

MEETING NOTICE AND AGENDA
TECHNICAL ADVISORY COMMITTEE
OF THE
SEASIDE BASIN WATER MASTER

DATE: Wednesday, November 20, 2019
MEETING TIME: 1:30 p.m.
Monterey One Water Offices
5 Harris Court, Building D (Ryan Ranch)
Monterey, CA 93940

If you wish to participate in the meeting from a remote location, please call in on the Watermaster Conference Line by dialing (515) 604-9094. Use the Meeting ID 355890617. Please note that if no telephone attendees have joined the meeting by 10 minutes after its start, the conference call will be ended.

OFFICERS

Chairperson: Nina Miller, California American Water Company
Vice-Chairperson: Jon Lear, MPWMD

MEMBERS

California American Water Company City of Del Rey Oaks City of Monterey
City of Sand City City of Seaside Coastal Subarea Landowners
Laguna Seca Property Owners Monterey County Water Resources Agency
Monterey Peninsula Water Management District

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The next regular meeting will be held on Wednesday January 8, 2020 at 1:30 p.m. at the M1W Board Room. There will be no TAC meeting in December.

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

***** AGENDA TRANSMITTAL FORM *****

MEETING DATE:	November 20, 2019
AGENDA ITEM:	2.A
AGENDA TITLE:	Approve Minutes from the September 11, 2019 Meeting
PREPARED BY:	Robert Jaques, Technical Program Manager
SUMMARY:	<p>Draft Minutes from this meeting was emailed to all TAC members. Any changes requested by TAC members have been included in the attached version.</p>
ATTACHMENTS:	Minutes from this meeting
RECOMMENDED ACTION:	Approve the minutes

D-R-A-F-T
MINUTES

**Seaside Groundwater Basin Watermaster
Technical Advisory Committee Meeting
September 11, 2019**

Attendees: TAC Members

City of Seaside – Rick Riedl
California American Water – Mike Magretto
City of Monterey – No Representative
Laguna Seca Property Owners – Wes Leith
MPWMD – Jon Lear
MCWRA – Tamara Voss
City of Del Rey Oaks – No Representative
City of Sand City – Leon Gomez (via telephone)
Coastal Subarea Landowners – No Representative

Watermaster

Technical Program Manager - Robert Jaques

Consultants

None

Others

MCWD – Patrick Breen

The meeting was convened at 1:33 p.m.

1. Public Comments

There were no public comments.

2. Administrative Matters:

Approve Minutes from the August 14, 2019 Meeting

A. On a motion by Mr. Riedl, seconded by Ms. Voss, the minutes were unanimously approved as presented.

3. Update on Geochemical Modeling for the Pure Water Monterey Project AWT Water

Mr. Jaques summarized the agenda packet materials for this item. Mr. Lear reported that the geochemical modeling firm in Australia had evaluated the updated lab data and concluded that introducing the PWM AWT water into the Basin would not pose any water quality problems. He went on to say that Pueblo Water Resource's report will be revised to reflect this, and the report should be provided to the Watermaster within one to two weeks. Mr. Jaques said he would email the updated report to TAC members.

Assuming that the revised report confirms that there will be no problems resulting from introducing the PWM AWT water into the Basin, there was consensus that no further action or discussion of this would be needed.

4. Approve the FY 2020 Monitoring and Management Program (M&MP) Operations and Capital Budgets

Mr. Jaques summarized the agenda packet materials for this item.

In response to a question from Ms. Voss, Mr. Lear explained that with regard to the CASGEM data reporting under Task I .2 b.7, the Department of Water Resources has not yet determined how it will handle the processing of this data. MPWMD was one of the first entities to submit data for an adjudicated basin, and it has been more time-consuming than initially expected to have the data submitted in a manner that is satisfactory to the Department of Water Resources. Ms. Voss asked if Mr. Lear thought the extra time that was needed in 2019 would be required again in 2020. Mr. Lear responded that he could not tell, but he budgeted for the additional time on the assumption that the Department of Water Resources will still be revising its process in 2020. He went on to note that getting simultaneous CASGEM and SGMA compliance has been one of the problems.

Mr. Riedl asked if Monterey One Water's newly installed Pure Water Monterey monitoring wells will be added to the database for monitoring. Mr. Lear said MPWMD would be collecting data from those wells, but they are not required to be reported to CASGEM. He noted that The Monitoring and Management Program approved by the Court lists the wells to be monitored, and these new wells were not in that list. Mr. Riedl asked if we could discuss whether adding these wells would be beneficial for basin management purposes, and if so, whether they could be included in the water level and water quality reporting. It was agreed that Mr. Jaques would pose that question to Montgomery and Associates in conjunction with their preparation of the Seawater Intrusion Analysis Report, and this matter can be further discussed at the TAC's November meeting.

On a motion by Mr. Gomez, seconded by Mr. Riedl, the budgets were unanimously approved as presented.

5. Approve Initial RFSs for Montgomery & Associates, MPWMD, Martin Feeney, and Todd Groundwater for 2020

Mr. Jaques summarized the agenda packet materials for this item.

Mr. Riedl asked whether under the Montgomery and Associates RFS to prepare the Seawater Intrusion Analysis Report, if having only one presentation to the TAC, and not a presentation to the Board, was sufficient. Mr. Jaques responded that historically the TAC has reviewed the document in detail, and made its recommendation to the Board. The Board had not had a presentation made to it since the TAC had already given this recommendation for approval.

On a motion by Ms. Voss, seconded by Mr. Leith, the RFS's were unanimously approved as presented.

6. Schedule

Mr. Jaques commented that there would be no need for an October TAC meeting, and that the TAC's next meeting would be on the third Wednesday, not the second Wednesday, of November. This is to allow time for the Seawater Intrusion Analysis Report to be completed so it can be presented to the TAC at that meeting. There was no other discussion.

7. Other Business

There was no other business.

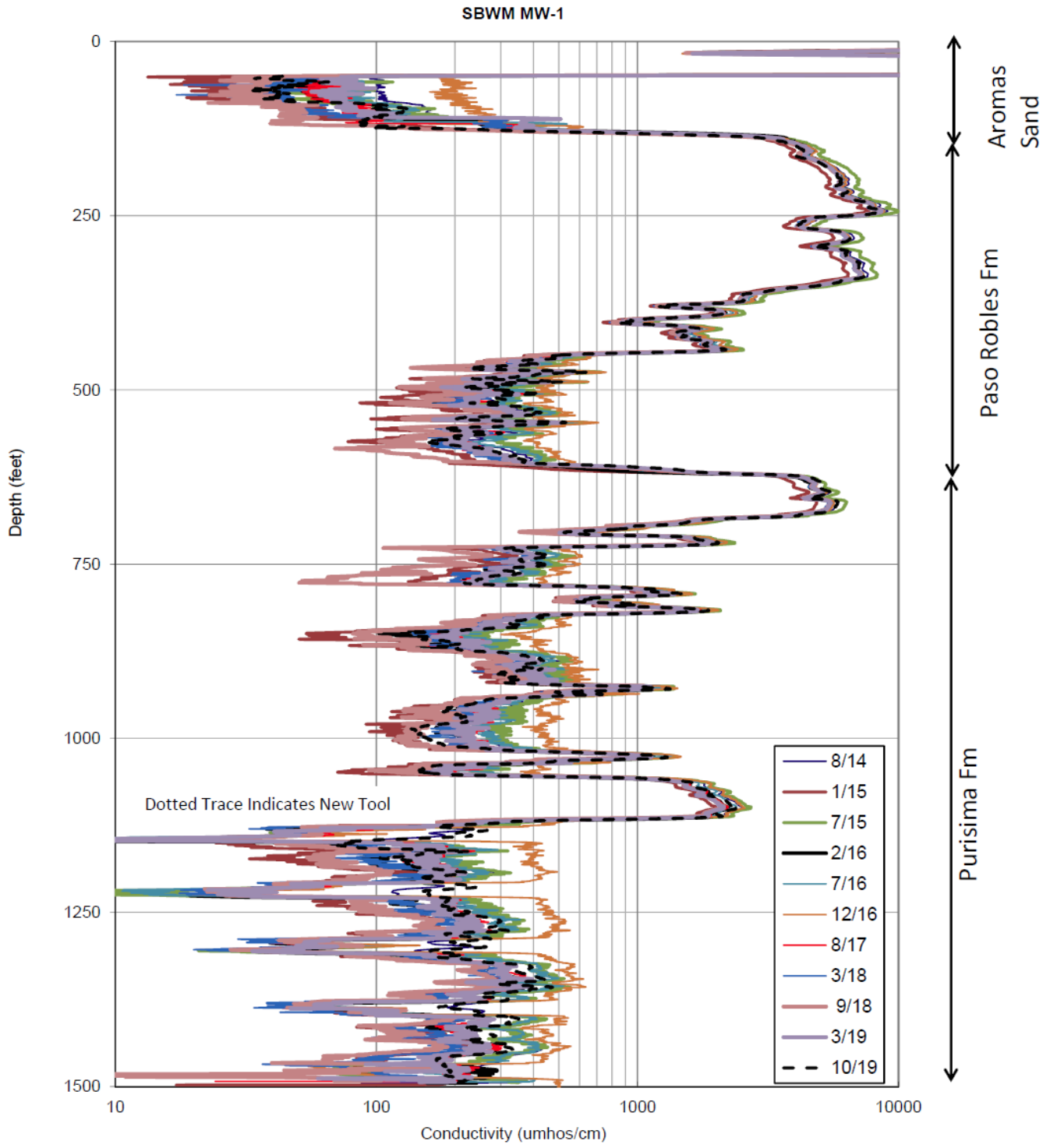
The meeting adjourned at 2:02 p.m.

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

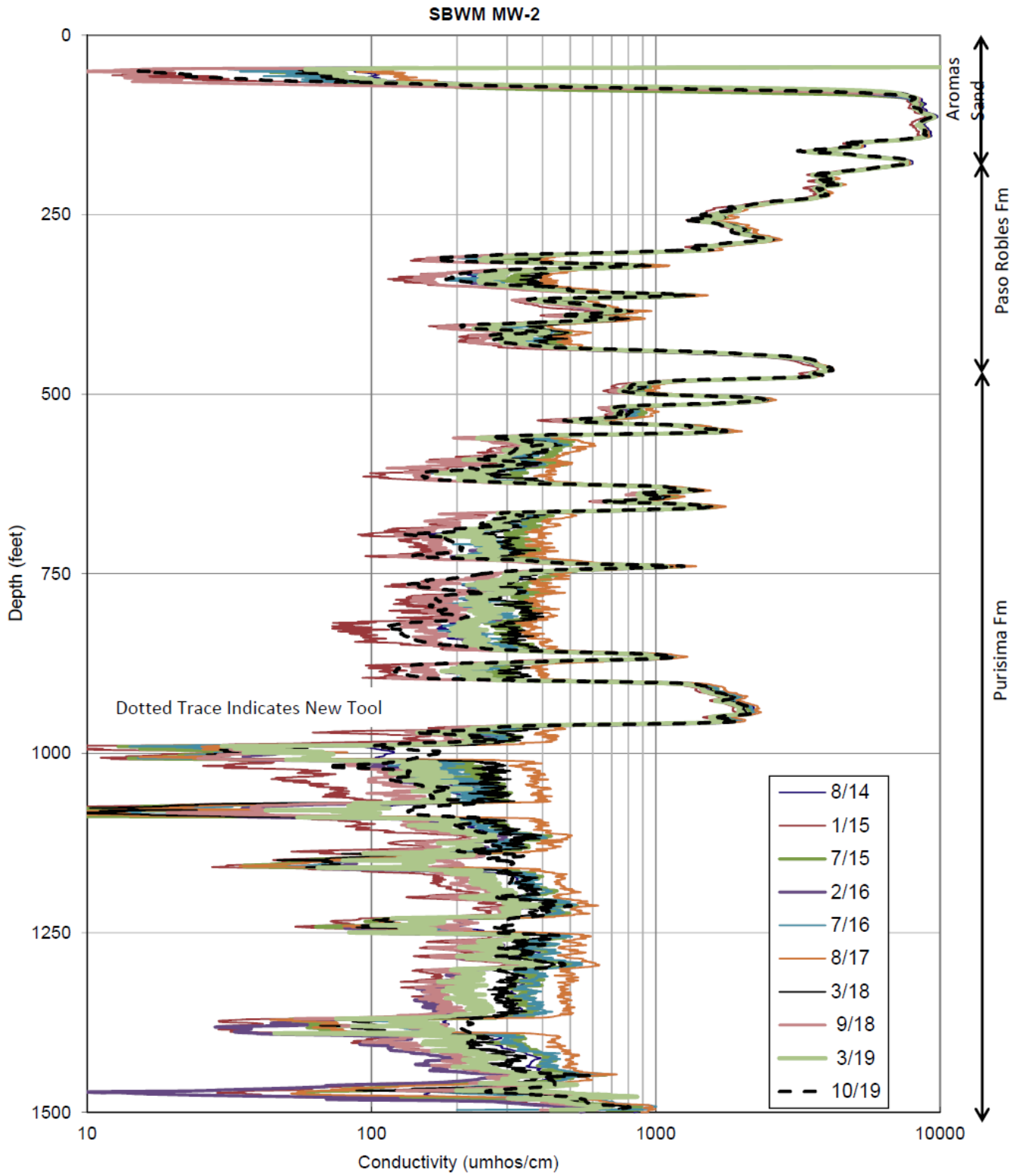
***** AGENDA TRANSMITTAL FORM *****

MEETING DATE:	Nonmember 20, 2019
AGENDA ITEM:	2.B
AGENDA TITLE:	Results from Martin Feeney's September 2019 Induction Logging of the Sentinel Wells
PREPARED BY:	Robert Jaques, Technical Program Manager
<p>Attached are plots of the induction logging data from the September 2019 Sentinel Well logging event.</p> <p>Mr. Feeney reported that due to failure of the induction tool he had been using for the last 5 years (10 runs), he switched to a new tool in September/October 2019. It has a slightly different response curve. The data was normalized to known resistivities (conductor casing and the prominent clay lens).</p> <p>Mr. Feeney reports that the data, normalized or raw, shows no significant change in conductivity of the sediments at depth. Thus, the induction logging does not show any indication of the start of seawater intrusion in any of the formations within which production wells are located (primarily the Paso Robles and Santa Margarita formations).</p>	
ATTACHMENTS:	Induction Logging Results
RECOMMENDED ACTION:	None required – information only

SENTINEL WELLS CONDUCTIVITY

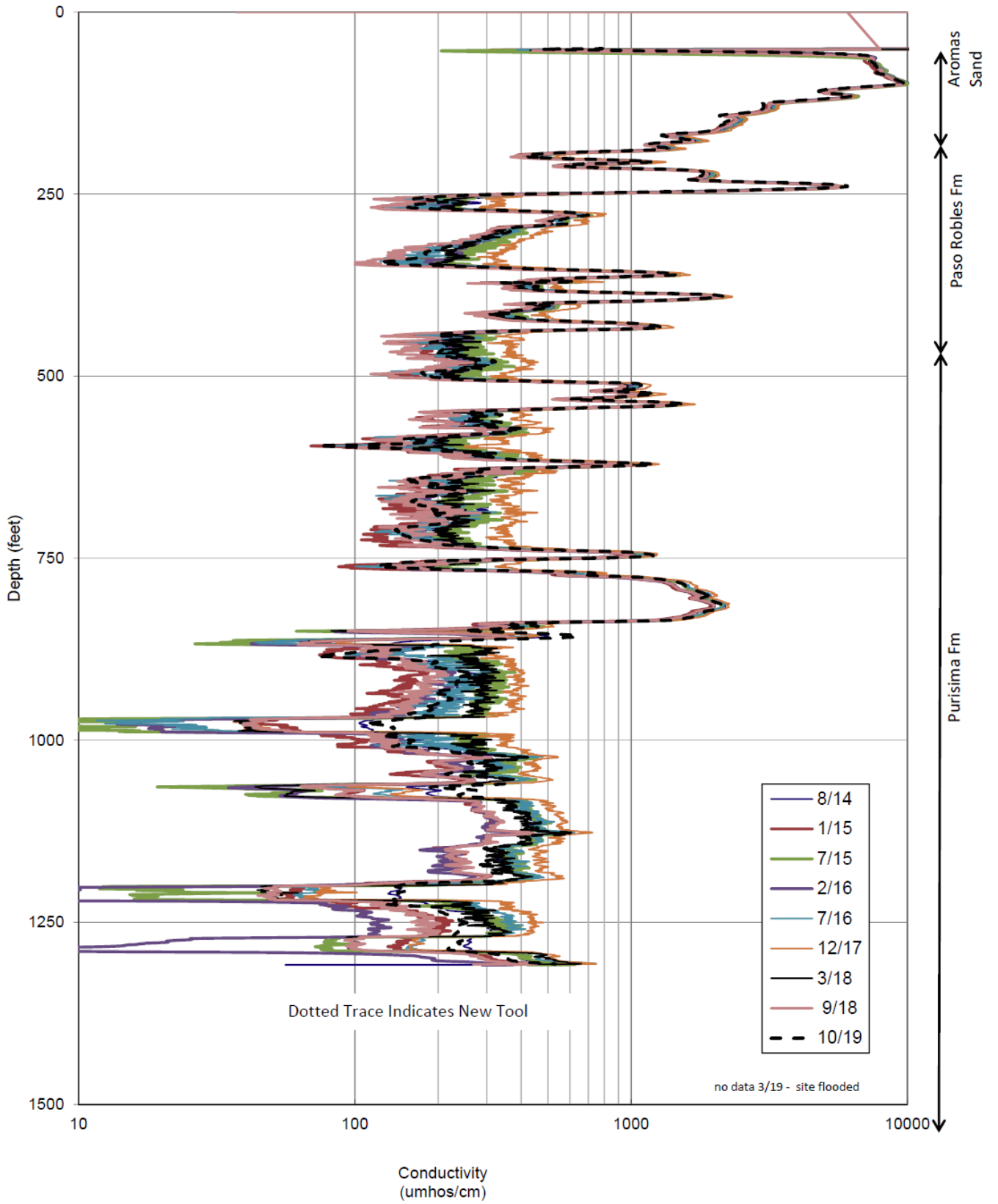


SENTINEL WELLS CONDUCTIVITY

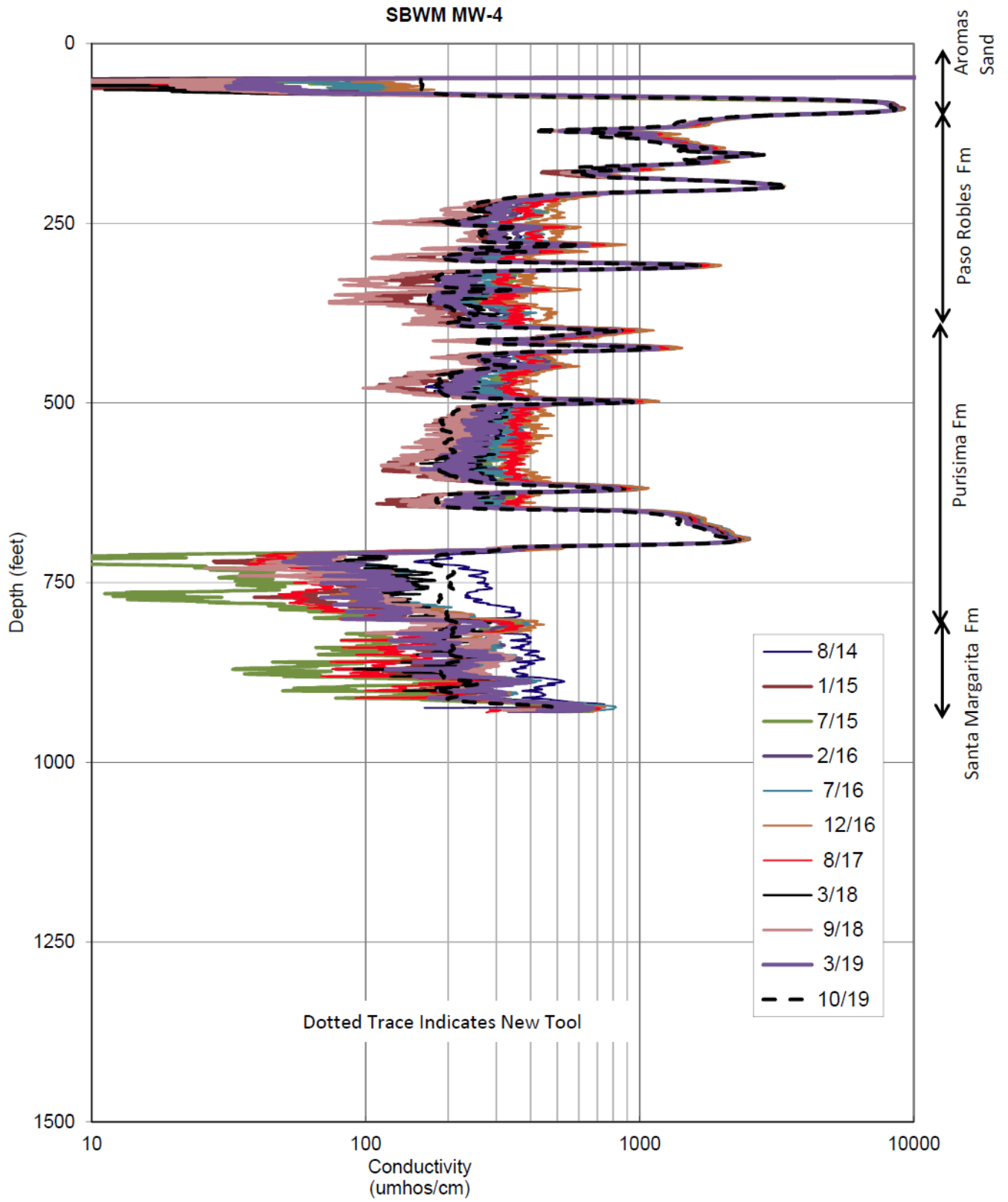


SENTINEL WELLS CONDUCTIVITY

SBWM MW-3



SENTINEL WELLS CONDUCTIVITY



**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

***** AGENDA TRANSMITTAL FORM *****

MEETING DATE:	November 20, 2019
AGENDA ITEM:	2.C
AGENDA TITLE:	Sustainable Groundwater Management Act (SGMA) Update
PREPARED BY:	Robert Jaques, Technical Program Manager

At the State level:

Since my last update, I have not received any new materials from the State that would impact the Watermaster.

At the Monterey County level:

The SVBGSA Advisory Committee has been meeting monthly to provide an opportunity for committee members to comment and ask questions about the 180/400-foot Aquifer Groundwater Sustainability Plan (GSP) that Montgomery & Associates (Derrick Williams is the principal contact person) is developing. Typically at each meeting a new chapter of the GSP is presented. The September 19th meeting, however, focused instead on an issue of conflict between the SVBGSA and the City of Marina. The City formed the City of Marina Groundwater Sustainability Agency (MGSA) in March of 2018 and in April of 2018 notified DWR that it intended to become the exclusive GSA for a 450 acre parcel of land that is within its jurisdiction, but outside the jurisdiction of Marina Coast Water District (MCWD) which had formed its own GSA. This parcel overlaps with the area for which the SVBGSA had already filed its application to be the GSA. A map showing the overlap area is attached.

In July of 2019 the City notified DWR that it intended to initiate preparation of a GSP for that area. This is the area where the Cal Am desalination plant slant intake wells are proposed to be located as part of Cal Am's Monterey Peninsula Water Supply Project (MPWSP).

The SVBGSA and the MGSA were in the process of developing a Coordination Agreement to address this overlap condition, but in late August 2019 Cal Am asked the SVBGSA to postpone further consideration of such an agreement for several reasons. Cal Am's main concern is that the City has consistently shown its objective of stopping the desalination plant component of the MPWSP. Cal Am believes that it may be possible to have DWR determine that the MGSA is not the appropriate party to be the GSA for this overlap area, and that Monterey County should be the GSA for that area.

Gary Peterson, the Executive Director of the SVBGSA provided this update at the end of October:

In terms of Marina I am not sure what is going to happen, but believe it is a likely scenario that if they do not give up their GSA that the County will take them over. I have attempted to negotiate with the City and found it to be quite challenging. Currently we have agreed to not broach the subject until after the Coastal Commission hearing in November. This may change their perspective on working with us or not.

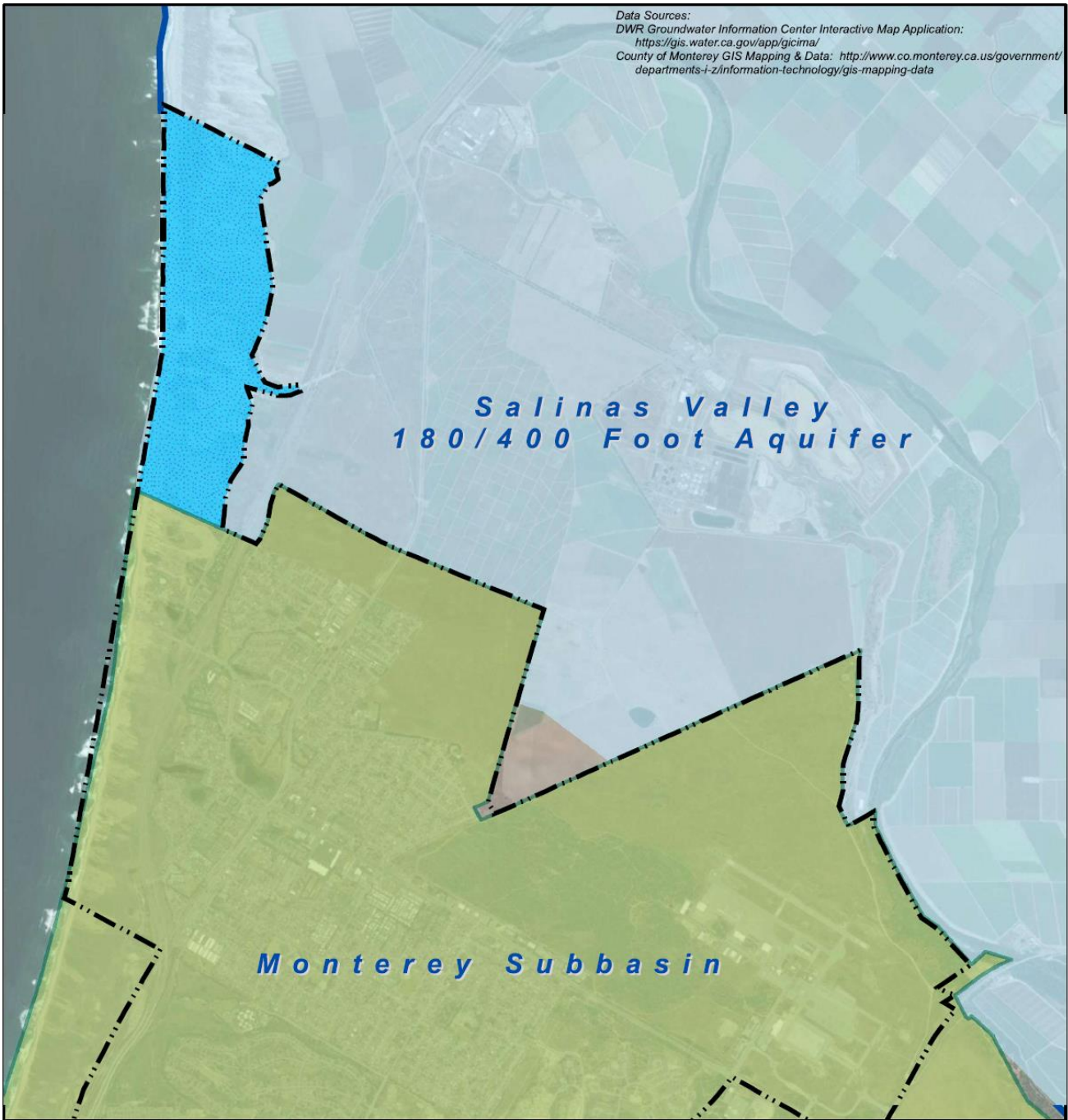
We have not let any of this interfere with the development of the plan that is moving forward. It will not be an issue until the deadline arrives as if the overlap is not resolved DWR will not accept our plan. That is all I have on that issue for now.

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**






***** AGENDA TRANSMITTAL FORM *****



AGENDA ITEM:	
AGENDA ITEM:	2.C (Continued)
<p>Many attorneys are involved in this dispute and I expect it will take some time before the issue is resolved. The SVBGSA is concerned that if the dispute is not resolved prior to the January 31, 2020 submittal deadline for the 180/400-foot Aquifer GSP, the SVBGSA would be prevented from submitting a GSP for that aquifer that would be acceptable to DWR.</p>	
ATTACHMENTS:	Overlap area map
RECOMMENDED ACTION:	None required – information only


Data Sources:
 DWR Groundwater Information Center Interactive Map Application:
<https://gis.water.ca.gov/app/gicima/>
 County of Monterey GIS Mapping & Data: <http://www.co.monterey.ca.us/government/departments-i-z/information-technology/gis-mapping-data>



Proposed City of Marina Groundwater Sustainability Agency

	Proposed City of Marina GSA (overlaps existing SVBGSA)
	Existing Salinas Valley Basin GSA
	Existing Marina Coast Water District GSA
	Bulletin 118 Groundwater Basin Boundary
	City of Marina Limits


 0 1,500 3,000
 Feet
 1 inch = 3,000 feet



Map Date: April 2018

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

***** AGENDA TRANSMITTAL FORM *****

MEETING DATE:	November 20, 2019
AGENDA ITEM:	2.D
AGENDA TITLE:	Information Regarding Seeking Grant Assistance for Projects
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

From time to time the question has arisen as to whether the Watermaster could obtain any State grant funds to help with the costs of projects, such as purchasing water for the purpose of recharging the Seaside Basin. Below is an email I sent to the Department of Water Resources posing that question and their response.

Question Posed: *I am the Technical Program Manager for the Seaside Basin Watermaster, for the Adjudicated Seaside Groundwater Basin in Monterey County. I am exploring ways that the Watermaster can obtain funds to help purchase water that can be used to recharge the Basin in order to raise groundwater levels to “protective levels” i.e. above seawater level, in order to prevent seawater intrusion.*

In the description of the types of projects that are eligible to apply for funding under the Sustainable Groundwater Management (SGM) Grant Program for Planning and Implementation, it appears that an Adjudicated Basin project that would recharge an overdrafted basin could be eligible, per the language in the Guidelines which state: “GWMP Compliance – The applicant and the project proponent responsible, if different, must meet one of the following conditions (Water Code § 10753.7 (b)(1)): Conform to the requirements of an adjudication of water rights in the subject groundwater basin.”

Please advise if this is correct.

DWR Response: *The largest problem here would be who is applying for the funding. To be eligible to receive the Prop 68 Sustainable Groundwater Management funding, the applicant has to be a Groundwater Sustainability Agency (GSA), member agency of a GSA, or an agency that has an approved Alternative to a Groundwater Sustainability Plan (GSP) requiring an update. In this situation, you would need to partner with the GSA to apply for a grant on behalf of the Watermaster. Adjudicated groundwater basins are also not eligible. Therefore, the project would have to benefit a non-adjudicated groundwater basin for us to be able to fund the project.*

It is possible, in this case, the project housed within an adjudicated groundwater basin that is helping to benefit a COD (Critically Over Drafted) basin could be eligible. There would need to be a direct benefit to the COD basin. Seawater intrusion is a water quality issue and those types of activities can all be eligible.

It is just who is going to apply and who is going to benefit. The other issue is the project must be consistent with the applicant’s GSP.

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

***** AGENDA TRANSMITTAL FORM *****

AGENDA ITEM:

2.D (Continued)

Getting past the ineligible applicant and ineligible groundwater basin is going to be difficult.

Based on DWR's reply it does not appear that the Watermaster would be able to obtain any grant funds, at least not under this current grant program, to help fund projects to obtain recharge water for the Seaside Basin.

ATTACHMENTS:

None

**RECOMMENDED
ACTION:**

None required – information only

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

***** AGENDA TRANSMITTAL FORM *****

MEETING DATE:	November 20, 2019
AGENDA ITEM:	2.E
AGENDA TITLE:	Discuss Whether or Not to Include Pure Water Monterey Monitoring Wells in the List of Wells that are Monitored in the Watermaster's Monitoring and Management Program
PREPARED BY:	Robert Jaques, Technical Program Manager
SUMMARY:	
<p>At the September 11, 2019 meeting Mr. Riedl suggested the Watermaster consider whether or not it would be beneficial to add the newly-constructed Pure Water Monterey Project's monitoring wells to the list of wells that are monitored under the Monitoring and Management Program. I said I would consult with Georgina King of Montgomery & Associates on this and provide that information to the TAC for their consideration.</p> <p>Attached is a copy of the emails in which I posed questions to Ms. King, and her responses, regarding whether adding these wells would be beneficial to her in preparing the annual Seawater Intrusion Analysis report.</p> <p>Ms. King feels that the additional water level data from four of the newly-constructed monitoring wells (one shallow well and one deep well at each of two sites) will be beneficial to the Seawater Intrusion Analysis Report. However, she does not feel that water quality from those wells will be helpful because the water quality will be highly affected by the injected water.</p> <p>Ms. King did go on to say that if the Watermaster wanted to see how water quality is being affected by the injection of AWT water at the injection wells, then water quality data from those wells would be useful.</p> <p>Based on the labor associated with having MPWMD gather water level data from the existing set of monitoring and production wells, it appears it might take MPWMD an additional 2 hours per month to add these wells to those it already monitors. Their hourly rate for this work is \$62, so the annual cost could be on the order of \$1,500. If it were feasible to install dataloggers on these wells, there would additional costs of approximately \$700 per datalogger. Since there apparently are both shallow and deep wells at each of the two monitoring locations, and if both well sites were added to the monitoring list, that would add approximately \$2,800 to the cost. However, installing dataloggers should reduce the labor required for MPWMD to obtain the water level data from those wells. Mr. Lear of MPWMD may be able to provide additional information on this at today's meeting.</p> <p>My recommendation, subject to further input that Mr. Lear may provide, is to add these wells to the Monitoring and Management Program beginning in FY 2021, since full-scale operation of the PWM Project is not expected to be achieved until sometime in mid-2020.</p>	
ATTACHMENTS:	Email string between Bob Jaques and Georgina Kin
RECOMMENDED ACTION:	Add the four PWM Project monitoring wells to the M&MP beginning in 2021

Georgina,

At the TAC's meeting earlier this week the question was raised as to whether adding the newly-construction PWM AWT monitoring wells to the water level/water quality report that will be in the SIAR would be beneficial to Basin management. In other words, would having those additional data points be helpful or are there already sufficient data points in that part of the Basin so that the additional data would not be of particular value. If we were to add them, it would add costs to the RFSs the Watermaster issues to MPWMD for doing the data collection.

Your thoughts on this will be appreciated, and I would like to share them with the TAC at its next meeting.

The next TAC meeting will be on the 3rd, not the 2nd, Wednesday of November, i.e. November 20 at which you are invited to make a presentation on the 2019 SIAR. You can do that via telephone if you can please send me the PowerPoint slides in advance so I can give them to the TAC members before the meeting.

Thanks,

Bob

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Hi Bob,

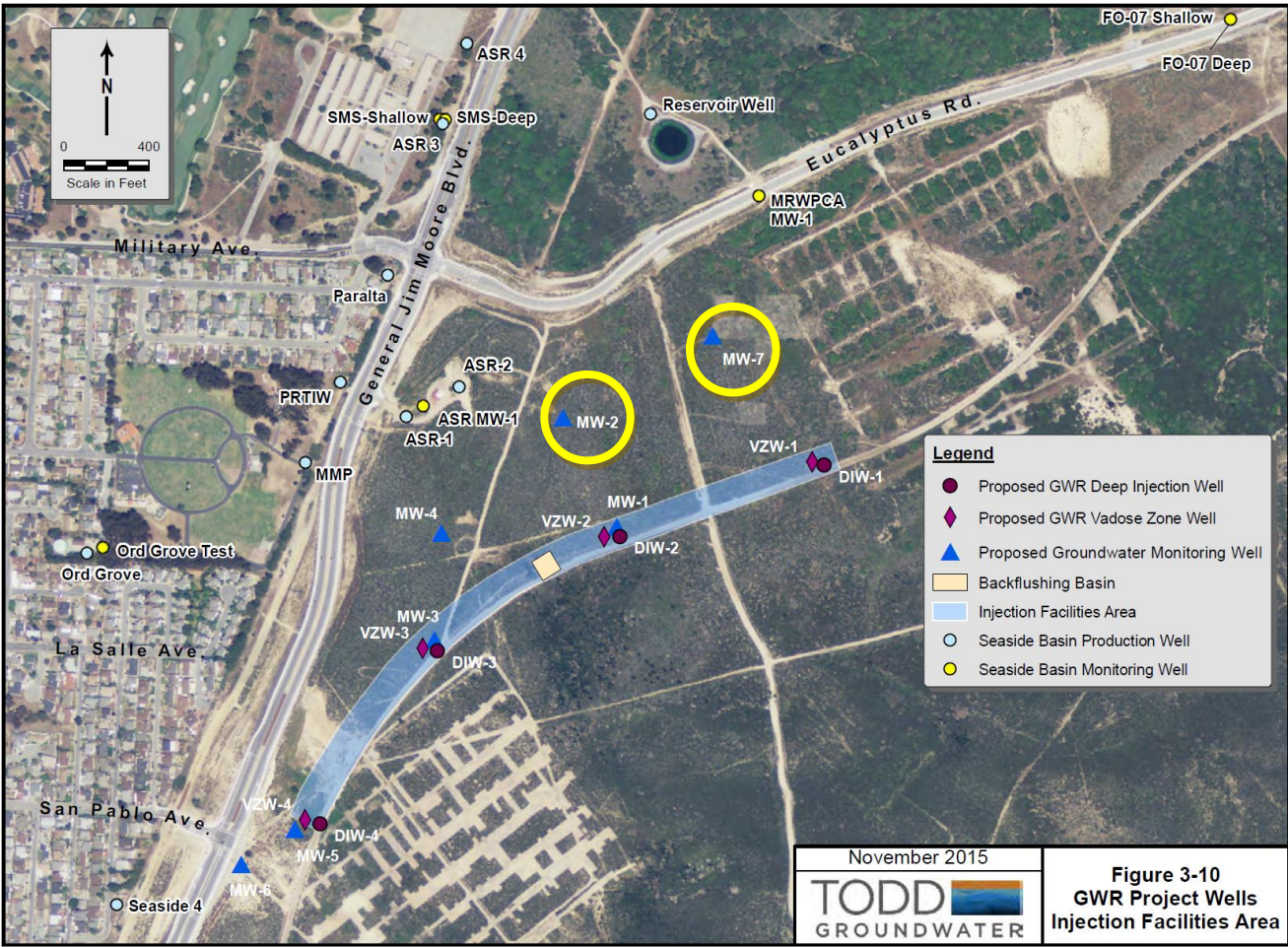
Sorry it's taken me a bit to get back to you on this question on whether any data from the PWM monitoring wells might be useful for basin management. I needed to understand what was actually built and what was not. It turns out that the map you provided has more wells on it than actually got built. So what are called GWR-MW-2 and GWR-MW-7 are the locations that may have some useful information on groundwater levels. Each of those locations has a deep and shallow monitoring well at it. We'd want to request to have the groundwater levels from essentially 4 wells. Those data should be included in the fall and spring groundwater elevation contour maps that are in the SIAR. I think it will be important to be able to document the changes to groundwater flow directions and gradients over time. There is also a possibility that the groundwater levels may be fluctuating too much from injection and extraction to incorporate into the contour maps, but we'll make that call when we see the data. There is one other monitoring well that Watermaster should request data from. It is MRWPCA MW-1 on the map below (circled in blue). The other monitoring wells I mentioned previously are circled in yellow. Note this map below is similar to the map you provided me in that some of the wells depicted were not actually drilled in the end.

Regarding water quality from those wells, I think they will be highly influenced by the injected recycled water. Since we are focused on seawater intrusion in the SIAR, I don't think those data will be useful. However, if the Watermaster wants to see how the overall basin groundwater quality is being impacted by injection, then water quality data could be requested from those same wells and compared to other wells in the basin. We could use the piper and stiff diagrams to see how the chemical nature of the groundwater is changing.

Let me know if you want to discuss further.

Georgina

NOTE: Subsequent to Georgina sending this email we learned that the MRWPCA MW-1 well is only into the Paso Robles aquifer, and that it has not been used for anything other than to collect a core sample for leaching analyses. Therefore, it would not be a good candidate to add to the list of wells in the Monitoring and Management Program. Only GWR-MW-2 and GWR-MW-7 would be good candidates.



**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

***** AGENDA TRANSMITTAL FORM *****

MEETING DATE:	Nonmember 20, 2019
AGENDA ITEM:	2.F
AGENDA TITLE:	Pure Water Monterey Project Draft Supplemental EIR
PREPARED BY:	Robert Jaques, Technical Program Manager

Monterey One Water has issued a Notice of Availability of Draft Supplemental Environmental Impact Report for Public Review and Notice of Public Meeting for the proposed expansion of the Pure Water Monterey (PWM) Project. A copy of this Notice is attached.

The project proposes to expand the capacity of the PWM Project by 2,250 AFY from its initial 3,500 AFY to 5,750 AFY.

There will be a public hearing on this project on December 12, 2019 in Seaside. The deadline for comments is December 23, 2019.

ATTACHMENTS:	Notice of Availability
RECOMMENDED ACTION:	None required – information only

**NOTICE OF AVAILABILITY OF DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT
FOR PUBLIC REVIEW AND NOTICE OF PUBLIC MEETING**

Monterey One Water (M1W, formerly Monterey Regional Water Pollution Control Agency), in partnership with the Monterey Peninsula Water Management District (MPWMD), has released a [Draft Supplemental Environmental Impact Report for the Proposed Modifications to the Pure Water Monterey Groundwater Replenishment Project \(Draft Supplemental EIR\)](#). M1W is the Lead Agency under the California Environmental Quality Act (CEQA). The State Clearinghouse number for the project is SCH#2013051094. A Final Environmental Impact Report (Final EIR) was certified by M1W on October 8, 2015 and three addenda to the Final EIR have been prepared and approved by MPWMD and M1W (one in 2016 and two in 2017) for prior project changes.

PROJECT DESCRIPTION: M1W, in partnership with MPWMD, is proposing modifications to the approved Pure Water Monterey Groundwater Replenishment Project (Proposed Modifications) which would increase the project yield so that the expanded project can serve as a back-up to the California American Water Company (Cal Am) Monterey Peninsula Water Supply Project desalination project (MPWSP), not as an option in the place of, the Cal Am MPWSP, in the event that the Cal Am desalination project is delayed beyond the Cease and Desist Order deadline of December 31, 2021. The approved PWM/GWR Project creates a reliable water supply to replace existing water supply sources for northern Monterey County. The Supplemental Draft EIR evaluates the Proposed Modifications, which would increase the amount of purified recycled water produced by 2,250 AFY using the following new and modified facilities: (1) improvements at the approved Advanced Water Purification Facility to increase peak capacity; (2) new product water conveyance facilities; (3) new and relocated injection well facilities, including monitoring wells; and (4) new potable water facilities consisting of four new extraction wells, related pipelines and appurtenances, and treatment facilities.

PROJECT LOCATION: The Proposed Modifications to the approved PWM/GWR Project would be located within northern Monterey County and would include new and modified facilities located within unincorporated areas of Monterey County and within the City of Seaside. See below figure.

ANTICIPATED IMPACTS: Significant environmental impacts of the PWM/GWR Project with Proposed Modifications are anticipated in the following issue areas: Aesthetics; Air Quality and Greenhouse Gases; Biological Resources (Terrestrial); Cultural and Paleontological Resources; Energy and Mineral Resources; Hazards and Hazardous Materials; Land Use, Agriculture, and Forest Resources; Noise and Vibration; Public Services, Recreation, and Utilities; Traffic and Transportation; and, Growth Inducement.

HAZARDOUS WASTE SITES: Some components of the approved PWM/GWR Project and its Proposed Modifications would be located on a hazardous waste site enumerated under Section 65962.5 of the California Government Code: the entire former Fort Ord Military Base is designated by the U.S. EPA as a Superfund National Priority List site.

PUBLIC REVIEW AND COMMENT PERIOD: The public review and comment period for the Draft Supplemental EIR begins on November 7, 2019 and ends December 23, 2019, for more than the minimum required 45-days. Copies of the Draft Supplemental EIR, including documents incorporated by reference, are available for review during normal business hours at the M1W Administrative Office, 5 Harris Court, Bldg. D, Monterey, CA 93940, at the M1W Regional Treatment Plant, 14811 Del Monte Blvd., Marina, CA 93933, and at the MPWMD Office, 5 Harris Court, Bldg. G, Monterey, CA 93940. The Draft Supplemental EIR is also available online at the Pure Water Monterey Project website at: www.purewatermonterey.org. [The Draft Supplemental EIR may also be viewed](#) at the following public libraries:

- Seaside Public Library at 550 Harcourt Ave., Seaside, CA 93955
- Marina Public Library at 188 Seaside Cir., Marina, CA 93933
- Monterey Public Library at 625 Pacific St., Monterey, CA 93940
- Castroville Public Library at 11160 Speegle St., Castroville, CA 95012

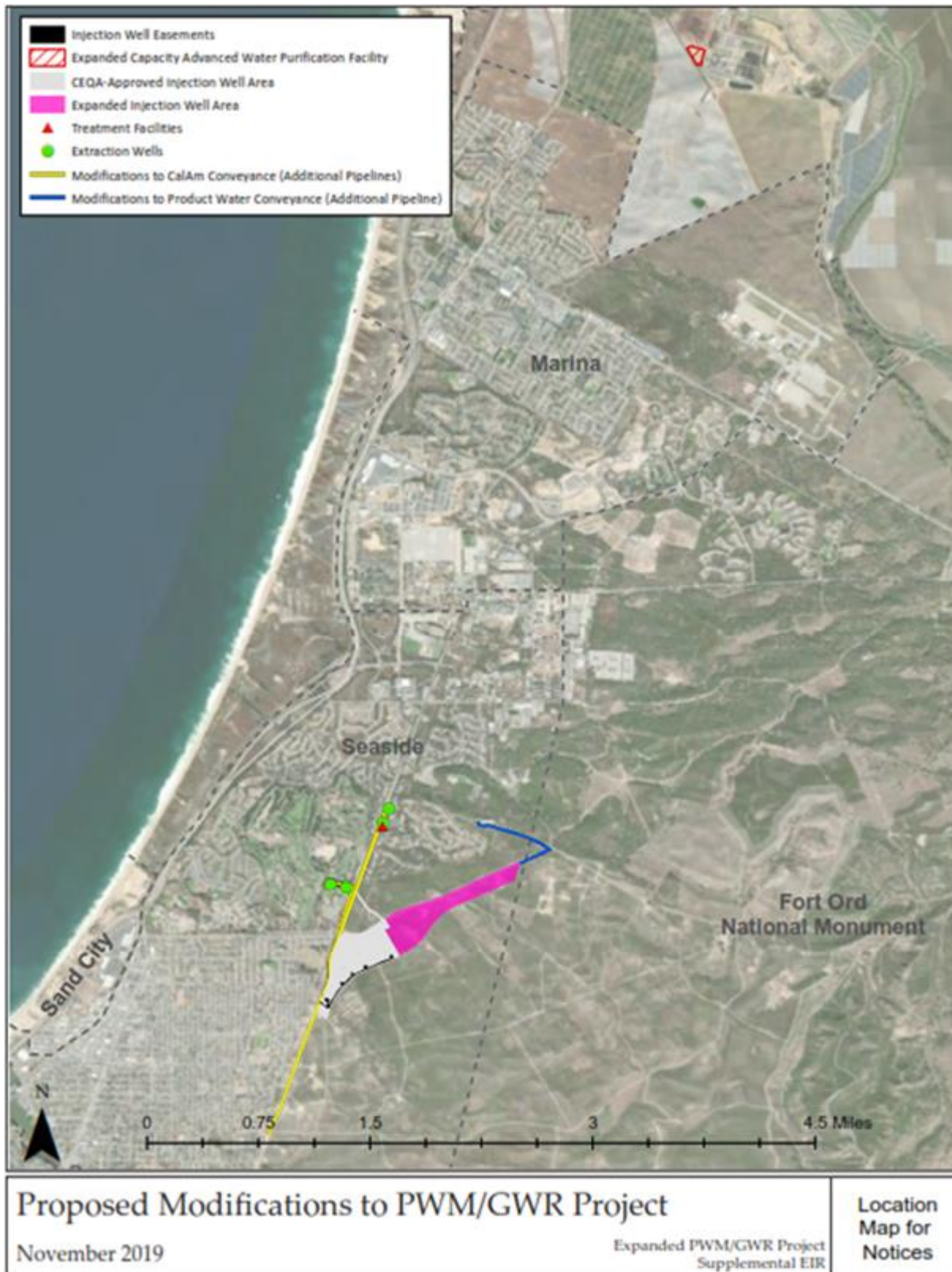
PUBLIC MEETINGS: One public meeting has been scheduled during the Draft Supplemental EIR public review period to share information about the Draft Supplemental EIR and to receive public comments. Spanish translation will be available, and the venue is accessible under the Americans with Disabilities (ADA). The date and location of the meeting is **December 12, 2019 at 5:30 p.m. at Oldemeyer Center, 986 Hilby Avenue, Seaside, CA 93955.**

Comments on the Draft Supplemental EIR must be submitted in writing no later than 5:00 p.m. on Monday, December 23, 2019 to the mailing address or email address listed below:

By Email: purewatermontereyinfo@my1water.org

By Mail:

Monterey One Water
ATTN: Rachel Gaudoin
5 Harris Ct., Bldg. D
Monterey, CA 93940



**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

***** AGENDA TRANSMITTAL FORM *****

MEETING DATE:	November 20, 2019
AGENDA ITEM:	2.G
AGENDA TITLE:	Vacancy in the Chairperson Position
PREPARED BY:	Robert Jaques, Technical Program Manager
SUMMARY:	<p>Nina Miller has moved into a new position at Cal Am and will no longer be Cal Am's representative on the TAC. Mike Magretto of Cal Am will temporarily fill-in for her until her former position of Operations Manager is filled, and the new person in that position will then become Cal Am's representative.</p> <p>This leaves the position of Chairperson of the TAC vacant.</p> <p>The TAC is asked to consider filling this vacant position at today's meeting.</p>
ATTACHMENTS:	None
RECOMMENDED ACTION:	Name a new Chairperson to fill that vacancy

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

***** AGENDA TRANSMITTAL FORM *****

MEETING DATE:	November 20, 2019
AGENDA ITEM:	3
AGENDA TITLE:	Update on Geochemical Modeling for the Pure Water Monterey Project AWT Water
PREPARED BY:	Robert Jaques, Technical Program Manager
<p>SUMMARY: At the July 10 TAC meeting the geochemical modeling work for the Pure Water Monterey AWT Water was discussed. Mr. Holden reported that MIW was going to retest the water using a new sample that would have a lower alkalinity.</p> <p>Mr. Lear provided the attached updated Technical Memorandum from Pueblo Water Resources dated September 12, 2019. The Memorandum describes the evaluation of the results from this supplemental bench testing. The Memorandum recommends that the PWM AWT water quality be maintained within the ranges set forth in the Division of Drinking Water (DDW) Operations Report, and that doing so will avoid any adverse impacts on the aquifers within the Seaside Basin.</p> <p>Consequently, there is no need to add any additional language or requirements to the already-issued Storage and Recovery Agreement for the Pure Water Monterey Project.</p>	
ATTACHMENTS:	Letter from MPWMD with Technical Memorandum
RECOMMENDED ACTION:	None required – information only



5 HARRIS COURT, BLDG. G
POST OFFICE BOX 85
MONTEREY, CA 93942-0085 • (831) 658-5600
FAX (831) 644-9560 • <http://www.mpwmd.dst.ca.us>

September 23, 2019

Bob Jaques
Technical Program Manager
Seaside Groundwater Basin Watermaster
83 Via Encanto
Monterey, CA 93940

Subject: Supplemental Bench Testing of PWM Waters for Artificial Recharge of the Santa Margarita Sandstone Aquifer System

Dear: Mr. Jaques

This letter transmits the Pueblo Water Resources Technical Memorandum describing the additional bench testing completed to satisfy the Watermaster TAC's concerns regarding recharging water at the low endmembers in the Department of Drinking Water (DDW) Operations Plan of 40 mg/L Alkalinity and 7.5 pH.

As the memo states, the second round of bench testing did not cause ion exchange or leaching of transition metals that would impair water quality. The transmitted memo makes the following recommendations:

1- The water quality of treated PWM-treated AWTF water should be maintained to the water quality ranges in the DDW operations report; ie product water alkalinity between 40 and 80 mg/l , pH between 7.5 and 8.5, with a Langlier Index of +0.1 or greater. This Memo summarizes work completed on a worst case product water condition that is more corrosive than the previous memo and should be included with the previous TM - Bench Testing of PWM Waters for Artificial Recharge of the Santa Margarita Sandstone Aquifer System. The recommendations in this TM should be considered with and supersede recommendations made in the previous TM with respect to the lower limit pH, Alkalinity, and Langlier Index provisions.

2- Based on this supplemental testing, we opine that the DDW operations plan sufficiently confines AWTP product water quality such that no additional requirements are necessary. The recommendation made in our July 2019 memo should be replaced with recommendation number 1 above in this TM, or all recommendations should be removed from Storage and Recovery Agreement as recommendation 1 is duplicative of requirements of the PWM DDW Operations Plan.

Bob Jaques
Page 2 of 2
September 23, 2019

At the August 7, 2019 Watermaster Board Meeting, the board took the following actions:

1. Accepted the Technical Memorandum as satisfactorily fulfilling MPWMD's obligation to perform geochemical modeling of the Pure Water Monterey AWT water, with the caveat that retesting with 40 mg/L alkalinity water will be done and the results do not indicate any adverse impacts. If there are adverse impacts resulting from the lower alkalinity, the AWT plant should be required to operate at a minimum alkalinity of 50 mg/L.
2. Deferred geochemical modeling work on the desalination plant water at this time, and perform that work when/if the desalination plant begins construction.
3. Issued an amendment to the Pure Water Monterey Storage and Recovery Agreement to include the first recommendation in the Revised Technical Memorandum from Pueblo Water Resources (AWT water to have a pH in the range of 7.5 to 8.5, and a minimum alkalinity of 50 mg/L), unless reassessment using lower alkalinity water demonstrates that there will be no adverse impacts from the lower alkalinity.

Because the second bench testing of PWM water at 40 mg/L Alkalinity and 7.5 pH did not show adverse impacts, MPWMD requests that Watermaster staff;

- 1) Accept the Technical Memorandums describing the results of bench testing as fulfilling MPWMD's obligations to perform a Geochemical Modeling Study, and
- 2) Either replace the water quality requirement of 50 mg/L with 40 mg/L Alkalinity in the amendment to the Storage and Recovery Agreement or remove the entire amendment as it is duplicative of DDW requirements already placed on project operations.

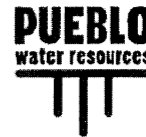
If Watermaster staff have any questions regarding the requests made by the District with regard to the amendment to the Storage and Recovery Agreement for Pure Water Monterey or the Technical Memorandum transmitted in this letter, please direct them to me.

Sincerely,



Jonathan Lear PG, CHg
Water Resources Division Manager

Enclosures: Pueblo Technical Memorandum dated September 12, 2019

TECHNICAL MEMORANDUM**Pueblo Water Resources, Inc.**4478 Market St., Suite 705
Ventura, CA 93003Tel: 805.644.0470
Fax: 805.644.0480**To:** Jonathan Lear, CHG; District Hydrogeologist**Date:** September 12, 2019**From:** Stephen Tanner, PE; Principal Engineer**Project No:** 12-0048**Cc. :** Stephen A. Short, PhD., Senior geochemist**Subject:** Supplemental Bench Testing of PWM Waters for Artificial Recharge of the Santa Margarita Sandstone Aquifer System

Jon-

In accordance with our your request, this supplemental technical memorandum summarizes the results of additional bench scale testing of Pure Water Monterey (PWM) treated waters and their equilibration with Santa Margarita Sandstone (T_{SM}) formation minerals as a surrogate for artificial recharge within the Seaside groundwater basin (SGB).

The purpose of this supplemental testing program was to empirically verify and compare the geochemical interactions between PWM waters and T_{SM} minerals under slightly modified pH/Alkalinity conditions to ascertain whether any significant water quality changes would occur. This issue is important because the PWM treatment system can operate within a range of conditions depending upon seasonal and other factors; this supplemental testing used a water quality deemed 'worst case' under the facility's approved Operations Plan to verify the absence of significant adverse water quality issues. Under the Department of Drinking Water (DDW) Operational Plan, treated effluent from the facility can range in alkalinity between 40 and 80 mg/L (as $CaCO_3$), and between 7.5 and 8.5 pH units. The desired water quality outlined in the operational report is a combination of pH and alkalinity resulting in a Langlier index of +0.1, which indicates the water is oversaturated with respect to $CaCO_3$, and is therefore non-corrosive to metallic and lined piping systems. Endmembers of pH and alkalinity resulting in the desired positive Langlier index were calculated as 40 mg/L (as $CaCO_3$) with a pH of 8.5, and 80 mg/L (as $CaCO_3$) with a pH of 7.5. The original January 2019 bench scale testing utilized a PWM water of (nominally) 50 mg/L alkalinity and 8.0 pH, which produced the desired positive Langlier index. This supplemental test was performed with a PWM water of approximately 40 mg/L alkalinity and 7.5 pH at the request of the Watermaster Technical Advisory Committee to test the lower limits of pH and alkalinity in the DDW Operations Plan even though the plan states the target concentrations for alkalinity and pH in product water will result in a non-corrosive combination.

The product water from this second test was artificially modified to have a Langlier Index of approximately -0.1, which would be slightly corrosive to the concrete linings of the transmission pipes, as well as the mineralogy of the T_{SM} aquifer. In the AWTF process



operations, alkalinity (as lime) is added to the water after RO treatment. Because of the high residual CO₂ present in the RO permeate water, the pH is lower than desirable even with the added lime, and to increase pH and attain a positive Langlier Index the water is passed through a decarbonation unit to remove CO₂ via gas stripping. The amount of CO₂ removed can be adjusted by bypassing a percentage of RO permeate around the decarbonating stripper. Because gas stripping is far lower cost than lime addition, it is desirable to minimize lime addition and then achieve final pH adjustment through decarbonation via adjusting the amount of permeate that bypasses the stripper. As noted above, this second test water had a higher-than-normal bypass percentage and thus a lower than normal pH to achieve the negative (-0.1) Langlier Index. (Under normal decarbonation conditions, this water would have had a pH of approximately 8.5 units)

Bench Scale Testing Program

In July 2019, Trussell Technologies obtained a water sample from the PWM Pilot Plant and lime buffered the sample to have an alkalinity of 39 mg/L and a pH of 7.49. The samples were placed into sealed bottles without head space and shipped to McCampbell Laboratories. Prior to performing the bench test, the bottles were opened and allowed to come into equilibrium with dissolved oxygen levels of the atmosphere. This step better simulates PWM operations and best approximates what the product water would be like if it were produced at an alkalinity of 40 mg/L and a pH of 7.5, transferred through a pipeline and held in a storage tank prior to injection.

At this point, the supplemental bench scale testing was performed by McCampbell Analytic Laboratories of Pittsburg, CA, in accordance with procedures outlined in PWR's January 2019 Technical Memorandum and analyte methods jointly developed by PWR and McCampbell. The same procedure was used for the previous testing in January 2019, and the supplemental test program used T_{SM} cuttings samples derived from the original test program materials.

The supplemental testing program was identical to the original bench tests, and generally consisted of mixing the PWM treated water sample with pulverized cuttings samples in a 10:1 mix ratio followed by tumbling of the slurry mix for 48 hours to facilitate maximum solid-liquid contacting and rapid geochemical equilibration between the two phases. After contacting, the solid material and liquids were separated by centrifugation and the liquid supernatant was filtered through a 0.45 micron membrane filter before analysis. The wet centrifuged sludge was dried at 60° C before being analyzed. The results of the supplemental PWM treated water analyses before and after equilibration are presented in Table 1 below, followed by the original bench testing results from our original technical memorandum of April 2019 in Table 2. Analytic laboratory results with all QA/QC and test documentation are included in Appendix A – Laboratory Reports.

Review of Tables 1 & 2 show expected similarities in results which are also supported by previous geochemical assessments; the more typical 465' T_{SM} cuttings with their lower transition metals content are less susceptible to leaching than the 595' cuttings which have a measurable amount of Monterey Shale (T_M) materials present. In addition, the loss of sample weight due to



solubilization after equilibration follows a similar trend to the January test program, with the 595' cuttings showing 50% greater solubilization than the 465' sample.

Table 1 – PWM Treated Water Composition Before and After Tsm Equalization

Nominal 40 mg/L Alkalinity Product Water (LI = -0.1)

(July 2019)

ANALYTE	UNITS	PWM water	465' Cuttings Equilibrated w/ PWM water	595' Cuttings Equilibrated w/ PWM water
Sample weight loss ¹	percent	-	- 2.4	- 3.6
Bicarbonate	mg CaCO ₃ /L	41.1 (39) ²	53.1	67.4
Carbonate	mg CaCO ₃ /L	ND	ND	ND
Hydroxide	mg CaCO ₃ /L	ND	ND	ND
pH	UNITS	8.07 (7.49) ²	9.0	8.3
Phosphorous	mg/L	ND	ND	ND
Cadmium	µg/L	ND	ND	0.49
Calcium	mg/L	9.5	11	140
Copper	µg/L	12	ND	ND
Iron	µg/L	ND	ND	ND
Magnesium	mg/L	0.067	1.7	50
Manganese	µg/L	ND	ND	0.21
Mercury	µg/L	ND	0.08	0.50
Nickel	µg/L	ND	ND	0.55
Selenium	µg/L	ND	ND	1.7
Strontium	µg/L	5.2	60	480
Uranium	µg/L	ND	0.85	6.6
Zinc	µg/L	16	6.0	3.0

1 - Original cuttings sample weights were 50.0 g for the 465' and 595' samples

2 - Parenthetical values were measured by Trussell following lime buffering of the sample and non-parenthetical were measured by McCampbell following opening the samples to atmosphere and prior to bench testing



Table 2- PWM Treated Water Composition Before and After Tsm Equalization
Nominal 50 mg/L Alkalinity Product Water (LI=+0.1)
(January 2019)

ANALYTE	UNITS	PWM water	465' Cuttings Equilibrated w/ PWM water	595' Cuttings Equilibrated w/ PWM water
Sample weight loss ¹	percent	-	- 6.2	- 9.7
Bicarbonate	mg CaCO ₃ /L	54.5 ¹	65.9	122
Carbonate	mg CaCO ₃ /L	ND	ND	ND
Hydroxide	mg CaCO ₃ /L	ND	ND	ND
pH	UNITS	7.96 ¹	7.98	8.11
Total Alkalinity	mg CaCO ₃ /L	54.5	65.9	122
Phosphorous	mg/L	ND	ND	ND
Cadmium	µg/L	ND	ND	ND
Calcium	mg/L	18	15	96
Copper	µg/L	4.5	ND	ND
Iron	µg/L	42	ND	ND
Magnesium	mg/L	0.19	2.5	26
Manganese	µg/L	ND	ND	ND
Mercury	µg/L	ND	ND	ND
Nickel	µg/L	ND	ND	ND
Selenium	µg/L	ND	ND	ND
Strontium	µg/L	8.5	ND	390
Uranium	µg/L	ND	ND	9.2
Zinc	µg/L	ND	ND	ND

¹ – These values were measured by McCampbell prior to beginning the bench test. Values from Trussell were not reported.

The supplemental testing with this second test case lower alkalinity water does, however, show a slight overall increase in transition metal leaching compared to the 50 mg/l water originally tested for both the 465' and 595' cuttings, which is unremarkable due to the overt conditioning of this sample to a slightly negative Langlier Index condition. The 456' sample showed new detections of 4 transition metals (Hg, Sr, U, and Zn), albeit at very low levels near detection limits. The 595' sample showed similar new detections of transition metals that were previously non-detect in the January 2019 test (Hg, Ni, Se, and Zn) in addition to slight increases in Sr and Cd. Although the lower alkalinity did result in increases in these compounds, they were still well below Title 22 drinking water standards. It should also be noted that the 595' cuttings with their Monterey Shale composition component are not representative of the full aquifer formation lithology, but rather represent only 3-5 % of the perforated section of the well; as such, a minor increase in transition metal leaching from this interval may not even be detectable in an aggregate water quality sample.



Conclusions

Based on our evaluation of the water quality with this second bench scale test and our experience with similar artificial recharge project applications, we conclude the following:

- 1- The test program has demonstrated that PWM plant alkalinities as low as 40 mg/l as Ca CO₃ can be utilized with an acceptably low level of mineral solubilization and transition metal leaching. The previous testing at a nominal 50 mg/L resulted in lower levels of mineral solubilization and transition metal leaching; however, facility economics and longer term aquifer testing will provide further information on the optimum facility operating conditions within the operating conditions specified in the DDW permit.
- 2- Neither of the PWM waters used in the January or the July bench tests resulted in significant leaching or ion exchange reactions with the Santa Margarita Sandstone Matrix or the Monterey Shale to the extent that any Primary Drinking Water Standards were exceeded.
- 3- The production of PWM product water that meets the DDW operations plan target values for alkalinity, pH, and Langlier index would require the water to be at or between the end members of 40 mg/l alkalinity at 8.5 pH, and 80 mg/l alkalinity at 7.5 pH, which will necessarily result in maintaining the critical positive ($\geq +0.1$) Langlier Index which will prevent corrosion and/or mineral leaching.
- 4- The second bench test performed on water manufactured at 40 mg/L alkalinity and 7.5 pH was artificially modified to be slightly out of specification to the target Langlier Index in the DDW Operations Plan; however, even under these worst case conditions the level of mineral solubilization and transition metal leaching did not result in any exceedances of CA Title 22 Primary Drinking Water Standards.
- 5- The second bench test did identify that mineral solubilization and transition metal leaching increased slightly under a negative Langlier Index (ie 7.5 pH at 40 mg/l alkalinity) condition, indicating that both stored water quality and the reclaimed water piping systems will benefit from maintenance of the positive Langlier Index product water quality. The typical decarbonated water would have been pH 8.5, which would result in a non-corrosive (positive Langlier Index) condition.
- 6- Economically, product water using a lower lime dose will cost less to produce, suggesting that the 40 mg/l alkalinity water at 8.0 to 8.5 pH will be preferred, while still meeting the pH, alkalinity, and Langlier Index requirements of the DDW operations plan.



Recommendations

Based on the results of the bench testing program and our experience with artificial recharge operations via direct injection into the T_{sm} aquifer system, we provide the following recommendations regarding advancement of the PWM artificial recharge program in the SGB:

- 1- The water quality of treated PWM-treated AWTF water should be maintained to the water quality ranges in the DDW operations report; ie product water alkalinity between 40 and 80 mg/l , pH between 7.5 and 8.5, with a Langlier Index of +0.1 or greater. This Memo summarizes work completed on a worst case product water condition that is more corrosive than the previous memo and should be included with the previous TM - Bench Testing of PWM Waters for Artificial Recharge of the Santa Margarita Sandstone Aquifer System. The recommendations in this TM should be considered with and supersede recommendations made in the previous TM with respect to the lower limit pH, Alkalinity, and Langlier Index provisions.
- 2- Based on this supplemental testing, we opine that the DDW operations plan sufficiently confines AWTF product water quality such that no additional requirements are necessary. The recommendation made in our July 2019 memo should be replaced with recommendation number 1 above in this TM, or all recommendations should be removed from Storage and Recovery Agreement as recommendation 1 is duplicative of requirements of the PWM DDW Operations Plan.

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

***** AGENDA TRANSMITTAL FORM *****

MEETING DATE:	November 20, 2019
AGENDA ITEM:	4
AGENDA TITLE:	Discuss and Provide Input on the 2019 Seawater Intrusion Analysis Report (SIAR)
PREPARED BY:	Robert Jaques, Technical Program Manager
<p>SUMMARY: Montgomery & Associates has completed preparing the Draft Seawater Intrusion Analysis Report (SIAR) for Water Year 2018-2019 and the Executive Summary, which contains conclusions and recommendations, is attached. The complete Draft SIAR is lengthy, so rather than including it in this agenda packet it will be posted on the Watermaster’s website so TAC members wishing to review the entire document could do so.</p> <p>The SIAR examines the “health” of the Basin with regard to whether or not there are any indications that seawater intrusion is either occurring or is imminent. Previous SIARs have stated that depressed groundwater levels, continued pumping in excess of recharge and freshwater inflows, and ongoing seawater intrusion in the nearby Salinas Valley all suggest that seawater intrusion could occur in the Seaside Groundwater Basin. In spite of these factors, the previous SIARs stated that neither the Piper nor the Stiff Diagrams nor any of the other parameters indicated the presence of seawater intrusion in the existing monitoring wells. The 2019 SIAR reports that the evaluation of the data from the sampling and monitoring program continues to indicate that seawater intrusion is <u>not</u> occurring</p> <p>A representative from Montgomery & Associates will participate in today’s TAC meeting via telephone to provide an oral summary of the report and to respond to questions by TAC members.</p>	
ATTACHMENTS:	Executive Summary from the Draft 2019 SIAR
RECOMMENDED ACTION:	Discuss and either modify or approve the Draft SIAR and forward the document to the Board with the TAC’s recommendation for approval

Executive Summary

This report fulfills part of the annual reporting requirements contained in the Seaside Groundwater Basin Adjudication (California American Water v. City of Seaside, Monterey County Superior Court, Case Number M66343). The annual report addresses the potential for, and extent of, seawater intrusion in the Seaside Groundwater Basin.

Seawater intrusion may occur under basic hydrogeologic conditions as a wedge beneath fresh groundwater, or in more complex hydrogeology with various intrusion interfaces among the different aquifers. Continued pumping in excess of recharge and freshwater inflows, coastal groundwater levels well below sea level, and ongoing seawater intrusion in the nearby Salinas Valley all suggest that seawater intrusion could occur in the Seaside Groundwater Basin.

Seawater intrusion is typically identified through regular chemical analyses of groundwater which can identify geochemical changes in response to seawater intrusion. No single analysis definitively identifies seawater intrusion, however by looking at various analyses we can ascertain when fresh groundwater mixes with seawater. At low chloride concentrations, it is often difficult to identify incipient seawater intrusion. This is due to the natural variation in freshwater chemistry at chloride concentrations below 1,000 milligrams per liter (mg/L). Mixing trends between groundwater and seawater are more easily defined when chloride concentrations exceed 1,000 mg/L. Common geochemical indicators of seawater intrusion are cation and anion ratios, chloride trends, sodium/chloride ratios, and electric induction logging.

Based on an evaluation of geochemical indicators for Water Year 2019 and prior, no seawater intrusion has historically been or is currently observed in existing monitoring and production wells in the Seaside Groundwater Basin.

Data which indicate that seawater intrusion is not occurring are described in the bulleted items below:

- All groundwater samples for Water Year 2019 from depth-discreet monitoring wells plot generally in a single cluster on Piper diagrams, with no water chemistry changes towards seawater.
- In some production wells, groundwater quality plots on Piper diagrams are different than the water quality in the monitoring wells. This may be a result of mixed water quality from both shallow and deep zones in which these wells are perforated. None of the production wells' groundwater qualities are indicative of seawater intrusion.
- None of the Stiff diagrams for monitoring and production wells show the characteristic chloride spike that typically indicates seawater intrusion in Stiff diagrams.
- Chloride concentration trends were stable for most monitoring wells. One monitoring well, FO-09 shallow, has sustained increased chloride concentrations in all three samples taken during Water Year 2019. The increase in concentrations from the previous year are around 10 mg/l. The increase is greater than fluctuations observed historically over the period of record. The slightly elevated concentrations in themselves do not indicate

seawater intrusion, however, this well should be carefully observed over the next year to determine if the increasing chloride concentrations are temporary or not.

- Sodium/chloride molar ratios in the monitoring wells remained constant or increased over the past year. Monitoring well FO-09 shallow experienced an increase in chloride as mentioned above, but its sodium/chloride ratio in Water Year 2019 is within the range of historical ratios and has not fallen below the 0.86 ratio that may identify seawater intrusion as the source of chloride as opposed to a domestic wastewater source.
- Maps of chloride concentrations for the shallow aquifer do not show chlorides increasing towards the coast. The deep aquifer maps show that higher chloride concentrations are limited to coastal monitoring wells PCA-West Deep and MSC Deep, but these are not indicative of seawater intrusion.
- Induction logging data at the coastal Sentinel Wells do not show historical or recent changes over time that are indicative of seawater intrusion.

The following groundwater level and production data suggest that conditions in the basin continue to provide a potential for seawater intrusion:

- Deep groundwater in the Northern Coastal subarea continues to be below sea level. The Water Year 2019 2nd quarter (winter/spring) deep aquifer coastal groundwater levels are more than 12 feet below sea level and the 4th quarter (summer/fall) levels are more than 30 feet below sea level. Overall groundwater levels resemble data collected last year, similar to historically low elevations observed during drought conditions.
- Groundwater levels remain below protective elevations in all deep target monitoring wells (MSC deep, PCA-W deep, and sentinel well SBWM-3). Currently, two of the three shallow wells' groundwater levels are above protective elevations: CDM-MW4 and PCA-W shallow. Since 1997, PCA-W shallow groundwater levels had been above protective elevations but had fallen just below its protective elevation last fall; probably in response to changes in shallow aquifer pumping. Groundwater levels in PCA-W shallow recovered during Water Year 2019 and currently are narrowly above protective elevation. As observed historically, MSC shallow groundwater levels remains below protective elevations.

Due to its distance from the coast, seawater intrusion is not an issue of concern in the Laguna Seca subarea. However, groundwater levels in the eastern Laguna Seca subarea have historically declined at rates of 0.6 feet per year in the shallow aquifers, and up to four feet per year in the deep aquifers. These declines have occurred since 2001, despite triennial reductions in allowable pumping. The cause of the declines is due in part to the Natural Safe Yield of the subarea being too high and in part due to the influence of wells to the east of the Seaside Basin. Although there was some stabilization in groundwater levels between Water Years 2014 and 2016, groundwater levels are continuing to decline. The rate of decline now, however, is less than 0.5 feet per year.

Native groundwater production in the Seaside Groundwater Basin for Water Year 2019 was 3,269.2 acre-feet, which is 94 acre-feet more than Water Year 2018. The amount of native groundwater pumped in Water Year 2019 is 91 acre-feet less than the Decision-ordered Operating Yield of 3,360 acre-feet per year that is required between October 1, 2017 and September 30, 2020.

Based on recent increases in chloride concentrations at monitoring well FO-9 shallow and its proximity to known intrusion in Salinas, it is recommended that groundwater quality results from it be reviewed after each sampling event to identify if the recent increases are part of natural fluctuations or an ongoing increasing trend. If the spring 2020 sample has a greater concentration than this year's highest concentration of 80 mg/L, it is recommended that its sampling frequency be increased to quarterly as a precaution.

With the exception of FO-09 shallow, data analyzed for this report did not deviate significantly from historical data. Therefore, besides the additional precautions recommended for the FO-09 shallow monitoring well, there are no additional recommendations on sampling frequencies. As projects that recharge and recover water in the Basin are implemented, groundwater levels and thus groundwater flow directions will change, and possibly groundwater quality too. Therefore it is important that data from new monitoring wells are reported to the Watermaster and taken into consideration in future SIARs.

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

***** AGENDA TRANSMITTAL FORM *****

MEETING DATE:	November 21, 2018
AGENDA ITEM:	5
AGENDA TITLE:	Discuss and Provide Input on the Preliminary Draft Watermaster 2019 Annual Report
PREPARED BY:	Robert Jaques, Technical Program Manager
SUMMARY:	
<p>The Watermaster submits an Annual Report to the Court after the end of each Water Year to fulfill one of its obligations under the Court Decision that created the Watermaster.</p> <p>A Preliminary Draft Annual Report for 2019 is being presented to the TAC for its review and input, in as complete a form as it can be as of today's TAC meeting. Due to its large file size, a complete copy of the Preliminary Draft 2019 Annual Report cannot be included with the agenda packet. However, a copy of the <u>body</u> of the Preliminary Draft is attached. A copy of the complete Preliminary Draft Annual Report was posted on the Watermaster's website for anyone that would like to examine the entire document.</p> <p>At today's meeting I will review with the TAC the principle components of the Preliminary Draft and provide an opportunity for the TAC to raise questions, provide input, and provide suggested edits to the document. The items highlighted in yellow will be revised or completed as soon as the data has been prepared , or after the Board's January meeting.</p>	
ATTACHMENTS:	Preliminary Draft 2019 Annual Report (Body only)
RECOMMENDED ACTION:	Provide input to the Technical Program Manager regarding any edits to the Preliminary Draft Annual Report that the TAC wishes to propose

SEASIDE BASIN WATERMASTER

ANNUAL REPORT – 2019

January 2, 2020

PRELIMINARY

DRAFT

NOTE: ITEMS HIGHLIGHTED IN YELLOW WILL BE UPDATED FOR INCLUSION IN THE FINAL VERSION OF THE ANNUAL REPORT.

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SEASIDE BASIN WATERMASTER

ANNUAL REPORT – 2019

Integral to the Superior Court Decision (Decision) rendered by Judge Roger D. Randall on March 27, 2006 is the requirement to file an Annual Report. This 2019 Annual Report is being filed on or before January 15, 2020, consistent with the provisions of the Decision, as amended by the Order Amending Judgment filed March 29, 2018.

This Annual Report addresses the specific Watermaster functions set forth in Section III. L. 3. x. of the Decision. In addition this Annual Report includes sections pertaining to:

- Water quality monitoring and Basin management
- Information that the Watermaster would otherwise include within a Case Status Conference Statement, including:
 - A summary of basin conditions and important developments concerning the management of the Basin
 - Planned near- and long-term actions of the Watermaster
 - Information concerning the status of regional water supply issues
 - Management activities that may bear on the Basin's wellbeing.

A. Groundwater Extractions

The schedule summarizing the Water Year 2019 (WY 2019) groundwater production from all the producers allocated a Production Allocation in the Seaside Groundwater Basin is provided in Attachment 1, “Seaside Groundwater Basin Watermaster, Reported Quarterly and Annual Water Production from the Seaside Groundwater Basin for all Producers Included in the Seaside Basin Adjudication During Water Year 2019.” Water Year 2019 is defined as beginning October 1, 2018 and ending on September 30, 2019.

B. Groundwater Storage

Monterey Peninsula Water Management District (MPWMD), in cooperation with California American Water (CAWC), operates the Seaside Basin Aquifer Storage and Recovery (ASR) program. Under the ASR program, CAWC diverts water from its Carmel River sources during periods of flow in excess of NOAA-Fisheries’ bypass flow requirements, and transports the water through the existing CAWC distribution system for injection and storage in the Seaside Basin at the MPWMD’s Santa Margarita ASR site and CAWC’s Seaside Middle School ASR site. During WY 2019, 1,335 AF was diverted and stored in the Seaside Basin under the ASR program. Rainfall in the area was about 145% of normal, and Carmel River flow was about 217% of normal.

Based upon production reported for WY 2019, the following Standard Producers are entitled to Free and Not-Free Carryover Credits to 2020 in accordance with the Decision, Section III. H. 5:

<u>Producer</u>	<u>Free Carryover Credit</u> (Acre-feet)	<u>Not-Free Carryover Credit</u> (Acre-feet)
Granite Rock	194.88	27.12

DBO Development	364.98	38.98
Calabrese (Cypress)	14.65	1.64
CAWC	00.00	130.75
City of Seaside Muni	00.00	00.00

C. Amount of Artificial Replenishment, If Any, Performed by Watermaster

Per the Decision, “Artificial Replenishment” means the act of the Watermaster, directly or indirectly, engaging in contracting for Non-Native Water to be added to the Groundwater supply of the Seaside Basin through Spreading or Direct Injection to offset the cumulative Over-Production from the Seaside Basin in any particular Water Year pursuant to Section III.L.3.j.iii. It also includes programs in which Producers agree to refrain, in whole or in part, from exercising their right to produce their full Production Allocation where the intent is to cause the replenishment of the Seaside Basin through forbearance in lieu of the injection or spreading of Non-Native Water (referred to herein as “In-lieu Replenishment”).

During Water Year 2019 the Watermaster did not indirectly engage in In-lieu Replenishment of the Basin. No non-native water was made available to the Basin during Water Year 2019 under the April 7, 2010 Memorandum of Understanding and Agreement entered into by Watermaster with the City of Seaside for its golf course irrigation program creating in-lieu replenishment water.

However, on September 4, 2019 the City of Seaside filed a motion with the Court seeking the Court’s approval of the City’s request for a Storage and Recovery Agreement for in-lieu storage and recovery of water. On October 25, 2019 the Court approved the City’s request. Court documents pertaining to the City’s request are contained in Attachment 15. The Watermaster plans to prepare and consider approving such an agreement in early 2020.

D. Leases or Sales of Production Allocation and Administrative Actions

In WY2019 a transfer or assignment of water allocation was activated, as provided for in the Cypress Pacific Investors (CPI), successor to Muriel L. Calabrese 1987 Trust, front-loading delivery of water agreement that is contained in Attachment 14. Per the agreement, CPI leases to California American Water Company (CAWC) 8.0 AF of water (subject to reduction per the formulas in the Decision) for the purpose of producing such water from, or moving the production of such water to, the inland wells operated by CAWC and for delivery of such water by CAWC to one or more CPI properties. In Water Year 2016-17 CPI assigned its entire Standard Production Allocation water right to CAWC effective October 1, 2016. In Water Year 2019 CAWC began wheeling 3.17 AF to a certain CPI property.

Also, as discussed in Attachment 13 of the 2018 Annual Report, in 2019 Security National Guarantee (SNG) converted a portion of its Alternative Production allocation to Standard Allocation in order to sell that portion of its allocation to Montage Health. That sales transaction was not accomplished in 2019. If that transaction is accomplished in a future year it will be reported upon in that year’s Annual Report.

During WY 2019 the Watermaster Board did not make any revisions to its *Rules and Regulations*.

During WY 2019 the Watermaster Board was comprised of the following Members and Alternates:

<u>MEMBER</u>	<u>ALTERNATE</u>	<u>REPRESENTING</u>
Director Paul Bruno	N/A	Coastal Subarea Landowner
Christopher Cook	Nina Miller	California American Water Company
Director Bob Costa/Troy Thompson	N/A	Laguna Seca Subarea Landowner
Director George Riley	Director Jeanne Byrne	MPWMD
Mayor Mary Ann Carbone		City of Sand City
Supervisor Mary Adams	Jane Parker	Monterey County (MCWRA)
Councilmember John Gaglioti	Mayor Alison Kerr	City of Del Rey Oaks
Councilmember Dan Albert	Mayor Clyde Roberson	City of Monterey
Mayor Ian Oglesby		City of Seaside

E. Use of Imported, Reclaimed, or Desalinated Water as a Source of Water for Storage or as a Water Supply for Lands Overlying the Seaside Basin

The CAWC/MPWMD ASR Program operated in WY 2019 and 1,335.07 acre-feet of water was injected into the Basin as Stored Water Credits and 744.36 acre-feet was extracted.

In accordance with Section III. L. 3. j. xx, CAW and MPWMD applied to the Watermaster for Storage in the Seaside Basin of water from the Pure Water Monterey Project (PWM). The application was considered by the Watermaster at its publicly noticed October 3, 2018 meeting. No member of the public present at the meeting voiced concerns about approval of the application or PWM. After consideration and discussion, the Watermaster Board approved the application.

The Watermaster Board considered approval of a Storage and Recovery Agreement between the Watermaster, CAWC, and MPWMD governing the future injection and recovery of water from PWM at its publicly noticed January 2, 2019 meeting. No member of the public present at the meeting voiced concerns about approval of the agreement or PWM. After consideration and discussion, the Watermaster Board approved the agreement. A copy of the agreement is included in Attachment 13 of this Annual Report.

F. Violations of the Decision and Any Corrective Actions Taken

Section III. D. of the Decision enjoins all Producers from any Over-Production beyond the Operating Yield in any Water Year in which the Watermaster declares that Artificial Replenishment is not available or possible. Section III. L. 3. j. iii. requires that the

Watermaster declare the unavailability of Artificial Replenishment in December of each year, so that the Producers are informed of the prohibition against pumping in excess of the Operating Yield.

Because the December 5, 2018 Board meeting was canceled, the Watermaster made its declaration regarding the availability of Artificial Replenishment for WY 2019 at its Board meeting of January 2, 2019. A copy of this declaration is contained in Attachment 2. In WY 2018 the Watermaster implemented another 10% water production reduction required under Section III.B.2 of the Decision. No additional water production reductions were implemented in WY 2019.

Total pumping for WY 2019 did not exceed the Operating Yield (OY) of the Basin, and exceeded the Natural Safe Yield (NSY) of the Basin by 269.24 acre-feet.

California American Water reported annual pumping quantities that exceeded its Standard Production NSY allocation by 284.85 acre-feet, and reported annual pumping quantities that did not exceed its Operating Yield allocation. The Watermaster will assess California American Water a Replenishment Assessment for this over production, as further described in Section H, below.

The City of Seaside reported annual pumping quantities that exceeded its Standard Production NSY allocation by 27.82 acre-feet, and reported annual pumping quantities that exceeded its Operating Yield allocation by 31.41 acre-feet. The City of Seaside did not exceed its Alternative Production NSY. The Watermaster will assess the City of Seaside a Replenishment Assessment for these over productions, as further described in Section H, below.

G. Watermaster Administrative Costs

The total estimated Administrative costs through the end of Fiscal Year 2019 amounted to \$80,000 including a \$25,000 dedicated reserve. Costs include the Administrative Officer salary and legal counsel fees. The “Fiscal Year 2019 Administrative Fund Report” and “Fiscal Year 2019 Operations Fund Report” are provided in Attachment 3. [Note: Attachment 3 will be updated and presented to the Watermaster Board at its December 2019 meeting. The updated version will be included in the Final version of this 2019 Annual Report.]

H. Replenishment Assessments

At its meeting of October 2, 2019 the Watermaster Board determined that the Natural Safe Yield Replenishment Assessment unit cost of \$2,872 per acre-foot, and the Operating Yield Replenishment Assessment unit cost of \$718 per acre-foot, which are the unit costs that were used in WY 2019, should remain the same for WY 2020.

Alternative and Standard Producers report their production amounts from the Basin to the Watermaster on a quarterly basis. Based upon the reported production for WY 2019, CAWC’s Replenishment Assessment for Overproduction in excess of its share of the Natural Safe Yield is \$818,097.34. CAWC had no overproduction in excess of its share of the Operating Yield.

The City of Seaside’s Replenishment Assessment for its Municipal System for

Overproduction in excess of its share of the Natural Safe Yield is \$79,892.62, and for overproduction in excess of its share of the Operating Yield is \$102,443.06. The City of Seaside did not exceed its Alternative Production Allocation for its Golf Course System production. A summary of the calculations for Replenishment Assessments for WY 2018 is contained in Attachment 5.

I. All Components of the Watermaster Budget

The Watermaster budget has four separate funds: Administrative Fund; Monitoring & Management–Operations; Monitoring and Management–Capital Fund and; Replenishment Fund. Copies of the budgets for Fiscal Year 2019 are contained in Attachment 6.

The Watermaster Board is provided monthly financial status reports on all financial activities for each month with year-to-date totals.

J. Water Quality Monitoring and Basin Management

Water Quality Analytical Results

Groundwater quality data continued to be collected and analyzed on a quarterly basis during WY 2019 from the enhanced network of monitoring wells. The low-flow sampling method implemented in 2009 continued to be used in 2019 and is expected to continue to be used in the future to improve the efficiency of sample collection. As discussed in the 2013 Annual Report, the Watermaster reduced the frequency of water quality sampling at SBWM-MW5 to once every 3 years.

No modifications to the quarterly data collection frequency from the enhanced network of monitoring wells were made during WY 2019.

In prior years a separate water quality and water level report was prepared for the Watermaster by MPWMD, and included in the Annual Reports. Since this data is primarily used to prepare the Seawater Intrusion Analysis Report, beginning in 2019 the data was provided by MPWMD to Montgomery & Associates. Montgomery & Associates used that data to prepare the water quality and water level report and included it as an attachment to the SIAR. The SIAR is further discussed below.

Monitoring and Management Program Work Plan for the Upcoming Year

The 2020 Monitoring and Management Program (M&MP) Work Plan contained in Attachment 9 includes the types of basin management activities conducted in prior years as well as revisions approved by the Board at its October 2, 2019 meeting.

Other than small changes due to changes in hourly rates for some of the consultants, the following are the principle differences between the 2019 M&MP and the 2020 M&MP, and their respective budgets:

Task I.2.b.3 (Collect Quarterly Water Quality Samples): In 2019 the total amount budgeted for this Task was \$42,083, comprised of \$24,542 for MPWMD and \$17,541 for Martin Feeney. The proposed scope of work for this task in 2020 is changed slightly from 2019 due to (1) the need to perform some maintenance work on the Sentinel Wells by Mr. Feeney, and (2) by a reduction in the amount of work required by MPWMD to compile data. The cost for the induction logging subcontractor to Mr. Feeney is

unchanged from 2019, but the amount proposed for Mr. Feeney's portion of this work in 2020 is increased by \$1,710 to perform the maintenance work. MPWMD's costs for 2020 are reduced by \$992. Therefore, the amount proposed for 2020 is increased by \$718 to \$42,801.

Task I.2.b.6 (Prepare Data Appendix for SWI Report): MPWMD's scope of work for this Task in 2020 has been reduced by having them only compile the data in MS Access format and provide that to Montgomery & Associates, rather than preparing a water quality and water level report. Therefore, the amount proposed for 2020 is reduced by \$1,490 to \$2,086.

Task I.2.b.7 (CASGEM Data Submittal for Watermaster's Voluntary Wells): Because of the increased time MPWMD encountered in 2019 to format and submit this data to the Department of Water Resources (DWR) to comply with the Sustainable Groundwater Management Act (SGMA) requirements for adjudicated basins, the number of hours provided for this Task in 2020 has been significantly increased from 16 hours in 2019 to 60 hours in 2020. The hourly rate for this work is unchanged from 2019, but the additional hours resulted in an increase in cost. Therefore, the amount proposed for 2020 is increased by \$6,556 to \$8,940.

Task I.4.c (Annual Report- Seawater Intrusion Analysis): In 2019 the total amount budgeted for this Task was \$22,742, comprised of \$1,192 for MPWMD and \$21,550 for Montgomery & Associates. The proposed scope of work for this task is changed from 2019 by having Montgomery & Associates prepare the water quality and water level report that was formerly prepared by MPWMD under Task I.2.a.1. The hourly rate for the MPWMD staff involved in performing their portion of this task is unchanged, so the amount proposed for 2020 for their portion of this work is unchanged from the amount in 2019. The hourly rates for some of the personnel working on this at Montgomery and Associates have increased slightly, and additional hours have been added for Montgomery & Associates to take the raw data provided to them by MPWMD and use it to prepare the water level and water quality report, so it can be included in the SIAR. Therefore, the amount proposed for 2020 is increased by \$2,580 to \$25,322.

Task I.3.e (Seaside Basin Geochemical Model): The full cost of the geochemical modeling that was performed in 2019 is being borne by the three proponents of the projects that intend to inject new sources of water into the Basin. These are California American Water, MPWMD, and Monterey One Water (formerly MRWPCA). It is anticipated that, if Montgomery & Associates needs to perform work on this Task in 2020, these same parties will reimburse the Watermaster for all of the costs to perform this work. Therefore, there should be no net cost to the Watermaster for the work of this Task.

In summary, the 2020 M&MP Operations Budget, including the associated \$822 increase in the 10% Contingency line item, is \$9,046 higher (\$215,967-\$206,921) than the 2019 Budget.

Since no Capital Projects are anticipated in 2020, there is no change in the M&MP Capital Budget from 2019 to 2020, and that budget remains at zero dollars.

Basin Management Database

Pertinent groundwater resource data obtained from a number of sources has been consolidated into the Watermaster's database to allow more efficient organization and data retrieval. No modifications or enhancements to the database are planned in FY 2020.

Enhanced Monitoring Well Network

The Seaside Basin M&MP uses an Enhanced Monitoring Well Network to fill in data gaps in the previous monitoring well network used by the Monterey Peninsula Water Management District (MPWMD), and others, in order to improve the basin management capabilities of the Watermaster. The Enhanced Monitoring Well Network has been described in detail in previous Watermaster Annual Reports. It continues to be used to obtain additional data that is useful to the Watermaster in managing the Basin.

Basin Management Action Plan (BMAP)

The BMAP constitutes the basic plan for managing the Seaside Groundwater Basin. The BMAP identifies both short-term actions and long-term strategies intended to protect the groundwater resource while maximizing the beneficial use of groundwater in the basin. It provides the Watermaster a logical set of actions that can be undertaken to manage the basin to its Safe Yield.

The Watermaster's first BMAP was completed in 2009 and was approved by the Watermaster Board at its February 2009 meeting. The Executive Summary from that BMAP was contained in Attachment 9 of the 2009 Annual Report, and the complete document is posted on the Watermaster's website at:

http://www.seasidebasinwatermaster.org/Other/BMAP_FINAL_5-Feb-2009.pdf.

Over the nine years since the 2009 BMAP was completed, the Watermaster has collected much groundwater level and quality data, and conducted various studies to improve the understanding of the basin. This improved understanding was incorporated into a 2019 Updated BMAP to facilitate ongoing responsible management of the groundwater resource. The Watermaster Board approved the 2019 Updated BMAP at its June 5, 2019 meeting.

The 2019 Updated BMAP is quite lengthy, so only the Executive Summary from that document is contained in Attachment 7. However, a full copy of the document is posted on the Watermaster's website at:

http://www.seasidebasinwatermaster.org/Other/BMAP%20Final_07192019.pdf

One of the findings in the Updated BMAP is that the Natural Safe Yield (NSY) of the Basin is 2,370 AFY, which is lower than the Adjudication Decision's initially-established 3,000 AFY.

Attachment 10 contains a Memo titled "Seaside Groundwater Basin Natural Safe Yield Allocations to Producers." The Memo describes how the Adjudication Decision allocated water rights to each of the Producers (both Standard and Alternative Producers), and the water rights that each Producer would have after all of the Adjudication Decision-required ramp-downs in pumping have been completed. The Memo also briefly

describes the water rights impacts that would result from lowering the NSY of the Basin from 3,000 AFY to 2,370 AFY.

As discussed in the Memo, the approach used to make these calculations is based on the assumption that the Adjudication Decision contemplated that all of the Basin's NSY comes from the Laguna Seca and the Coastal Subareas, and that none of it comes from the Northern Inland Subarea. Two options for arriving at the water rights for each Producer are presented in the Memo. As noted in the Memo, there are some inconsistencies in the Adjudication Decision which complicate the calculation of water rights after the Adjudication Decision-mandated ramp-downs in pumping are completed.

The Memo contains a set of ramp-down calculations for a basin-wide NSY of 3,000 AFY, because 3,000 AFY had been the ramp-down figure that was developed when CAWC was sizing its Monterey Peninsula Water Supply Project. That analysis led to the conclusion that CAWC's ultimate water right in the Basin would be 1,474 AFY, based on a basin-wide Natural Safe Yield of 3,000 AFY. Therefore, it was appropriate to include the ramp-down analysis leading to CAWC's 1,474 AFY of ultimate water right. Also contained in the Memo is a set of ramp-down calculations for a basin-wide NSY of 2,913 AFY, based on a slightly different interpretation of the Adjudication Decision.

The Memo provided to the Watermaster Board all of the necessary background information and calculations for use in determining which of the two ramp-down figures (3,000 AFY or 2,913 AFY) should be used when the next (and presumably final) ramp-down occurs in WY 2021. At its meeting of June 5, 2019 the Watermaster Board determined that there should be a final ramp-down to 3,000 AFY in WY 2021 and that water allocations to each Producer should be assigned as shown in Table 7 of Attachment 10 after all pumping ramp-downs have been completed. The Board reached this decision in part because ramping-down to 3,000 AFY would cause less hardship on the Alternative Producers by not requiring them to ramp-down along with the Standard Producers, and because ramping down to 2,913 AFY would provide negligible additional benefit and would require both the Standard and Alternative Producers to ramp-down.

In conjunction with updating the BMAP, Montgomery & Associates and Todd Groundwater (a hydrogeologic consultant the Watermaster used to perform a peer review of a draft version of the Updated BMAP) recommended that at some point in the future the Watermaster change to a different approach (Sustainable Yield) rather than continuing to use the Natural Safe Yield approach that was used in the Adjudication Decision, for basin management purposes. Attachment 11 contains a discussion of the pros and cons of using the Sustainable Yield approach vs. the Natural Safe Yield approach. The Watermaster Board considered the information contained in Attachment 11 at its June 5, 2019 meeting and made the following determinations:

- A Sustainable Yield analysis should not be performed at this time.
- The concept of using the Sustainable Yield approach to replace the Natural Safe Yield approach should be revisited after the Groundwater Sustainability Plan for the Monterey Subbasin of the Salinas Valley Groundwater Basin has been completed, and its impacts on the Seaside Groundwater Basin have been determined.

- If something is learned, or events occur, that would warrant performing a Sustainable Yield analysis sooner, the Board should revisit the decision at that time.

Seawater Intrusion Response Plan

HydroMetrics LLC was hired by the Watermaster to prepare a long-term Seawater Intrusion Response Plan (SIRP), as required in the M&MP.

The Final SIRP was approved by the Watermaster Board in 2009 and a summary of the Seawater Intrusion Contingency Actions from the SIRP were contained in Attachment 10 of the 2009 Annual Report. The complete document may be viewed and downloaded from the Watermaster's website at: <http://www.seasidebasinwatermaster.org/>. No modifications to the SIRP were made in 2019.

Seawater Intrusion Analysis Report

The Seawater Intrusion Analysis Report (SIAR) examines the "health" of the Basin with regard to whether or not there are any indications that seawater intrusion is either occurring or is imminent. Previous SIARs have stated that depressed groundwater levels, continued pumping in excess of recharge and freshwater inflows, and ongoing seawater intrusion in the nearby Salinas Valley all suggest that seawater intrusion could occur in the Seaside Groundwater Basin.

The Watermaster retained Montgomery & Associates to prepare the WY 2019 SIAR required by the M&MP. The WY 2019 SIAR provided an analysis of data collected during that Water Year.

The 2019 SIAR reported that the evaluation of the data from the sampling and monitoring program continued to indicate that seawater intrusion was not occurring.

The SIAR is lengthy, but the full *Executive Summary Section* from it is provided in Attachment 8. A complete copy of the document is posted for viewing and downloading from the Watermaster's website at: <http://www.seasidebasinwatermaster.org/>. All recommendations contained in the SIAR are being or will be carried out and are included in the budgeted activities contained in Attachment 6 and described in Attachment 9.

The Watermaster continues to analyze the data that is being gathered at the various monitoring sites in order to keep a close watch on the conditions within the Basin, as discussed under the "Enhanced Monitoring Well Network" heading above. Because none of the data indicates the presence of seawater intrusion, the Watermaster does not at this time plan to move forward with the Work Plan to investigate sources of fluctuating chlorides in the Sentinel Wells. That work was described in Attachment 12 of the 2017 Annual Report. However, should future data warrant it, the Watermaster may reconsider undertaking the initial phase of that Work Plan.

Geochemical Impact Assessments

When new sources of water are introduced into an aquifer, with each source having its own unique water quality, there can be chemical reactions that may have the potential to

release minerals into solution which have previously been attached to soil particles, such as arsenic or mercury, and thus into the water itself. This has been experienced in some other locations where changes in water quality occurred as a result of water being injected into an aquifer. MPWMD's consultant (Pueblo Water Resources) has been using geochemical impact assessments to predict the effects of injecting Carmel River water into the Seaside Groundwater Basin under the ASR program.

As discussed in the 2018 Annual Report under the heading titled "Monitoring and Management Program Work Plan for the Upcoming Year," in order to predict whether there will be groundwater quality changes that will result from the introduction of desalinated water, additional ASR water (under the Monterey Peninsula Water Supply Project), and advanced wastewater treatment (AWT) water under the Pure Water Monterey Project (PWM) geochemical impact assessments have been, or will be, performed by Pueblo Water Resources for use in the areas of the Basin where injection of these new water sources will occur. A description of this work was provided in Attachment 11 of the 2018 Annual Report.

In 2019 an assessment of the geochemical impacts of injecting AWT water from the PWM was performed. A Technical Memorandum describing that work is contained in Attachment 12. The assessment found that if the quality of the PWM AWT water is maintained within the ranges set forth in the Division of Drinking Water (DDW) Operations Report, there will be no adverse geochemical impacts on the aquifers within the Seaside Basin.

Sustainable Groundwater Management Act (SGMA)

As reported in the 2015 Annual Report the Watermaster Board determined that the Watermaster should monitor the development of the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) and the State Department of Water Resources' (DWR) development of SGMA regulations with the intent to collaborate with these entities as appropriate.

At the State Level:

During 2019 DWR did not issue any new regulations, or revisions to prior regulations, that impacted the Seaside Groundwater Basin or the Watermaster. In March of 2019 the Watermaster submitted to DWR the reporting information required of it, as an adjudicated basin, under SGMA.

At the Monterey County level:

As reported in the 2018 Annual Report, the SVBGSA, the Marina Coast Water District (MCWD), and the City of Marina all submitted Notifications with DWR to serve as the GSA for overlapping portions of the Monterey and/or the 180/400 foot aquifer subbasins. The SVBGSA, MCWD, and the City of Marina embarked on processes to address and resolve these overlaps. However, those efforts were still in progress as of the date of preparation of this Annual Report, and certain issues remained unresolved.

During 2019 the SVBGSA developed a draft Groundwater Sustainability Plan (GSP) for the 180/400 foot aquifer subbasin, and toward the end of 2019 was holding a series of public meetings to publicize the GSP and solicit public input. DWR previously determined that this subbasin is critically overdrafted. The SVBGSA intends to submit

its GSP for this subbasin to DWR in time to meet the January 2020 deadline for submittal of GSPs for critically overdrafted basins.

In 2019 the City of Marina developed its own GSP for approximately 400 acres that are to the north of the area that will be encompassed by MCWD's GSP, and which overlaps with a portion of the area covered by the SVBGSA's 180/400 foot aquifer subbasin GSP.

In 2020 MCWD expects to begin development of a GSP for a portion of the Monterey subbasin. DWR determined that this subbasin is not critically overdrafted and therefore has a GSP submittal deadline a year later (January 2021) than the deadline for critically overdrafted subbasins. The Watermaster has been informed by MCWD that once that entity begins development of its GSP, the Watermaster will be invited to participate in those activities.

The Watermaster is participating in the development of the SVBGSA's GSPs through its membership on the SVBGSA's Advisory Committee, and intends to participate in MCWD's development of its GSP. This will help to ensure that there is close coordination between the SVBGSA, MCWD, and the Watermaster on matters of mutual interest. Because the City of Marina's GSP only covers approximately 400 acres to the north of the area covered by MCWD's GSP and does not involve any aquifers which are directly connected with those in the Seaside Basin, the Watermaster did not participate in the development of the City's GSP.

K. Information that the Watermaster Would Otherwise Include within a Case Status Conference Statement

This Section was added to the Annual Report beginning in 2018 year as directed by the Court in its Order Amending Judgment filed March 29, 2018. It is formatted to contain the topic headings below, which were requested by the Court in its March 29, 2018 Order.

By email dated August 13, 2018, Judge Nichols, who replaced Judge Randall on this matter effective January 27, 2016, informed the Parties that he would soon be withdrawing as judge on the case as a result of changes to the Assigned Judges Program which caps the total number of days an assigned judge may serve. In 2019 the parties stipulated to the assignment of retired Monterey County Judge Robert O'Farrell, and Judge O'Farrell was subsequently assigned to Monterey County Superior Court Case No. M66343 - California American Water v. City of Seaside et al (the Adjudication Decision).

Summary of Basin Conditions and Important Developments Concerning the Management of the Basin

The condition of the Basin is discussed in the *Water Quality, Seawater Intrusion Analysis Report*, and *Basin Management Action Plan* subheadings in Section J of this Annual Report.

In summary, the *Seawater Intrusion Analysis Report*, which analyzes the water quality data collected under the Watermaster's sampling program, found that no seawater intrusion is being detected within the Basin. The updated *Basin Management Action Plan* found that in spite of recent pumping at levels less than the Decision-established

Natural Safe Yield of 3,000 AFY, water levels in some portions of the Basin are continuing to drop. It is expected that once the MPWSP becomes operational and CAWC is able to further reduce its pumping from the Basin by 700 AFY through its 25-year overpumping repayment program, the rate of drop in groundwater levels will be at least partially mitigated.

Planned Near and Long-term Actions of the Watermaster

Near-term actions are described in the 2020 Monitoring and Management Program discussed in Section J and Attachment 9 of this Annual Report.

Long-term actions will include:

- Continuing to carry out the duties and responsibilities assigned to the Watermaster by the Decision
- Continuing to coordinate with the Monterey County Water Resources Agency in their development of an updated hydrogeologic model of the Salinas Valley Basin, as discussed under the *Coordination of Watermaster's Seaside Groundwater Model with Salinas River Basin Model* subheading in Section J of the 2018 Annual Report
- Continuing to coordinate with the Salinas Valley Basin Groundwater Sustainability Agency to develop measures to aid in groundwater management of the Laguna Seca Subarea, as discussed under the *Sustainable Groundwater Management Act* subheading in Section J of this Annual Report.

Information Concerning the Status of Regional Water Supply Issues

MPWSP

Implementation of the Monterey Peninsula Water Supply Project (MPWSP) continues to be vigorously pursued by California American Water.

On September 13, 2018 the CPUC approved a modified MPWSP consisting principally of a reduced-size 6.4 mgd desalination plant (size originally proposed was 9.6 mgd with no reclaimed water), 3,500 AFY of PWM reclaimed water (previously and separately approved by the CPUC in 2017), and increased ASR water; adopting settlement agreements to resolve conflicts relating to the desalination project; issued a Certificate of Public Convenience and Necessity; and certified the combined EIR/EIS for that Project. California American Water is in the process of seeking necessary approvals from the California Coastal Commission and other permitting agencies.

In September 2019 construction began on the Transfer Pipeline, which will carry water from the future site of the desalination treatment plant to the edge of CAWC's service territory in Seaside. The work enables CAWC to meet the State Water Board's Cease and Desist Order milestone for 2019, which required project construction to begin. This first phase of pipeline work will total just over 4,000 feet. Completion is scheduled for mid-December. Once complete, the installation of over 50,000 feet of additional transmission pipeline will begin to the north.

In late 2019 the MPWSP received environmental summary clearance for \$285 million in State Revolving Fund low interest loans from the State Water Resources Control Board. The funding will significantly reduce the long term costs of the 6.4 mgd desalination

plant and decrease rate impacts to CAWC customers. While further paperwork and development of a final funding agreement with the SWRCB remains, the news from the state essentially formalizes zero percent financing for a majority of the project cost, lowering the cost per acre-foot by hundreds of dollars.

In an en banc decision the California Supreme Court denied the City of Marina and Marina Coast Water District's challenges to the California Public Utilities Commission's approval of the MPWSP, which was granted last year. The Supreme Court decision, issued in late August 2019, also denied challenges to the sufficiency of the Environmental Impact Report/ Environmental Impact Statement prepared for the long-awaited desalination plant. With the Supreme Court's decision now final, the Certificate of Public Necessity and Convenience issued by the CPUC is deemed by CAWC to be complete.

In mid-November 2019 The California Coastal Commission held a hearing on CAWC's application for a Coastal Development Permit for construction of the portions of the MPWSP located within the coastal zone. The Commission received public input at that hearing but deferred taking action on the application until early 2020. Approval by the Coastal Commission is the last major permit needed to allow construction of project to begin.

Assuming that permits are issued on the projected schedule, the desalination plant is projected to be put into service in mid-2021. Detailed quarterly update reports on the MPWSP are posted on the MPWSP website at <https://www.watersupplyproject.org>.

PWM

Construction work is well underway on Monterey One Water's (MIW) Pure Water Monterey (PWM) recycled water project in Marina. This project will produce approximately 3,500 AFY of advanced treated recycled water that will be delivered to the Seaside Basin for injection into the Basin and subsequent recovery and service to CAWC customers. MIW has also executed an agreement with Marina Coast Water District (MCWD) to use a MCWD pipeline that will convey the water from the PWM advanced water treatment plant to the Seaside Basin. The PWM component of the MPWSP is currently projected to become operational in early 2020.

Management Activities that May Bear on the Basin's Wellbeing

1. *Water Conservation.* From a water conservation standpoint, customers of CAWC are doing an exceptional job. CAWC's Monterey system has one of the highest levels of voluntary conservation in the state. There has essentially been no back-off in conservation following the end of mandatory conservation that occurred after the wet winter of 2016-2017.

2. *Storm Water and Recycled Water.* Storm water and recycled water are both components of the Pure Water Monterey (PWM) project that is being implemented by Monterey One Water. CAWC has already contracted to receive 3,500 AFY of PWM recycled water for injection into, and recovery from, the Seaside Basin. Monterey One Water, in coordination with others, is looking at the potential to expand the delivery capacity of the PWM project by using additional sources of recycled water and storm water, and in late 2019 completed preparation of a Supplemental Environmental Impact

Report (SEIR) to fulfill the CEQA requirements for such an expansion. That document was undergoing public review at the time this Annual Report was being prepared.

3. *Sustainable Groundwater Management Act.* Coordination between the Watermaster and the SVBGSA and the MCWD GSA is ongoing and is discussed in more detail above under Section J of this Annual Report. That coordination will aid in groundwater management of the Laguna Seca and Corral de Tierra subareas.

4. *Climate Change.* Higher seawater levels could exacerbate seawater intrusion concerns, which punctuates the importance of monitoring and long-term management to avoid seawater intrusion. From a water supply perspective, reliance on groundwater with sustainable management is ideal because the resource is a reservoir and therefore not subject to sharp fluctuations in availability resulting from year-to-year precipitation amounts as is the case with surface water supplies. Updating of the Watermaster's *Groundwater Model* in 2018 (discussed in Section J of the 2018 Annual Report) and *Basin Management Action Plan* in 2019 (discussed in Section J of this 2019 Annual Report) incorporated projected impacts from climate change and sea level rise.

5. *New Technical Issues or Activities.*

- Stormwater Projects Being Evaluated in the Monterey Peninsula Stormwater Resource Plan (SWRP).

As reported in the 2018 Annual Report, Monterey One Water as the lead entity coordinated the development of a Stormwater Resource Plan (SWRP) for the Monterey Peninsula, Carmel Bay, and South Monterey Bay (Monterey Peninsula) Integrated Regional Water Management (IRWM) Planning Area.

The purpose of the SWRP is to identify opportunities to capture stormwater that could be utilized as new water supply sources for the Monterey Peninsula and provide additional water quality and environmental benefits. Some of those projects have the potential to minimally benefit the Seaside Basin, and are discussed in the 2019 Updated Basin Management Action Plan.

L. Conclusions and Recommendations

The Seaside Basin Watermaster Board has worked diligently to meet all of the Court's established deadline dates. All of the Phase 1 Scope of Work activities, which are described in the "Implementation Plan for the Seaside Basin Monitoring and Management Program" dated March 7, 2007, have been completed. At the Watermaster Board meeting held on October 2, 2019 the Board adopted the FY 2020 budgets contained in [Attachment 6](#), which support carrying out all elements of the 2020 Seaside Groundwater Basin Monitoring and Management Program (M&MP). The M&MP is contained in [Attachment 9](#) and describes the activities that the Watermaster plans to conduct during Fiscal Year 2020.

As described in Section J above, information from the Enhanced Monitoring Well Network is being utilized to detect any seawater intrusion. The response actions described in the Watermaster's Seawater Intrusion Response Plan, which was contained in the 2009 Annual Report, will be implemented if seawater intrusion is detected within the Basin.

As of the date of preparation of this 2019 Annual Report no future status conferences with the Court have been scheduled.

LISTING OF ACRONYMS USED IN THIS ANNUAL REPORT

AF - acre-feet
ASR - Seaside Basin Aquifer Storage and Recovery program
Basin - The adjudicated Seaside Groundwater Basin
BLM - Bureau of Land Management
BMAP - Basin Management Action Plan
CASGEM - California Statewide Groundwater Elevation Monitoring
CAWC - California American Water Company
Decision - Decision filed February 9, 2007 by the Superior Court in Monterey County under Case No. M66343 - California American Water v. City of Seaside et al.
DWR - California State Department of Water Resources
GSA - Groundwater Sustainability Agency
GSP - Groundwater Sustainability Plan
LSSA - Laguna Seca Subarea
MIW - Monterey One Water (formerly Monterey Regional Water Pollution Control Agency)
MCWD - Marina Coast Water District
MPWMD - Monterey Peninsula Water Management District
MPWSP - Monterey Peninsula Water Supply Project
M&MP - Monitoring and Management Program
NSY - Natural Safe Yield
PWM - Pure Water Monterey Project
SGMA - Sustainable Groundwater Management Act
SIAR - Seawater Intrusion Analysis Report
SIRP - Seawater Intrusion Response Plan
SVBGSA - Salinas Valley Basin Groundwater Sustainability Agency
SWRCB - State Water Resources Control Board
TAC - Technical Advisory Committee
USGS - United States Geological Survey
WY - Water Year

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

***** AGENDA TRANSMITTAL FORM *****

MEETING DATE:	November 20, 2019
AGENDA ITEM:	6
AGENDA TITLE:	Schedule
PREPARED BY:	Robert Jaques, Technical Program Manager
SUMMARY:	<p>As a regular part of each monthly TAC meeting, I will provide the TAC with an updated Schedule of the activities being performed by the Watermaster, its consultants, and the public entity (MPWMD) which are performing certain portions of the work.</p> <p>Attached are the updated schedule for 2019 activities, and the proposed schedule for 2020 activities.</p> <p>Some activities which may be needed in 2020, such as further geochemical modeling if the MPWSP desalination plant begins construction or if groundwater modeling is necessary to interface with the Salinas Valley Basin GSA in its development of a Groundwater Sustainability Plan for the Corral di Tierra subarea, will be added during the year if necessary.</p> <p>Note that there will not need to be a meeting in December, so the next TAC meeting will be on January 8, 2020.</p>
ATTACHMENTS:	<ol style="list-style-type: none"> 1. Schedule of Work Activities for FY 2019 2. Proposed Schedule of Work Activities for FY 2020
RECOMMENDED ACTION:	Provide Input to Technical Program Manager Regarding Any Corrections or Additions to the Schedules

Seaside Basin Watermaster 2019 Monitoring and Management Program Work Schedule

ID	Task Name	Dec '18		Jan '19		Feb '19		Mar '19		Apr '19		May '19		Jun '19		Jul '19		Aug '19		Sep '19		Oct '19		Nov '19		Dec '19																																								
		25	2	9	16	23	30	6	13	20	27	3	10	17	24	3	10	17	24	31	7	14	21	28	4	11	18	25	1	8	15	22	29	5	12	19	26	2	9	16	23	30	7	14	21	28	4	11	18	25	1	8	15	22	29	6	13	20	27	3	10	17	24	1	8	15
46	TAC receives report from Pueblo Water Resources containing the findings of the geochemical modeling of the MPWSP desalinated water	NOT CURRENTLY SCHEDULED - AWAITING START OF CONSTRUCTION OF DESALINATION PLANT																																																																
47	Board receives report from Pueblo Water Resources containing the findings of the geochemical modeling of the PWM AWT water	Completed																																																																
48	Board receives report from Pueblo Water Resources containing the findings of the geochemical modeling of the MPWSP desalinated water	NOT CURRENTLY SCHEDULED - AWAITING START OF CONSTRUCTION OF DESALINATION PLANT																																																																
49	I.3.c Refine and/or Update the BMAP																																																																	
50	TAC Receives Presentation on Preliminary Draft Updated BMAP	Completed																																																																
51	TAC receives Gus Yate's Memo on the Updated BMAP	Completed																																																																
52	Montgomery & Associates makes revisions to the Updated BMAP to respond to Gus Yate's Memo & TAC Input	Completed																																																																
53	TAC Approves Draft Updated BMAP & Provides Direction to Technical Program Manager Regarding Development of Information on NSY Issues	Completed																																																																
54	TAC Discusses NSY and Sustainable Yield Issues	Completed																																																																
55	Watermaster Staff Solicits Input on NSY Issues from Standard Producers & Legal Counsel	Completed																																																																
56	TAC Receives Report on Outcome of Discussions with Standard Producers and Legal Counsel & Prepares Recommendation to Board on Ramp-Down Issues	Completed																																																																
57	Board receives presentation on the Draft Updated BMAP from Montgomery & Associates, TAC recommendation regarding ramp-down issues, and Information on NSY and Sustainable Yield Issues	COMPLETED																																																																
58	Watermaster Staff and TAC Develop Responses to Questions/Direction from Board on NSY and Sustainable Yield Issues	THIS WORK WAS NOT REQUIRED																																																																
59	Board Receives Information in Response to its Questions/Direction on NSY and Sustainable Yield Issues																																																																	
60	I.4.c Annual Seawater Intrusion Analysis Report (SIAR)																																																																	
61	Montgomery & Associates Provides Draft SIAR to Watermaster																																																																	
62	TAC Approves Annual Seawater Intrusion Analysis Report (SIAR)	11/13																																																																

Seaside Basin Watermaster 2020 Monitoring and Management Program Work Schedule

ID	Task Name	Dec '19	Jan '20	Feb '20	Mar '20	Apr '20	May '20	Jun '20	Jul '20	Aug '20	Sep '20	Oct '20	Nov '20	Dec '20
		1 8 15 22 29	5 12 19 26	2 9 16 23	1 8 15 22 29	5 12 19 26	3 10 17 24	31 7 14 21 28	5 12 19 26	2 9 16 23 30	6 13 20 27	4 11 18 25	1 8 15 22 29	6 13 20 27
1	Replenishment Assessment Unit Costs for Water Year 2021													
2	B&F Committee Develops Replenishment Assessment Unit Cost for 2021 Water Year													
3	If Requested, TAC Provides Assistance to B&F Committee in Development of 2021 Water Year Replenishment Assessment Unit Cost													
4	Board Adopts and Declares 2021 Water Year Replenishment Assessment Unit Cost													
5	Replenishment Assessments for Water Year 2020													
6	Watermaster Prepares Replenishment Assessments for Water Year 2020													
7	Watermaster Board Approves Replenishment Assessments for Water Year 2020 (At December Meeting)													
8	Watermaster Levies Replenishment Assessment for 2020													
9	Monitoring & Management Program (M&MP) Budgets for 2021 and 2022													
10	Preliminary Discussion of Potential Scope of Work for 2021 M&MP													
11	Prepare Draft 2021 M&MP and 2021 and 2022 O&M and Capital Budgets													
12	TAC approves Draft 2021 M&MP and 2021 and 2022 O&M and Capital Budgets													
13	Budget & Finance Committee Approves Draft 2021 M&MP and 2021 and 2022 O&M and Capital Budgets													
14	Board approves 2021 M&MP and 2021 M&MP O&M and Capital Budgets													
15	2019 Annual Report													
16	Prepare Preliminary Draft 2020 Annual Report													
17	TAC Provides Input on Preliminary Draft 2020 Annual Report													
18	Prepare Draft 2020 Annual Report (Incorporating TAC Input)													
19	Board Provides Input on Draft 2020 Annual Report (At December Board Meeting)													
20	Prepare Final 2020 Annual Report (Incorporating Board Input)													
21	Watermaster Submits Final 2020 Annual Report to Judge													
22	MANAGEMENT													
23	M.1 PROGRAM ADMINISTRATION													

Seaside Basin Watermaster 2020 Monitoring and Management Program Work Schedule

ID	Task Name	Dec '19	Jan '20	Feb '20	Mar '20	Apr '20	May '20	Jun '20	Jul '20	Aug '20	Sep '20	Oct '20	Nov '20	Dec '20
24	Prepare Initial Consultant Contracts for 2021													
25	TAC Approval of Initial Consultant Contracts for 2021													
26	Board Approval of Initial Consultant Contracts for 2021													
27	M.1.g – Sustainable Groundwater Management Act Reporting Requirements													
28	Montgomery & Associates Prepares Draft Groundwater Storage Analysis													
29	Submit SGMA Documentation to DWR													
30	IMPLEMENTATION													
31	I.2.a DATABASE MANAGEMENT													
32	I.2.a.1 Conduct Ongoing Data Entry/Database Maintenance													
33	I.2.b DATA COLLECTION PROGRAM													
34	I.2.b.2 Collect Monthly Water Levels (MPWMD)													
35	I.2.b.3 Collect Quarterly Water Quality Samples (MPWMD)													
36	I.2.b.6 MPWMD provides annual water quality and water level data to Montgomery & Associates for inclusion in the 2020 SIAR													
37	I.4.c Annual Seawater Intrusion Analysis Report (SIAR)													
38	Montgomery & Associates Provides Draft SIAR to Watermaster													
39	TAC Approves Annual Seawater Intrusion Analysis Report (SIAR)													
40	Board Approves Annual Seawater Intrusion Analysis Report (SIAR)													

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

***** AGENDA TRANSMITTAL FORM *****

MEETING DATE:	November 20, 2019
AGENDA ITEM:	7
AGENDA TITLE:	Other Business
PREPARED BY:	Robert Jaques, Technical Program Manager
SUMMARY:	<p>The “Other Business” agenda item is intended to provide an opportunity for TAC members or others present at the meeting to discuss items not on the agenda that may be of interest to the TAC.</p>
ATTACHMENTS:	None
RECOMMENDED ACTION:	None required – information only