preserve a couple of dozen domestic wells utilizing the current Shallow Well Impact method that does not utilize quantifiable data such as the geographic location of the well, depth to water in the well, the age of the well, water quality from the well and historic usage.

Recommend that an official Economic Analysis and Framework for Potential Domestic Well Mitigation Program be developed and incorporated as an Appendix to the GSP. That Appendix should include an overview of the proposed program, discuss the benefits and costs of faster implementation of demand management. The mitigation program should discuss, for example:

1. Well mitigation program/purpose statement – Define the mission of the program, for example the program is to address any unreasonable adverse effects of groundwater pumping on domestic wells.
2. Definition of unreasonable adverse effects – Program should clearly define the types of impacts to domestic wells that will and will not be eligible for mitigation.
3. Register domestic wells – Develop a registration system. The current outreach methodology utilized has not resulted in much of a response.
4. Mitigation measures – Define mitigation measures. Other well mitigation programs suggest the following examples:
    a. Domestic wells where municipal water service is not expected to exist in the near future (deepen or replace)
    b. Domestic wells near existing municipal services (connect to municipal service)
    c. Domestic wells impacted within a small geographic area (develop mutual/municipal to serve the impacted areas)
5. Define mitigation costs – Define how mitigation fund will pay for each type of impacted domestic well. Other well programs suggest:
    a. Establish payment of $XX/ft to deepen wells. If well cannot be deepened, establish standard cost to replace well $XX/well
    b. Decide how to compensate well owners that can connect to municipal systems
    c. Establish "rapid response" approach for situations when wells go dry.
6. Establish review process – Develop a board to review and approve well mitigation claims consistent with the guidelines established. Establish process for expedient review.
7. Financing – Identify program financing sources, with priority toward external support including grants and low interest loans.

The program would be expected to be further developed during the first five years of GSP implementation. There are several well mitigation programs already in the state and they should be reviewed and considered for implementation in this basin.

General Comments on current Baseline Scenario:

The "current" baseline model developed for the initial modeling scenarios, should not be considered a baseline scenario for modeling comparisons. The "current" baseline model was initiated by a request from the WRM to selected producers to estimate future pumping over a 50-year period (factoring in growth). Those estimates were compiled and utilized in the current groundwater flow model, and subsequent model scenarios (only two of which, Model Scenarios 1 and 2, were vetted by the TAC prior to running) have been compared to this "current" baseline model run. Recommend that a "revised" baseline model scenario be developed in accordance with the GSP Regulations. (Please reference, for example, GSP Regulations Section 354.18 for more details).

Sustainable Management Criteria (SMC) including measurable objectives and minimum thresholds would be developed according to the "revised" baseline model scenario and in accordance with GSP Regulations and DWR's SMC Best Management Practices. All Projects and Management Actions and model scenarios to evaluate Projects and Management Actions would be compared to the "revised" baseline in developing Sustainable Management Criteria.

General Comments on Sustainable Management Criteria Slides (Agenda 3bii Slides):

1. Following presentation of a specific topic (i.e. Sustainable Management Criteria), additional written documentation should also be provided to allow the reviewer to provide meaningful comments. The documentation could be in the form of a Technical Memorandum, and the contents could efficiently be incorporated into applicable sections of the GSP. Providing detailed comments only on summary PowerPoint presentation slide materials, where often the assumptions are not included, can be difficult, as is the case with the September 5 TAC meeting materials on SMCs.
2. For comparison purposes, include hydrographs for "revised baseline" results.
3. A description of the proposed minimum thresholds and measurable objectives and how they were established for the PowerPoint materials, and for all further SMC-related materials prepared by the WRM, should be provided. The assumptions should include recognition of the anticipated fluctuations in basin conditions around the established measurable objectives. In addition, please describe how each of the Projects and Management Actions and how the GSP will meet each measurable objective, how each measurable objective is intended to achieve the sustainability goal for the Plan area for the long-term beneficial uses, and how the interim milestones are intended to reflect the anticipated progress toward the measurable objectives during the 2020 to 2040 implementation period.
4. The GSP regulations define undesirable results as occurring when significant and unreasonable effects are caused by groundwater conditions occurring throughout the Plan area for a given sustainability indicator. Significant and unreasonable effects occur when minimum thresholds (MTs) are exceeded for one or more sustainability indicators. Information should be provided to the TAC and to the public to describe the following for each sustainability indicator relevant to

Plan area: the methodology used to set the minimum threshold and how selected MTs avoid causing undesirable results, relationships to other sustainability indicators, impact on adjacent subbasins, impacts on beneficial use/users, comparison to relevant federal, state, local standards, the measurement method.

5. To improve upon the technical understanding in the North Brown Road area, suggest adding additional domestic and existing agricultural wells to the current monitoring network.

6. Given the known uncertainties of the current groundwater model, recommend utilizing historical groundwater elevation and water quality measurements to define measurable objectives. Under SGMA, undesirable conditions prior to 2015 do not have to be addressed. As an example, the measurable objective for the groundwater levels at each monitoring site could be determined by taking the average groundwater elevation over the current monitoring period. Looking at groundwater levels in more recent years allows a more realistic, attainable goal to be set.

General Comments on Model Scenario 6.2

1. Scenario 6.2 includes many built-in assumptions, including for example, imposition of groundwater pumping allocations that require Meadowbrook and other large producers to cease production over a given time period, relocating the IWV Water District's pumping locations, and importing water, all of which are more accurately described as Projects and Management Actions, and many of which are objectionable, not fully vetted and not agreed upon. Scenario 6.2 is, in other words, more accurately described as a Project and Management Action model scenario, and not a valid framework for a GSP. At a minimum, individual PMA's should instead be specifically identified, detailed in their assumptions, vetted for feasibility and consensus, and then compared to a revised baseline scenario, before being considered for inclusion or implementation in a GSP

2. As described under the GSP regulations, PMA's should be developed to address sustainability goals, measurable objectives, and undesirable results identified in the Subbasin. The PMAs developed for the GSP should consider reducing the potential socioeconomic impacts associated with actions required to sustainably manage groundwater in the Subbasin.

For your reference, GSP Regulation §354.44 requires the following:

a. Each Plan shall include a description of the projects and management actions the GSA has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.

b. Each Plan shall include a description of the projects and management actions that include the following:

    1. A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent. The Plan shall include the following:

        A. A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of

projects or management actions, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.

B. The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.

2. If overdraft conditions are identified through the analysis required by California Code of Regulations (CCR) Section 354.18 [Water Budget], the Plan shall describe projects or management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft.

3. A summary of the permitting and regulatory process required for each project and management action.

4. The status of each project and management action, including a timetable for expected initiation and completion, and the accrual of expected benefits.

5. An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.

6. An explanation of how the project or management action will be accomplished. If the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall beincluded.

7. A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

8. A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.

9. A description of the management of groundwater extractions and recharge to ensure that chronic lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels or storage during other periods.

c. Projects and management actions shall be supported by best available information and best available science.

d. An Agency shall consider the level of uncertainty associated with the basin setting when developing projects or management actions.

Thank you for considering our initial comments and recommendations. We look forward to working with you to further define, develop and produce the Groundwater Sustainability Plan in Indian Wells Valley.

Sincerely,

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Eddy Teasdale, P.G., C.HG
Senior Hydrogeologist

CC: Adam Bingham (Chair Technical Advisory Committee)

Attachment 5

Luhdorff & Scalmanini
Consulting Engineers

November 15, 2019
File No. 18-1-021

Sent via e-mail: SteveJ@stetsonengineers.com

Mr. Steve Johnson, P.E.
Indian Wells Valley Groundwater Authority Water Resources Manager
Stetson Engineers Inc.
861 S. Village Oaks Drive, Suite 100
Covina, CA 91724

Indian Wells Valley Groundwater Authority Technical Advisory Committee Members
c/o Water Resources Manager

SUBJECT: INDIAN WELLS VALLEY GROUNDWATER AUTHORITY TECHNICAL ADVISORY COMMITTEE MEMBER COMMENTS ON DRAFT GROUNDWATER SUSTAINABILITY PLAN

Dear Mr. Johnson:

This letter is being written on behalf of our client, Meadowbrook Dairy ("Meadowbrook"). This letter is submitted in response to the Indian Wells Valley Groundwater Authority (GA) Water Resources Manager's (WRM) November 7, 2019 request for input from Technical Advisory Committee (TAC) members on the following items:

1. Draft Groundwater Sustainability Plan Documentation Text
2. Draft Groundwater Sustainability Plan Figures
3. Draft Groundwater Sustainability Plan Appendices

With respect to each of these discussion items, we reserve the opportunity to provide further comments on public draft GSP materials and chapters, and in response to comments offered by WRM, Policy Advisory Committee (PAC) and other TAC members.

Although we are very disappointed with the lack of transparency that occurred during the development of GSP Sections 3, 4, 5 and 6, we do appreciate the opportunity to provide preliminary comments on these items and we look forward to developing a process to reach technical consensus as we move forward through the GSP process.

EXECUTIVE SUMMARY

General Comments:

- Why was a draft of an executive summary (ES) not provided as part of this review process? Please provide for review to this committee prior to issuing draft of the complete GSP packet for public comment. ES should include a table of contents, applicable support figures and include a detailed description for each of the major sections of the GSP.

SECTION 1 – INTRODUCTION

General Comments:

- Please include list of tables and figures in the Table of Contents
- DWR Preparation Checklist should be moved from the appendix and incorporated into this section.
- Section 1.2 (Sustainability Goal), page 1-4, second paragraph. The sustainability goal is to manage, not just preserve the IWVGB groundwater resources as sustainable water supply for all beneficial users. To the greatest extent possible, the goal is to preserve the character of the community, and beneficial users, preserve the quality…….
- Section 1.3 (Agency Information), page 1-5, fourth paragraph. This whole paragraph should be rewritten to convey to the reader where NAWS China Lake is located in relation to the IWVGB. A figure showing all entities, including NAWS China Lake should be included in order to get a spatial sense of where the entities are located within the basin.
- Section 1.3 (Agency Information), page 1-6, first paragraph, last sentence. This paragraph should be rewritten to identify other industries and their contribution to the economy of the basin and region.
- Section 1.3 (Agency Information), page 1-6, second paragraph. Text should provide additional detail on whether the federal agencies are also voluntarily willing to comply with any decisions with the GSA to impose projects and management actions on federal land in order to ensure the basin is sustainable by 2040.
- Section 1.3.1 (Organization and Management Structure of the IWVGA), page 1-6. Include a footnote identifying notable exclusions of some beneficial users (i.e. agricultural and environmental interests, whether as voting or non-voting members) and the reason(s) why all beneficial users were not included.
- Section 1.4 (Notice of Communication). Although the author references the C&E, DWR is also looking for summary documentation of all meetings, and examples of how all public meetings were advertised (including how specific technical content was distributed to non-English speaking members of the public). Please provide a summary table detailing the process (do not just reference a website).

SECTION 2 – PLAN AREA

General Comments:

- Please include list of tables and figures in the Table of Contents
- Please check DWR annotated outline to ensure all required content is included. As an example, per DWR the GSP should include an analysis of the density of wells per square mile. This information is not included in this section of the GSP.
- Section 2.2.4 (Water Supply Source), page 2-5, third paragraph. Provide a paragraph detailing the methodology used to determine the number of wells, well type, uncertainty in the number of wells and reference to how this uncertainty will be reduced through future data gap analysis.
- Section 2.4.6 (Indian Wells Valley Cooperative Groundwater Management Group), page 2-11, last paragraph. Provide additional details on other beneficial use members, including small and large agriculture, and also include a summary of who the original members were.
- Section 2.4.6 (Indian Wells Valley Cooperative Groundwater Management Group), page 2-12, last paragraph. Provide reference and additional details as to why the Cooperative Group is no longer a functional entity.
- Section 2.5.2.1 (Kern County), page 2-15, second paragraph. Although the El Paso area is largely uninhabited and current groundwater demand does not require "significant" groundwater extraction, given the increasing trends in groundwater levels to this area over the last decade, future "significant" groundwater extraction could be possible and should be further investigated for potential projects and management actions prior to enforcing perhaps unnecessary or insufficiently supported pumping allocations.
- Section 2.4.6 (Indian Wells Valley Cooperative Groundwater Management Group), page 2-15, Table 2-5. Please include a footnote to explain to the reader the designation of Limited Agriculture and Exclusive Agriculture.
- Section 2.7.1 (Background), page 2-24, last paragraph. Please provide a reference to historic and recent studies regarding overdraft conditions in the basin. Are the current conditions a result of overdraft or removal of temporary surplus (or both)?
- Section 2.7.3 (Conservation Programs). Please include a detailed section of both water efficiency and demand management measures and practices currently underway by large Agriculture (specifically to Alfalfa operations along north Brown Road).
- Section 2.7.6 (Groundwater Contamination Cleanup), page 2-33. Please provide additional details on all chemicals of concern (including chemicals per- and polyfluoroalkyl substances (PFAS)) and results of the 2017 sampling that turned up PFAS levels of 8 million parts per trillion (which are the highest in California, and one of the highest globally as noted in the report).
- Section 2.7.7.4 (IWVGA Policies), page 2-38. Provide additional details on how the extraction fee was calculated, what outreach efforts occurred to reach out to non de minimis and de minimis extractors and based on best available data how many non de minimis and de minimis pumpers have failed to register their wells. In addition, explain the current management process for enforcement for unregistered groundwater extraction facilities.

SECTION 3 – BASIN SETTING

General Comments:

- Please include list of tables and figures in the Table of Contents
- Please check DWR Annotated Outline to ensure all required content is included. As an example, per DWR, the GSP should include description of neighboring basins. This information is not included in this section of the GSP.
- Section 3.1 (Introduction), page 3-5, first paragraph, second sentence. The descriptive HCM….will be used to describe basin setting "static" conditions. Why is the author using the word static here?
- Section 3.2 (History of Water Use in the Indian Wells Valley), page 3-8, second paragraph. According to the data presented, peak groundwater usage occurred in 1985 (approximately 29,730 AF), not in 2007 (29,430 AF). In addition, significant conservation efforts were made by the Navy (60% reduction), Meadowbrook Dairy (35% reduction), but an increase occurred of 45% IWVWD. Please revise paragraph and tables to reflect peak water usage and conservation measures implemented by all beneficial groundwater users.
- Section 3.3.1 (Geology and Hydrogeology), page 3-10, first paragraph, Figures 3-5a and 3-5b. Given the recent amount of new geologic and hydrogeologic information, and supposed concerns about overdraft in this basin, the author should attempt to include more recent local geologic information (i.e. SkyTEM, supported financially by DWR and recent installation of new production wells). Also please revise cross-section to be in color. Also recommend providing more than just two cross-sections (the minimum required by SGMA). Additional cross-sections should be developed specifically through the North Brown Road Area and include at least one diagonal cross-section (either oriented Northeast-Southwest and/or Northwest-Southeast).
- Section 3.3.1 (Geology and Hydrogeology), page 3-12, first paragraph. Please provide a more detailed description of the two principal aquifers (i.e. thickness) and how the applicable aquifer characteristics (thickness, permeability, etc.) change throughout the basin.
- Section 3.3.1 (Geology and Hydrogeology), page 3-12. Regarding USBR (1993) slug test data. Typically slug tests are not very useful as they only represent a very small area within the vicinity of the test location. A sentence should be included to reflect the value of this data.
- Section 3.3.3.1 (Climate and Precipitation), page 3-14, second paragraph, Figure 3-8. Color flood information would show more numeric values between the two end numbers of 3 inches and 26 inches. Is this data reported as the average for 1980 through 2010 water year or calendar year? It should be reported as water year (per DWR).
- Section 3.3.3.1 (Climate and Precipitation), page 3-14, second paragraph, Figure 3-9. A paragraph should be included to explain whether the information illustrated on Figure 3-9 was used to select the historical water budget period. Also, these plots should be redone to report data in water years and not calendar year per GSP regulations.
- Section 3.3.3.2 (Streamflow and Mountain-Front Recharge), page 3-16, first paragraph. Mountain front recharge is difficult to quantify and estimate and often has a lot of uncertainty associated with it. Please reference work on mountain front recharge as part of the Antelope Valley

adjudication and provide revised documentation utilizing current methodologies using all recent data (and do not rely exclusively on others' work).

- Section 3.3.3.2 (Streamflow and Mountain-Front Recharge), page 3-17, first paragraph. Is there data that proves the statement "There are no significant interconnected surface water systems"? To exclude this SMC, GSP needs to have data to support this. The use of the phrase".....no significant....." implies there are interconnected surface-waters, yet in the opinion of the author they are not significant. They either are or are not interconnected surface waters.
- Section 3.3.3.2 (Streamflow and Mountain-Front Recharge), page 3-17, first paragraph, fourth sentence "The IWVGB has many natural spring....." if the basin contains springs, then it contains interconnected surface water.
- Section 3.3.4.1 (Water Budget Elements), page 3-18, first complete paragraph. The USGS BCM model has been issued as a draft. Interesting information, but not very useful for this GSP, unless there are plans to incorporate the content prior to adoption.
- Section 3.3.4.1 (Water Budget Elements), page 3-20, first paragraph. If pumping data was not available, how were pumping rates developed?
- Section 3.3.4.1 (Water Budget Elements), page 3-20, second paragraph. With all the various sources of groundwater pumping data described in previous sections, were any comparisons done of pumping estimates made over time periods that were common to each of the investigations? How did previous studies vary and compare to the Cooperative Group's historical data? Please include additional details on this information.
- Section 3.3.4.1 (Water Budget Elements), page 3-20, third paragraph. How was the domestic wells residence average of 1 AFY determined? This should be explained and also how do pumping volumes vary over time. Same comment applies to water use by mutuals and co-ops. Footnote 13 should be expanded upon and included into this paragraph.
- Section 3.3.4.1 (Water Budget Elements), page 3-21, third paragraph. Include a reference to Section 1 table. In addition, the previous paragraph sounds exclusively promotional for the Navy while a similar tone and content is not provided for elsewhere in this paragraph. There is no mention of the reduction in ag pumping from 1985, 2007 or 2015 like there is for urban discussion or the Navy, why not? The last sentence of this paragraph is not supported by any information provided to support it. Unless there is relevant agreed upon information available, please remove the sentence "unless restricted, agricultural use is expected to increase significantly", as this is not necessarily true.
- Section 3.3.4.1 (Water Budget Elements), page 3-21, first paragraph, last sentence. Does the current ET value vary on an annual basis? If so, a range should be presented along with any variations associated with dry versus wet climatic conditions.
- Section 3.3.4.2 (Historical Water Budgets), page 3-22. The historical water budget spans almost 100 years and does not account for any temporary surplus. This is not a representative period of analysis for evaluating a SGMA historical water budget period because the selection of this long of a period includes different cultural conditions that have occurred over that time frame. This selection of such a long-time frame is not consistent with industry practice in the selection of a representative period that represents average annual historical conditions. In addition, the use of rainfall gage stations presented in Figure 3-9 should have used stations that are located in the

areas in the western portion of the basin, which are supplying the majority of recharge to the basin, not the two that were presented.

- Section 3.3.4.2 (Historical Water Budgets), page 3-23, second paragraph. Revise first sentence from…….extractions increased to extractions occurred. In addition, please explain whether the IWVGA has considered the process described in this paragraph to be related to removal of temporary surplus rather than an overdraft condition.
- Section 3.3.4.2 (Historical Water Budgets), page 3-23 and 3-24, Table 3-6 (Historical Water Budget). Since there is still outflow from the basin (ET and Interbasin Subsurface Flow), which is similar to what happened in San Fernando), has the IWVGA considered whether this reduction in storage is not overdraft but removal of temporary surplus?
- Section 3.3.4.3 (Current Water Budget), page 3-24, first paragraph. For GSP purposes, the "current water budget" follows the historical water budget; it is not a subset of the historical water budget. Since the historical water budget was 1922 through 2016, the current water budget should be 2017. In addition, the 2011 through 2015 period corresponds to an extremely dry period in California history and any review of groundwater levels or water budgets is going to show dramatic declines. The selection of this period appears to be a case of "pick a period and pick your answer".
- Section 3.3.4.4 (Overdraft Conditions), page 3-25. If there is still outflow from the basin to Salt Wells Valley and extensive ET still occurs at the playa, then has the IWVGA considered whether this is a removal of temporary surplus, and not overdraft?
- Please provide basin wide figures illustrating groundwater elevations for select periods (dry, wet, historic, current, change in groundwater elevation) utilizing all known data sets. Do not just rely on work by others, the author should utilize their own interpolations and include adequate details (utilizing linear and color contour methodologies).
- Section 3.3.4.4 (Overdraft Conditions), page 3-25, first paragraph, last sentence. Disagree with the author, as you are using a historically dry period, coupled with a period of temporary surplus to conclude overdraft occurs. In addition, the current water budget period should follow historical water budget period, not be part of it (reference GSP Best Management Practices).
- Section 3.3.4.4 (Overdraft Conditions), page 3-26, third paragraph, last sentence. This sentence does not make sense.
- Section 3.3.4.4 (Overdraft Conditions), page 3-26. Provide additional information in addition to a single 25-year-old study (i.e. extrapolate storage from the DRI model, recent WRM evaluations) of the total current amount of groundwater in storage. Recent preliminary investigations by others have estimated that usable amount of available storage could exceed 10-million AF. What additional analysis was conducted by WRM to evaluate the total amount of storage?
- Assuming there is approximately 10 million AF of groundwater in storage, and the cumulative change in storage has been approximately 620,000 AF since 1992 (23-year period); this cumulative change in storage, which includes both representative dry and wet years, reflects a rate of approximately 0.3% per year. It would not be reasonable to expect that the available groundwater in storage would be exhausted over any foreseeable time period.
- Section 3.3.5 (Sustainable Yield), page 3-28, second paragraph, first sentence. What is the estimated sustainable yield if climate change is incorporated (as required by SGMA)?

- Section 3.3.5 (Sustainable Yield), page 3-28, Table 3-8. Regarding Outflows, specific to ET. The ET should be separated out to differentiate between ET from vegetation versus ET from China Lake Playa. ET from China Lake is water that could instead be captured by increasing extraction, thereby removing surplus and increasing aquifer storage space. This is water that is being wasted unless it is meeting a reasonable and beneficial use.
- Section 3.3.5 (Sustainable Yield), page 3-28, Table 3-8. Regarding Outflows, specific to Extractions. Provide information on extraction by water use sector (ag, urban, domestic, and other).
- Section 3.3.5 (Sustainable Yield), page 3-29, Table 3-8. Regarding Change of Groundwater Storage. This increase of -4.080 AFY in aquifer storage depletion indicates that sustainability is not being projected beyond 2040 on an annual basis.
- Section 3.3.5 (Sustainable Yield), page 3-29, first paragraph. The formulation of the water budget should be separated into a ground-surface water budget and a groundwater budget to clarify the water budget dynamics of the basin, or the author cold potentially have more sustainable yield in order to reduce the amount of outflow via ET and subsurface flows to Salt Valley to near zero. Please include the equation that was used to estimate sustainable yield. Currently, the author is only assuming that recharge equals sustainable yield when in reality water lost to ET and outflow to Salt Valley should be included. DWR's Draft BMP also indicates that reducing pumping to an estimated basin-wide average annual recharge does not equate to sustainability.
- Section 3.3.5 (Sustainable Yield), page 3-29, first paragraph, last sentence. Does the author include climatic variability over the 50-year planning horizon? If not, why?
- Section 3.4.4 (Groundwater Quality Conditions). Please include a discussion on the distribution of anthropogenic contaminants (i.e. PFASS), and an evaluation for the potential future potable, industrial or other uses of de-designated groundwater (which would require varying degrees of treatment) on NAWS property.
- Section 3.4.5 (Land Subsidence), page 3-33. Please include additional details on actions the Navy is planning to implement to avoid increasing further land subsidence and also provide a detailed approach on how applicable changes to Navy and other pumping would impact other applicable SMC's.
- Section 3.4.7 (Groundwater-Dependent Ecosystems), page 3-35. Please include additional details on actions the Navy is planning to implement to avoid impacting GDE's which are located primarily if not entirely on Navy property.
- Section 3.5.5 (Numerical Model Scenario 6.2). Concerns with Scenario 6 (as well as Scenarios 3-5) have been extensively documented in the public record, but largely remain unaddressed and unresolved. Scenario 6.2 includes many built-in assumptions, including for example, imposition of groundwater pumping allocations that require Meadowbrook and other large producers to cease production over a given time period, relocating the IWV Water District's pumping locations to very area of the Basin from which Meadowbrook and others would be eradicated, and importing water, all of which are more accurately described as Projects and Management Actions, and many of which are objectionable, not fully vetted and not agreed upon. Scenario 6.2 is, in other words, more accurately described as a Project and Management Action model scenario, and not a valid framework for a GSP. At a minimum, individual PMA's should instead be specifically identified, detailed in their assumptions, vetted for feasibility and consensus, and then compared to a revised baseline scenario, before being considered for inclusion or implementation in a GSP.

As described under the GSP regulations, PMA's should be developed to address sustainability goals, measurable objectives, and undesirable results identified in the Basin. The PMAs developed for the GSP should consider reducing the potential socioeconomic impacts associated with actions required to sustainably manage groundwater in the Basin.

- Section 3.5 (Numerical Groundwater Model). All documentation related to the model should be included as an appendix. In addition, please provide more details to how the groundwater model is related to the current conceptual understanding of the basin, and where there are known issues where the current flow model does not represent the current conceptual understanding of the basin (i.e. along north Brown Road, Layer 1 in current flow model does not accurately represent the actual lithology (the model underestimates the actual thickness, which would then overestimate the amount of drawdown occurring from pumping in that area). As detailed during several TAC meetings, current groundwater levels (i.e. USBR 6) in North Brown Road have not changed since 2010. Current pumping in the North Brown Road area is estimated to be greater than 15,000 AFY, and recent groundwater data (i.e. USBR 6S, on-going monitoring by large Ag) has not decreased, suggesting that the sustainable yield in the North Brown Road area could be greater than 15,000 AFY. In addition, the El Paso area has increased groundwater levels over the last decade, which by some preliminary estimates equates to approximately 1,000 to 4,000 AFY of additional recharge. This additional recharge could be utilized to supplement existing supplies. Please include a discussion of this and add as a project Concept in Section 5. The potential use of such additional recharge should be seriously considered in informing any "allocation" scheme.

- The "current" baseline model developed for the initial modeling scenarios, should not be considered a true baseline scenario. For the "current" baseline period, a request was made by the WRM to selected producers to estimate potential future pumping over a 50-year period (factoring in growth). This information was compiled and utilized by the WRM in the current groundwater flow model. Subsequent model scenarios have been compared to this "current" baseline model run. Recommend that a "revised" baseline model scenario be developed in accordance with the GSP Regulations. The exact development of how pumping rates in the "revised" baseline model scenario should be discussed further.

- Section 3.5.5 (Numerical Model Scenario 6.2), page 3-44. Why is model Scenario 6.2 included in this section but there is no section for the "baseline" model, which should be included and utilized for comparison purposes.

- Section 3.5.5 (Numerical Model Scenario 6.2), page 3-45, Management Action No. 1. Please explain in more detail how the allocations over a 20-year period to 2040 were determined, how was the "highest beneficial use determined", and why was the highest continual pumping from 2010 to 2014 used for domestic and municipal pumping (which was also an extremely dry period in California).

- Section 3.5.5 (Numerical Model Scenario 6.2), page 3-46, second bullet. Please define projects 3,4 and 5.

- Section 3.5.5 (Numerical Model Scenario 6.2), page 3-46, Table 3-11. Why would agricultural water use necessarily increase from 42% (in 2020) to 56% (in 2070)?

- Section 3.5.5 (Numerical Model Scenario 6.2), page 3-47, Table 3-12, Outflow, Groundwater Extraction. What is the distribution among "Ag" pumpers and how does this relate to pool allocations?

- Section 3.5.6 (Climate Change). GSP regulations require climate change be considered.
- Management Areas – Please provide a detailed explanation of why management areas were not evaluated and were not determined to be appropriate for this basin to help facilitate groundwater management by the different water use sector, geology and aquifer characteristics. Multiple requests and suggestions were made from TAC members and the public to consider management areas.

SECTION 4 – SUSTAINABILITY MANAGEMENT CRITERIA

General Comments:

- Please include list of tables and figures in the Table of Contents
- Revise entire section 4 to follow DWR GSP annotated outline as agreed upon among the TAC and WRM. As an example, why are undesirable results presented prior to measurable objectives and minimum thresholds?
- Include a general summary table for sustainable management criteria. The summary table should include the Sustainability Indicator, Minimum Threshold, Measurable Objective and Undesirable Result.
- Section 4.2.4 (Explanation of How Goal will be Achieved). NAWS operations are documented to be responsible for groundwater contamination, potential impacts to subsidence and depletion of interconnected surface water. Please include a detailed description of how NAWS groundwater production will impact the overall health of the basin to achieve sustainability goals under the proposed projected listed in Section 4.2.4.
- Section 4.4.1.7 (Method of Quantitative Measurement), page 4-22. For comparison purposes, please provide the Theissen weighted average polygon method to historic and current groundwater conditions and include a detailed description and figures in Section 3. This information will then form the baseline comparison and can be utilized to assess the impacts of future project management actions into the future.
- Section 4.4.2.6 (Representative Monitoring Sites), page 4-25, Table 4-1. Please justify why USBR (25S/38E-12L02 and 25S/38E-12L03) are being utilized to monitoring groundwater levels in this area. Both of these wells are screened below (1190 – 1210, and 1640 – 1660 feet below ground surface) any known deep pumping wells in this area and therefore do not represent localized pumping effects.
- Section 4.4.3 (Degraded Water Quality Minimum Thresholds), page 4-27, second paragraph. Please provide further justification on why the author is increasing minimum threshold values to 600 mg/L and 1,000 mg/L in areas with poor water quality. In addition, water quality data for current agricultural wells have not significantly changed since the early 1990's. Significant data already exists to determine minimum thresholds in this area and should also be derived based on beneficial usage. Please explain how postponing the establishment of minimum thresholds impacts proposed management actions and projects—including potentially imposing severe groundwater pumping limitations that would eliminate an entire class of producers—and how such postponement is justified under SGMA, the DWR Regulations and related requirements.

- Section 4.4.3.6 (Representative Monitoring Sites), page 4-29, third paragraph. Given the potential for additional groundwater extraction from the El Paso area, recommend adding additional wells to this monitoring network.
- Section 4.7 (GSP Proposed Monitoring Network), page 4-37, first paragraph. Please provide further justification as to why only 10 or 11 wells are proposed to be utilized to monitor sustainable management criteria. DWR has developed specific regulations and guidance documents (reference Monitoring Networks and Identification of Data Gaps BMP) that recommend that in a basin the size of IWV (600 square miles) and pumps more than 10,000 AFY, the minimum number of monitoring well locations should be between 24 and 60. In addition, why would the author not integrate current agricultural well monitoring into the program?
- Section 4.6.2 (Chronic Lowering of Groundwater Levels). Several monitoring wells listed in the proposed network have groundwater data that indicate groundwater levels have been stable since 2010 (USBR-01, USBR-04), 2012 (USBR-06S), 2014 (USBR-2), and 2016 (NR 2). Why would current pumping in these areas need to be adjusted or reduced since current groundwater levels in these areas indicate that current pumping is sustainable? And if imposed, how does the IWVGA justify the Scenario 6.2 PMA that would eradicate Agriculture and then move the water district and other producers into that very area?

SECTION 5 – PROJECTS AND MANAGEMENT ACTIONS

General Comments:

- Please include list of tables and figures in the Table of Contents
- Provide a summary table the includes the project, measurable objective expected to benefit, expected benefits to stakeholders, current status, timetable (initiation and completion), estimated cost and permitting and regulatory process.
- Section 5.2 (Planned Management Actions), page 5-10, third paragraph. Please provide information supporting the use of 2010 through 2014 period as a base period.
- Section 5.4 (Conceptual projects under consideration). Please include an additional project to this list. The project would focus on investigating the potential to utilize surplus groundwater in the El Paso subarea to supplement existing supplies. Preliminary useable groundwater estimates are greater than 4,000 AFY, or even higher if additional volumes are removed from storage. This PMA should be seriously investigated and considered before imposing groundwater pumping limitations or allocations.
- Section 5.5 (Conceptual project under consideration). Please include a project that would focus on treating and using the current de-designated area groundwater supply below NAWS property (which is preliminarily estimated to exceed 500,000 AF). This PMA should be seriously investigated and considered before imposing groundwater pumping limitations or allocations.
- Section 5.5 (Conceptual project under consideration). Please include a project that would evaluate the feasibility to capture current evaporative loses from the Coso Geothermal field and utilize to enhance water in the IWV (which is preliminarily estimated to exceed 10,000 AFY). This PMA should be seriously investigated and considered before imposing groundwater pumping limitations or allocations.

- Section 5.5 (Conceptual project under consideration). Please include a project that would evaluate the feasibility for SVM to treat local groundwater in the Salt Wells Valley Basin (which is preliminarily estimated to exceed 500 AFY).
- Section 5.5 (Conceptual project under consideration). Please include a project that would evaluate the feasibility for SVM to capture current evaporative loses from their facilities.

SECTION 6 – PROJECTS AND MANAGEMENT ACTIONS

General Comments:

- Please include list of tables and figures in the Table of Contents.
- Cover page needs to be modified and edited to detail Section 6 content, not Section 5.
- Section 6.1 (Implementation Plan Summary). Please include how stakeholder engagement through the advisory committee activities will be utilized to allow the general public to provide input and develop an exchange amongst a broad range of stakeholders. Develop a schedule (including meeting times, i.e. quarterly) to discuss GSP and GSA activities, provide input and present on items of interest.
- Describe how public outreach will continue and provide opportunities for engagement during GSP implementation. This should include providing opportunities for public participation, especially from all beneficial users, at public meetings, providing access to GSP information online, and continued coordination with entities conducting outreach.
- Section 6.3 (GSP Implementation Costs and Funding), page 6-6, Table 6-1. Estimated GSP Implementation costs are not complete. Also, please provide costs for Conceptual projects under consideration. Also, provide row that summarizes all annual costs.
- Section 6.3 (GSP Implementation Costs), page 6-6, Table 6-1. Please provide a column in the table that summarizes the assumptions for each task.
- Section 6.3.2 (Potential Funding Sources). Please provide more detail on the potential funding amount associated with each potential funding source and how that related to applicable projects and management actions.
- Section 6.3.2 (Potential Funding Sources). Please provide a planning level estimate of annual amount of funds needed to implement GSP projects. Also, prior to implementation of any fee or assessment program needed to fund these projects, please detail the types of assessment studies or other analysis (consistent with regulatory requirements) needed in this section. Notably, the IWVGA's currently imposed GSP development groundwater extraction fee of $30/AF is among the highest in the State, was not supported by a traditional Proposition 26/218 study or analysis, and was imposed over extensive objections raised by many producers and members of the public.
- Section 6.4 (Progress Assessment and Reporting). Revise section to state, as required under GSP regulations, annual reports must include three key sections: 1) General Information, 2) Basin Conditions, and 3) Plan Implementation Progress. Pease provide a detailed paragraph on each of the required sections (i.e. General Information, Basin Conditions, which must include how GDE's are being evaluated) and plan implementation progress.
- Section 6.4 (Periodic Evaluations and Assessment). SGMA requires that the GSP be evaluated regarding their progress towards meeting the approved sustainability goals at least every five

years, and to provide a written assessment to DWR. An evaluation must also be made whenever the GSP is amended.

- Section 6.4 (Periodic Evaluations and Assessment). Please include a summary table for GSP Schedule for Implementation. The table should highlight the high-level activities anticipated for each five-year period. These activities are necessary for ongoing plan monitoring and updates, as well as tentative schedules for projects and management actions.
- Provide an additional section, entitles First Five Year Update (2020 – 2025) and identify several key tasks that were identified during the development of the first GSP that need to be further developed or resolved in the five-year GSP update. These could be special studies that need resolution but could not be resolved during the initial GSP development. These could include establishment of metering program, finalizing allocation framework, developing methodology for establishing minimum thresholds for new wells, refining and improving the current groundwater model, mitigation for possible future domestic wells, creating a data gap plan, etc.

APPENDIX (3-H) – GSP MODEL DOCUMENTATION

General Comments:

- Please provide a Table of Contents for this document.
- The primary authors of this model document should sign, date and stamp this document per California Code of Regulations.
- There are some "Section XX" all inside the appendix text which should be replaced with the correct section number.
- Section 2.4.1, page 2, describe the vertical extension of the General-Head Boundary. Also, provide a figure which illustrates the location of GHB and No-Flow boundary conditions on the perimeter boundaries and a cross section which shows the vertical distribution of the boundary conditions as well.
- Section 2.4.3, page 3, describe if the recharge rates are specified only at the highest active layer of the model or only at the first layer. Also, describe briefly why the author did not use "Recharge" package of MODFLOW to simulate the mountain-front recharge and instead, the "Well" package was utilized.
- Section 2.4.3, page 3 and the associated figure 4 at page 24, the text on page 3 implies that there are some recharge boundary conditions on the perimeter boundaries but the figure shows "black lines" everywhere on the perimeter boundary. Provide more transparent description or revise the figure with color lines representing different boundary conditions (No-Flow/GHB/Recharge) on the study domain.
- Figure 4, page 24, provide units for the flux values.
- Section 2.4.5, page 4, provide a range of depth for the pumping wells.
- Section 2.4.5, page 4, describe the package used for simulating the pumping wells. Is it "Well" package or "MNW" package (Multi-Node Well)?
- Section 2.5.1, page 7, Table 2, provide the units.

- Section 3.2, page 13, provide more detailed information about the temporal-resolution of the transport model. The flow model has annual time discretization for the transient model and monthly discretization for the predictive model. What is the time-step of the transport model?
- Section 3.4, page 14, last line, and the associated figure 36, page 55, simple averaging of simulated TDS value from layers of the multi-screen well is not exactly an appropriate approach, unless the flow rates to the well screens are the same for those layers. The calculation of mean concentration from a multi-screen well is usually based on volumetric flow rates to/from each screen. This flow rate can be captured by using MNW package in modeling the pumping wells (https://pdfs.semanticscholar.org/e8f2/dc3b4aa227532ad74f977b99abf070560321.pdf):

$$C_{average} = \frac{\sum_{i=1}^{n} Q_i C_i}{\sum_{i=1}^{n} Q_i}$$

  where Q_i and C_i are flow rates and concentrations for each layer of the multi-screened well, respectively.

- Section 3.5, page 16, provide additional graphs to describe the qualitative validation of the model using box and whisker plot of the TDS concentrations (simulated vs. measured) for different time intervals (for example 1920-50, 1951-70, 1971-90, 1991-2016) for shallow (plot #1), intermediate (plot #2), and deep (plot #3) TDS zones. Collect all available measured concentrations for each depth zone, for each time interval, and then compare them with the model's results at the same location and time (As reference, review https://doi.org/10.1016/j.jconhyd.2019.103521 , section 3.1).
- Section 4, page 17, add to the limitation list, that this transport model is qualified only for the purpose of "scenario analysis" and it is not an "absolute predictive model" because the transport model has not been quantitatively calibrated (which increases the uncertainty of the simulated results).

Thank you for considering our initial comments and recommendations. We look forward to working with you to further produce and implement the Groundwater Sustainability Plan in Indian Wells Valley.

Sincerely,

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Eddy Teasdale, P.G., C.HG
Supervising Hydrogeologist

CC: Adam Bingham (Chair Technical Advisory Committee

CLEAN WATER ACTION | CLEAN WATER FUND

Union of Concerned Scientists
Science for a healthy planet and safer world

Local Government Commission
Leaders for Livable Communities

Audubon | CALIFORNIA

The Nature Conservancy
Protecting nature. Preserving life.™

January 13, 2020

Sent via email to don.zdeba@iwvwd.com

Re: Comments on Draft Groundwater Sustainability Plan for Indian Wells Groundwater Basin

To Whom It May Concern,

On behalf of the above-listed organizations, we would like to offer the attached comments on the draft Groundwater Sustainability Plan for the Indian Wells Groundwater Basin. Our organizations are deeply engaged in and committed to the successful implementation of the Sustainable Groundwater Management Act (SGMA) because we understand that groundwater is a critical piece of a resilient California water portfolio, particularly in light of our changing climate. Because California's water and economy are interconnected, the sustainable management of each basin is of interest to both local communities and the state as a whole.

Our organizations have significant expertise in the environmental needs of groundwater and the needs of disadvantaged communities.

- The Nature Conservancy, in collaboration with state agencies, has developed several tools[1] for identifying groundwater dependent ecosystems in every SGMA groundwater basin and has made that tool available to each Groundwater Sustainability Agency.
- Local Government Commission supports leadership development, performs community engagement, and provides technical assistance dealing with groundwater management and other resilience-related topics at the local and regional scales; we provide guidance and resources for statewide applicability to the communities and GSAs we are working with directly in multiple groundwater basins.
- Audubon California is an expert in understanding wetlands and their role in groundwater recharge and applying conservation science to develop multiple-benefit solutions for sustainable groundwater management.
- The Union of Concerned Scientists has been working to ensure that future water supply meets demand and withstands climate change impacts by supporting stakeholder education and integration, and the creation and implementation of science-based Groundwater Sustainability Plans.

[1] https://groundwaterresourcehub.org/

- Clean Water Action and Clean Water Fund are sister organizations that have deep expertise in the provision of safe drinking water, particularly in California's small disadvantaged communities, and co-authored a report on public and stakeholder engagement in SGMA[2].

Because of the number of draft plans being released and our interest in reviewing every plan, we have identified key plan elements that are necessary to ensure that each plan adequately addresses essential requirements of SGMA. A summary review of your plan using our evaluation framework is attached to this letter as Appendix A. Our hope is that you can use our feedback to improve your plan before it is submitted in January 2020.

This review does not look at data quality but instead looks at how data was presented and used to identify and address the needs of disadvantaged communities (DACs), drinking water and the environment. In addition to informing individual groundwater sustainability agencies of our analysis, we plan to aggregate the results of our reviews to identify trends in GSP development, compare plans and determine which basins may require greater attention from our organizations.

Key Indicators

Appendix A provides a list of the questions we posed, how the draft plan responds to those questions and an evaluation by element of major issues with the plan. Below is a summary by element of the questions used to evaluate the plan.

1. Identification of Beneficial Users. This element is meant to ascertain whether and how DACs and groundwater-dependent ecosystems (GDEs) were identified, what standards and guidance were used to determine groundwater quality conditions and establish minimum thresholds for groundwater quality, and how environmental beneficial users and stakeholders were engaged through the development of the draft plan.
2. Communications plan. This element looks at the sufficiency of the communications plan in identifying ongoing stakeholder engagement during plan implementation, explicit information about how DACs were engaged in the planning process and how stakeholder input was incorporated into the GSP process and decision-making.
3. Maps related to Key Beneficial Uses. This element looks for maps related to drinking water users, including the density, location and depths of public supply and domestic wells; maps of GDE and interconnected surface waters with gaining and losing reaches; and monitoring networks.
4. Water Budgets. This element looks at how climate change is explicitly incorporated into current and future water budgets; how demands from urban and domestic water users were incorporated; and whether the historic, current and future water demands of native vegetation and wetlands are included in the budget.
5. Management areas and Monitoring Network. This element looks at where, why and how management areas are established, as well what data gaps have been identified and how the plan addresses those gaps.
6. Measurable Objectives and Undesirable Results. This element evaluates whether the plan explicitly considers the impacts on DACs, GDEs and environmental beneficial users in the development of Undesirable Results and Measurable Objectives. In addition, it examines

[2] https://www.cleanwater.org/publications/collaborating-success-stakeholder-engagement-sustainable-groundwater-management-act

whether stakeholder input was solicited from these beneficial users during the development of those metrics.

7. Management Actions and Costs. This element looks at how identified management actions impact DACs, GDEs and interconnected surface water bodies; whether mitigation for impacts to DACs is discussed or funded; and what efforts will be made to fill identified data gaps in the first five years of the plan. Additionally, this element asks whether any changes to local ordinances or land use plans are included as management actions.

Conclusion

We know that SGMA plan development and implementation is a major undertaking, and we want every basin to be successful. We would be happy to meet with you to discuss our evaluation as you finalize your Plan for submittal to DWR. Feel free to contact Suzannah Sosman at suzannah@aginnovations.org for more information or to schedule a conversation.

Sincerely,

Jennifer Clary
Water Program Manager
Clean Water Action/Clean Water Fund

Danielle V. Dolan
Water Program Director
Local Government Commission

Samantha Arthur
Working Lands Program Director
Audubon California

J. Pablo Ortiz-Partida, Ph.D.
Western States Climate and Water Scientist
Union of Concerned Scientists

Sandi Matsumoto
Associate Director, California Water Program
The Nature Conservancy

Appendix A
Review of Public Draft GSP

Groundwater Basin/Subbasin: Indian Wells Valley Groundwater Basin (DWR No. 6-054)
GSA: Indian Wells Valley Groundwater Authority
GSP Date: December 2019 Public Review Draft
Note, as of the document download date (December 16, 2019), no figures were included in the December 2019 Public Review Draft available on the GSA's website. Thus, the review of figures herein was limited to those that were included in the November 2019 draft report available on the website. It should be noted that as of January 2, 2020, the Public Review draft figures are available on the website, but that the Public Review Draft GSP text itself has been removed.

1. Identification of Beneficial Users

Were key beneficial users identified and engaged?

Selected relevant requirements and guidance:
GSP Element 2.1.5, "Notice & Communication" (§354.10):
(a) A description of the beneficial uses and users of groundwater in the basin, including the land uses and property interests potentially affected by the use of groundwater in the basin, the types of parties representing those interests, and the nature of consultation with those parties.
GSP Element 2.2.2, "Groundwater Conditions" (§354.16):
(d) Groundwater quality issues that may affect the supply and beneficial uses of groundwater, including a description and map of the location of known groundwater contamination sites and plumes.
(f) Identification of interconnected surface water systems within the basin and an estimate of the quantity and timing of depletions of those systems, utilizing data available from the Department, as specified in Section 353.2, or the best available information.
(g) Identification of groundwater dependent ecosystems within the basin, utilizing data available from the Department, as specified in Section 353.2, or the best available information.
GSP Element 3.3, "Minimum Thresholds" (§354.28):
(4) How minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.

Review Criteria	Yes	No	N/A	Relevant Info per GSP	Location (Section, Page[1])
1. Do beneficial users (BUs) identified within the GSP area include: a. Disadvantaged Communities (DACs)	X			"The following beneficial users and uses have been identified in the IWVGB: ● Municipal ● Domestic (De Minimis private wells owners and mutuals/co-ops) ● City/County ● NAWS China Lake ● Industrial ● Large Agriculture ● Small Agriculture ● Environmental (including wildlife habitat and Groundwater Dependent Ecosystems)" The IWVGA By-Laws require that at least one of the appointed voting PAC	1.3, page 69 1.4.2.1, page 75 1.4.2.3, page 77

[1] Page numbers refer to the page of the PDF.

					members shall also represent Disadvantaged Communities (DACs). On July 20, 2017, the Board approved Resolution No. 08-17 to add a representative of the Inyokern Community Services District as a DAC-representative voting member to the PAC. "During the formation of the IWVGA, a comprehensive listing of interested parties (including name, email, and phone number) was developed. The listing includes local community residents (including Disadvantaged Communities, Severely Disadvantaged Communities, and Economically Distressed Areas), businesses, large and small-scale agriculture, domestic well owners, academic institutions, relevant State and local agencies, Federal agencies, non-profit organizations, and community organizations. […] The listing is attached to this GSP as Appendix 1-D." However, the GSP does not explicitly identify which communities are designated as DACs.	
	b. Tribes	X			"Tribal Representation Cherokee Community of Central CA Kern Valley Indian Council Kitanemuk & Yowlumne Tejon Indians Monache Intertribal Association Nuui Cunni Cultural Center, Kern River Paiute Council Tejon Indian Tribe Timbisha Shoshone Tribal Council Tubatulabals of Kern County"	Appendix 1-E, page 427
	c. Small community public water systems (<3,300 connections)	X			"The IWVGB serves as the sole supply of potable water for the Indian Wells Valley. Residents of the Indian Wells Valley are served groundwater through private domestic wells, small cooperative groups sharing wells, small mutual water companies, the Inyokern Community Services District (Inyokern CSD), and the Water District." "The Inyokern CSD, established in 1983, provides water, wastewater, and street lighting services to the community of Inyokern, located approximately 7 miles west of Ridgecrest. The Inyokern CSD operates service facilities including approximately 265 water service connections, 4 groundwater production wells, distribution pipelines, and a wastewater treatment plant. The Inyokern CSD serves a primarily residential population of approximately 1,000 and an estimated 420 residential households (Alpert et al., 2014)."	2.2.4, page 94 2.3.3, page 97
2. What data were used to identify presence or absence of DACs?	d. DWR DAC Mapping Tool[2]		X		The GSP does not explicitly identify which communities are designated as DACs or the sources used to identify DACs.	
	i. Census Places		X			
	ii. Census Block Groups		X			
	iii. Census Tracts		X			
	e. Other data source		X			
3. Groundwater Conditions section includes discussion	f. Drinking Water Quality	X			"Currently, substantial groundwater in the IWVGB is of good quality; however, there are regions with poorer water quality due to high concentrations of total	3.4.4, page 171-172

[2] DWR DAC Mapping Tool: https://gis.water.ca.gov/app/dacs/

	of:	g.	California Maximum Contaminant Levels (CA MCLs)[3] (or Public Health Goals where MCL does not exist, e.g. Chromium VI)	X			dissolved solids (TDS) and/or arsenic." "TDS trends for a number of wells sampled throughout the Basin are shown in Figure 3-13. TDS samples indicate concentrations have increased over time in some of the northwest area wells where high rates of pumping may have migrated naturally occurring saline water. The most recent TDS concentrations for wells sampled in the IWVGB are shown in Figure 3-14. Lab results for a number of wells sampled in the U.S. Navy/China Lake and northwestern areas show TDS concentrations considerably above the SMCL (ranging from 1,001 mg/L to >5,000 mg/L). Groundwater below the SMCL occurs in the southern area of the Basin. Degraded water quality has caused groundwater producers in the Basin to relocate pumping to areas with higher water quality. IWV TDS data are provided in Appendix 3-C." "Historically, some wells sampled within the IWVGB have shown arsenic concentrations in groundwater above California's current arsenic MCL (10 µg/L). Existing arsenic data were assembled from earlier field and basin studies (TriEcoTt, 2013; Tetra Tech EM Inc., 2003; Houghton HydroGeo-Logic, 1996; USBR, 1993; Berenbrock, 1987), and DWR's GAMA program. Figure 3-15 displays the most recent groundwater quality measurements for arsenic at 209 wells with laboratory data. The groundwater most strongly affected by arsenic above the MCL (shown as red dots on Figure 3-15 map) occurs in the southeast area of the IWVGB and beneath the Navy Base. The arsenic database included as Appendix 3-F incorporates GAMA data from production wells monitored by IWVWD, Navy, Searles Valley Minerals, mutual water companies, and the Inyokern CSD. Where arsenic occurs above the MCL of 10µg/L, potable water is treated by water suppliers before it is distributed."	
4.	What local, state, and federal standards or plans were used to assess drinking water BUs in the development of Minimum Thresholds (MTs)?	h.	Office of Environmental Health Hazard Assessment Public Health Goal (OEHHA PHGs)[4]		X			
		i.	CA MCLs[3]	X			"In areas of the IWVGB with generally good water quality, the Minimum Threshold is set at the Secondary TDS MCL (500 mg/l) in order [sic] protect current beneficial uses for domestic supply. After evaluating historical data and trends, Minimum Thresholds were established in some areas with poorer water quality at 600 mg/l. The northwest area of the IWVGB has documented poor quality that is still designated for domestic use and is also used for agricultural uses. This area of the IWVGB is of particular concern for water quality degradation; however, limited publicly available water quality data indicate that this area has already documented high TDS concentrations that are pre-SGMA undesirable results. Due to the limited publicly available data, Minimum Thresholds (and other sustainable management criteria) in this area of the IWVGB will need to be established after baseline TDS concentrations are established. This area of the IWVGB would also benefit from cooperative sharing of private data to fill these data gaps."	4.4.3.1, page 223

[3] CA MCLs: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/MCLsandPHGs.html
[4] OEHHA PHGs: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/MCLsandPHGs.html

	j. Water Quality Objectives (WQOs) in Regional Water Quality Control Plans		X			
	k. Sustainable Communities Strategies/ Regional Transportation Plans[5]		X			
	l. County and/or City General Plans, Zoning Codes and Ordinances[6]		X			
5. Does the GSP identify how environmental BUs and environmental stakeholders were engaged throughout the development of the GSP?			X		The beneficial uses and users of groundwater include "Environmental (including wildlife habitat and Groundwater Dependent Ecosystems)" (p. 1-4). Users of groundwater, including DACS, SDACs, economically distressed areas, businesses, large and small-scale agriculture, domestic users, federal, state and local agencies, tribal groups, non-profit organizations, community organizations, and environmental groups, were identified during the development of the GSP. The listing of over 150 stakeholders is included as Appendix 1-D, and the Communications & Engagement Plan is provided in Appendix 1-E. The GSP does not clearly detail how these groups were engaged through the GSP development process.	1.3, page 69 1.4.2.3, page 77

Summary/ Comments

The GSP should provide further details on the DACs and tribes in the Plan area, including the name of communities, population, and a description of the sources of water supply. The DWR DAC Mapping Tool can be used to identify and map DACs: https://gis.water.ca.gov/app/dacs/

The GSP should clearly describe and identify what environmental beneficial users were engaged and how they were engaged through the GSP development process.

The GSP should identify whether or not the following beneficial uses and users of groundwater are present: Protected Lands, including refuges, conservation areas, and recreational areas; and Public Trust Uses, including wildlife, aquatic habitat, fisheries, and recreation.

Per GSP regulations, the plan's analysis of Water Quality Conditions should include a discussion of groundwater contamination from China Lake, specifically levels of PFOA/PFOS contamination at this base that have been detected at levels far above US EPA's Lifetime Health Advisory level of 70ppt, (levels of detection ranging from 3800-8,000 ppt0 and the potential for this plume to expand or extend beyond the base under current and modeled future groundwater conditions. The lack of a PHG (currently under development) is not sufficient reason to exclude this discussion, since the Department of Defense has already undertaken an investigation.

The types and locations of environmental uses, species and habitats supported, instream flow requirements, and other designated beneficial environmental uses of surface waters that may be affected by groundwater extraction in the Basin should be specified. To identify environmental users, please refer to the following:

- The NC Dataset (https://gis.water.ca.gov/app/NCDatasetViewer/) which identifies potential presence of groundwater dependent ecosystems in this basin.
- The list of freshwater species located in the Indian Wells Valley Basin can be found here: https://groundwaterresourcehub.org/sgma-tools/environmental-surface-water-beneficiaries/. Please take particular note of the species with protected status.
- CDFW's California Natural Diversity Database (CNDDB) - https://www.wildlife.ca.gov/Data/CNDDB
- USFWS's IPAC report for the Indian Wells Valley Area, if available - https://ecos.fws.gov/ipac/

[5] CARB: https://ww2.arb.ca.gov/resources/documents/scs-evaluation-resources
[6] OPR General Plan Guidelines: http://www.opr.ca.gov/planning/general-plan/

2. Communications Plan

How were key beneficial users engaged and how was their input incorporated into the GSP process and decisions?

Selected relevant requirements and guidance:
GSP Element 2.1.5, "Notice & Communication" (§354.10):
Each Plan shall include a summary of information relating to notification and communication by the Agency with other agencies and interested parties including the following:
(c) Comments regarding the Plan received by the Agency and a summary of any responses by the Agency.
(d) A communication section of the Plan that includes the following:
(1) An explanation of the Agency's decision-making process.
(2) Identification of opportunities for public engagement and a discussion of how public input and response will be used.
(3) A description of how the Agency encourages the active involvement of diverse social, cultural, and economic elements of the population within the basin.
(4) The method the Agency shall follow to inform the public about progress implementing the Plan, including the status of projects and actions.

DWR Guidance Document for GSP Stakeholder Communication and Engagement[7]

Review Criteria	Yes	No	N/A	Relevant Info per GSP	Location (Section, Page)
1. Is a Stakeholder Communication and Engagement Plan (SCEP) included?	X			Appendix 1-E, Communication and Engagement Plan, dated April 19, 2018	Appendix 1-E, page 416
2. Does the SCEP or GSP identify that ongoing engagement will be conducted during GSP implementation?		X		Communication Objectives: "Engage a diverse group of interested parties and stakeholders and promote informed community feedback throughout the GSP preparation and implementation process." However, the GSP does not lay out a plan for ongoing engagement during implementation, beyond the development of the GSP.	Appendix 1-E, page 424
3. Does the SCEP or GSP specifically identify how DAC beneficial users were engaged in the planning process?	X			"The Board established an eleven-person, voting-member Policy Advisory Committee (PAC) to advise the Board on all policy-related matters of the Board and to develop non-binding proposals on policy matters pertaining to the GSP. The Board may appoint individuals to the PAC through an adopted resolution. The PAC is comprised of voting members from the following constituent groups: ● 2 representatives from Large Agriculture ● 1 representative of Small Agriculture ● 2 representatives from Business Interests ● 2 representatives from Domestic Well Owners	1.4.2, page 75-78 1.5, page 80

[7] DWR Guidance Document for GSP Stakeholder Communication and Engagement
https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/Guidance-Document-for-Groundwater-Sustainability-Plan---Stakeholder-Communication-and-Engagement.pdf

				● 2 representatives from residential customers of a public water agency supplier ● 1 representative from the Eastern Kern County Resource Conservation District ● 1 representative from Wholesaler and Industrial User The IWVGA By-Laws require that at least one of the appointed voting PAC members shall also represent Disadvantaged Communities (DACs). On July 20, 2017, the Board approved Resolution No. 08-17 to add a representative of the Inyokern Community Services District as a DAC-representative voting member to the PAC. The PAC also includes non-voting Associate Members that represent the Navy, the Indian Wells Valley Water District, the Kern County Planning and Natural Resources Department, and the BLM." "The TAC is comprised of members from the following constituent groups: ● Large Agriculture ● Business Interests ● Residential Customers of a Public Water Agency ● Domestic Well Owners ● Eastern Kern County Resource Conservation District ● Wholesale and Industrial User ● Indian Wells Valley Water District ● United States Navy ● Kern County Water Agency" "During the formation of the IWVGA, a comprehensive listing of interested parties was developed which includes local community residents (including Disadvantaged Communities, Severely Disadvantaged Communities, and Economically Distressed Areas), businesses, large and small-scale agriculture, domestic well owners, academic institutions, relevant state and local agencies, federal agencies, non-profit organizations, and community organizations. This listing of over 150 stakeholders includes representatives from all types of water users within the IWVGB and was used during the 17-month long GSA formation process for notification of public meetings, notifications, and updates related to discussions on the SGMA." "A listing of all IWVGA Board, PAC, and TAC meetings are provided in Table 1-1 below." In addition to regular meetings, the IWVGA has hosted public workshops to present IWVGA policies and the content of this GSP. Additionally, IWVGA Board Members and Staff have met with individual stakeholder groups to provide GSP updates and discuss groundwater pumping and the allocation process. The following is a partial list of recent meetings, workshops, and outreach events that IWVGA Board members or staff have facilitated with	1.5.1 Public Outreach

				stakeholder groups: ● April 5, 2018: GSP Public Workshop ● October 1, 2018: Stakeholder Meeting with Municipal Pumpers ● October 1, 2018: Stakeholder Meeting with Agricultural Pumpers ● October 1, 2018: Stakeholder Meeting with Federal Pumpers ● October 1, 2018: Stakeholder Meeting with Industrial Pumpers ● March 13, 2019: Outreach Event with Exchange Club ● July 24, 2019: Outreach Event with Rotary Club ● November 14, 2019: Outreach Event with Realtors Association ● December 12, 2019: GPS Public Workshop	
4. Does the SCEP or GSP explicitly describe how stakeholder input was incorporated into the GSP process and decisions?	**X**			"In the course of evaluating each draft technical element of the GSP, the TAC strives for consensus in preparing written recommendations to the WRM. These recommendations (along with all related comments) are submitted to the WRM to document all TAC members' input for consideration in the final preparation of each GSP element." "A listing of all IWVGA Board, PAC, and TAC meetings are provided in Table 1-1 below." "The regular meetings of the Board, PAC, and TAC are open to members of the public, including representatives of all types of water users. At each meeting, members of the public are allowed time to address the Board or respective Committee regarding topics listed and not listed on the meeting agenda. IWVGA documents (such as meeting agendas, minutes, resolutions, ordinances, presentations, meeting packages, etc.) are made available to the public at the following website: https://iwvga.org/ In addition to regular meetings, the IWVGA has hosted public workshops to present IWVGA policies and the content of this GSP. Additionally, IWVGA Board Members and Staff have met with individual stakeholder groups to provide GSP updates and discuss groundwater pumping and the allocation process. The following is a partial list of recent meetings, workshops, and outreach events that IWVGA Board members or staff have facilitated with stakeholder groups: […]"	1.4.2.2, page 77 1.5, page 80-85

Summary/ Comments

It is important that stakeholder engagement be maintained through the development of future projects and management actions and other SGMA compliance and implementation steps. The GSA should lay out a plan to actively engage community members following the GSP preparation period.

The Policy Advisory Committee and Technical Advisory Committee would be improved by adding further dedicated representation from environmental stakeholders.

As of the document download date (December 16, 2019), no figures were included in the Public Review Draft available on the GSA's website. Thus, the review of figures herein was limited to those that were included in the November 2019 draft report available on the website. As of January 2, 2020, the Public Review draft figures are available on the website, but that the Public Review Draft GSP text itself has been removed. The incomplete and inconsistent availability of GSP documents for public review reduces public transparency.

The list of public workshops does not identify targeted efforts to reach disadvantaged communities.

3. Maps Related to Key Beneficial Uses

Were best available data sources used for information related to key beneficial users?

Selected relevant requirements and guidance:
GSP Element 2.1.4 "Additional GSP Elements" (§354.8):
Each Plan shall include a description of the geographic areas covered, including the following information:
(a) One or more maps of the basin that depict the following, as applicable:
(5) The density of wells per square mile, by dasymetric or similar mapping techniques, showing the general distribution of agricultural, industrial, and domestic water supply wells in the basin, including de minimis extractors, and the location and extent of communities dependent upon groundwater, utilizing data provided by the Department, as specified in Section 353.2, or the best available information.

GSP Element 3.5 Monitoring Network (§354.34)
(b) Each Plan shall include a description of the monitoring network objectives for the basin, including an explanation of how the network will be developed and implemented to monitor groundwater and related surface conditions, and the interconnection of surface water and groundwater, with sufficient temporal frequency and spatial density to evaluate the affects and effectiveness of Plan implementation. The monitoring network objectives shall be implemented to accomplish the following:
(c) Each monitoring network shall be designed to accomplish the following for each sustainability indicator:
(1) Chronic Lowering of Groundwater Levels. Demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features by the following methods:
(A) A sufficient density of monitoring wells to collect representative measurements through depth-discrete perforated intervals to characterize the groundwater table or potentiometric surface for each principal aquifer.
(4) Degraded Water Quality. Collect sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues.
(6) Depletions of Interconnected Surface Water. Monitor surface water and groundwater, where interconnected surface water conditions exist, to characterize the spatial and temporal exchanges between surface water and groundwater, and to calibrate and apply the tools and methods necessary to calculate depletions of surface water caused by groundwater extractions. The monitoring network shall be able to characterize the following:
(A) Flow conditions including surface water discharge, surface water head, and baseflow contribution.
(B) Identifying the approximate date and location where ephemeral or intermittent flowing streams and rivers cease to flow, if applicable.
(C) Temporal change in conditions due to variations in stream discharge and regional groundwater extraction.
(D) Other factors that may be necessary to identify adverse impacts on beneficial uses of the surface water.
(f) The Agency shall determine the density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends based upon the following factors:
(3) Impacts to beneficial uses and users of groundwater and land uses and property interests affected by groundwater production, and adjacent basins that could affect the ability of that basin to meet the sustainability goal.

Review Criteria		Yes	No	N/A	Relevant Info per GSP	Location (Section, Page)
1. Does the GSP Include Maps Related to Drinking Water Users?	a. Well Density		X		"As shown on Figure 2-5, there are 932 estimated groundwater production wells located in the IWVGB with an average well density of approximately 1.6 wells per square mile. A summary of groundwater production wells by type of use is provided in Table 2-4. The NAWS China Lake's groundwater production wells for on-station water uses are not shown on Figure 2-5." Well depths are not provided in the GSP.	2.2.4, page 95 Figure 2-5
	b. Domestic and Public Supply Well Locations & Depths	X				

	i. Based on DWR Well Completion Report Map Application[8]?		X			
	ii. Based on Other Source(s)?	X			"The Desert Research Institute (DRI) has developed a groundwater pumping database for the IWVGB to represent historical pumping conditions and develop future pumping projections. The groundwater pumping database contains a compiled list of active wells in the IWVGB as well as their respective uses of groundwater and approximate well locations, which have been cross-referenced using published existing databases and aerial photographs (see Section 3.3.4.1)." "To confirm the number of domestic/private wells in the IWVGB, the IWVGA has implemented a well registration process to obtain information from all users and owners of groundwater extraction facilities in the IWVGB and properly adopt, implement, and administer this GSP. The well registration process has assisted in verifying well existence and location, but there remains some uncertainty in the existence and locations of all domestic/private wells due to a lack of voluntary well registration. This uncertainty will be reduced through future data gap analysis and groundwater allocation verification, both of which will be conducted as GSP implementation actions."	2.2.4, page 95 3.3.4.1, page 94
2. Does the GSP include maps related to Groundwater Dependent Ecosystem (GDE) locations?	a. Map of GDE Locations	X			"A map of the different vegetative species comprising the GDEs within the IWV is shown in Figure 3-16."	3.4.7, page 175 Figure 3-16
	b. Map of Interconnected Surface Waters (ISWs)		X		"As discussed previously in Section 3.3.3.2, there are no significant interconnected surface water systems that interact with groundwater in the IWVGB. Streams in the valley are typically ephemeral and the majority of recharge occurs as mountain front recharge. Additionally, there are multiple natural springs in the mountain and canyon areas surrounding the IWV (see Figure 3-11). One spring located near Highway 14 is used as the water supply source for a restaurant and brewery." However, p. 4-15 states: "Groundwater is critical to sustaining springs, wetlands, and perennial flow (baseflow) in streams as well as to sustaining vegetation such as phreatophytes that directly tap groundwater." The GSP dismisses ISWs due to the ephemeral nature of streams in the valley, yet there is very little description of the interaction between principal aquifers and surface expression of groundwater. Without further documented evidence, ISWs must be retained for the consideration of sustainable management criteria. This section of the GSP could be improved by providing further analysis of ISWs.	3.4.6, page 174
	i. Does it identify which reaches are gaining and which are losing?		X			
	ii. Depletions to ISWs are quantified by stream segments.		X			
	iii. Depletions to ISWs are quantified seasonally.		X			
3. Does the GSP include maps of monitoring networks?	a. Existing Monitoring Wells	X			"The locations of the KCWA monitoring wells and other monitoring wells in the IWVGB are provided in Figure 2-13." "KCWA has maintained a semi-annual groundwater monitoring program within the Basin since 1995. These data provide a strong foundation for understanding the trends and state of water resources within the Basin. As	2.6.2, page 115 Figure 2-13 3.6, page 188 Figure 3-1

[8] DWR Well Completion Report Map Application: https://www.arcgis.com/apps/webappviewer/index.html?id=181078580a214c0986e2da28f8623b37

					of Fall 2019, 198 monitoring wells, two stream gages, and four weather stations (Figure 3-1) contribute data to the monitoring program. DRI also maintains an eddy covariance station to monitor evapotranspiration/evaporation; and the USGS provides InSAR and earthquake activity data to monitor for land subsidence."	
b. Existing Monitoring Well Data sources:	i. California Statewide Groundwater Elevation Monitoring (CASGEM)	X			"A subset of the data from 20 of the over 200 wells monitored throughout the IWVGB are submitted to DWR as part of their California Statewide Groundwater Elevation Monitoring (CASGEM) program. CASGEM requires each individual groundwater basin to develop a representative groundwater level monitoring program to assist with tracking change in groundwater levels, and consequently changes in the volume of water stored in the groundwater basin. The CASGEM program aides in identifying the seasonal and long-term trends in the IWVGB. The locations of the IWVGB CASGEM wells are provided in Figure 2-13."	2.6.3, page 116
	ii. Water Board Regulated monitoring sites		X			
	iii. Department of Pesticide Regulation (DPR) monitoring wells		X			
c. SGMA-Compliance Monitoring Network		X			"Ten monitoring wells have been selected to be representative key wells to monitor chronic lowering of groundwater levels. The locations of these wells are provided in Figure 4-2." "Eleven monitoring wells and production wells have been selected to be representative key wells to monitor water quality degradation. The locations of these wells are provided in Figure 4-3."	4.4.2.6, page 221 4.4.3.6, page 225 Figure 4-2, 4-3
i. SGMA Monitoring Network map includes identified DACs?			X			
ii. SGMA Monitoring Network map includes identified GDEs?			X			

Summary/ Comments

As noted on the first page of this form, given that no figures were included in the Public Review Draft downloaded December 16, 2019, all review of figures herein are of November draft figures.

Per 23 CCR §354.8, the GSP is required to present the density of wells on maps. The GSP only provides an average well density across the whole plan area, and does not differentiate between private domestic wells, public supply wells, and agricultural wells. Well locations are presented on Figure 2-5, with different symbols for each type of well, however given the scale of this map and the overlapping symbols, it is difficult to discern the differences in relative distribution of wells. Therefore, the GSP should present well density information on separate maps for each type of well.

The GSP should also provide the depths of wells by type, including and especially for domestic wells and public supply wells. Well density and depth data can be downloaded from the DWR-provided resource: https://www.arcgis.com/apps/webappviewer/index.html?id=181078580a214c0986e2da28f8623b37.

The GSP should include maps of the SGMA monitoring network overlaid with location of DACs, domestic wells, community water systems, GDEs, and any other sensitive

beneficial users. Providing these maps will allow the reader to evaluate the adequacy of the network to monitor conditions near these beneficial users, a requirement of the monitoring network under 23 CCR § 354.34(b)(2).

The following suggestions could be used to clarify the analysis of the presence of potential GDEs in the Basin. The GSP should map the original NC dataset, and clearly document which polygons were added (and what local sources were used to identify them), removed (and the removal reason), and kept (from the original NC dataset). Provide one map to denote the most accurate picture of potential GDEs in the Basin showing the source of the data. For example, note if any GDEs were added or removed based on the November 2018 field visit. Additionally, note if any GDEs were added or removed based on the US Navy mapping of GDEs on NAWS China Lake. On the final map figure, more easily distinguishable colors or patterns should be used to distinguish the GDE Units from one another.

The GSP should provide information on the historical or current groundwater conditions in the GDEs or the ecological conditions present. The GSP should also identify whether any endangered or threatened freshwater species of animals and plants, or areas with critical habitat are located in or near any of the GDEs, since some organisms rely on uplands and wetlands during different stages of their lifecycle.

It is recommended that the GSP provide further analysis of ISWs. The GSP should evaluate stream reaches with depth to groundwater contour maps. The GSP should also reconcile any data gaps (shallow monitoring wells, stream gauges, and nested/clustered wells) along surface water features in the Monitoring Network section of the GSP to improve ISW mapping. The GSP should provide a cross-section and/or corresponding hydrographs to show the relationship between the stream channels and the depth to groundwater at wells near the stream.

4. Water Budgets

How were climate change projections incorporated into projected/future water budget and how were key beneficial users addressed?

Selected relevant requirements and guidance:
GSP Element 2.2.3 "Water Budget Information" (Reg. § 354.18)
Each Plan shall include a water budget for the basin that provides an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin, including historical, current and projected water budget conditions, and the change in the volume of water stored. Water budget information shall be reported in tabular and graphical form.

*Projected water budgets shall be used to estimate future baseline conditions of supply, **demand**, and aquifer response to Plan implementation, and to identify the uncertainties of these projected water budget components. The projected water budget shall utilize the following methodologies and assumptions to estimate future baseline conditions concerning hydrology, water demand and surface water supply availability or reliability over the planning and implementation horizon:*
(b) The water budget shall quantify the following, either through direct measurements or estimates based on data:
(5) If overdraft conditions occur, as defined in Bulletin 118, the water budget shall include a quantification of overdraft over a period of years during which water year and water supply conditions approximate average conditions.
(6) The water year type associated with the annual supply, demand, and change in groundwater stored.
(c) Each Plan shall quantify the current, historical, and projected water budget for the basin as follows:
*(1) Current water budget information shall quantify current inflows and outflows for the basin using the most recent hydrology, water supply, **water demand**, and land use information.*

DWR Water Budget BMP[9]
DWR Guidance for Climate Change Data Use During GSP Development and Resource Guide[10]

Review Criteria	Yes	No	N/A	Relevant Info per GSP	Location (Section, Page)
1. Are climate change projections explicitly incorporated in future/ projected water budget scenario(s)?		X		"DRI (McGraw et al, 2016) examined the predicted precipitation quantities for several published IPCC climate models and documented conflicting results; ie, some models predicted decreases and some predicted increases in precipitation in the future with the assumed driver of CO2 increase. This GSP does not incorporate any precipitation change in model simulations into the future other than annual fluctuations similar to those that have been observed in the past record."	3.5.6, page 188
2. Is there a description of the methodology used to include climate change?		X			
3. What is used as the basis a. DWR-Provided Climate Change Data and Guidance[11]		X			

[9] DWR BMP for the Sustainable <management of Groundwater Water Budget: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-4-Water-Budget.pdf
[10] DWR Guidance Document for the Sustainable Management of Groundwater Guidance for Climate Change Data Use During GSP Development: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/Climate-Change-Guidance_Final.pdf
[11] DWR Guidance Document for the Sustainable Management of Groundwater Guidance for Climate Change Data Use During GSP Development: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/Climate-Change-Guidance_Final.pdf

for climate change assumptions?	b. Other				X			
4. Does the GSP use multiple climate scenarios?					X			
5. Does the GSP quantitatively incorporate climate change projections?					X			
6. Does the GSP explicitly account for climate change in the following elements of the future/projected water budget?	a. Inflows:	i. Precipitation			X			
		ii. Surface Water			X			
		iii. Imported Water			X			
		iv. Subsurface Inflow			X			
	b. Outflows:	i. Evapotranspiration			X			
		ii. Surface Water Outflows (incl. Exports)			X			
		iii. Groundwater Outflows (incl. Exports)			X			
7. Are demands by these sectors (drinking water users) explicitly included in the future/projected water budget?	a. Domestic Well users (<5 connections)		X			"DRI developed a groundwater pumping database to represent historical pumping and to assist with making future pumping projections (McGraw et al., 2016). The database contains pumping from 1920 to 2013. The USGS and the USBR provided pumping estimates from 1920 to 1995 and the Cooperative Group provided pumping estimates from 1995 to 2016. Pumping wells were assigned to one of the following water use categories: ● Private domestic ● Municipal ● City of Ridgecrest ● Industrial (Searles Valley Minerals) ● U.S Navy (NAWS China Lake) ● Agriculture" "IWVWD groundwater pumping was assumed to increase by 1% annually. This increase represented overall increase in pumping in the IWVGB due to growth in domestic and municipal sectors, and is not intended to imply growth is limited to the IWVWD service area only."	3.3.4.1, page 158 3.5.5, page 186
	b. State Small Water systems (5-14 connections)				X			
	c. Small community water systems (<3,300 connections)		X					
	d. Medium and Large community water systems (> 3,300 connections)		X					
	e. Non-community water systems		X					
8. Are water uses for native vegetation and/or wetlands explicitly included in the current and historical water budgets?			X			"The ET that occurs at the China Lake Playa and nearby phreatophytic area is the primary natural discharge for the IWVGB." ET is included in the historical, current, and projected water budgets in Table 3-6, 3-7, 3-8, 3-10, and 3-12. The current estimate of evapotranspiration (ET) in the basin is given as	3.3.4.1, page 159
9. Are water uses for native vegetation and/or wetlands explicitly included in the projected/future water budget?			X					

DWR Resource Guide DWR-Provided Climate Change Data and Guidance for Use During GSP Development: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/Resource-Guide-Climate-Change-Guidance_v8.pdf

				4,850 ac-ft/yr (Table 3-7). The ET of saltgrass, pickleweed, greasewood and bare playa are discussed individually, but the basis of the total estimated evapotranspiration is not provided. Please clarify how the total ET was calculated in the current water budget.	

Summary/ Comments

It appears that climate change was not considered in the projected water budgets. The regulations [23 CCR §354.18(e)] state that "Each Plan shall rely on the best available information and best available science to quantify the water budget for the basin in order to provide an understanding of historical and projected hydrology, water demand, water supply, land use, population, climate change, sea level rise, groundwater and surface water interaction, and subsurface groundwater flow" (p. 12 of DWR BMP for Water Budgets). DWR's Guidance for Climate Change Data is intended as a source of guidance for climate change factors, but is not incorporated or even discussed in the GSP.

The GSP should explain what changes to factors such as land use and population were used for the future water budgets.

Elaborate on the methodology used for future precipitation/runoff changes considering the regulations and DWR guidance, and provide the quantitative effects of climate change on each water budget component.

The historical average budget in Table 3-6 shows the interbasin outflow as 60 AFY, while in the current budget in Table 3-7 the interbasin outflow is 50 AFY. The GSP should clarify the basis for the estimated amounts of interbasin outflow in the historical and current water budgets.

The GSP should clarify how the total ET was calculated in the current water budget.

In addition to the Predicted Water Budgets with Projects shown, the GSP should provide a baseline future budget without the projects and management actions.

5. Management Areas and Monitoring Network

How were key beneficial users considered in the selection and monitoring of Management Areas and was the monitoring network designed appropriately to identify impacts on DACs and GDEs?

Selected relevant requirements and guidance:
GSP Element 3.3, "Management Areas" (§354.20):

(b) A basin that includes one or more management areas shall describe the following in the Plan:
(2) The minimum thresholds and measurable objectives established for each management area, and an explanation of the rationale for selecting those values, if different from the basin at large.
(3) The level of monitoring and analysis appropriate for each management area.
(4) An explanation of how the management area can operate under different minimum thresholds and measurable objectives without causing undesirable results outside the management area, if applicable.
(c) If a Plan includes one or more management areas, the Plan shall include descriptions, maps, and other information required by this Subarticle sufficient to describe conditions in those areas.

CWC Guide to Protecting Drinking Water Quality under the SGMA[12]
TNC's Groundwater Dependent Ecosystems under the SGMA, Guidance for Preparing GSPs[13]

Review Criteria	Yes	No	N/A	Relevant Info per GSP	Location (Section, Page)
1. Does the GSP define one or more Management Area?		X		The GSP does not define any Management Areas.	
2. Were the management areas defined specifically to manage GDEs?			X		
3. Were the management areas defined specifically to manage DACs?			X		
a. If yes, are the Measurable Objectives (MOs) and MTs for GDE/DAC management areas more restrictive than for the basin as a whole?			X		
b. If yes, are the proposed management actions for GDE/DAC management areas more restrictive/ aggressive than for the basin as a whole?			X		
4. Does the GSP include maps or descriptions indicating what DACs are located in each Management Area(s)?			X		
5. Does the GSP include maps or descriptions indicating what GDEs are located in each Management Area(s)?			X		
6. Does the plan identify gaps in the monitoring network for DACs and/or GDEs?	X			"As discussed in Section 3.4.7, most of the GDEs are on federal property within IWV. The Navy's Integrated Natural Resources Monitoring Plan (INRMP) inventories and monitors phreatophytic vegetation that relies on groundwater to maintain its ecosystem. Data gaps associated with GDEs in IWV include quantifying root extinction depths, better mapping of vegetation types, and	3.6.1.4, page 193
a. If yes, are plans included to address the identified deficiencies?	X				

[12] CWC Guide to Protecting Drinking Water Quality under the SGMA: https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858
[13] TNC's Groundwater Dependent Ecosystems under the SGMA, Guidance for Preparing GSPs: https://www.scienceforconservation.org/assets/downloads/GDEsUnderSGMA.pdf

				correlating depth to groundwater with vegetative health. Dataloggers were purchased under Prop 1 Grant funding to utilize existing wells in the vicinity of GDEs to monitor groundwater levels. Further coordination with the Navy will be required to evaluate vegetation health as groundwater levels are monitored. Data will start to be collected and analyzed under the Prop 1 Grant funding. These data gaps will be re-evaluated for the 5-year progress report to develop a correlation between measured data and vegetation health."	

Summary/ Comments

If management areas are defined in the future, care should be taken so that they and the associated monitoring network are designed to adequately assess and protect against impacts to all beneficial users, including GDEs and DACs.

The GSP should describe the GDE monitoring program, and address how the need to link and correlate groundwater level declines to biological responses and significant and adverse impacts to GDEs and ISWs will be addressed by the monitoring program. The GSP should also add the number of wells to be used, the locations, and the screened intervals and depths.

The ten proposed representative wells to be used for monitoring groundwater levels, shown in Figure 4-2 and listed in Table 4-1, are predominantly deep wells which will not adequately monitor impacts to GDEs. The GSP should describe whether other existing wells can be used to monitor the shallow aquifer or propose installing new wells.

The GSP should show the location of the ten multi-level monitoring wells on a map and present the well hydrographs, along with an analysis of the vertical gradients that can be determined from the data.

6. Measurable Objectives, Minimum Thresholds, and Undesirable Results

How were DAC and GDE beneficial uses and users considered in the establishment of Sustainable Management Criteria?

Selected relevant requirements and guidance:
GSP Element 3.4 "Undesirable Results" (§ 354.26):
(b) The description of undesirable results shall include the following:
(3) Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results

GSP Element 3.2 "Measurable Objectives" (§ 354.30)
(a) Each Agency shall establish measurable objectives, including interim milestones in increments of five years, to achieve the sustainability goal for the basin within 20 years of Plan implementation and to continue to sustainably manage the groundwater basin over the planning and implementation horizon.

Review Criteria	Yes	No	N/A	Relevant Info per GSP	Location (Section, Page)
1. Are DAC impacts considered in the development of Undesirable Results (URs), MOs, and MTs for groundwater levels and groundwater quality?	X			Groundwater Levels URs: "The IWVGB will continue to experience negative impacts related to the chronic lowing of groundwater levels if not addressed through projects and management actions. The potential basin impacts include: ● Impacts to shallow wells directly caused by lowering of groundwater levels which would require deepening or replacement ● Impacts to shallow wells due to degraded water quality indirectly caused by lowering of groundwater levels which would require well abandonment or treatment ● Encroachment on mission of NAWS China Lake ● Land subsidence causing impacts to infrastructure ● Jeopardy to beneficial uses including domestic supplies, industrial supplies, and agriculture supplies which could result in fallowing of agricultural land ● Financial impacts to all groundwater users and well owners for mitigation costs (including de minimis groundwater users and members of disadvantaged communities) ● Reduction of impacts caused by increased dust and desertification caused by declining water tables." MTs: "Groundwater conditions in the IWVGB will be improved by limiting the decline of groundwater levels. The Minimum Threshold for the chronic lowering of groundwater levels will minimize undesirable results caused by reduction of groundwater in storage, degraded water quality, and land subsidence which will subsequently protect beneficial users and uses from undesirable results. The risk to wells going dry, along with the associated financial impacts, will be mitigated by limiting the chronic decline of	4.3.2.3, page 210 4.4.2.4, page 220 4.3.3.3, page 212 4.4.3.4, page 224

				groundwater levels. Beneficial uses including groundwater for domestic/municipal use, industrial use, and agriculture use will be protected; however, the Minimum Threshold for the chronic lowering of groundwater levels impacts and limits amount of groundwater production that can occur for beneficial uses in the IWVGB. As discussed in Section 5, projects and management actions implemented to mitigate the chronic lowering of groundwater levels have financial costs that will be partially borne by beneficial users in the IWVGB." Groundwater Quality URs: "The IWVGB will continue to experience negative impacts related due to degraded water quality if not addressed through projects and management actions. The potential basin impacts to beneficial uses and users include: ● Impacts to shallow wells due to degraded water quality which would require well abandonment or treatment ● Encroachment on mission of NAWS China Lake ● Jeopardy to beneficial uses including domestic supplies, industrial supplies, and agriculture supplies which could result in fallowing of agricultural land ● Financial impacts to all groundwater users and well owners for mitigation costs (including de minimis groundwater users and members of disadvantaged communities)" MTs: "Groundwater conditions in the IWVGB will be improved by establishing Minimum Thresholds to limit and mitigate the degradation of groundwater quality, which will subsequently protect beneficial users and uses from undesirable results. By maintaining TDS concentrations below Minimum Threshold, the number of wells that would require well abandonment or treatment due to water quality degradation will be reduced and beneficial uses will be protected. As discussed in Section 5, projects and management actions implemented to mitigate the degraded water quality have financial costs that will be partially borne by beneficial users in the IWVGB."	
2. Does the GSP explicitly discuss how stakeholder input from DAC community members was considered in the development of URs, MOs, and MTs?		**X**		Stakeholder input is not explicitly discussed in the development of URs, MOs, and MTs.	
3. Does the GSP explicitly consider impacts to GDEs and environmental BUs of surface water in the development of MOs and MTs for groundwater levels and depletions of ISWs?		**X**		Impacts to GDEs and environmental BUs of surface water are not explicitly considered.	
4. Does the GSP explicitly consider impacts GDEs and environmental BUs of surface water and recreational lands in the discussion and development of Undesirable Results?		**X**		The URs of groundwater levels and groundwater quality only describe potential effects relating to human beneficial uses of groundwater and neglects environmental beneficial uses that could be adversely affected by chronic groundwater level decline. Please add "potential adverse impacts to environmental uses and users" to the list of potential effects.	4.3.5, page 214

					"Ephemeral streams exist in the mountain canyons, but typically do not flow past the mouths of the canyon except for in very wet years. There are multiple natural springs in the IWV (see Figure 3-11). There is currently no data documenting any undesirable results or basin impacts related to depletions of interconnected surface water. Groundwater is critical to sustaining springs, wetlands, and perennial flow (baseflow) in streams as well as to sustaining vegetation such as phreatophytes that directly tap groundwater. As discussed in Section 3.4.7, GDEs on the valley floor are vulnerable and susceptible to impacts related to the chronic lowering of groundwater levels. Model results simulating Baseline conditions (no action) indicate continued drastic lowering of groundwater levels in the vicinity of the GDEs near the China Lake Playa if appropriate projects and management actions are not implemented (see Appendix 3-H). Specifics regarding the relationship between groundwater levels and the health of GDEs is currently not known, including extinction root depths, and there is no current monitoring program to track GDE health; therefore, GDE monitoring, currently a data gap, is proposed as part of the GSP monitoring program. Due to limited data on the relationship of interconnected surface water (springs) to GDEs and GDE's direct use of groundwater, no additional sustainable management criteria are proposed at this time."	
5. Does the GSP clearly identify and detail the anticipated degree of water level decline from current elevations to the water level MOs and MTs?			X		The GSP does not clearly identify the anticipated degree of water level decline from current conditions. "The lower value between the following data was used to determine the Minimum Threshold: 1. 5 feet below the minimum of the simulated groundwater level before groundwater level recovery is anticipated due to the implementation of projects and management actions; or 2. 5 feet below recent minimum historical value."	4.4.2.1, page 219
6. If yes, does it include:	a. Is this information presented in table(s)?		X			
	b. Is this information presented on map(s)?		X			
	c. Is this information presented relative to the locations of DACs and domestic well users?		X			
	d. Is this information presented relative to the locations of ISW and GDEs?		X			
7. Does the GSP include an analysis of the anticipated impacts of water level MOs and MTs on drinking water users?			X		See Question 1 above. The GSP does not include an analysis of the anticipated impacts.	
8. If yes:	a. On domestic well users?		X			
	b. On small water system production wells?		X			
	c. Was an analysis conducted and clearly illustrated (with maps) to identify what wells would be expected to be partially and fully dewatered at the MOs?		X			
	d. Was an analysis conducted and clearly illustrated (with maps) to identify what wells would be expected to be partially and fully dewatered at the MTs?		X			
	e. Was an economic analysis performed to assess the increased operation costs associated with increased lift as a result of water level decline?		X			
9. Does the sustainability goal explicitly include drinking water and nature?			X		There is no mention of the environment in the Sustainability Goal. Since GDEs	4.2.2, page 202

				are present in the Subbasin, they should be recognized as beneficial users of groundwater and should be included in the Sustainability Goal. "The sustainability goal is to manage and preserve the IWVGB groundwater resource as a sustainable water supply. To the greatest extent possible, the goal is to preserve the character of the community, preserve the quality of life of IWV residents, and sustain the mission at NAWS China Lake. The absence of undesirable results, defined as significant and unreasonable effects of groundwater conditions, throughout the planning horizon will indicate that the sustainability goal has been achieved. The sustainability goal will be accomplished by achieving the following objectives: ● Operate the IWVGB groundwater resource within the sustainable yield. ● Implement projects and management actions to reduce IWVGB groundwater demands, increase reuse of current supplies, obtain supplemental water supplies, and mitigate undesirable results. ● Monitor the IWVGB actively and thoroughly and adaptively manage the projects and management actions to ensure the GSP is effective and undesirable results are avoided."	

Summary/ Comments

The GSP should clearly identify and detail the anticipated degree of water level decline from current elevations to the water level MOs/MTs. The GSP should also describe how the approach of developing water level MOs/MTs is protective of the diverse drinking water users within the Plan area. An impact analysis should be performed to evaluate and quantify the potential impacts to domestic and public supply wells associated with the water level MOs/MTs. The locations of potentially impacted wells should be identified and presented in maps so that the public and DWR may assess the well impacts specific to DACs and other sensitive users within the Plan area. This analysis will further support the planning and development of the Shallow Well Mitigation program planned by the GSA.

The GSP should explicitly demonstrate whether and how the stakeholder input was considered in the development of URs, MOs, and MTs.

The GSP should include GDEs and ISWs in the discussion of Sustainable Management Criteria and state whether the MTs, MOs and interim milestones will help achieve the sustainability goal as it pertains to the environment.

The GSP should elaborate on how the criteria for determining URs would be applied in a way that is protective of significant and unreasonable harm to GDEs. A procedure could be included for violation of MTs that includes early identification of potential GDE impacts and appropriate response actions. This could be accomplished efficiently and cost-effectively using remote sensing tools, such as GDE Pulse. The GSP should also provide more specifics on what biological responses (e.g., extent of habitat, growth, recruitment rates) would best characterize a significant and unreasonable impact to GDEs.

Even though data is lacking on ISWs, they should be included in the Sustainable Management Criteria and Undesirable Results. The analysis for potential depletion of ISWs should include all beneficial users of surface water that could be affected by groundwater withdrawals, including environmental users.

7. Management Actions and Costs

What does the GSP identify as specific actions to achieve the MOs, particularly those that affect the key BUs, including actions triggered by failure to meet MOs? What funding mechanisms and processes are identified that will ensure that the proposed projects and management actions are achievable and implementable?

Selected relevant requirements and guidance
GSP Element 4.0 Projects and Management Actions to Achieve Sustainability Goal (§ 354.44)
(a) Each Plan shall include a description of the projects and management actions the Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.
(b) Each Plan shall include a description of the projects and management actions that include the following:
(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action.

Review Criteria	Yes	No	N/A	Relevant Info per GSP	Location (Section, Page)
1. Does the GSP identify benefits or impacts to DACs as a result of identified management actions?	X			"The Shallow Well Mitigation program will provide a direct benefit to beneficial users in the IWVGB who have unreasonably experienced water supply and financial hardships due to overdraft conditions in the IWVGB. Many of the beneficial users that will benefit from the implementation of this project are members of disadvantaged communities. The implementation of the other proposed projects and management actions will also improve groundwater conditions and are anticipated[sic] reduce the number of shallow wells that will be impacted in the future, as compared to the anticipated number of impacted shallow wells under baseline conditions (see Appendix 3-E)." "The IWVGA will confer with domestic and municipal groundwater producers (namely the Water District, City, Navy, SDWC, Inyokern CSD, and private/domestic well owners) to discuss historical and current conservation measures, which will be used as a guide to establish the new voluntary conservation measures on a basin-wide level. Specifically, the IWVGA will review the current conservation measures governing landscape irrigation, wash-downs, and other practices that potentially waste water that could be directed toward higher beneficial uses. The IWVGA may also determine the health and safety water use requirements for domestic water use in the IWVGB and use these requirements as another guide to establish the new voluntary conservation measures."	5.3.4.2, page 277 5.3.3.1, page 270
2. If yes: a. Is a plan to mitigate impacts on DAC drinking water users included in the proposed Projects and Management Actions?	X			Project No. 4: Shallow Well Mitigation Program "The IWVGA will prepare a mitigation plan (Shallow Well Mitigation Plan) to address the approximately 872 shallow wells in the IWVGB. The Shallow Well Mitigation Plan will include the development of criteria to characterize the level of impacts and the development of an evaluation process to access the viability of the wells." "After the adoption of the Shallow Well Mitigation Plan, in appropriate	5.3.4, page 276

					intervals throughout the planning horizon, shallow wells will be evaluated based on the adopted criteria and organized into specific areas/zones for development of effective mitigation options. Some wells may be proposed to be abandoned (not mitigated) based on evaluation of impacts. Specific improvements will be identified for impacted shallow well which may include deepening the well, replacing the well, connecting to existing water systems, or other mitigation measures. The wells recommended for mitigation will be placed on an Impacted Shallow Well Priority List and will be scheduled for mitigation."	
	b. Does the GSP identify costs to fund a mitigation program?	x			"The estimated cost to develop the Shallow Well Mitigation Plan is $70,000. The estimated annual cost to administer the program is $20,000. The model results for the proposed projects and management actions indicate that potentially 22 shallow wells could be impacted. The estimated cost to mitigate these impacts is $1.65 million."	5.3.4.4, page 278
	c. Does the GSP include a funding mechanism to support the mitigation program?		x			
3. Does the GSP identify any demand management measures in its projects and management actions?		x				
4. If yes, does it include:	a. Irrigation efficiency program	x			"The IWVGA will also coordinate with agricultural pumpers to investigate the potential for and feasibility of additional conservation in irrigation practices."	5.3.3, page 270
	b. Ag land fallowing (voluntary or mandatory)	x			"All groundwater pumpers who are assigned a Transient Pool Allocation may be enrolled, at their sole election, in a Fallowing Program."	5.2.1, page 243
	c. Pumping allocation/restriction	x			Management Action No. 1: Implement Annual Pumping Allocation Plan, Transient Pool and Fallowing Program	5.2.1, page 241
	d. Pumping fees/fines	x			"These Annual Pumping Allocations will be used for the purpose of assigning pumping fees ("Augmentation Fees"). The Augmentation Fees will in turn provide the funding for the development of supplemental water supplies and other projects and management actions to achieve sustainability."	5.2.1, page 241
	e. Development of a water market/credit system		x			
	f. Prohibition on new well construction		x			
	g. Limits on municipal pumping		x		"Rather, all groundwater pumpers continue to possess the right to produce groundwater provided they pay the Augmentation Fee. While this action will not directly limit groundwater extraction by any individual entity, it is anticipated that the costs associated with the Augmentation Fee will result in voluntary pumping reductions and the implementation of additional conservation measures to lower demands thereby assisting in achieving sustainability." "In accordance with SGMA and California Water law, a five-year base period defined as January 1, 2010 through December 31, 2014 ("Base Period") will be used to evaluate groundwater production for all groundwater pumpers, with the exception of NAWS China Lake and de minimis users."	5.2.1, page 241
	h. Limits on domestic well pumping		x			
	i. Other	x			Project No. 3: Basin-wide Conservation Efforts "The Water District, City, and NAWS China Lake have previously adopted conservation measures within their respective service areas in an effort to mitigate the conditions of overdraft in the IWVGB (see Sections 2.7.3 and 2.7.4). An additional project is to develop additional voluntary and	5.3.3, page 270 5.3.6, page 283

					rebate-based conservation efforts for domestic beneficial uses in the IWVGB, and to also promote additional conservation efforts for the other beneficial uses that rely on groundwater from the IWVGB." Project No. 6: Pumping Optimization Project "Evaluation of the modeling results for the proposed groundwater management and project scenarios showed that some current groundwater pumping needs to be redistributed in the basin to reduce concentrated pumping centers that would lead to continuing localized declining groundwater levels and corresponding continuing impacts to shallow domestic wells."	
5. Does the GSP identify water supply augmentation projects in its projects and management actions?		X				
6. If yes, does it include:	a. Increasing existing water supplies		X			
	b. Obtaining new water supplies	X			Project No. 1: Develop Imported Water Supply	5.3.1, page 250
	c. Increasing surface water storage		X			
	d. Groundwater recharge projects – District or Regional level	X			Option 2: Groundwater Recharge Project with LADWP Recycled Water Subproject 2: Groundwater Recharge	5.3.1, page 251 5.3.2, page 262
	e. On-farm recharge		X			
	f. Conjunctive use of surface water		X			
	g. Developing/utilizing recycled water	X			Project No. 2: Optimize Use of Recycled Water	5.3.2, page 260
	h. Stormwater capture and reuse		X			
	i. Increasing operational flexibility (e.g., new interties and conveyance)		X			
	j. Other		X			
7. Does the GSP identify specific management actions and funding mechanisms to meet the identified MOs for groundwater quality and groundwater levels?		X			The project benefits section of each project and management action discusses the anticipated benefits which include reduction of unreasonable and chronic lowering of groundwater levels, reduction of unreasonable water quality degradation and/or improvement of water quality conditions. Funding mechanisms are discussed under the costs sections and section 6.3.	
8. Does the GSP include plans to fill identified data gaps by the first five-year report?		X			Section 3.6.1 discusses plans to fill data gaps in groundwater level monitoring, water budget, groundwater quality monitoring, GDEs, and aquifer properties.	3.6.1, page 190
9. Do proposed management actions include any changes to local ordinances or land use planning?			X			
10. Does the GSP identify additional/contingent actions and funding mechanisms in the event that MOs are not met by the identified actions?			X		The GSP does not identify specific additional/contingent actions. "If planned project and management actions are unable to be realized or the intended IWVGB benefits are not achieved, sustainable management criteria, including Minimum Thresholds and Measurable Objectives, will need to be revaluated and additional or more aggressive management actions may need to be implemented."	4.4, page 215 5.3, page 289

					"The IWVGA is taking an adaptive management approach to IWVGB management over the planning horizon. Consequently, potential projects and management actions will continuously be considered and evaluated over the planning horizon to ensure that the most beneficial and economically feasible projects and management actions are implemented to reach sustainability in the IWVGB. Proposed projects and management actions may be modified, as necessary, if the intended project benefits are not realized in the intended timeframe."	
11. Does the GSP provide a plan to study the interconnectedness of surface water bodies?			**X**		"As discussed previously in Section 3.3.3.2, there are no significant interconnected surface water systems that interact with groundwater in the IWVGB."	3.4.6, page 174
12. If yes:	a. Does the GSP identify costs to study the interconnectedness of surface water bodies?		**X**			
	b. Does the GSP include a funding mechanism to support the study of interconnected surface water bodies?		**X**			
13. Does the GSP explicitly evaluate potential impacts of projects and management actions on groundwater levels near surface water bodies?			**X**			

Summary/ Comments

Section 5.3.4.4. identifies that potentially 22 shallow wells could be impacted as a result of projects and management actions. This well impact analysis should be described and included in the GSP, including all assumptions and methodologies as well as maps indicating the location of anticipated impacts. It is not clear from the GSP if the analysis conducted evaluates impacts from selected projects and management actions or the future conditions at anticipated MOs and/or MTs.

It is recommended that a discussion be added for each project or management action to clearly identify the impacts to DACs/drinking water users, including results of the impacts analyses referenced in Section 5.3.4.4. For example,would Project 6, Pumping Optimization, have the potential to either affect the movement of an existing plume of contamination (such as the PFOS/PFOA under the China Lake base) or potentially to control some contamination, such as salinity. These potential impacts must be part of project review for all identified management actions.

The GSP should clearly identify the funding mechanism(s) that will be used to support the shallow well mitigation program identified in Section 5.3.4.

The GSP should include environmental benefits and multiple benefits as criteria for assessing project priorities. For the projects already identified, consider stating how ISWs and GDEs will benefit or be protected, or what other environmental benefits will accrue. For projects that construct recharge basins, consider identifying if there is habitat value incorporated into the design and how the recharge basins could be managed to benefit environmental users.

From: Don Zdeba <don.zdeba@iwvwd.com>
Sent: Wednesday, January 15, 2020 11:41 AM
To: Heather Steele <heathers@stetsonengineers.com>
Subject: RE: GSP Correction

On page 119 it states the District's Ordinance 103 allows:

"Irrigation only between 8:00 PM – 8:00 AM; irrigation limited to 3 days per week based on addresses (**1 day per week from November through February**)"

That is incorrect. It is still 3 days per week, but no restriction on hours. Here is the correct wording from the Ordinance.
http://www.iwvwd.com/wp-content/uploads/2017/09/Ordinance-No.-103-Emergency-Water-Conservation.pdf

"During the months of November, December, January and February, all customers of the District (residential/commercial/public/industrial) with even-numbered addresses may only operate irrigation systems on Tuesday, Thursday and Saturday and odd numbered addresses may only operate irrigation systems on Wednesday, Friday and Sunday. Irrigation systems may not be operated on Mondays."

From: Don Zdeba <don.zdeba@iwvwd.com>
Sent: Wednesday, January 15, 2020 11:26 AM
To: Heather Steele <heathers@stetsonengineers.com>
Subject: GSP Correction

On page 77, IWVWD is identified as a member of the TAC, but not as a non-voting member of the committee like the United States Navy.

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GSP Draft Comments on Typos and Grammar

Camille Anderson, Searles Valley Minerals

January 2, 2019

GRAMMAR AND TYPOS

Table of Contents:

The spacing and indentation for the chapters and subchapters needs to be consistent.
The list of tables, p. xxiii, Table ES-5: the words "Land Subsidence" are misspelled.
p. xxiii, Table 3-4 should not have a colon.

p. ES-8 *IWVGB is bounded ~~on the west~~ by the Sierra Nevada Mountains to the west…*
p. ES-9 *the Basin associated with the lacustrine and includes China Lake's playa deposits.* The word deposits is missing after lacustrine.
p. ES-10 *The recharge zones identified by DRI are shown in. The total area of recharge is about 770 square miles.* The first sentence is incomplete.
p. ES-14 3rd paragraph has margins set incorrectly.
p. ES-15 *Subsurface flow into the Basin from Rose Valley and out of the Basin towards Salt Wells Valley were estimated using the groundwater model.* Should be was estimated or subsurface flows.
p. ES-16 3rd paragraph has margins set incorrectly.
p. ES-18 *Reduction of impacts caused by increased dust and desertification caused by declining water tables.* Should be Increase of impacts…

p. 1-13 *Implementation of the proposed projects and management actions required to achieve sustainability are provided in Table 6-1. These costs are anticipated to be funded through Federal and State grants and loans and local pump fees.* The first sentence is incomplete in the context and should probably read "Implementation costs and timetables of the …"

p. 2-30 *Irrigation only between 8:00 PM – 8:00 AM; irrigation limited to 3 days per week based on addresses* ~~(1 day per week from November through February)~~
p. 2-30 *Prohibits recreational fountains or decorative water features.* This ordinance actually prohibits those features that are not recirculating. The current bullet point is misleading.
p. 2-36 *Tui Chubb habitat*, should be Chub
p. 2-51 and 2-52 The phrase "*This page left intentionally blank*" appears on page 2-51 which is not blank. Nothing is on page 2-52 which is blank.

p. 3-1 *water budget for the basin..* After basin should be only 1 period.
p. 3-6 *IWVGB is bounded ~~on the west~~ by the Sierra Nevada Mountains to the west, the Coso Range to the north…*
p. 3-27 *supply without casing…* at bottom of page should be causing.
p. 3-28 *Section 3.4.7below* is missing a space before the word "below".

p. 4-1 *ensure the IWVGB does not experiencing undesirable results in the future.* Should be experience.
P. 4-12 Bullet point with no text.

p. 5-5, line 12 the word IWVGB should be IWVGA.
p. 5-16 The sentence *"Similarly, current domestic and municipal users would not be able to demands without an augmented water supply"* is incomplete.

p. 5-21 The sentence *"subsequent use or in a manner consistent with the provisions of Section 10727.2."Accordingly, SGMA"* needs a space after 10727.2.
p. 5-21 In the sentence *"…running long-term average of Table A deliveries is currently **2,571 TAF**, or approximately **62%** of the total Table A entitlement (DWR 2018)"*, the numbers should not be bold.
p. 5-24 recycled water subprojects may be developed after the GSP is adopted and could ~~be~~ subsequently be developed…
p. 5-27 *Reduction of unreasonable water quality degradation and/or Improvement of water quality*… the word improvement should not be capitalized.
p. 5-32 *City could develop a new tertiary WWTF..* There are 2 periods after WWTF.
p. 5-33 the sentence "*The Water Conservation Strategic Plan will also identify conservation actions that other entities will implement*" needs a period at the end.
p. 5-35 *NAWS China Lake..* has 2 periods.
p. 5-35 *water conservation efforts that are implemented. .* has 2 periods.
p. 5-43 *According to the Agricultural Guide to Controlling Windblown San and Dust.* Sand is misspelled.
p. 5-45 *implementation of dust control measure will like include a series of permits and approvals* should be likely not like.
p. 5-47 *It is also anticipated that groundwater pumping by the Water District west and southwest of the City will continue and that, along with pumping by SVM and others, the groundwater levels in these areas will not completely stabilize by 2040.* This sentence is awkward.
p. 5-47 *The pumping optimization program is proposed relocate some of the Water District* The word "to" needs to be inserted in the phrase "proposed relocate".
p. 5-48 *or to take water from the facilities with the Water District and perhaps Searles Minerals Inc.* should say Searles Valley Minerals Inc.
p. 5-50 and 5-51 bullet point spacing is different on the two pages.

p. 6-1 at bottom of page is bullet point with nothing there.
p. 6-2 at bottom of page *"to implementation of specific projects are developed, the public be provided opportunity to review"* the public will be provided with the opportunity…

<u>Figures:</u>
The following figures have the word Searles next to Hwy 395 on the maps that notes where Searles Station, a railroad milestone, is located. This is not located in Searles Valley and is not the location of Searles Valley Minerals. Please remove this word Searles on the figures/maps as it is confusing. This word is on figures 2-1, 2-2, 3-1, 3-6, 3-11, 3-12, 3-13, 3-14, 3-15, 3-16, 5-1, 5-2.

GSP Draft Vol. 1 and Vol. 2

Comments by Searles Valley Minerals
Camille Anderson, PAC Member
Jan. 7, 2020

GSP Draft Vol. 1

General Comments and Questions:
Supervisors from Kern, San Bernardino and Inyo County are on the IWVGA Board. What actions such as ordinances, requirements, restrictions, etc. will be determined by these counties for future well drilling (not replacement) and pumping in the IWVGB?

Throughout the GSP in all sections, the phrase "shallow well" is used. Sometimes there are quotes around the phrase, sometimes not. A definition of shallow well is not obvious. Please provide a definition, including a numerical range of depths for a "shallow well". Does this just refer to any well that is thought to be pumping from the shallow aquifer? Please contrast that with the definition of a deep well.

SECTION: EXECUTIVE SUMMARY

Comments SVM has on this section are mainly contained in the Section 5 comments.

SECTION 2: PLAN AREA

On p. 2-29, Water District ordinances 98 and 99 apply to new housing and are not retroactive to existing housing. This is not made clear in the description of the ordinance.
On p 2-33 section 2.7.4.2 *Water Efficient Landscaping*
The Water District has implemented numerous water-efficient landscape requirements for customers within its service area, including:
- *Prohibiting turf in the front yard;*
- *Limiting plants in front yards to those provided in a Water District-approved list;*
- *Prohibiting front yard irrigation systems that are not low-volume;*
- *Requiring use of high-efficiency irrigation sprinkler heads;*
- *Prohibiting irrigation runoff.*

Most of these items are for new construction and are not retroactive to current housing.

SECTION 4: SUSTAINABLE MANAGEMENT CRITERIA

On p. 4-3, the definition of the Sustainability goal is stated *"To the greatest extent possible, the goal is to preserve the character of the community, preserve the quality of life of IWV residents, and sustain the mission at NAWS China Lake."* This definition leaves out the quality of life of the residents of Searles Valley who are served by the CA PUC-regulated SDWC. We suggest that the sentence reads "…quality of life of IWV and Searles Valley residents…"

SECTION 5: PROJECTS AND MANAGEMENT ACTIONS

A general comment on the Projects and Management Actions section is that this is indeed a "planning document." Details are scarce and timetables seem overly optimistic. Funding is yet to be determined. The projects and management actions will affect everyone in the Indian Wells Valley and Searles Valley, but the details will be worked out after the plan is adopted by the GA. This does not allow much time for affected entities to prepare for any changes to their water usage or cost of water. It also does not allow much time for entities to budget an unknown amount of money for potential "augmentation fees". Is there a compelling reason for implementing the Management actions and projects immediately upon adoption of the plan?

In the public comments sections of the various projects, the phrase "The public and relevant entities will be given the opportunity and time to participate in and provide feedback on … through the project's environmental review processes." is used. For large, complex, expensive projects, public and relevant entities should be given advance notice to participate and comment **before** the environmental review process. Otherwise there will be less buy-in from the public and relevant entities.

In most of this section, it is stated that the IWVGA is going to provide studies, engineering, funding, etc. Who will actually perform this work? Will this fall to the TAC members? Will there be funding for Stetson, or some other engineering firm, to do the actual engineering?

p. 5-3 *The GSP is a planning document, and consequently, the level of detail in the proposed planned projects and management actions reflect the necessary level of specificity. After projects and management actions are fully developed, specific design and/or implementation plans will be prepared, as applicable and necessary.*
The draft notes that this GSP is a planning document and that the detail reflects the necessary level of specificity for planned projects and management actions. However, the projects and management plans listed in this document are complicated, expensive, and have a large potential impact upon entities pumping from the IWVGB. Multi-year projects of this scope necessarily entail extensive review and scrutiny even when nearly all stakeholders agree to these projects. Since there is little necessary detail in this document and the document states that most of the plans and actions will be developed after the GSP is adopted by the IWVGA, what are the IWVGA and public agreeing to in this GSP? Who will be developing the details of the plans and actions? Who will be paying for the development and/or engineering of these plans and actions? The answers to these questions are neither obvious not transparent. Where is the money going to come from to develop and plan all of these projects and actions in the short time frame listed in Chapter 5? The lack of necessary detail is a cause for concern in this late stage of GSP development.

p. 5-4 *Given the magnitude of overdraft and the current basin conditions, all planned projects and management actions should be implemented to eliminate undesirable results and shall be implemented with the earliest feasible timetable.*
Given the lack of specifics in the plan, the seeming lack of funding to prepare a detailed plan of projects and/or management actions and the lack of funding to implement any plan, the timetables for implementation appear overly optimistic. If funding is not available, will the timetables change? Will the GA prioritize projects based on scarce funds?

p. 5-4 *If one or more of the planned projects and management actions cannot be implemented, the IWVGA will consider additional, and perhaps more severe, actions to reach sustainability.*

This statement does not have any details behind it. What other, more severe actions might be contemplated?

Management Action No. 1: Implement Annual Pumping Allocation Plan, Transient Pool and Fallowing Program

Will the augmentation fees be enough to provide the appropriate funding for planned projects and management actions? Is there an approximate number that is being planned for? As pumping decreases, will the fee increase?

p. 5-5 *The Annual Pumping Allocation program will assign each qualified groundwater pumper, as described in the following, an Annual Pumping Allocation of the safe yield, if any, after consideration of:*
1) Federal Reserve Water Rights (FRWR);
2) California water rights;
3) Beneficial use priorities under California Law;
4) Historical groundwater production; and,
5) Municipal requirements for health and safety.
Are these listed in the highest priority to lowest? What is this order based on?

Is the IWVGA going to use the Navy's desired pumping number of 6530 AFY as stated on p. 5-9, "*This letter, provided in Appendix 5-A, estimates the NAWS China Lake water requirement to be 6,530 AFY."* Or will the GA use the other allocation estimate requested by the Navy of 2041 AFY as stated in this sentence on p. 5-9 "*For planning purposes, the U.S. Navy requested the IWVGA use 2,041 AFY as a reasonable estimate of current and future annual groundwater production on the installation."* Since the Safe yield is assumed to be 7650, and allocations will be made from the safe yield after FRWR are considered, the two different numbers from the Navy have large implications for all other pumpers in the IWVGB. Which one will the GA use in determining allocations from the estimated safe yield of 7650 AFY?

p. 5-5 to 5-6 *An Annual Pumping Allocation, based on California water rights law and historical pumping during the Base Period, will be assigned to groundwater pumpers. The Annual Pumping Allocations will be regularly reevaluated to ensure sustainability.*
Reevaluated based on what? Reevaluated based on undesirable results, not making milestones, not having enough money for projects, or something else? Once the allocations have been assigned, if the pumping allocations are changed because of reevaluations, will these changes be done as a percentage affecting all pumpers or will individual pumpers be cherry picked to decrease pumping?

p. 5-6 *Groundwater production in excess of Annual Pumping Allocations and Transient Pool Allocations will be subject to an Augmentation Fee in an amount that is determined to be sufficient for the acquisition of supplemental water supplies pursuant to this plan.*
If the fees and fallowing and transient pool allocations cause pumping to decrease, will fees be increased in order to be "sufficient for the acquisition of supplemental water"?

p. 5-6 *Pursuant to the Fallowing Program, the groundwater pumper may elect to sell their Transient Pool Allocation back to the IWVGA. This payment shall be made in three equal payments to be paid annually.*
The fallowing plan is supposed to be implemented immediately. Where will the money to pay for the transient pool allocation come from? Will fees be introduced right away to fund this program? The

timing of the outflow of costs and the inflow of fees does not match the timing of the implementation of these actions. Will the GA delay implementation if they have no money?

p. 5-10 *…and use by SGMA defined de minimis pumpers, which also cannot be reduced…*
The actual legislative wording on this is not definitive and one can make the argument that the de minimus pumpers can be reduced.

p. 5-10 *In the IWVGB, groundwater pumpers in the domestic category which would provide the highest beneficial use include production by the IWVWD, Inyokern CSD, individual domestic well owners (de minimis pumpers), and mutual water companies serving domestic users.*
In the discussion of beneficial uses of groundwater, the Searles Domestic Water Company which serves the communities in Searles Valley of Trona, Argus, Westend and Pioneer Point is missing and should be added to the sentence above. This CA PUC-regulated water company is the only source of potable water for the residents of these communities.

p. 5-10 *The beneficial uses of other groundwater users, including agricultural and industrial users, will subsequently be evaluated based on water rights priorities.*
Is the priority for allocation of water based on water rights priorities or beneficial uses? What exactly are the priorities that the GA will be using to set allocations and augmentation fees?

p. 5-11 *Current groundwater production that has existed and has been continuous prior to the establishment of NAWS China Lake will be given a priority over more recent pumping that has occurred since the IWVGB has been documented to be in overdraft conditions, at least since the 1960s.*
Searles Valley Minerals has pre-existing water rights that pre-date the establishment of NAWS China Lake and has been pumping water from the IWV since the early 1930's. Personnel that work in Searles Valley and their families have resided in the Indian Wells Valley since industrial activity started in Searles Valley.

p. 5-11 *Section 5.2.1.5 Permitting and Regulatory Process*
This section does not mention that the CA PUC must be involved in any decision by the SDWC to increase fees on its customers due to the possible increase in the cost of water because of augmentation fees assigned to SVM.

p. 5-12 *All groundwater pumpers shall be instructed to submit records of their historical pumping and any other relevant material to the IWVGA prior to March 1, 2020.*
How will the pumpers know which documents are relevant? Will we be getting more details on exactly what is needed from whom? Will there be community outreach? Are de minimus pumpers exempt from this? Will these documents be released to the public?

p. 5-12 *The IWVGA shall determine each groundwater pumper's Annual Pumping Allocation and/or Transient Pool Allocation following the adoption of this plan. All groundwater pumpers shall be instructed to submit records of their historical pumping and any other relevant material to the IWVGA prior to March 1, 2020. On or before April 15, 2020, the IWVGA Water Resources Manager shall review these materials and provide a draft recommendation of each groundwater pumper's Annual Pumping Allocation and/or Transient Pool Allocation to each groundwater pumper who submitted materials and to the IWVGA TAC members. By April 30th, 2020, all groundwater pumpers shall submit comments on the draft recommendation to the Water Resources Manager. The Water Resources Manager shall consider these comments and present a final report and recommendation to the IWVGA Board for*

consideration at its June 2020 meeting. Those receiving a Transient Pool Allocation may elect to join the Fallowing Program by no later than August 1, 2020.
This is a very short timetable, especially in light of the numerous data gaps identified in the Plan. Is there a compelling reason for this? This timetable only talks about allocation, not augmentation fees. At what point in this process will augmentation fees be determined? When will the fees start? When will they be paid? Will the fee amount per AF fluctuate or be steady? If the fees change, will that be on a yearly basis or as needed? Will the IWVGA try to earn interest on this money if it is banked? Will these fees be subject to the Prop 218 constraints? This timeline does not seem to account for environmental review.

Project No. 1: Develop Imported Water Supply

p. 5-14 *Option 2: Groundwater Recharge Project with LADWP*
Has there been any discussion with the Navy about possibly renewing the ability they once had to tap into this aqueduct as mentioned on page 3 of the May 2019 report on Navy Demographics and Water Requirements at NAWS China Lake?

p. 5-15 *A map of the facilities required for the Option 2 project is shown on Figure 5-2, including a preliminary location of the surface spreading grounds.*
Why surface spreading grounds and not direct injection? There will be loss of water if spreading grounds are used and not all of the water will be available for recharge. Is there a technical reason for using spreading grounds?

p. 5-19 *The public and relevant entities will be given the opportunity and time to participate in and provide feedback on the procurement of imported water supplies through the project's environmental review processes.*
It would be beneficial to have advance public notice of the project details prior to the environmental reviews since these are such large and complex projects.

p. 5-20 *5.3.1.7 Implementation Process and Timetable*
The timetable for the engineering and studies prior to the decision about which option to choose seems ambitious. Who will be doing the preliminary engineering? Will this go out for bid? Where will the funding for the engineering come from?

p. 5-22 *Should it be determined with certainty that imported water supplies will be unavailable (or unavailable at a reasonable cost) within the planning and implementation horizon, the IWVGA will consider modifications to the GSP including potentially revisiting Management Action No. 1 and modifying the Annual Pumping Allocations such that the IWVGB may reach sustainability without imported water supplies*.
At what point will modifying annual pumping allocations be considered on the timeline? When will the certainty be reached? After 2023, 2030 or some other deadline?

Project No. 2: Optimize Use of Recycled Water

p. 5-24 *The IWVGA has identified the following three (3) recycled water subprojects as conceptually feasible for potential implementation in accordance with this GSP.*
 Recycled Water Subproject 1 – Landscape Irrigation in the City and NAWS China Lake
 Recycled Water Subproject 1a – Landscape Irrigation at Cerro Coso Community College

 Recycled Water Subproject 2 - Groundwater Recharge
Landscape use of recycled water is not the most beneficial use. Groundwater recharge (subproject 2) would be better. Landscape usage is generally a choice and not a necessity. Although recycled water could supplant water used on landscaping, the water used for landscaping can also be decreased by decreasing or changing the landscaping. Recycled water supplanting industrial water would also be a better choice than supplanting landscaping.

p. 5-24 *Further evaluation of the other potential opportunities for recycled water subprojects in the IWVGB (including industrial use of recycled water) will be conducted as a post-GSP action.*
Searles Valley Minerals would be interested in exploring using recycled water in its processes.

p. 5-27 *Existing groundwater uses for landscape irrigation should be replaced with non-potable water supplies (i.e. recycled water) to the greatest extent feasible so that groundwater may be produced primarily for domestic purposes.*
Or landscaping should be altered such that minimum water is needed.

p. 5-29 *It should be noted that the required facilities for Recycled Water Subproject 1a are considered an extension of the facilities required for Recycled Water Subproject 1. The costs presented above and in Table 5-4 are considered incremental extensions of the costs listed in Table 5-3.*
Or Cerro Coso could xeriscape.

Project No. 3: Basin-wide Conservation Efforts

At the beginning of this section introducing conservation, p. 5-33 states *An additional project is to develop additional voluntary and rebate-based conservation efforts for domestic beneficial uses in the IWVGB, and to also promote additional conservation efforts for the other beneficial uses that rely on groundwater from the IWVGB.*
But at the bottom of p. 5-33 it states *The IWVGA will build upon the historical and current mandatory water use restrictions to potentially establish new basin-wide mandatory conservation measures that will reduce per-capita water demands for domestic and recreational (irrigation) uses of groundwater to the greatest extent feasible.*
This is somewhat confusing since the conservation efforts discussed seem to be both voluntary and mandatory. SVM suggests that the first sentence above state that the conservation efforts will be a mixture of voluntary, rebate-based and mandatory efforts.

p. 5-37 *The public and relevant entities will be given notice of the IWVGA's adoption of ordinances that would enforce any additional conservation measures.*
Dos this include notifying the CA PUC which is the regulatory agency that regulates the SDWC?

p. 5-38 *IWVGA will coordinate with SVM staff starting as soon as practical regarding possible additional opportunities for conservation in SVM's mineral recovery process. A feasibility study and engineering report describing the potential for SVM to use recycled and/or brackish water will be completed as soon as practical. If SVM use of recycled and/or brackish water is technologically and financially feasible, construction of new production facilities and conveyance infrastructure, will commence no later than January 2025.*
If funding is not available, will this timetable move out?

Project No. 4: Shallow Well Mitigation Program

p. 5-39 *The IWVGA will prepare a mitigation plan (Shallow Well Mitigation Plan) to address the approximately 872 shallow wells in the IWVGB*.
Who will develop the plan? Is it the GA, Stetson, TAC, someone else? Is there a plan to reduce the drilling of new wells in the IWVGB? Will the counties put a moratorium on drilling new wells (not replacement wells) or restrict areas where new wells can be drilled? If new wells are drilled, will they be subject to this program?

p. 5-40 *The wells recommended for mitigation will be placed on an Impacted Shallow Well Priority List and will be scheduled for mitigation.*
This plan is vague. How long will wells sit on the list before they are mitigated? Will they be mitigated on a first come, first serve? Will this be dependent on funding? Will this program be available to new wells drilled after 2020?

Project No. 5: Dust Control Mitigation Program

p. 5-43 *Wind breaks/wind barriers: According to the Agricultural Guide to Controlling Windblown San and Dust, wind typically does not lift sand much more than three feet into the air. Consequently, the wind breaks/wind barriers create a "trap" which interrupts to transport of blowing sand and causes the sand to deposit at the site of the wind break. Wind breaks may include, but are not limited to, solid or porous fences, straw bales, tilling soils to create surface roughness, and berms.*
There are some scientific arguments against this approach. In some cases this can make the situation worse. Hopefully each area will be considered individually for dust control programs and the program will be tailored to the specific environmental conditions of that area, not a "one size fits all" approach.

p. 5-44 *Implementation of mitigation efforts ~~which do not involve use of water~~ will result in an effective replacement of vegetation, and contribute to long-term decreased groundwater use.*
Cross out the phrase above. It is unnecessarily constraining.

p. 5-44 *The metric for measuring project benefits will be the number of acres of fallowed agricultural lands that have dust control mitigation measures implemented.*
The metric should be the lack of measurable dust coming from fallowed lands as measured against some baseline amount.

Project No. 6: Pumping Optimization Project

p. 5-47 *The pumping optimization program is proposed relocate some of the Water District, and potentially some of SVM's groundwater pumping, to the northwest portion of the basin. The pumping optimization program is anticipated to include the construction of two new wells in the northwest portion of the basin along Brown Road and approximately nine miles of pipeline to connect the wells to the Water District's water system.*
If an SVM well is moved, there will also need to be pipeline installed to connect the well to the SVM water system.

SECTION 6: IMPLEMENTATION PLAN

p. 6-1 *Increasing water reliability and preserving groundwater resources are critical tasks of the IWVGA and are critical to accomplishing the mission at NAWS China Lake and sustaining the entire IWV community.*
The phrase “and the communities located in Searles Valley” should be added to the above sentence.

In the funding sections many funding sources are listed, is the IWVGA planning on hiring someone to explore these funding options, or will this fall to the water resources manager or the general manager of the IWVGA?

GSP Draft Volume 2

This volume should have assigned page numbers. The list of appendices should have page numbers and a table of contents. At over 600 pages, it is hard to find the appropriate appendix without scrolling through the whole document.

FRIENDS OF THE INYO SINCE 1986

January 14, 2019

Sent via email to apriln@iwvwd.com

Re: Comments on Draft Groundwater Sustainability Plan for Indian Wells Valley Groundwater Basin

To Whom It May Concern,

On behalf of Friends of the Inyo, we would like to offer the following comments on the Draft Groundwater Sustainability Plan (GSP) for the Indian Wells Valley Groundwater Basin (IVWGB). Unfortunately we will be unable to attend the Indian Wells Valley Groundwater Authority (IWVGA) meeting in person this week, due to predicted severe weather conditions.

Our organization has significant expertise in the environmental importance of groundwater and surface water in the Eastern Sierra. It recently came to our attention that Section 5.3 the Draft GSP proposed for adoption by the IWVGA includes proposed Management Action Project 1 (Develop Imported Water Supply), Option 2 (Groundwater Recharge Project with LADWP). We have very serious concerns about the inclusion of this project and ***strongly urge you to remove Project 1, Option 2 from the Draft GSP*** before it is adopted and submitted to the Department of Water Resources later this month.

Under the concept for Option 2, "Owens Valley water would be recharged into the IVWGB at the spreading grounds and serve as a supplemental source of recharge to replace any groundwater pumping that exceeds the long-term natural recharge to the IVWGB." The Los Angeles Department of Water and Power (LADWP) would provide Owens Valley water to the IWVGA through a new turnout on the LA Aqueduct and a pipeline to convey LADWP's water supply from the Owens Valley to the IWVGB.

The development of a new turnout from the LA Aqueduct and the export of Owens Valley water to a never-before served basin would be a significant and detrimental precedent for the Owens Valley watershed, and would undermine the ongoing need for stringent environmental protections for our precious water resources. Further, it is highly unlikely that the IVWGA can secure the permits, legal authorizations, and environmental approvals that would be required to export water from the Owens Valley to the Indian Wells Valley.

We believe that the proposed project option is infeasible and it therefore does not meet the most basic requirements for inclusion in a GSP. We also do not agree that the IVWGA has met its obligation to

accurately describe the proposed water source, reliability, legal authority, and ability to fund this project option, nor has it adequately considered the collateral impacts to groundwater dependent ecosystems and other natural resources in the basin from which water is proposed to be imported. Friends of the Inyo discourages the IWVGB from expending further efforts to study this project option, as it would be a wasteful use of financial and staff resources. We ask that the IWVGA remove the description of Project Option 2 from its Draft GSP.

Wendy Schneider

Executive Director, Friends of the Inyo

cc: Don Zdeba, IWVGA Acting General Manager (don.zdeba@iwvwd.com)

John-Carl Vallejo, Assistant County Counsel, Inyo County (jcvallejo@inyocounty.us)

Matt Kingsley, Inyo County Supervisor

Comment Document No. 22

Lone Pine Paiute-Shoshone Reservation
P.O. Box 747 • 1103 South Main Street
Lone Pine, CA 93545
(760) 876-1034 Fax (760) 876-8302
Web Site: www.lppsr.org

January 14, 2020

VIA E-MAIL APRILN@IWVWD.COM
Indian Wells Valley Groundwater Authority (IWVGA), Board of Directors c/o April Nordenstrom, Clerk of the IWVGA Board
500 W. Ridgecrest Blvd.
Ridgecrest, CA 93555

Re: Draft Groundwater Sustainability Plan

Dear IWVGA:

Lone Pine Paiute-Shoshone Reservation (LPPSR) is in full support of Inyo County's position to oppose water exports to the Indian Wells Valley Groundwater Basin. The Owens Valley Groundwater Basin is taxed from 100 years of water exports and the engineered loss of a 110 square mile lake. Every year there are more losses of springs and diverted surface water sources. Although the region does not meet California Department of Water Resources' strict definition under SGMA of a basin in distress, the LPPSR community has the historic knowledge of a much richer and healthier environment before exports began.

We understand the fear and concerns of an uncertain future due to the depletion of a critical resource. However, the easiest option of taking water from neighboring basins is not an acceptable nor long term solution. The valleys to the north of Indian Wells have little control over their water due to the continuing growth of Los Angeles. Let us learn from past mistakes and find creative alternatives to unsustainable use of fresh water.

Sincerely,

Richard Button, Tribal Chairperson
Lone Pine Paiute-Shoshone Reservation

Cc: Mr. Matt Kingsley

- 4.1.1
  - Missing word first sentence: "…has identified six sustainability which…"
- 4.1.2
  - Typo first sentence "…used to measure monitor…"
- 4.2.2
  - Recommend replace "sustainable water supply" with something like "reliable & potable water supply."
  - Big picture comment: "sustainability" & "sustainable" are SGMA terms of art. So whenever we aren't referring to those terms of art such as in the first sentence "sustainable water supply" we should use different words.
- 4.2.4
  - Formatting (underline) errors.
  - Last bullet – is "secondary undesirable results" the accurate phrase, or should it be "…secondary environmental impacts…"
- 4.3.1.2
  - This section lacks an clear statement of the criteria at the beginning. We should include a clear statement of the criteria up font like is provided in 4.3.2.2. Or move up the second to last paragraph to the top
  - First sentence should change "could not be met" to "will not be met"
  - 1st paragraph - consider bring into the paragraph (for context) the available potable water we understand to exist within reasonable reach (shallow well depths).
- 4.3.1.3
  - 1st bullet: "buffer" is not defined.
  - "Jeopardy to beneficial uses…" wording needs adjustment.
- 4.3.3.2
  - Too vague.
- 4.3.4.2
  - We should include short explanation of benchmarks. Do we have any?
- 4.4
  - Second paragraph – "groundwater levels **that exceed** the established…" Is "exceed" the technically accurate word?
- 4.4.1
  - "the stimulated estimated value…" typo?
- 4.4.1.4
  - "…the Minimum Threshold impacts and limits the volume of groundwater that can be…" apparent wording correction needed
- 4.4.1.6
  - "According no representative…" typo – accordingly?
  - Second paragraph 1st sentence comma needed. "…dependent on groundwater level historical groundwater elevations…"

- 4.5.3
    - "…water quality is set at the highest most recent TDS concentration." Which one is it? Highest, or most recent?

- Section 5 Table of Contents
    - Numbering error 5.3.5.8 then 5.3.1?...
- 5.1.1.1
    - Where is annual statement requirement per 10725.8?
    - "…all groundwater pumpers continue to possess the right to produce groundwater provided they pay the Augmentation Fee." Where is power to suspend pumping per 10726.4?!
    - Page 11 last paragraph – "…It is anticipated…in the first year of implementation." That sentence appears to double count the Transient Pool Program pumping by referencing it twice.
- 5.3.1.1
    - "…as well as groundwater from the Mono Basin in Inyo County…" The Mono Basin is not in Inyo County. Which basin are you referring to?
- **5.3.1.4**
    - **Table 52 misrepresents the cost of the water rights acquisition. This assumes 1:1. I request that this table show the different costs of 2:1 and 3:1 scenarios. If some change in this regard is not made Inyo County will be very outspoken about this point during public meetings. Feel free to contact me to discuss.**
- 5.3.2.4
    - Are we just throwing numbers around here? $20k annually? Indefinitely?
- 5.3.4.4
    - Need more basic info about potential $19million cost
- 5.3.4.7
    - Last sentence typo – "rick" should be "risk"?
- Table 6-1
    - Same comment re cost of Option 2 as 5.3.1.4
    - Same comment re lack of explanation for dust mitigation project cost

Mono County
Community Development Department

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Mammoth Lakes, CA 93546
760.924.1800, fax 924.1801
commdev@mono.ca.gov

PO Box 8
Bridgeport, CA 93517
760.932.5420, fax 932.5431
www.monocounty.ca.gov

January 15, 2020

VIA US MAIL AND EMAIL
April Nordenstrom, Clerk of the Board
Indian Wells Valley Groundwater Authority
100 West California Avenue
Ridgecrest, CA 93555
apriln@iwvwd.com

RE: Comment Letter – Final Draft Groundwater Sustainability Plan for the Indian Wells Valley Groundwater Basin

Dear Ms. Nordenstrom,

The Mono County Community Development Department (Department) appreciates the opportunity to provide comments on the Indian Wells Valley Groundwater Authority's (Authority) adoption of the Final Draft Groundwater Sustainability Plan for the Indian Wells Valley Groundwater Basin (Final GSP). The Department applauds the Authority's work and effort to prepare the Final GSP in such a short amount of time since the enactment of SGMA, and its inclusion of several projects and management actions to achieve sustainability in the Basin. The Department hopes that the Final GSP's projects and management actions will result in the realization of new resources (i.e., recycled water) and increased conservation throughout the entire Indian Wells Valley Basin (Basin). However, the Department is concerned that *Project No. 1: Develop Imported Water Supply, Option 2: Groundwater Recharge Project with LADWP* in the Final GSP is highly infeasible because it will likely (1) require the Los Angeles Department of Water and Power (LADWP) to obtain new land use approvals and perform environmental review pursuant to the California Environmental Quality Act (CEQA) and (2) result in unacceptable significant impacts to Mono County's natural environment, communities, and economy. For these reasons, the Department urges the Authority to remove *Project No. 1: Develop Imported Water Supply, Option 2: Groundwater Recharge Project with LADWP* from the Final GSP.

1. The Development of Imported Water Supplies May Require LADWP to Obtain Land Use Approvals and Perform Environmental Review Pursuant to CEQA.

Although LADWP's extraterritorial use and development of its property and resources may be exempt from local regulation, the use and development of the same property by a third party – even with LADWP permission and assistance – may not exempt LADWP from Mono County's authority to regulate land uses. The Mono County General Plan Conservation/Open Space Element includes several policies and objectives related to export of surface water and groundwater. For example, if LADWP were to increase groundwater production in Mono County in order to import water to the Basin, then the Department could require LADWP to obtain a groundwater transfer permit requiring it to, among other things, identify potential environmental impacts to

wildlife and riparian habitat, wetlands, in-stream habitat, other water users (such as agricultural operators), and indirect effects such as potential increased flood risk, increased fire hazard risk, increased sedimentation, and reduced groundwater recharge capacity. (See Mono County Code [MCC] §20.01.010 et seq.; General Plan Conservation/Open Space [GP C/OS] Actions 3.E.1.a. and 3.E.1.b.) Groundwater transfer permits are subject to approval by the Mono County Planning Commission, which must deny an application for any such permit if the transfer does not adequately protect the above resources. (GP C/OS Action 3.E.1.b. and 3.E.1.c.) Similarly, the Mono County General Plan requires water transfer projects to avoid – or at the very least mitigate – the potential significant impacts to surface water and groundwater resources. (GP C/OS Policy 3.B.6.) Mitigation measures and associated monitoring programs will be made a condition of any such project or permit approval. (GP C/OS Action 3.B.6.a.) In addition, transfers may not result in adverse water quality impacts. The Mono County General Plan tasks the Department to protect groundwater quality and water-dependent resources from unreasonable development and degradation to ensure county water resources are available and of a quality to meet future county needs. (GP C/OS Objective 4.A.)

The export of LADWP water from Mono County could result in negative impacts to the water resources, wildlife, agricultural operations and habitat of three watersheds: the Mono Basin, Long Valley Basin, and the northern section of the Owens Valley Basin (i.e., the Tri-Valley). Specifically, the Department is concerned that any agreement between LADWP and the Authority would increase the diversion of surface water from Mono Lake and the Owens River, prompt the drilling of new groundwater wells, or both. These actions may trigger the need for LADWP to obtain certain land use approvals from the Department as well as groundwater transfer permits, which will necessarily require Mono County to require environmental review be completed pursuant to CEQA. Taken together, it is unclear whether importing water to the Basin, by itself, will be a feasible project to achieve sustainable groundwater management in the Basin.

2. The Development of Imported Water Supplies May Result in Unacceptable Significant Environmental Impacts to Mono County's Natural Resources, Communities, and Economy.

As explained above, Mono County is actively involved in all projects, actions, and decisions with the potential to affect its natural environment, including its water resources and wildlife. In large part, this is because Mono County's economy is based on tourism, agriculture, and recreation, which necessarily depend on water to protect the natural environment that support these interests. The Department is concerned that any additional export of surface water or groundwater from Mono County beyond amounts presently occurring would result in potentially significant environmental impacts requiring environmental review pursuant to CEQA.

In August 2018, Mono County brought a lawsuit against LADWP for its decision to remove irrigation water from certain Long Valley ranch leases without first completing environmental review pursuant to CEQA. Among other things, Mono County argued that LADWP's decision to remove irrigation water had the potential to result in significant environmental impacts to the land and water resources of southern Mono County, and thus had the potential to adversely affect the Bi-State Distinct Population Segment (DPS) of Greater Sage Grouse and its habitat in the area; the agricultural economies of Long Valley and Little Round Valley; brown the landscape and allow the intrusion of invasive weeds and combustible fuels increasing aesthetic impacts and the threat of wildfire; and degrade the recreational opportunities and interests that attract visitors from all over the world. Although Mono County's litigation has not been decided, LADWP may be ordered to prepare an environmental review pursuant to CEQA for any increased export from Mono County, which could include

mitigation measures that require certain amounts of water remain in Mono County to avoid significant environmental impacts. Even if LADWP was not ordered to prepare such an environmental review, any increase in the export of LADWP water beyond current amounts will likely be met with such strong opposition from stakeholders that the option should be considered infeasible.

In addition, the Bi-State DPS of Greater Sage Grouse is currently proposed to be listed as threatened under the Endangered Species Act by the U.S. Fish and Wildlife Service, and approximately 25% of the entire population is located in Long Valley. In the interest of protecting and preserving this species of concern and its habitat, Mono County participates in a collaborative, multi-agency coalition that includes the Bureau of Land Management, California Department of Fish and Wildlife, U.S. Fish and Wildlife, Inyo National Forest, Humboldt-Toiyabe National Forest, Nevada Department of Wildlife and others. This conservation coalition also fully engaged LADWP over its decision to remove water from certain Long Valley ranch leases due to the real and potential impacts to the Long Valley sage grouse population and habitat, and would likely be highly concerned about water exportation to the Basin as proposed. One result of that engagement is that LADWP is now an actively participating member of this conservation coalition and collaborating on sage grouse conservation actions in Long Valley.

The Department recognizes the hard work of the Authority to comply with the mandates of the Sustainable Groundwater Management Act (SGMA) and address the Basin's critical overdraft condition. However, for the reasons set forth above, the Authority has not adequately evaluated or considered the potential impacts to agricultural operators, recreation, groundwater dependent ecosystems, wildlife, and other natural resources in the basins from which water is proposed to be imported, including those in Mono County. Therefore, the Department strongly urges the Authority to eliminate *Project No. 1: Develop Imported Water Supply, Option 2: Groundwater Recharge Project with LADWP*. Such a project/management action is likely infeasible, will be met with strong opposition from local stakeholders, and arguably cannot be seen as anything other than creating a new problem in the hope it solves another. Instead, the Department recommends the Authority pursue other projects/management actions that favor water conservation and efficient use over water importing.

If you have any questions or would like to discuss the Department's comment letter, please feel free to contact me at (760) 924-1814 or wsugimura@mono.ca.gov.

Sincerely,

Wendy Sugimura
Community Development Director

Cc (via email):
Mono County Board of Supervisors
U.S. Fish and Wildlife Service, Reno Office
Inyo National Forest
Nevada Department of Wildlife
Inyo County (Board of Supervisors, Water Department, County Counsel)
Bi-State Sage Grouse Coordinator
BLM, Bishop Field Office
Humboldt-Toiyabe National Forest
Los Angeles Department of Water and Power

To: Steve Johnson
Cc: GA Directors (via Loren Duffy); David Janiec; Jim Markman
From: Nick Panzer, Ridgecrest Resident
Date: December 16, 2019
Subject: Questions Concerning Public Review Draft of GSP (Plan);
GA Meeting December 19, 2019, Agenda Item 10c.

BACKGROUND

This Plan fails SGMA because it relies upon water imports that are merely "conceptual" and "potential" without a backup path to sustainability. Moreover, "anticipated" imports lack SGMA-required documentation such as:

Criteria to determine the feasibility of imports.[1]
Proof of a reliable source.[2]
Criteria to evaluate the expected benefits.[3]
Realistic plan to meet import costs.[4]
Description of how recharge areas identified in the Plan substantially contribute to replenishment of the basin.[5]

Without such documentation, and without an alternative path to sustainability that does not rely upon water imports, DWR will likely and rightly "disapprove"[6] this Plan for failure to "describe a reasonable path to achieve sustainability."[7] With this background in mind, I respectfully request answers to these questions.

QUESTIONS

1. Specifically, what …"circumstances…would trigger…termination of… [the import]..project"? Reg. 354.44.(b)(1)(A) requires a plan to an answer this question at the outset.

2. Specifically, what "reasonable path to achieve sustainability" will the Plan take if we terminate the import project? Reg. 354.30.(e) requires a plan to answer this question at the outset.

[1] Reg. 355.4(b)(1) and (5)
[2] Reg. 354.44(b)(6)
[3] Reg.354.44(b)(5)
[4] Reg.354.44(b)(8)
[5] CA 10727.2(d)(4)
[6] Reg. 355.2(e)(3)
[7] Reg. 354.30.(e)

GSP Written Comment and Response Matrix

COMMENT DOCUMENT	COMMENTER	DATE SUBMITTED	COMMENT	RESPONSE
# 1	Don Decker	12/20/19	2-1 Why aren't the other sub basins shown? El Paso?	Comment noted.
			2-2 Adjacent and Neighboring?? Strange wording	Comment noted.
			2-3 "China Lake Basin" seems to be moving around?	Comment noted.
			2-4 Showing the Little Dixie Wash as a blue dashed line and then identifying it as a stream or creek is totally misleading. This needs to be corrected.	Comment noted. Text states that surface water is ephemeral.
			2-5 The actual municipal wells are mislocated/mislabeled. Have you included mutual wells in municipal?	Comment noted. Municipal includes mutual wells, Inyokern CSD, and IWVWD wells. These are wells identified in the model.
			2-6 This map shows the IWV WD owning property on N Brown Rd. This property was transferred in a trade with Mojave Pistachios a few years ago.	Comment noted.
			2-9 colors are hard to distinguish on map in small areas	Comment addressed in previous draft.
			2-12 Urban area that is half way between Inyokern and Ridgecrest (China Lake Acres) is shown extending 1 ½ miles too far south.	Comment noted. Data is from 2014
			2-14 there is no disposal site west of Hwy 14.	Comment noted.
			3-03 Sierra frontal fault is show as dipping too steeply- it is more like 45deg.	Comment addressed in previous draft.
			3-04a Sierra frontal fault not shown	Comment addressed in previous draft.
			3-05a does not show the laucustrine clays extending westward much beyond the playa	Comment noted.
			3-08 map shows stream gages at NAF and Trona?? Does not show the EKCRCD CIMIS station at the China Lake golf course	Comment addressed in previous draft.
			3-10 what do we learn from this spotty record?	Comment noted.
			3-11 This map is obviously schematic. The Sierra Canyon fans extend out further than shown.	Comment noted.
			3-12 This is a very useful map with the well water level overlays	Comment noted.
			3-13 Another very useful map. The largest consistent changes are increase in TDS and are in the N Brown Rd area as expected.	Comment noted.
			3-16 No one has mapped the Sierra Canyons?	Comment noted.
			3-17 Does not show the Sierra frontal fault – all of the maps that show the major Basin faults should include the SFF	Comment noted.
			3-18 values consistent with other work	Comment noted.
			3-19 nice plot	Comment noted.
			3-21 very important but hard to understand without some work	Comment noted.
			3-22 very important modeling results	Comment noted.
			4-1 change or remove Figure 2 from map	Comment addressed in previous draft.
			4-2 need to add BoR 10	Comment noted.
			4-3 need to add BoR 10	Comment noted.
			5-1 ok as a conceptual route but other possibly better routes exist	Comment noted.
			5-2 why not use the existing IWC tap? Much shorter pipeline.	Comment addressed in previous draft.
			5-3 map shows a very expensive purple line project. My suggestion of vigorously pursuing a MOA project with SVM would offer many advantages over this plan	Comment noted.
			5-4 a ridiculously expensive addition to the project in 5-3	Comment noted.
			5-4 an even more expensive and unjustifiable project to inject such a small amount of water. Injection well is poorly located technically.	Comment noted.

COMMENT DOCUMENT	COMMENTER	DATE SUBMITTED	COMMENT	RESPONSE
			6-1 very little detail at this level	Comment noted.
#2	Don Decker	12/20/19	Section 1, Introduction 1) Although this is Section 1 according to the Title page, the pages starting at 3 and beyond misidentify it as Section 2. This error must be fixed	Comment addressed in a previous GSP draft.
			2) As a matter of customary usage, the word “basin” which appears throughout the entire document dozens of places starting at the bottom of p 3 should be capitalized when it is referring to the IWV Basin. This rule has been followed in other situations, e.g., “City” where a capital C is used as a shorter reference to City of Ridgecrest.	Comment addressed.
			3) The first sentence of the third paragraph of 1.1 on p 3 uses the word “forced”. This is an incorrect assertion- no producers have been forced to pump groundwater. The pumpers have simply elected to continue pumping and in so doing ignoring the declining water levels and its effects on themselves and their neighbors.	Comment addressed in a previous GSP draft.
			4) The last sentence of the first paragraph on p 4 implies by omission that public health and safety is a paramount consideration by failing to describe de minimis rights, the Navy FRWR and other early water pumper’s rights. This omission has occurred partly from trying to give a short and simple consideration. However, this omission leaves a very inaccurate impression to the reader at this early point.	Comment noted.
			5) The sustainability goal as stated in the last paragraph on p 4 is concise, accurate and well written.	Comment noted.
			6) The last paragraph on p 5 uses the metric unit “hectare”. There is no need to offer metric units in a US engineering document. I don’t think this usage is present anywhere else in the draft.	Comment addressed in a previous GSP draft.
			7) This same paragraph uses NAWS as the descriptor for the Navy facilities at China Lake and goes on to describe the support for the Navy’s research, development, acquisition and more on the next page. The Navy command at China Lake that conducts these programs with over 9,600 positions is NAWCWD not NAWS.	Comment noted.
			8) At the end of the second paragraph on p 6, the word “federal” should be capitalized and elsewhere in the document where the use of the word has a similar context.	Comment addressed.
			9) In the last line of the text on p 8 it is stated the “the WRM presents all technical information and reports to the IWVGA. This is not correct. The TAC and PAC largely through chairmen present technical advice at every GA Board meeting. The WRM does provide a level of prior evaluation of this information.	Comment addressed.
			10) The bulletized summary chart on p 9 has two entries which are overly broad and actually incorrect. The first bullet claims that the powers of the GA include the collection and monitoring of all data related to development, adoption and so on. In fact, virtually all of the data in the IWV hydrology data base has been collected and analyzed by professional scientists and engineers working for other agencies going back in time before SGMA was conceived.	Comment noted.
			11) In bullet item 5, the words “state” and “federal” should be capitalized.	Comment addressed.
			12) In bullet item 6 an overly broad and simplistic claim is made as to GA powers. The claim as written does not recognize the legal powers of the associate Board members, Inyo and SB Counties and the Navy. It also does not recognize the California water rights of the Basin pumpers. The claims are based in SGMA language which is clearly in conflict with existing California and Federal water right law.	Comment noted.

COMMENT DOCUMENT	COMMENTER	DATE SUBMITTED	COMMENT	RESPONSE
			13) In the first sentence of the second paragraph on p 10, Tim Carroll's name is spelled out as the Inyokern CSD representative. No other PAC representative is mentioned. This inconsistency should be repaired by dropping his name.	Comment addressed in a previous GSP draft.
			14) The description of the TAC on p 11, no mention is made of voting and non-voting members as are described in the bylaws. This can be described as a minor discrepancy except that the TAC has and continues to vote on various issues as a way to understand the often disparate views of its members.	Comment noted.
			15) In the first sentence of the last paragraph on p 14, the words "Board or" should be added to the sentence "… to address the respective Board or Committee…." And the word "committee" should be capitalized.	Comment addressed.
			Section 2, Plan Area 1) In the chart at the bottom of p 6, remove the "," and add a paren ")".	Comment addressed in a previous GSP draft.
			2) On page 7 reduce the font size in the chart so that all of the digits or letters are on the same line.	Comment noted.
			3) The last sentence on page 26 contains a statement that "due to a lack of communication among interested parties" is incorrect and very misleading. The Cooperative group was formed as a follow-on to the Technical Committee that guided the Bureau of Reclamation Project. Before that there was a Technical Committee that met regularly for decades that was the interface with the USGS. The Navy and the IWVWD were fully engaged in all of this activity and regular oral and written reports were offered to the public at fully announced IWVWD meetings. All of the USGS activity, the Bureau of Reclamation Study and the subsequent AB 303 study did not come out of a vacuum or exist in a vacuum. There was always an adversarial contingent that claimed that we did not need any additional studies "that we already knew all we needed to know about the IWV groundwater and where it came from". The ignorance and denial of this group existed as a result of their non participation not because the information was not being made available.	Comment noted.
			4) In the last sentence on p 27, there is a confused statement about the March and October KCWA water level measurements. March and October were selected to be before and after the peak pumping demands.	Comment addressed in a previous GSP draft.
			5) The last sentence on p 28 and first complete sentence at the top of p 29 are false and totally misleading. It is as a result of the lack of real management that the Basin finds itself now with 60 or more years of continuous overdraft. Invention of a positive spin on this leadership failure cannot reverse or improve our critical condition as embarrassing as it may be to the parties involved now. Remove these sentences.	Comment noted.
			6) In the bulletized chart on p 29, the first bullet uses the word "Identifies". The present SNMP contains a serious error in its identification of SN sources. There is no evidence except at a few locations that surface waters in the Basin can percolate to the existing groundwater due to the prevalence of very impermeable soils and alluvium. I suggest you modify "Identifies" with "Tentatively identifies". Presumably this error will be corrected in future submissions of the SNMP.	Comment addressed in a previous GSP draft.
			7) The summary of IWVWD Ordinance 103 on p 30 and 31 is correct. However, as a terrible example for the public to observe, the City is exempt from the provisions of this ordinance and fails to follow its own version as summarized on p 31. The continual waste	Comment noted.

COMMENT DOCUMENT	COMMENTER	DATE SUBMITTED	COMMENT	RESPONSE
			of water by the City irrigation practices is an unacceptable breach of responsibility to the community. It will be hard to place a sentence in the GSP trying to justify this breach but this citizen is placing it here for the record.	
			8) In the first full paragraph on p 37 it is stated that the Tui chub is located in a GDE that is recognized in the "Natural Communities Commonly Associated with Groundwater dataset". The issue here is that the Tui chub present in Lark Seep are not natural or native to the seep but rather were transported and into the seep by an individual who had no authorization or permits to carry out this action. These fish, through no fault of their own are trespassers. This condition has produced substantial confusion and expenditure of large amounts of money and precious water ever since.	Comment noted.
			9) On p 39 and following, unit 5.3.3, the description "shallow well" is used with no definition. The term is obviously subjective and is sometimes used in a derisive manner. Many of the existing shallower wells inthe Basin are in fact over 400 ft in drilled depth. Compared to Basin wells in other areas, this depth would not be considered shallow. Wells that have been redrilled or deepened here are often over 500 ft. The cost of drilling and completing a well to these depths is the reason there is as much financial and other concern as there is. These "shallow" wells constitute 95% of the total wells in the Basin.	Comment noted.
			10) On p 40, 2'nd paragraph, we see that a well repair will only be considered for wells drilled after Feb 1, 2020. This means that the existing shallower well abuse that was brought on by the major pumpers including the IWVWD, SVM and the Navy and others over the decades of serious overdraft pumping is not being recognized and will only be addressed in legal action undertaken by the affected parties.	See Section 5.3.4.1. Existing shallow wells that experience impacts related to chronic lowering of groundwater levels and/or degraded water quality occurring after February 1, 2020 are eligible for mitigation, pending the evaluation of the impacts. It is not accurate that the well has to be drilled after February 1, 2020 to be eligible for mitigation, but impacts must occur after that date.
			11) On p 40, A general comment: for the new wells that will come under this repair provision, the existing technical evaluation prepared by Stetson Engineers should be adequate. If the additional proposed extraction beyond the Basin sustainable yield actually happens, this well repair compensation element will be important to those recent well owners who can apply. For the existing 800 + well owners who are already suffering some degree of damage it is a very disappointing change from an earlier version of the shallow well mitigation plan.	See Section 5.3.4.1. Existing shallow wells that experience impacts related to chronic lowering of groundwater levels and/or degraded water quality occurring after February 1, 2020 are eligible for mitigation, pending the evaluation of the impacts. Existing wells are eligible.
			12) On p 43 in the fifth bullet and the paragraph following, an error is made in not recognizing the special de minimis status that was recognized in SGMA. De minimis pumpers are not exempt from registration but are not required to meter, report or pay pumping fees. The fifth bullet and the sentence stating fee requirements must be repaired.	Comment addressed in a previous GSP draft.
			13) On p 46 and elsewhere, the word "well" should be reserved for use to mean "water well". In the title of unit 1.1.1.3 drop the word "well" and substitute "Efficiently".	Comment addressed.
			Section 3, Basin Setting 1) Again, on p 5 and following, the word "basin" should be capitalized when referring to the IWV Basin.	Comment addressed.
			2) In the first paragraph on p 6, no the Owens River did not simply flow through the IWV. At multiple times in the Pleistocene the OR filled the IWV to spillway depth and then the continued flow of the River resulted in an outflow to Searles Valley. SV in turn filled and spilled multiple times into Panamint Valley. A similar filling and then spilling into Death	Comment addressed in a previous GSP draft.

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			Valley was the final destination in Lake Manix. China Lake was fresh only during the times when the Owens River flow was great enough to fill CL to the point of spill over. The conifer forest aspect was very likely not as important to early man as the broad leaf forests that were near to China Lake on the Valley floor. All of the known early man sites are at the China Lake shore.	
			3) In page 6 and in the first 3 paragraphs on p 7, too much emphasis is made on early (pre 1900) minor water use by a small number of transient travelers. The first significant water use was associated with the moderate scale agriculture that was started by the development of the Inyo and Kern Land and Farming Company headquartered in what would later be called Inyokern. Water for this farming was taken from the first drilled wells north of present Inyokern. The proper reference here is the paper by Lee published in 1913. Lee identified the limited potable groundwater in the IWV Basin in this paper for the first time. It is this paper that should be given the most space and summarized in 3.2 and a lot less on the historical exploration efforts as interesting as they may be. If the SPRR details are left intact the words "Jaw Bone" should be in capitals.	Comment noted.
			4) On p 9, the last sentence in footnote 7 should be modified to say "…model update for this GSP as appropriate"	Comment addressed in a previous GSP draft.
			5) On p 10, first paragraph first partial sentence, "Blue Max Peak" is not the highest elevation mountain in the IWV Basin watershed. It is Owens Peak by thousands of feet. In this same paragraph, the word "valley" should be capitalized when referring to the IWV.	Comment addressed in a previous GSP draft.
			6) On p 10 and beyond, the summary of IWV geology and hydrology as described in the literature is very well written and summarized.	Comment noted.
			7) In the first complete paragraph on p 10, the subflow from Rose Valley is mentioned for the first time. Even in recent times, Little lake Creek often reaches significantly down into the IWV. The subsurfaceflows from Rose Valley are a major component of the Basin recharge. As this author has pointed out repeatedly, Rose Valley should be included as part of the IWV Basin, not a separate entity, politics aside. This Basin should be able to manage all of the important areas involved in the Basin water balance.	Comment noted.
			8) Starting on p 10, unit 3.3.1 is very well constructed and written. In this unit on p11 it is again mentioned the unique aspect of subflow from Rose Valley that results in an apparent flow gradient in the mapped groundwater levels in the NW area of the Basin. This gradient is unique in this Basin.	Comment noted.
			9) At the end of the existing wording of the second bullet at the top of p 12, this author suggests the following addition: In the northwest area an unusually thick and extensive deposit of organic clay and silt of Pleistocene age occurs as a continuous unit (BR vol II Technical Report)	Comment addressed in a previous GSP draft.
			10) On p 12 in the first complete paragraph, all of the multi-level wells in the Basin today are BoR wells. Most of these wells are being used to support CASGEM reporting. CASGEM has not funded or participated in any well drilling or characterization.	Comment addressed.
			12) On p 13, first paragraph, first sentence, delete the words "not occupied by vegetation or development",	Comment addressed in a previous GSP draft.
			13) There is no mention in unit 3.3.2 of the pervasive presence of cemented soils (caliche) over the Basin that are impermeable to the point of greatly limiting surface water from reaching groundwater. This is occurring even in moderately disturbed alluvium of the canyon fans. This is a hallmark of an arid climate soil.	Comment noted.

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			14) On page 22, first sentence of unit 3.3.4.2, the farming and well data that Lee reports from 1910 (not 1920) is the start of significant Basin GW extraction. Lee reports declines in water levels of 1 ft/yr in the area being pumped in his Report.	Comment addressed in a previous GSP draft.
			15) On p 27 bullet four, I suggest the word "specific" be added to the existing wording for clarity "… a specific saturated aquifer is a … ".	Comment addressed in a previous GSP draft.
			16) On p 27 add the word "effective" to the sentence "… that will increase the effective recharge to the …". When talking about recharge that has been augmented by supplemental water it would be clearer in all instances to use the term "effective recharge" or something similar.	Comment addressed in a previous GSP draft.
			16) In the water balance chart on p 28, a growth element is seen to result in a net loss of storage of 4080 ac-ft for 2070. I realize that Stetson Engineers has been given instructions by the GA Board to incorporate a growth element in the sustainability planning. I will point out that SGMA says to consider growth; this is totally different than incorporating growth. Until there is a demonstrated actual sustainable Basin condition there should be no additional growth except that which may be dictated by the Navy. A loss of 4,000 AFY is not a small effect as might be permissible under SGMA. This is not a conservative plan, 4,000 AFY is about 1/6 of the current out of control loss.	Comment addressed. Table was in error. Losses in 2070 area approximately 1,350 AF.
			17) On p 31, in the first sentence of unit 3.4.4.1, this writer suggests replacement of "particles" by "components".	Comment addressed in a previous GSP draft.
			18) Also in 3.4.4.1, add the words "under some conditions" to the sentence "…These increased concentrations can then under some conditions be mobilized …" Thanks to Stetson Engineers for recognizing and adding the next two sentences in the draft text- they are very important.	Comment noted.
			19) On p 32, first sentence add the words "earlier times" to the expression in parentheses (caused by high evaporation rates at earlier times).	Comment addressed in a previous GSP draft.
			20) In the first whole paragraph on p 32, first sentence, delete "and degraded" – it is incorrect.	Comment addressed in a previous GSP draft.
			21) On p 34, last sentence change "lodge" to "restaurant"	Comment addressed in a previous GSP draft.
			22) On p 36, in the second complete paragraph after " City of Ridgecrest" add and "in the southwest".	Comment addressed in a previous GSP draft.
			23) On p 38, in the first complete paragraph, change the first sentence to read "The Water Resources Manager, staff and TAC reviewed existing …" .	Comment addressed in a previous GSP draft.
			24) On page 45, project no 2, recycled water, an assumption is made that recycled water would be available for use by 2025. This assumption is unrealistic. The present recycled water use is invisible in the model so this water will not make any difference in model prediction if it is actually not physically present. The artificial recharge quantity assumed is relatively small so again little change will exist if it is not present.	Comment noted.
			25) On page 46, a summary of the inputs into pumping scenario 6.2 are presented. This author has two comments: i) a yearly loss of storage of 4,000 ac-ft is not a minor loss and will definitely have a significant effect, ii) it is unrealistic to assume that agricultural pumping will continue unchanged through 2070 even as the price of the pumped water will increase dramatically. So this author's concern	Comment noted.

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			expressed in i) is cleared up. However, the pumping scenario does not provide an accurate basis for a GA cost analysis.	
			26) The assumptions made in unit 3.5.6 on p 47 are reasonable and likely the best that can be done.	Comment noted.
			27) On page 47, unit 3.6, first sentence change Cooperative Group to KCWA. If the second sentence is to be kept, remove “concerned citizens”.	Comment addressed.
			28) The description for Cooperative Group coordination in unit 3.6 is greatly overblown. The actual work was done by the agencies with real legal authority. The CG had no contracting power or supervisory function at all. The stream gages and weather stations were installed by the USGS and the BLM. The well water depth measurements were organized, planned and executed in modern times by KCWA and earlier by the USGS. The EKCRCD was directly responsible for many projects that the CG has been given credit for. I suggest that this write up describing the CG in unit 3.6 be cut back considerably.	Comment noted.
			29) On the top of p 48 is a list of instruments and facilities monitoring meteorological and other physical measurements critical to the monitoring of the Basin. The DWR CIMIS station installed at the golf course under EKCRCD sponsorship should be added.	Comment noted.
			30) Unit 3.1.1.1 describes a number of data gap areas that are being pursued including the El Paso sub Basin. Another area of even greater interest is not being given the attention it should be. The sub flow from Rose Valley in the extreme NW is the largest recharge component in the DRI flow model. The only well in the area is BoR 10 which appears to have been removed from the monitoring well network. If this is correct it is a major mistake.	Monitoring well BoR 10 has not been removed from the monitoring well network and will continue to be monitored regularly.
			31) Unit 3.1.1.2 in paragraph 2 sentence 3 indicates that a new stream gage is to be installed in Indian Wells Canyon. Why is the scarce Prop 1 money being wasted in this endeavor? IWC is a much dryer canyon than Sand or Grapevine and even in wet years the gage will see only very little water. The money could be far better spent on a shallow seismic exploration near the mouth of the canyons and out onto the fans as I have recommended over and over. Another valuable asset would come from shallow reference wells drilled in the same areas.	The Proposition 1 grant scope has already been finalized. The scope was reviewed and discussed with the IWVGA TAC prior to submittal to DWR.
			32) Unit 3.1.1.4 states that the evaporation at the playa is the largest Basin discharge. Is this correct? This author thinks the largest discharge today is actually at the phreatophyte zone west and north of NAF.	Comment noted.
			Section 4, Sustainable Management Criteria 1) On page 9, the second bullet describes the expanded recycled water project will be online in 2025-this is unbelievably optimistic. On the same page in bullet 4, change sentence to read “..water supply to be available no later than…)	Comment noted.
			2) On p10, bullet 1, the sentence uses the word “fallow” incorrectly. I think what is meant is really “discontinued”. On the same page at bullet 4 remove the word “Additional”- the word is unnecessary and redundant.	Comment noted.
			3) On p 11 in the 2’nd bullet, “implemented by 2025” –overly optimistic. Same page in bullet 4, use of the word “fallow” is incorrect.	Comment noted.
			4) On p 12, 3’rd paragraph, remove the word “for” in the 5’th line.	Comment addressed.
			5) On p 13, item 4.3.1.1 change sentence 3 to read “Groundwater elevation data and associated modeling results…”	Comment noted.

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			6) On page 15, bullet 6, the word fallowing is again used incorrectly. Substitute "abandonment"	Comment noted.
			7) On p 16, bullet 6 again the incorrect use of the word fallowing. Suggest substitute "abandoning". Same page last paragraph suggest a sentence change to read "…due to poor water quality as a result of natural effects."	Comment noted.
			8) On p 17, again incorrect use of the word fallowing and remove "s" from "results" in the same sentence.	Comment noted.
			9) On p 18, unit 4.3.5, the content of the sentence "Critical information on the relationship …the GSP monitoring program" is incorrect. There is a direct relationship between groundwater levels and the health of GDE's. The only data gap here is lack of detailed monitoring of GDE health.	Comment addressed in a previous GSP draft.
			10) On p 20, unit 4.4.1.1 the word "stimulated" is incorrect. Replace with "simulated". In unit 4.4.1.2, suggest adding "directly" before the word "related in the first sentence.	Comment addressed in a previous GSP draft.
			11) On p21, unit 4.4.1.4, remove the word "and" between the words "impact "and "limits".	Comment addressed in a previous GSP draft.
			12) A comment related to unit 4.4.1.5, unfortunately the statement made in the unit is correct relative to the content in GP's. The authorities responsible for these documents have been unwilling to bring forth the resource or infrastructure limitations on growth that have been so obvious for so long. Big changes are going to have to be made in the truthfulness of these documents as relates to water supplies and other essential resources.	Comment noted.
			13) On p 22, unit 4.4.1.7, there is an "equation" that needs to be properly formatted to get the entire expression onto one line.	Comment addressed in a previous GSP draft.
			14) On p 23, first sentence is garbled and needs to be reconstructed. It is important to emphasize the central role that measured groundwater levels plays in setting Minimum Thresholds.	Comment addressed in a previous GSP draft.
			15) On p 25, the chart of representative monitoring wells has not included BoR 10. This well provides critical water level data in the subflow region at the Little Lake gap. This recharge flow is estimated to be the largest single component in the Basin recharge. This well was located where it is for a very important reason.	See Section 4.1.2 and Section 4.7.1. Monitoring well BoR 10 (and other wells not designated as representative monitoring sites) will continue to be monitored regularly.
			16) On p 27, in unit 4.4.3.3, no mention is made of the subflow from Rose Valley. This is a serious omission.	Comment addressed in a previous GSP draft.
			17) On p29, Table 42 does not have a monitoring well in the Intermediate Well field area. Add BoR 4 to meet this requirement. Except for completeness, BoR 1 will add very little to purpose of this list of wells.	Comment noted.
			18) On p32, unit 4.5.1 add the words "not more than" between the words "is" and "213,474" in the last sentence of the first paragraph.	Comment noted.
			19) On p35, in unit 4.6.2, the Table omits BoR 10. For the same reason as was given in comment 15) above BoR 10 should without doubt be added to this Table.	See Section 4.1.2 and Section 4.7.1. Monitoring well BoR 10 (and other wells not designated as representative monitoring sites) will continue to be monitored regularly.
			Section 5, Projects and Management Actions 1) On p 9, unit 5.1.1.1, the second sentence implies that the only purpose for setting annual pumping allocations is to set fees! I submit this is a very poor way to describe the allocations. It has the effect of de emphasizing the real purpose of the pumping allocations which is to bring in the Basin into sustainability. On the same page reformat the first sentence of the second paragraph to get the reference superscript in the proper location.	Comment noted.

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			2) On the same page the list of considerations for creating the pumping allocations omits de minimis pumping conditions which are defined in SGMA.	Comment noted.
			3) On p11, in the first paragraph the word “fallowing” is again used incorrectly. In the last paragraph it is stated that the IWVGA will allow for some reasonable overdraft of the IWVGB. There should be some additional clarification and indication that there will be some level of buy- in by the shallow well community. Otherwise, this is a business as usual approach to the Basin overdraft issue.	Comment noted.
			4) On p 11, line 5 in the last paragraph should actually read: “… 12,000afy plus any agricultural and industrial pumping …”.	Comment noted.
			5) On p 13, in the last sentence of the first paragraph the word “fallowing” needs to be removed and replaced by a correct word. In the same sentence with the list of considered parties a number 6) needs to be added: 6) de minimis	
			6) A comment for all pages involved. The superscript reference numbers need to be in a larger more readable font.	Comment noted.
			7) On p 14, the text in the last paragraph correctly identifies the de minimis pumper and the associated pumping conditions- good work	Comment noted.
			8) On p 15, the second paragraph does not identify the unique de minimis circumstance. The de minimis water rights for a given property were likely established at the time the original Homestead patent was granted. Most of the homestead activity in this Basin occurred in the 1910 to 1930 time frame.	Comment noted.
			9) On p 15, in the last paragraph the word fallow is again used incorrectly. The $9M estimated cost for the buyout program seems way too small. Since this program has not been adequately defined a more accurate estimate is perhaps not possible?	Comment noted.
			10) On p 16, in unit 5.2.1.4 and 5.2.1.5, a description of a pumping declaration requirement is made with no distinction for de minimis pumpers who by SGMA are not required to meter or report. In the last sentence of 5.2.1.5 a deadline for signing up to the “fallowing” program is given. Without a lot more detail no one is going to be able to form an accurate plan for their property under this program element.	Comment noted.
			11) On p 20, 2’nd line down, remove the “s” from “transfers” – a typo.	Comment addressed in a previous GSP draft.
			12) On p 25, unit 5.1.1 describes an optimized waste water treatment and distribution system for the IWVGB. This GSP section is seriously remiss in many aspects that appear to not be recognized. There are three substantially intertwined aspects to this problem; 1, the plant itself and 2, the ultimate disposal (use) of the waste water and 3, the political entanglement between the Navy, the City, the IWVWD and now the IWVGA. Under the present circumstances of a Basin wide water supply shortfall, all of the plant water output should be used effectively and not simply disposed.	Comment noted.
			Section 6, Implementation Plan 1) On page 1, the title page change the section number from “5” to “6” and change the title to“ Implementation Plan”	Comment addressed in a previous GSP draft.
			2) This section is obviously in outline form. The detail yet to come will be anxiously awaited. Will the IWVGB have a functional GSP and avoid litigation?	Comment noted.
#3	Steve Pennix	01/06/2020	1. No detail on how the plan can and will be enforced: Legal enforcement mechanisms of the GSP are not discussed, so therefore the plan has no "teeth". The plan should include a description of legally enforceable options that can be	Comment addressed in Section 1.4.2.

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			exercised in order to ensure all pumpers with water allocations remain in compliance, such as those using the Transient Pool allocation that is limited to no more than 51,000 AF total (how will this limit be tracked and enforced?), as well as enforcing pumping restrictions to those non-de minimis pumpers that do not have any legal allocation at all. Without an in-depth discussion on the enforcement options available to "monitor and enforce" the GSP, the GSP is meaningless. Without providing details on enforcement options that are legally defensible by the GSP and supported by State of California law, anyone who doesn't agree with the plan will not be compelled to take the GSP's requirements very seriously, and the document will simply be ignored. Since SGMA grants the IWVGA the legal authority to implement the GSP, suggest the GSP outline that authority in further detail as to what that enforcement could consist of, and why it is important for all pumpers to understand this plan should be taken seriously. Otherwise there will be those that will simply ignore the GSP because they will believe GSP pumping restrictions can't be enforced.	
			2. No clear indication for when the option of imported water should be no longer considered a viable sustainability element: The Imported Water Project, should it even be feasible, is suggested to begin in 2023 with permitting and design, and end with construction completed in 2035 (a 12-year process). The plan states in Section 5.3.1.7 that "the implementation schedule and feasibility of the options will be examined on a regular schedule, and management actions and projects will be adjusted if needed." Please define the term "regular schedule". Annual? Bi-annual? How long will it take for the GSA to formally determine whether water importation will be feasible or not? No timeline or milestone is provided as to when the search for supplemental water is no longer a feasible option to continue pursuing because it will no longer meet the sustainability goal of the GSP. The clock will simply run out on the option of searching for, obtaining funding, getting permits, and completing the infrastructure necessary for importing water as it relates to the SGMA mandate for sustainability by 2040. Suggest acknowledging a final date for ending the search for imported water.	Comment noted and will be considered in future GSP updates. Imported water will continue to be evaluated until sustainability is reached.
			3. No discussion of a Management Action where the only option is basin-wide mandated (NOT voluntary) conservation, which is a very real possibility: Considering the very high costs and the likelihood of not being able to afford imported water when all factors are considered (environmental permits & documentation, infrastructure capital costs, maintenance, costs of negotiating contracts with water suppliers, cost of actual water that may be available to import. etc.), the plan does not address what happens if imported/supplemental water is not obtained. While Section 5.3.3 attempts to address a basin-wide conservation approach, it does so only through "voluntary" coercing conservation. Section ES 5.0 states that reducing immediately to the sustainable yield is "not feasible". I do not agree with that assertion. Difficult yes, but not unrealistic or unfeasible. It can be done. What's missing in the GSP is a frank discussion that there is a very realistic possibility that water conservation may be the only option to get the basin down to an overall sustainable yield of 7,650 AFY . So, if that is the last option available, what does that option look like? The plan is remiss if it does not at least address the potential for having to implement a non-voluntary conservation-only approach for ALL pumpers throughout the entire basin. Getting that option into the plan	Comment addressed in Section 5.1. If one, or more, of the planned projects and management actions cannot be implemented, the IWVGA will consider additional, and perhaps more severe, actions to reach sustainability. If necessary, these additional actions could include mandatory conservation. Also, if necessary, in the future, total annual pumping for the Basin may need be reduced to the Current Sustainable Yield of about 7,650 AFY.

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			from the onset is important from a public discourse perspective , should that option be the only viable one remaining over the next few years. I would suggest a "Mandatory Water Conservation Management Action" be added to the plan so the public can at least understand that may be the only option left at some point in the future.	
#4	Michael Neel	01/6/20	1. Is this Board going to have its' lawyers elaborate, before the public, how Article 13B Sec. 6 of the California Constitution applies to the funding of the State mandated GSP?	See response in Attachment 1.
			2. Once clarity on the State's lawful obligation to fund its' mandated programs is delineated, is this Board going to formulate an approach to press the State for full funding of the IWV GSP?	See response in Attachment 1.
			3. When a request for funding is made to the State, will this board suspend pursuing a Proposition 218 action to force payment for the GSP upon the Citizens of the IWV?	See response in Attachment 1.
			4. If this board is NOT going to press the State to fund its' mandated IWV GSP program, are the individual members of this Board each going to explain, in public, why they will not act according to their sworn duty to uphold the California Constitution?	See response in Attachment 1.
#5	Raymond Kelso	12/15/19	Section 2 1. Paragraph 2.5.2.4 is silent relative to how the City of Ridgecrest encourages water conservation via its land use jurisdiction. The paragraph should specifically identify the City's land use ordinances and state the impact of those ordinances on resource conservation. The paragraph should specifically state how each zoning ordinance promotes water conservation and discourages wasteful use of water.	Comment noted. The reference to the goals stated in the City's General Plan are intended to explain how the City encourages water conservation and efficient water use. Comments received from TAC member comments have frequently indicated that the City does not always adhere to its own goals regarding water conservation and water use efficiency.
			2. Paragraph 2.7.3 does nothing to define a performance measure relative to conservation or a conservation goal. How do we intend to measure our progress toward a goal? Do any of the programs mentioned really help? If so, how? One performance measure in addition to absolute water production could be the ratio of indoor water use to outdoor water use. The Navy and City of Ridgecrest generate about 2,500 acre-feet of effluent (sewage). The sewage contribution ratio between the Navy and the City is about 28% versus 72%. Assuming the Navy uses 1,600 AF of water and the City uses 6,400 AF of water, the indoor use of water is 47% for the Navy and 27% for the City. The Navy uses about as much water for outdoor purposes as indoors. The City uses almost three times as much water outdoors as indoors. The City's outdoors use of water seems high. How do we intend to set a reasonable goal? What conservation program in section 2.7.3 is going to address this?	Comment noted. At this point (conceptual-level), the goal of the conservation project (5.3.3) will be to identify opportunities for additional conservation that could decrease basin-wide water use such that the reliance on imported/alternative water supplies may be minimized. The Water Conservation strategic plan (5.3.3.1) will define a specific conservation goal and measurable progress toward that goal.
			3. The paragraph 2.7.4.3 statement regarding tiered rates motivating water conservation of is misleading. To determine the impact of IWVWD fees on conservation the overall fee structure, fixed fee and actual water fee, must be analyzed. The fixed fees generate more than sixty per cent of the revenue, while the water fees generate less than forty per cent of the revenue. This establishes a low average unit water fee. The low average water fee encourages water waste. The water fee structure contains four tiers. Tier one contains nine units of water. Tier two contains fifteen units of water. Tier one water along with tier two water comprise about seventy-five per cent of the water sold. Tiers three and four comprise the remaining twenty-five per cent of the water sold. Both tier one and tier two water sells for less than the average unit water fee. That is, tiers three and four subsidize both tiers one and two.	Comment noted. Fee structures of water purveyors are likely to be modified during the planning/implementation horizon due to new IWVGA policies and/or procedures.

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			Tier one, the first nine units, is for health and safety use. Tier two, the next fifteen units is for outdoor landscape use. While tier one water is clearly a necessity, tiers two, three, and four are all discretionary water use. Yet, tier two is being subsidized. The fifteen units allocated in tier two are even more than is allocated for health and safety. The large amount of tier two subsidized water does not encourage conservation. The combination of a low average water fee combined with a large amount of inexpensive subsidized tier two water encourages the use of water, not water conservation. All water purveyors should have fees that encourage conservation rather than water waste.	
			4. Paragraph 2.5.4 discusses local industrial use of groundwater. The discussion ignores water use by Coso Geothermal, a bottled water plant, and a brewery. Please add those three water uses to the discussion.	Comment noted. Coso Geothermal is not located within the Bulletin 118 basin boundaries and does not extract groundwater from the IWVGB for use in their facilities.
			5. Paragraph 5.3.3.1 indicates the AVEK staff has stated there is currently unused capacity in the California City pipeline. Additional information is needed. How much unused capacity exists? How long is this unused capacity going to be available? Considering California City is going to increase their agricultural water usage in the near future we need to be get a clear understanding of the real long term availability of water from AVEK.	Comment addressed in previous GSP draft. As stated in Section 5.3.1.7, the IWVGA will continue discussions with AVEK regarding the California City pipeline, including uses of AVEK water supplies and capacity.
			6. Based upon recent newspaper reports the Environmental Protection Agency has changed certain rules regarding the availability of water flow from northern California to southern California. While this will mostly affect western Kern County, the GSP should state any potential side benefit that might be indirectly obtained by us.	Comment noted. As stated in Section 5.3.1.9, the IWVGA will continue to evaluate the availability of SWP water and the associated impacts to the IWVGA's development of imported water supplies.
			7. The most recent water allocation chart indicates the real water usage in the IWV may be less than indicated by some of the early voluntary water data that has been obtained. The GSP should state what impact this might have on analysis and conclusions. Due to these noted issues, the draft plan is inadequate.	Comment noted and will be considered in future GSP updates.
#6	John Kersey – U.S. Navy	01/08/2020	Pg. 6-3; Increasing water reliability and preserving groundwater resources are critical tasks of the IWVGA ~~and are critical to accomplishing the mission at NAWS China Lake and sustaining the entire IWV community. The sustainability goal is to preserve the IWVGB groundwater resource as a sustainable water supply. To the greatest extent possible, the goal is~~ to preserve the character of the community, preserve the quality of life of the IWV residents, and sustain the mission at NAWS China Lake. The absence of significant and unreasonable undesirable results throughout the planning horizon will be indicative the sustainability goal has been achieved. The sustainability goal will be accomplished by achieving the following objectives:	Comment addressed.
			Pg. 6-8, last paragraph of Section 6.3.2; The U.S. Navy receives royalties from the sale of electricity generated at the geothermal power plants located on NAWS China Lake in the Coso Geothermal Field. A portion of those funds are available each year to fund local energy or water security initiatives that support the NAWS China Lake mission. GSP implementation projects and related tasks may be eligible to receive funding from these royalties if deemed necessary and a priority to support the NAWS China Lake mission.~~The U.S. Navy receives royalties from the sale of~~	Comment addressed.

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			~~electricity generated at the geothermal power plants located on NAWS China Lake in the Coso Geothermal Field to fund local energy or water security initiatives that support the NAWS China Lake mission. GSP implementation projects and related tasks may be eligible to receive funding from these royalties if deemed necessary and a priority to support the NAWS China Lake mission.~~	
#7	John Kersey – U.S. Navy	01/08/20	Volume Page Line Comment 1 34 14-25 This paragraph should include the four non-voting members of the PAC. That includes the Navy, IWVWD, BLM, and Kern County.	Comment addressed.
			Volume Page Line Comment 1 35 7 United States Navy needs to be identified as a non-voting member.	Comment addressed.
			Volume Page Line Comment 1 42 16-17 "The recharge zones identified by DRI are shown in ?" Where are the recharge zones shown?	Comment addressed.
			Volume Page Line Comment 1 69 14 Need to change to Naval Air Weapons Station (NAWS).	Comment addressed.
			Volume Page Line Comment 1 77 8 United States Navy needs to be identified as a non-voting member.	Comment addressed.
			Volume Page Line Comment 1 115 12-18 The last sentence in section 2.6.4 needs to be removed and that section will be more accurate as figure 2-13 is actually representing KCWA monitored wells and not necessarily the wells in the BGMP. Figure 2-13 is first mentioned at the end of section 2.6.2 and having it referenced again here makes the figure even more misleading than it already is. The figure is misleading in that it attempts to distinguish what KCWA monitors and what the Navy monitors. The reality is the Navy collects groundwater levels semi-annually from all of the wells on Navy property and reports those levels to KCWA. However, the monitor wells that are analyzed for groundwater quality for CERCLA may or may not overlap with some of those wells that are reported to KCWA for groundwater levels. The figure itself needs to be changed to show all wells on the installation in green as the Navy measures everything on the installation and simply reports that data to KCWA.	Comment addressed.
			Volume Page Line Comment 1 207 15 Make this a new paragraph. "In areas in the IWV where the groundwater levels have been steadily declining, the water levels have dropped enough to impact shallow wells, requiring wells to be deepened, re-drilled, or abandoned as a water source. As discussed in Section 3.4.2, an analysis was conducted on the IWVGB well inventory to estimate the number of shallow wells impacted due to the chronic lowering of groundwater levels, which is related to the significant and unreasonable reduction of groundwater in storage (Appendix 3-E). It is	Comment addressed.

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			estimated 97 shallow wells were impacted from 1980 to 2018 based on preliminary analysis. By 2070, an additional approximately 800 wells are estimated to be impacted under the baseline, “no action”, conditions. (Additional shallow wells are anticipated to be impacted due to water quality degradation.)"	
			Volume Page Line Comment 1 210 8 Delete the extra bullet.	Comment addressed.
#8	Philip C. Salvatore	01/04/20	We are told by the local Groundwater Authority and our regional political leaders that there is no way we can conserve our way out of our current groundwater overdraft situation and that we have no alternative but to import water into our valley at great cost to all of us. I am going to suggest this is not necessarily the case. All of the planning I have seen assumes we will continue to use as much water in the future as we do today, perpetuating wasteful water use practices as if this is the only alternative we have. I will suggest this is not the case at all. We are told we may have to spend upwards of $200 million to build a water conveyance system, aka an aqueduct, to bring imported water to our basin and then spend upwards of $15 million per year to buy and move this water, or “wheel” the water to use the industry term, into the indefinite future. History suggests the final price will be much higher than that. I will suggest we can invest less than half that amount of money and avoid importing water altogether. Based on available data from the Todd Engineering report, Indian Wells Valley Land Use Management Plan DEIR, census data and readily available prices of solar systems and ductless air conditioning systems I am going to paint a little bit different picture of our future than valley political leaders have painted so far One other comment regarding groundwater rights in California. Prior to SGMA there was no formal system of groundwater rights in this state. A property owner could pump any amount of water they wished out of the ground until a judge told them to stop or the well ran dry. Land owners are said to have overlying rights. “Appropriators” are those who pump water from the ground for use on property outside the location of the well, and the California courts have ruled that this includes municipal water districts who distribute water over tens or even hundreds of square miles from wells located inside and outside their distribution area. For a long time in the state overlying rights were assumed to have priority over appropriative rights. This changed with a California Supreme Court case called Pasadena v Alhambra. When groundwater basins experiencing overdraft led to litigation, the courts in California including the California Supreme Court have instead used a doctrine called “mutual prescription”, where all water users in the basin have to reduce their draw on the aquifer in some proportion. This was done to protect municipal water utilities from being cut off from water supplies by landowners with wells in adjudicated basins claiming their overlying rights had priority over municipal users prescriptive rights. The California Supreme Court also ruled that “beneficial use” has to be considered in determining the degree of prescription. Not all users suffer the same degree of prescription depending on how a judge or court appointed water master determines how beneficial a particular party’s water use is. There are some who even argue for example that growing alfalfa in the desert is not a beneficial use of water. We have heard some current users assert that since their water use predates the incorporation of Ridgecrest or	Increased water conservation was discussed with the TAC. There wasn’t consensus that this level of conservation could be achieved. Additional conservation will be further explored during implementation of the GSP through Project No. 3. Basin Wide Conservation Efforts. See Section 5.3.3. The GSP uses an adaptive management approach. Projects and management actions can be modified as needed if significant additional conservation is achieved.

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			the establishment of NAWS China Lake they are not required to surrender any of their current water use. Temporal rights, the "first in use is first in right", doctrine that generally governs surface water rights in the west does not apply to groundwater under California law. The Mojave Adjudication ruling from the California Supreme Court set a strict standard for adjudicating groundwater disputes in California. And as seen in the ongoing Antelope Valley Adjudication case, Federal water users can be sued in a state court. It is so far the only sort of case where a Federal entity has to be part of a lawsuit heard in a state court. Typically Federal agencies may not be sued in state courts. Water disputes are an exception. The population of Ridgecrest is 29,000, with 10,781 households (US Census data). The population of the Indian Wells Valley including Ridgecrest is 36,000 (the DEIR claims the valley has "less than 35000 residents, I'm being conservative and assuming there may be more than that). Current annual recharge into our ground water basin is 7300 Acre Feet Per Year (AFY). This is the lowest of several numbers being quoted for the sake of being conservative in my estimate. The Navy / Ridgecrest wastewater treatment plant processes 2500 AFY of wastewater. Current annual water use is as follows (from the Todd report) Private Domestic Wells 1000 AFY IWVWD and ICSD 8000 AFY Ridgecrest Area Parks 350 AFY NAWS China Lake 1800 AFY Searls Valley Minerals 2600 AFY Evapotranspiration 630 AFY Domestic / Industrial subtotal 14,380 AFY Domestic / Industrial Overdraft 7080 AFY Domestic and Industrial water use at our current level of use is almost twice annual recharge and the reason our leaders claim we have no alternative but to import water. 9,000 AFY spread across 36,000 residents tells me we are, on average, using about 223 gppd. That corresponds to my experience with my first home here where I had a big Mastercool evaporative cooler and a front lawn. This is excessive water use. I am not including the 20,000 AFY of agricultural water use predicted when the existing pistachio orchards reach maturity. More on that subject later. With air conditioning instead of evaporative cooling, it is easy to achieve water use measured in Gallons Per Person Per Day (gppd) of 85 to at most 100 gppd . We achieve 85 - 90 gppd in our own home now with no special conservation measures. City of Los Angeles currently realizes 78 gppd. Los Angeles County currently realizes 105 gppd (unincorporated LA County including Antelope Valley). An Acre Foot of water is the amount of water required to cover one acre of surface to a depth of one foot, which is equal to 325851 gallons. Assume 90% of households use evaporative cooling, 10% us air conditioning (best assumption I could come up with from extensive reading). California	

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			solar power in 2020 with rebates costs $3.07 per watt. A 23,000 BTU ductless air conditioning system suitable for a 1200-1700 square foot home costs $5000 installed. Here is what our water use would look like at 100 gppd and 85 gppd in AFY: Private Domestic well users, IWVWD , ICSD 4032 3428 Ridgecrest Area Parks 350 350 NAWS China Lake 1800 1800 Searls Valley Minerals 2600 2600 Evapotranspiration 630 630 Domestic / Industrial Subtotal 8750 8178 Domestic / Industrial Overdraft 1450 878 Domestic / Industrial use still causes a small overdraft but I have not mentioned using treated waste water yet. The wastewater plant co-owned by the US Navy and city of Ridgecrest processes about 2500 AFY of waste water. Assume with water conservation measures only 2000 AFY would be available for treatment. That is conservative because I am assuming indoor water use, the water that ends up going down our drains to the treatment plant, does not need to change to get us to 100 gppd or even 85 gppd. We do it now in our own home and we are not taking sea showers. The only differences between my current home and the old one aside from the new one being twice the size are lack of a front lawn and ac instead of evaporative cooling. Those two changes cut our water use by more than half. But for the sake of a very conservative estimate I will assume only 2000 AFY of wastewater will be available for treatment. For more than three decades the Orange County Water Authority has been treating their wastewater to a potable standard. It comes out so pure you can drink it. They even bottle it and serve it at meetings, plant tours and trade shows. This water is then pumped back into their aquifer from which 75% of the county's drinking water is drawn. There needs to be a discussion with Searls Valley Minerals about how much treatment they would need for the water used in their process. Maybe they don't need potable water for their process and they can get by with less treated sewage? It is a question that needs an answer. They need to put some of their money into the pot to achieve this and not simply expect IWV residents to foot the entire bill for them. There also needs to be a discussion with San Bernardino County regarding domestic water use in Trona and Pioneer Point. It's not a lot of people but maybe San Bernardino County would want to do something like I am proposing to bring water use down there since their water comes from our basin. At 85 gppd there is almost no need to treat wastewater and no need to import water. Also note that if you subtract the water use by Searls Valley Minerals we are no longer in overdraft even at 100 gppd. I think now the reader can see it is possible to realistically bring local domestic and industrial water use down below annual recharge. All it takes is the political will to do so. The State of California has a goal of bringing domestic water use down to only 55 gppd. That will be hard to achieve. At that level total domestic water use in the valley, meaning private domestic wells, IWVWD and ICSD falls from 2428 AFY at 85 gppd to only 2218 AFY. Total water use falls from 8178 AFY to 7977 AFY. At that level we are even closer to not	

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			even needing treated wastewater, especially if the Trona area is able to experience similar low water use (which I haven't calculated). I believe it would be foolish indeed for this region to spend hundreds of millions of dollars on new infrastructure that ends up being unnecessary in a decade or two. By now you are asking how do we get to such low water use, since assumes both xeriscape and the elimination of evaporative cooling from homes. Good question. It will not be costless to accomplish, but it will be less than half the cost being proposed to build infrastructure to import water and that cost could be further reduced by a few ideas I will propose. First off go back to our ground rules and assumptions. Ridgecrest has a population of 29,000 and 10,781 households. If the proportion of households to residents for the entire region matches that of Ridgecrest, the 36,000 residents of the valley should live in 13,383 households. I cannot find a census number for the number of households in the whole valley, only for Ridgecrest so I have to estimate it. Of those households, 90% or 12,045 will have evaporative coolers. The remaining 10% have ac. All of those evaporative coolers would need to be replaced to bring water use down to 85 gppd or lower and all new construction would have to use ac instead of evaporative cooling. To accomplish this I am proposing to replace existing evaporative cooling systems in households with a 23,000 BTU ductless air conditioning system sufficient to cool a 1,200 - 1,700 square foot home and add 1000 watts of roof top solar to generate the electricity necessary to make up the difference in the switch from evaporative cooling to ductless ac. I am not trying to cover all the electrical needs of the home, just keep the electric bill constant when ac is installed. Average installed cost of a 23,000 btu ductless ac system ranges from $3000 to $7000. Average cost is $5000. The current installed cost of solar power in California with rebates is $3.07 per watt. A 1000 watt rooftop solar installation therefore would cost $3070. A ductless ac system and 1 Kw of solar installed on a home would cost $8070. The full cost to convert every household in the valley with evaporative cooling, 12,045 households, to ductless ac and rooftop solar is $97.2 million. That is not a trivial number but it is less than half the cost we are being told is necessary to build a water conveyance system to our valley and after the money is spent there are no ongoing annual costs such as those we would face to import water each year. Since we have 20 years to reach sustainability that $97.2 million would be spent over 20 years, meaning we would spend roughly $4.86 million a year. Keep in mind that after building a $200 million aqueduct imported water will cost us $15 million a year and there is no end to that cost. It's forever. Once homes are converted to ductless ac there are no more annual charges. The public might not have to pay all of this cost. A program could be designed such that an owner would receive a subsidy to convert from evaporative cooling to ductless ac and solar if they agreed not to sell the property for some period of time, say five years or maybe seven years. Otherwise the home would have to be converted before it could be sold with the cost included in the sale price. If the owner sold before their five or seven years were up the water district or whichever agency paid for the installation would be authorized to recoup their costs from the sale of the property. The rules have to have	

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			some teeth. If we chose to use a 2/3 subsidy for home owners who agreed not to sell this would cost $64.8 million assuming all current owners agreed to not sell ($3.24 million per year). In reality many homes will change hands over time and those won't benefit from the subsidy therefore reducing the expense to the public. Perhaps instead we could agree to subsidize only half of the cost or less if the conversion is part of a change of ownership. The local real estate industry could provide us with an average number of sales of existing homes per year to use to refine this estimate. There are lots of possible subsidy scenarios with different menus of costs, all of which are lower than a system to import water. My complaint is that no serious conservation program has even been suggested much less analyzed in detail. We are told by valley leadership we need to import water to sustain excessive domestic water use in excess 200 gppd and that's that. End of conversation. No it isn't and my intuition tells me the state will reject our current plan, which it very much should. I have not discussed the 20,000 AFY of agricultural water use. Non irrigated farm land in California sells for $3550 an acre. Prime irrigated farm land sells for $12,500 per acre. We have 1000 acres in alfalfa and 2500 acres in pistachios in this valley according to the Todd report. 3500 acres total. That land is worth $12.4 million if it is considered to be non-irrigated and $43.75 million if the land is considered irrigated. Our valley is not considered to be prime farmland according to the DEIR. The farmers expect us to build a $200 million aqueduct to water land worth at most $43.75 million, probably less. If one accepts that it is possible to import water for as little as $2000 per acre foot, the 20,000 AFY that will be required to irrigate our farmland would cost $40 million per year. At $4000 an acre foot farms would require $80 million per year for water. So we are expected to pay $200 million up front and the farms will pay $40 million to $80 million a year to irrigate land worth at most $43.75 million. Do those farms have the kind of revenues to afford $40 million a year for water? I don't think so, meaning that after we foot the bill for such an aqueduct the farmers won't be able to afford this imported water and will go out of business anyway. Last point, we are told imported water might cost $2000 to $4000 an acre foot. Southern California water users pay MWD $10,000 to $12,000 an acre foot for the same water. Ask why our local leaders think we would be able to buy water at such a steep discount. $4000 an acre foot for imported water is not a believable number. The purpose of this paper is to facilitate discussion in a direction our valley leadership has not even hinted at. All of the discussion to date has assumed we absolutely must build an expensive water conveyance system and pay many millions of dollars per year to import water to our valley so we can continue to use in excess of 200 gppd in our homes. Our leaders are proposing this to the state government in a state where the major metropolitan areas under heavy pressure by that very same state government have all brought their water use down to half of what we use per person per day or less in many cases. I hope I have opened some eyes to the thought that we may not actually need to import water to have a sustainable future water supply and that it might be the wrong choice to do so.	

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#9	Ralph Lachenmaier	12/18/19	1 The GSP (on the web site) is far from being a plan. It needs to present the items I list below: It seems to me that the GSP is hiding what the cost increase to Water District residential customers will be. I understand that the GSA will be charging the Water District, and the Water District will be charging residential customers. However, the GSP should be able to estimate how the costs will be passed on by the water district.	Comment noted.
			1.1 The GSP should specify the date, when the GSA will begin charging the Water District for water. My understanding is that this may be as soon as June, 2020. I assume that the Water District will pass that charge along, and Ridgecrest residences will see an increase in their water bill. The GSP should give an estimate of how much an average Water District residential customer's bill will go up.	All groundwater producers in the IWVGB, including the Water District, are currently subject to groundwater production fees, with the exception of the U.S. Navy and de minimis pumpers. Water District policies are not specifically relevant to the GSP.
			1.2 The GSP should also give estimated dates, when additional GSA charges will take place and how much each of those will be. Again the GSP should give an estimate of what the average Water District residential customer's increase will be.	Fees will be developed during GSP implementation.
			1.3 The GSP needs to specify whether Water District increased charges will be to the base rate (a fixed charge), or whether the charges will be a "per gallon" volumetric charge. Obviously volumetric charges will encourage water conservation and are the preferred way of charging.	Water District policies are not specifically relevant to the GSP.
			1.4 The GSP should specify exactly what the ~$9M cost is for pumping allocation. Is it to pay the farmers for their water or something else? The components making up this number and how they were estimated should be given.	Comment noted.
			1.5 For the GSP to be a realistic plan, an alternative to importing water should be specified. It is unlikely that the ~38,000 people served by IWV water can afford the cost of importing water (AV-$226M, LA-103M) plus the annual cost (AV-$8M, LA-4.4M). There are many unanswered questions in the plan: Can the GSA issue bonds for the capital cost? Who would buy them? Can the GSA find water to import that is reliable? Water is the most critical resource in California. Everybody is competing for it. Can the GSA find it at a reasonable price? An alternative plan to importing needs to be specified in case water importing cannot be done.	The IWVGA will pursue all reasonable and possible funding sources for the implementation of all the projects and management actions. See Section 6.3.2.
#10	Stan Rajtora	01/06/20	1. The draft GSP contains a set of potential management actions and projects that are being considered to create a sustainable IWV groundwater basin. The document does not clearly demonstrate how the various actions and projects will be integrated together to accomplish the intended goal at an affordable cost. The GSP implementation plan should be updated to include a baseline set of projects and management actions that meet the overall objectives and a decision tree with appropriate branch criteria to non-baseline projects that ensures success of the GSP acknowledging the large uncertainty inherent to some projects.	Comment noted. It should be noted that all projects and management actions described in this GSP are required to either achieve basin sustainability, prevent undesirable results in the future, or mitigate the impacts of overdraft.
			1.a. Water importation is one of the higher risk projects proposed, but it is pivotal relative to the total plan. The success or failure of this project has major implications for the demands placed upon the remainder of the proposed projects or the need to add additional projects. The GSP needs to have a fall back plan available in case the imported water project does not materialize by a specified deadline or is found to be unaffordable. It is not difficult to show that both imported water projects, depending upon financing, could be well outside the financial means of many IWV residents. The GSP needs to comprehend the limited fiscal resources of many valley residents.	As stated in Section 5.3.1.9: "Should it be determined with certainty that imported water supplies will be unavailable (or unavailable at a reasonable cost) within the planning and implementation horizon, the IWVGA will consider modifications to the GSP including potentially revisiting Management Action No. 1 and modifying the Annual Pumping Allocations such that the IWVGB may reach sustainability without imported water supplies."

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				Also, as stated in section 6.3.2, the IWVGA and the GSP acknowledge that "the IWV community is not financially capable of supporting an imported water supply without significant public funding." The IWVGA may potentially identify and secure federal and state funding sources for GSP implementation.
			1.b. Conversely, if affordable financing does materialize for the imported water project, many other proposed projects could and should be deleted. While the cost of the imported water is high, the costs of many proposed projects show a very low cost to benefit ratio. Scrubbing some projects could eliminate a significant amount of capital funding, which would be better spent on the imported water project. The decision tree mentioned above should be an integral part of the project deletion strategy.	Comment noted. It should be noted that all projects and management actions described in this GSP are required to either achieve basin sustainability, prevent undesirable results in the future, or mitigate the impacts of overdraft.
			2. The public has been waiting four years to find out the financial impact of the GSA and GSP. The GSP should identify the financial impact on the various classes of water users. Since the IWV Water District is by far the largest class of residential water users, the GSP should be as specific as possible regarding WD customer impact. The GSP should also state the financial impact on Kern County and the City of Ridgecrest. The GSP should be updated to make it clear who is paying for each project.	Comment related to IWVGA policies and/or procedures and not specifically relevant to the GSP. At this time, the financial and legal roles of each IWV entity in the GSP projects and management actions cannot yet be defined.
			2.a. Paragraph 5.2 introduces the concept of an 'augmentation fee'. The GSP is not clear as to how the fee is set, who pays the fee, or to what water the fee applies. GSP fees need to be clear. The GSP should be updated to provide a clear statement defining the augmentation fee and some examples showing how it is calculated for the various classes of water users for the various projects.	Comment noted. Fees will be developed during GSP implementation.
			2.b. The GSP should discuss possible unintended consequences of all management actions and projects and provide appropriate mitigation. The entire IWV needs to be sustainable; water is only one aspect of sustainability. The GSP must document both the short term and long-term impact of the plan on our economy and quality of life. For instance, some Measure V funding will be needed for roads and police even after the anticipated water fee increases. What is the possible impact?	Comment noted.
			3. There has been a lot of controversy the last thirty or more years over potential untapped water resources in the El Paso subarea and the northwest. Paragraph 3.6.1.1 addresses a shortfall of monitoring wells in the El Paso subarea. The monitoring well shortfall is a side issue. The real issue is the potential availability of an additional water source in the El Paso subarea. The near term availability of as little as 1,000 AFY could make the difference between near term economic prosperity and economic stagnation for the IWV. Availability of 3,000 AFY of new water could totally change the overall GSP narrative. The GSP should be updated with this potential water source a priority.	Comment addressed in a previous GSP draft (see Section 2.5.2.1); at this time, it is assumed that existing groundwater supplies in El Paso cannot be sustainably extracted to meet demands due to the limited mountain front recharge to that area. This concept will be re-evaluated as more data becomes available.
			3.a. As an example, one well included in the IWVGSP website, AB303-06, indicates the well water level has increased monotonically 3.3 feet according to the last four data points recorded during an eighteen month period. The last measurement point, nominally performed in Oct 2019, has yet to be recorded. If that last measurement point also indicates raising water level, we clearly have a phenomenon that needs to be explored in the very near future. The flow model also needs to be reviewed for consistency.	Comment noted and will be considered in future GSP updates and during GSP implementation.
			4. Section 6 is supposed to include a schedule for the various projects including a timetable for expected initiation and completion (see section 5.1). The GSP is also supposed to include along with the timetable an accrual of expected benefits. Section 6.2 explains why there is a significant amount of uncertainty with the schedule, but then the	Comment noted.

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			GSP does provide a schedule without identifying schedule risk. The GSP should state what is being done to resolve the schedule uncertainty as well as indicate when a firm schedule will be available. The GSP should quantify the schedule risk. The GSP should also be updated to include the required timetable of accrued expected benefits.	
			5. Paragraph 5.1 contains a list of requirements for the GSP originating from CWC §354.44 including an explanation of benefits and a description of estimated cost for all projects and management actions. Both the benefits and the costs need to be quantified to a level that supports a clear understanding of the cost/benefit of each project or management action. The basis for the cost estimates need to be provided. The GSP needs to justify the expense of each project or management action based upon the benefit provided individually as well as the expense of the collective set of planned projects and management actions. The GSP needs to include more than a simple statement of benefits and a statement of estimated cost.	Comment noted. The cost/benefit of any options with each project will be evaluated during implementation of the GSP.
			6. The GSP recycled water discussion, paragraph 5.3.2 and subsections, does not clearly define the quality of the recycled water that is being used for the various recycled water projects. Since the quality of the recycled water impacts the cost of the projects, the GSP should be updated to clearly define the required water quality for each project and the impact on cost.	Comment noted and will be addressed in future GSP updates. Quality of recycled water for projects is briefly discussed in Appendix 5-C.
			6.a. The GSP should also clearly identify the quality of water needed to support the industrial water needs of Searles Valley Minerals.	Comment noted and will be addressed as part of future discussions with Searles Valley Minerals during GSP implementation (see Section 5.3.3).
			6.b. Paragraph 5.3.2.1 should use the most current data for the effluent flows available for water recycling. Ridgecrest's 2018 annual SWRCB sewer report states processing of 820.2 million gallons of effluent; equal to 2,500 AF. Water production of the IWVWD is down slightly for 2019 indicating that effluent processing is also likely to be down in 2019. If the conservation project, see paragraph 5.3.3, is even a little successful, the future could see available effluent below 2,400 AF. A serious conservation project could create modest reductions in both groundwater production and WWTF effluent for several years. The GSP should be updated using current data.	Comment noted. 2017 data is used in the first paragraph of Section 5.3.2.1 solely for discussion and description of the existing wastewater treatment facility. As described in Appendix 5-C (Section 5 – Recycled Water Quantification), 2015 effluent flow data was used as a baseline for sizing of recycled water facilities because the minimum effluent flow from 2007 – 2017 occurred in 2015. The 2015 flow value may therefore be representative of the potential decreases in effluent flow resulting from future conservation project(s).
			6.c. The GSP recycled water discussion does not address seasonal versus non-seasonal use. A major benefit of recycled water use is a major reduction in the needed evaporation pond capacity. We need a year round market for the recycled water. The GSP should be updated to address this issue.	Comment noted and will be addressed in future GSP updates and during GSP implementation.
			7. Paragraph 5.3.2.4 states the City's new WWTF includes a new tertiary treatment facility, and therefore the GSP does not include the cost of a tertiary treatment facility. The City's latest WWTF design document, Provost and Pritchard, dated October 2015, does NOT include a tertiary component in the baseline design. It does, however, include a recommendation for new evaporation/percolation ponds to accommodate the expected future increase in effluent. The tertiary discussion in the P&P report is limited to future growth options. The GSP should be updated using the correct assumptions.	Comment noted. Recommended Facilities in the Provost & Pritchard report (referenced in Appendix 5-C) recommends that "provisions will be made for the construction of tertiary treatment facilities to provide up to 1.8 MGD of recycled water to be used for golf course irrigation and landscape irrigation." This GSP therefore assumes that the City's independent efforts to modify the existing wastewater treatment facility will include new tertiary treatment. Should the City choose to not include a tertiary treatment component, the GSP will be modified as appropriate.
			7.a. Paragraph 2.7.5.3 indicates the City WWTF site contains 4 evaporation/percolation ponds. According to the latest WWTF report, P&P, dated 2015, the City WWTF includes 11 ponds at the NAWS site and 4 more ponds at the old City site. Many of the total 15 evaporation/percolation ponds would not be needed if the effluent were recycled. New ponds would certainly not be needed; thus creating a corresponding cost savings.	Comment noted. The paragraph in reference states that the "City WWTF site contains four (4) evaporation/percolation ponds which may receive secondary-treated effluent…" The secondary-treated effluent is generated at seven (7) facultative ponds, bringing the total ponds at the existing City WWTF site to 11. The four ponds at the old City site are not relevant to the content of this GSP as it is not clear if the City's treatment facilities will be relocated to the old City site.

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			8. Paragraph 5.3.2 is entitled: Project No. 2: Optimize Use of Recycled Water. Optimization can mean many different things. The performance index used for the optimization needs to be well defined. That is, what was the logic used? What are the set of pros and the set of cons that established the allocation? As a minimum, the GSP should be updated to provide a cost/benefit analysis for each recycled water project and the rationale for the allocation of recycled water.	Comment noted. The cost/benefit of any options for recycled water use will be evaluated during implementation.
			8.a. Figures 5.3, 5.4, and 5.5 show the location of the recycled water source being at the Navy sewage site. The City of Ridgecrest has not yet selected the site for the new wastewater treatment plant. The two options are the Navy site and the older City site. Not including both options in the trade study may well skew the results.	Comment noted.
			8.b. The recycled water generated by the wastewater treatment plant is the property of the wastewater fund, an enterprise fund. The recycled water is a commodity that should be sold to defray the cost of the wastewater treatment. That commodity cost does not appear to be included in any of the GSP cost analysis. The analysis needs to be updated appropriately.	Comment noted.
			8.c. Recycled Water Subproject 1 is for landscape irrigation of Ridgecrest and China Lake. Assuming a thirty-year loan for the capital expense at 2% interest, the yearly cost of the project is $2,295,811. Based upon the latest "Sustainable Yield Allocation" chart the City pumps either 115 AFY or 339 AFY of groundwater. Assuming 115 AFY of pumped groundwater, the cost of reducing ground pumping one AFY is $19,964. Assuming 339 AFY of pumped groundwater, the cost of reducing ground pumping one AFY is $6,772. Both numbers appear to be a nonstarter. Has the City agreed to fund the over two million dollars per year? If the City does not pay for the City's recycled water project, who is going to pay? The same questions need to be answered for Cerro Coso's recycled water.	Comment noted and will be further evaluated during GSP implementation. At this time, the financial and legal roles of each IWV entity in the GSP projects and management actions cannot yet be defined.
			8.c.1. The GSP discussion indicates that a portion of the recycled landscape water is to be used by the Navy. Has the Navy committed to sharing the cost of the project?	Comment noted. At this time, the financial and legal roles of each IWV entity in the GSP projects and management actions cannot yet be defined.
			8.c.2. The GSP (see page 5-25) states the combined irrigation needs of the City and the Navy is 930 AFY with the large majority of the irrigation occurring in the City. This disagrees with the latest Sustainable Yield Allocation that has a maximum City allocation of 339 AFY and current usage of 115 AFY. There is a major disconnect somewhere. The numbers are not consistent. The Stetson recycled water report dated July 2018 indicates the City has 53.4 acres of landscape area requiring 416.5 AFY of water. The GSP needs to be updated to make all assumptions logical, clear and consistent.	Comment noted. 930 AFY includes landscaping demands that are located within the City boundaries, but are irrigated by the City and other entities (assumed to be the IWV Water District). See Appendix 5-C, Section 7.
			8.d. Recycled Water Subproject 2 is for groundwater recharge. Assuming a thirty-year loan for the capital expense at 2% interest, the yearly cost of the project is $1,493,544. The cost of this 352 AFY alternate water supply is $4,243 per acre-foot. Comparing that cost with the cost of importing water, the feasibility of this effort needs to be questioned. If less than 352 AFY is available, the cost escalates dramatically.	Comment noted and will be further evaluated during GSP implementation. As stated in Section 5.3.2.1, additional quantities of recycled water for groundwater recharge may become available should any of the existing recycled water practices, such as maintaining seepage flow to the Tui Chub habitat (see Section 2.7.5.3), be discontinued. The groundwater recharge effort may be made more feasible if additional recycled water becomes available as a result of Tui Chub relocation.
			8.d.1. It appears one reason for the high cost of the groundwater recharge is the small quantity of water being recharged. Since no information is given for the basis of the cost estimate, it is impossible to identify cost drivers. The analysis should be updated looking parametrically at capacities of 1000, 1500, 2000, and 2500 AFY, and it should base the calculations on using both the Navy WWTF site and the older City WWTF site.	Comment noted further evaluated during GSP implementation.

COMMENT DOCUMENT	COMMENTER	DATE SUBMITTED	COMMENT	RESPONSE
			8.d.2. My calculations show availability of roughly 2,200 to 2,400 AFY of recycled wastewater that could be recharged. The most recent Sustainable Yield Allocation shows the IWVWD needs 2,046 AFY water augmentation. It is pretty obvious that the first 2,100 AFY of recycled water should be dedicated to augmenting the WD water supply. This is a simple matter of beneficial use priority.	Comment noted and will be further evaluated during GSP implementation. The quantities of recycled water available for the recycled water projects discussed in Section 5.3.2 were developed under the assumption that existing recycled water demands for the golf course, City alfalfa irrigation, and the Tui Chub continue to be met during GSP implementation (see Appendix 5-C).
			9. The draft GSP (see page 5-14) relies on a prior imported water study (see appendix 5-B) to justify the assumed 5,000 AFY of required imported water. However, the study does not account for pumpers pumping more water than allocated if they pay the augmentation fee, which leaves the actual required amount of alternate water supply unknown. The prior water study does not account for ET, which can be thousands of AFY. The prior study was not clear regarding growth in the valley. Last, the numbers presented in the prior study are not consistent with the numbers in the latest Sustainable Yield Allocation Chart. The alternate water requirement should be updated to account for possible additional over allocation water pumping, ET, and planned residential and industrial growth.	Comment noted and will be further evaluated in future GSP updates and during GSP implementation.
			9.a. The draft GSP does not discuss potential synergism between the imported water project and deep well recycled water project. The AVEK water supply is presumably direct use water; but years where additional water is available at good rates it might be beneficial to store extra water in an injection well. The LADWP water supply would presumably be a recharge effort. However, the water could be treated and injected into a recharge well. Alternately, the water from the recycled effort could be spread with the LADWP water. The recycled water would presumably require less treatment. There may not be synergism that can be exploited, but the GSP should explain the various issues.	Comment noted and will be further evaluated in future GSP updates and during GSP implementation.
			10. Paragraph 5.3.3.1 states the GA will encourage additional voluntary and rebate-based conservation efforts for domestic beneficial uses. The entire valley has been encouraged for the last ten years to conserve water. That effort has been very successful with one segment of the local residents. Unfortunately, voluntary conservation has been very unsuccessful with other local residents. The current year WD water production appears to show a slight decrease, but we may be close to the limit of what can be attained by voluntary conservation.	Comment noted and will be further evaluated in future GSP updates and during GSP implementation.
			10.a. The State is currently formulating mandatory conservation ordinances. Indoor water usage regulations are already formulated. Outdoor water regulations are in process. The GA should be able to use available information to form an estimate of water savings due to State mandate. The GSP should be updated to have a conservation goal, voluntary or otherwise. If conservation is going to be included in the projected accrual of reduced pumping, there needs to be a goal.	Comment noted and will be further evaluated in future GSP updates and during GSP implementation. Goals for water conservation and water savings due to state mandates will be considered as part of the Basin-wide Conservation Efforts project (see Section 5.3.3).
			10.b. Water purveyors' fee structure can have a major role encouraging water conservation. The laws of supply and demand will always apply. This needs to be addressed in the GSP. The GSP should quantitatively describe how each of the primary water purveyors, including the larger mutuals, encourages conservation via their water fee structure.	Comment noted.
			10.c. The impact of fees paid by both de minimis and non de minimis well owners also needs to be discussed relative to conservation.	Comment noted.
			11. Paragraph 5.3.6.1, page 5-46, indicates the pumping optimization will be performed to minimize localized declining water levels. According to paragraph 3.3.4.3, page 3-22,the	Comment noted. It should be noted that ET primarily occurs at the China Lake Playa, away from IWV pumping centers (see Section 3.3.4 and 3.3.5). Additional data evaluating ET and