

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

**DATE: Wednesday, June 4, 2014 [NOTE CHANGE OF NORMAL MEETING DATE]**

**MEETING TIME: 1:30 p.m.**

**Monterey Regional Water Pollution Control Agency 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 (877)810-9415. Use the Access Code of 4560043. 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: Roger Hulbert, California American Water Company**

**Vice-Chairperson: Joe Oliver, 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 Peninsula Water Management District	Monterey County Water Resources Agency

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**SEASIDE BASIN WATER MASTER  
TECHNICAL ADVISORY COMMITTEE**

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

<b>MEETING DATE:</b>	June 4, 2014
<b>AGENDA ITEM:</b>	2.A
<b>AGENDA TITLE:</b>	Approve Minutes from the May 14, 2014 Meeting
<b>PREPARED BY:</b>	Robert Jaques, Technical Program Manager
<b>SUMMARY:</b>	Draft Minutes from this meeting were emailed to all TAC members. Any changes requested by TAC members have been included in the attached version.
<b>ATTACHMENTS:</b>	Minutes from this meeting
<b>RECOMMENDED ACTION:</b>	Approve the minutes

**D-R-A-F-T**  
**MINUTES**

**Seaside Groundwater Basin Watermaster  
Technical Advisory Committee Meeting  
May 14, 2014**

**Attendees: TAC Members**

City of Seaside – Rick Riedl  
California American Water – Roger Hulbert  
City of Monterey – Norm Green  
Laguna Seca Property Owners – Bob Costa  
MPWMD – Joe Oliver  
MCWRA – Howard Franklin  
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**

HydroMetrics – Georgina King (via telephone)

**Others**

MPWMD - Jon Lear  
California American Water – John Kilpatrick  
Todd Groundwater – Phyllis Stanin  
Public – David Lifland

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The meeting was called to order at 1:40 p.m., once a quorum was present.

**1. Public Comments**

There were no public comments.

**2. Administrative Matters:**

**A. Approve Minutes from the April 9, 2014 Meeting**

Mr. Franklin requested that the word "...sustainable..." be replaced with "...long-term..." in the last sentence of the first paragraph on page 4 of the Agenda packet, in the Draft Minutes from the April 9, 2014 TAC meeting. With this change made, on a motion by Mr. Gomez, second by Mr. Green, the Minutes were unanimously approved.

**B. Discussion of Issues Raised by Mr. Lifland at April 9, 2014 Meeting**

Mr. Jaques summarized the agenda packet materials for this item. There was consensus to continue discussion of this item to the June TAC meeting.

**C. Progress/Status Reports on Cal Am's Monterey Peninsula Water Supply Project and MRWPCA/MPWMD's Groundwater Replenishment Projects**

Monterey Peninsula Water Supply Project: Following a brief introduction by Mr. Jaques, Mr. John Kilpatrick of California American Water Company made a presentation on the Monterey Peninsula Water Supply Project (Project). The presentation covered the background and current status of the

Project. The key points provided in the presentation, the PowerPoint presentation slides of which are attached to these Minutes, included:

- The Monterey Peninsula Water Supply Project will be funded in part by State Revolving Fund loans, and will involve slant wells for water production and a desalination plant with pipelines, distribution, and storage facilities.
- A Governance Committee has been established to help coordinate issues associated with the Project. This Committee plans to meet later this year with the SWRCB to seek an 18 month extension of the existing Cease and Desist Order deadline to cover the time span between the Cease and Desist Order deadline of January 2017 and the June 2018 projected startup date for the Project.
- The modeling of the Salinas Ground Water Basin is being done to assess impacts.
- Consensus has been achieved through a 16-party Agreement.
- Historically approximately 25 percent of California American Water's supply has come from the Seaside Basin and 75 percent from the Carmel River.
- The proposed future supply will consist of: 22 percent from Groundwater Replenishment, 40 percent from a new Regional Desalination Plant, 5 percent from the Seaside Groundwater Basin, 22 percent from the Carmel River, 2 percent from the Sand City Desalination Plant, 1 percent from the City of Pacific Grove's storm water diversion project, and 8 percent from Aquifer Storage and Recovery.
- The current schedule for the Project calls for a CPUC approval of the Draft EIR in September 2014, approval by the CPUC of the final EIR in February 2015, and Coastal Commission permit approval by November 2015.
- Regarding production wells, Coastal Commission approval for the test well is expected in October 2014, followed by construction and use of data from the test well to design and install permanent production slant wells in three phases through early 2018. The test well itself will be designed to also function as a permanent production well. The test well will run for over a year to provide information for design of the desalination plant. The slant wells will probably be screened seaward of the point where they reach the edge of the ocean.
- The primary site for the slant wells is the Cemex site in Marina, but a contingency site on Potrero Road in Moss Landing is also being retained in the event the Cemex site proves infeasible for some reason.
- Full startup of the desalination plant is scheduled for June 2018.
- Pipelines, pump stations, permitting, and other work associated with the project is scheduled for completion by November 2017.
- Camp, Dresser, and McKee (CDM) has been selected to design-build the desalination plant which will be located just north of Charlie Benson Road near the Regional landfill.
- Other members of the team are URS which is handling pipelines, pump stations, reservoirs, and associated permits, and RBF which is handling test wells, production wells, and associated permits.
- Several pipeline routes are being evaluated.
- The site for the desalination plant has already been purchased, and right-of-way access rights and easements are currently being acquired for the other facilities.
- A terminal reservoir consisting of two-3 million gallon tanks will be located northeast of the intersection of Hilby Avenue and General Jim Moore Road in the former Fort Ord. ASR wells will also be located in the former Fort Ord.
- The desalination plant will discharge its brine to the MRWPCA outfall.

#### Groundwater Replenishment Project:

Ms. Phyllis Stanin of Todd Groundwater made a presentation on the MRWPCA/MPWMD Groundwater Replenishment Project (Project). The presentation covered the background and current

status of the Project. The key points provided in the presentation, the PowerPoint presentation slides of which are attached to these Minutes, included:

- The project will include vadose zone and deep injection wells. The vadose zone wells will recharge the Paso Robles aquifer and the deep injection wells will recharge the Santa Margarita aquifer.
- Current production wells draw from both the Paso Robles and Santa Margarita aquifers.
- The project site will be located just to the east of General Jim Moore Boulevard.
- Currently there are pumping depressions in both the Paso Robles and Santa Margarita aquifers down to 40 feet below Mean Sea Level west of General Jim Moore Boulevard in the vicinity of the major production wells. The aerial extent of the depression is much larger in the Santa Margarita than in the Paso Robles aquifer.
- "Vadose zone" is defined as the unsaturated zone of soil above the water table.
- There will probably be four well pairs in the Project, with each pair consisting of one shallow vadose zone well and one deep injection well. These will be located south of Eucalyptus Road. There will also be monitoring wells to meet California Department of Public Health requirements.
- Modeling, using the Watermaster's Basin Model, is being performed to evaluate underground retention times to comply with California Department of Public Health regulations, and to get a 6-log virus removal credit. The retention time is greater than one year for most of the deep injection wells, and much longer for the vadose zone wells. California Department of Public Health only requires six months retention to get a 6-log credit if tracers are used to determine the retention time, but requires one year or more if modeling is used. Modeling takes into account the aquifer storage and recovery pumping and production well pumping.
- The vadose zone is approximately 400 feet thick in the Dune Sands and Aromas Sands formations.
- Under the Field Program that is currently being implemented, a new monitoring well was installed in December 2013 and sampled during January and February of 2014 to get data on the Eucalyptus Road site. Core samples were taken and groundwater samples were analyzed to characterize the well site.
- A report is being prepared for this Field and Modeling work and will be used in support of the draft EIR.
- The EIR process for the Project is being coordinated with the schedule for the EIR process for the Monterey Peninsula Water Supply Project.
- A decision on whether the Project will be incorporated into the Monterey Peninsula Water Supply Project is expected to be made in 2016.

### **3. Update on Conversion of CAW Wells from Production to Monitoring**

Mr. Jaques summarized the agenda packet material for this item. Mr. Oliver noted that MPWMD is waiting for payment from California American Water to convert these wells to monitoring wells by installing transducers in them. Mr. Hulbert said he would pursue getting payment made.

### **4. Continued Discussion of New Survey Information on the Wang Subdivision Wells**

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

Mr. Oliver noted that a controlled pumping test with monitoring would help to clarify whether or not the Wang project wells are hydraulically connected to the Laguna Seca Subarea. Neither MCWRA nor the Watermaster nor MPWMD has the authority to require this to be done, but was felt that Monterey County itself, as a condition of approval for the project, could probably require this to be done.

Mr. Franklin noted that MCWRA's findings are similar to those from MPWMD.

Mr. Oliver commented that once the Monterey County Resources Management Agency draws its conclusions on the project, the matter could come back to the Watermaster TAC for further discussion and review.

Mr. Franklin noted that the Watermaster Board could send a new letter with comments on the Wang project, or could first wait to see what the Monterey County Resource Management Agency says. He went on to say he felt the Watermaster's previous letter regarding the Wang project should be rescinded in light of the new hydrogeologic information.

Following further discussion there was consensus to have Mr. Jaques prepare a draft Board agenda transmittal for this matter and include it in the packet for the TAC's June 4, 2014 meeting for discussion and finalization before sending it forward to the Board.

#### **5. Continued Discussion of HydroMetrics Modeling of Laguna Seca Subarea**

Because of the length of the previous agenda items and the fact that this item is not time-critical, in the interest of time there was consensus to continue this item to the June TAC meeting.

#### **6. Schedule**

In a brief summary of this item Mr. Jaques reported that the presentation from HydroMetrics regarding the evaluation of the Groundwater Model's accuracy has been postponed to the June TAC meeting due to HydroMetrics' current workload.

#### **7. Other Business**

Mr. Riedl asked when the next Water Quality data information from producers is due to be submitted. Mr. Lear responded that Mr. Evans normally asks for these to be submitted by the second week in August.

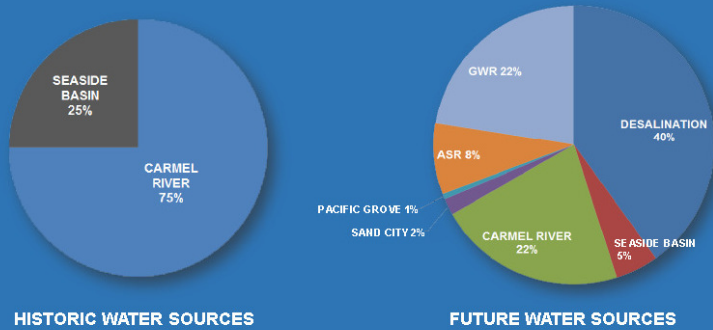
#### **8. Set Next Meeting Date**

Mr. Jaques summarized the agenda packet material for this item. A motion by Mr. Oliver, seconded by Mr. Green, to reschedule the June 2014 TAC meeting from June 11 to June 4 was unanimously passed. Mr. Riedl noted that he will be unable to attend that meeting but will send an Alternate.

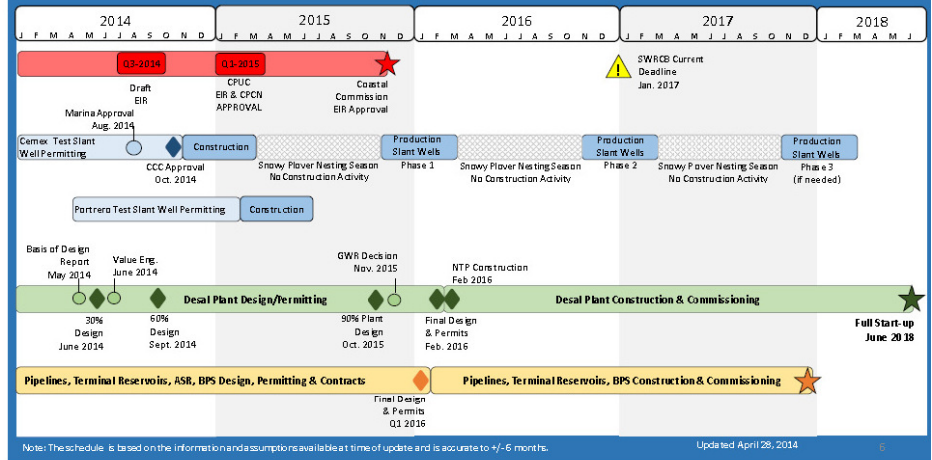
The meeting adjourned at 3:50 p.m.



# WATER SOURCES TODAY/TOMORROW



# MPWSP Schedule



# MPWSP Team



- ▶ Project Components
  - Pipelines
  - Reservoirs
  - Pump Stations
  - Permits

▶ Design/Bid/Build



- ▶ Project Components
  - Desal Plant
  - Permits

▶ Design Build



- ▶ Project Components
  - Test Well
  - Production Wells
  - Permits

▶ Design/Bid/Build

# Pipeline Overview





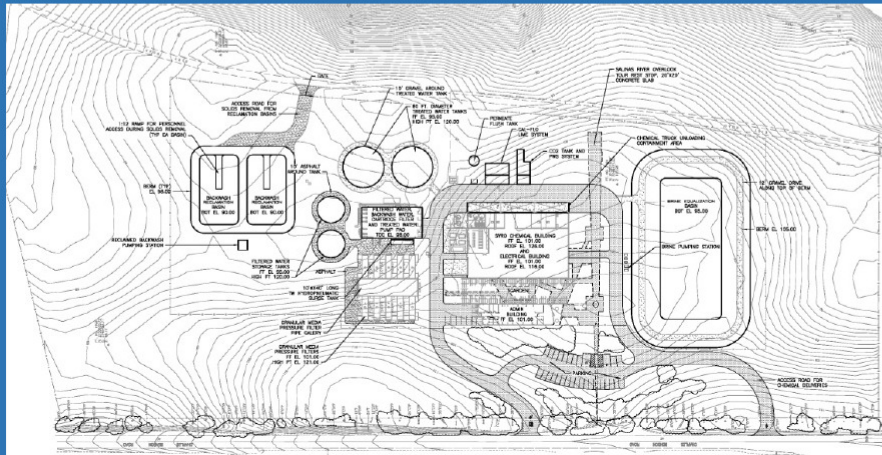
## Terminal Reservoir Rendering



## Desal Plant Rendering



## Desal Plant Site Plan



## Cemex Slant Well Layout Sketch



## Potrero Rd Test Slant Well Layout Sketch



## Conclusion

- Next Steps
- Questions
- Contacts



# Seaside Basin Injection Planning and Field Program

Presentation to TAC  
Seaside Basin Watermaster  
May 14, 2014



## Presentation Outline

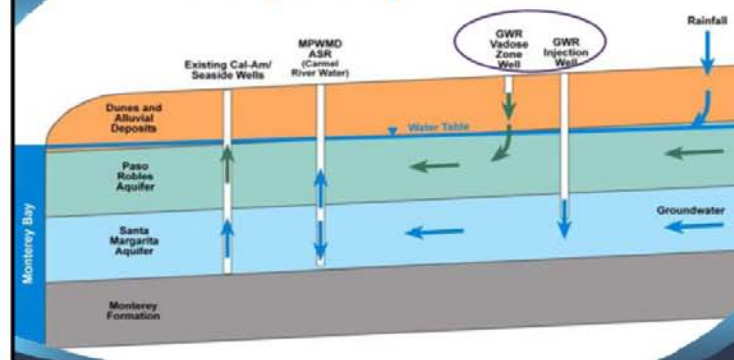
- Project Layout and Injection Well Planning
- Field Program Overview
  - Geologic Description and Hydraulic Properties
  - Extraction/Leaching Analyses with GWR Product Water
  - Mineralogical Analysis
- Groundwater Quality Characterization
  - Baseline Water Chemistry
  - Fort Ord COCs – Explosives, Metals
  - Recycled Water Monitoring and Surrogate CECs

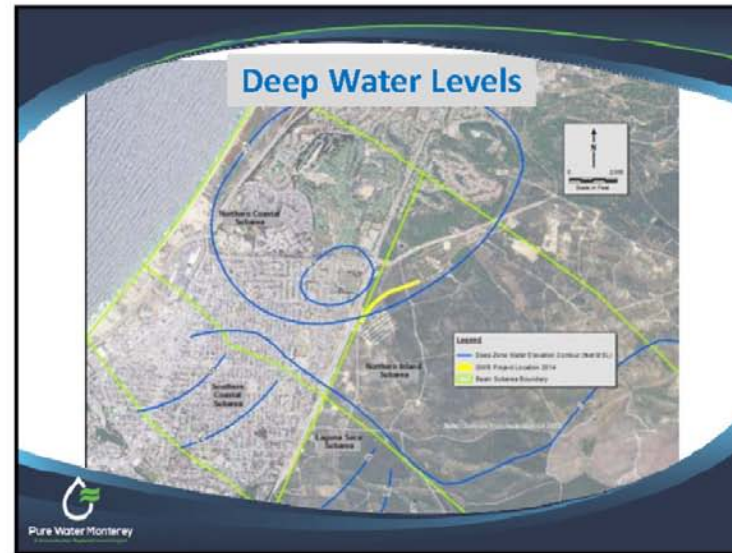
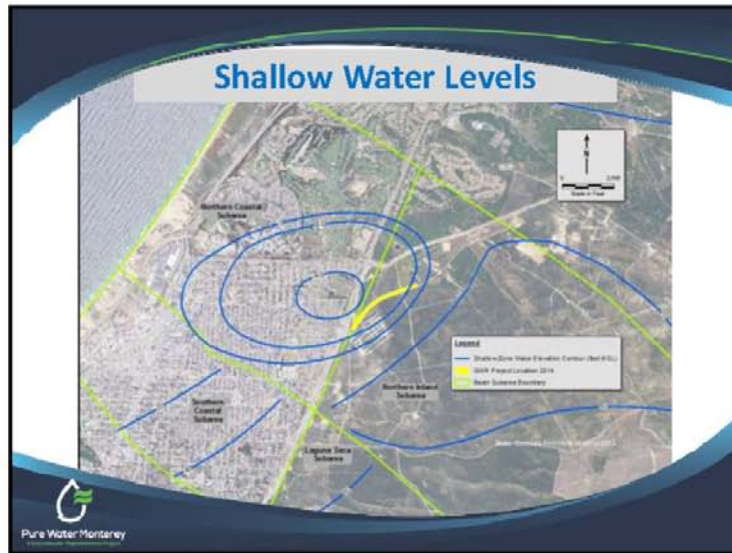


## Seaside Groundwater Basin



## Conceptual Injection Wells





- ### Modeling for Underground Retention Time
- Apply Underground Retention Time for 6-log virus removal credit
  - Demonstrate with Seaside Basin Watermaster Groundwater Model – HydroMetrics conducting the analysis
  - 6-month credit requires 1-year travel time from modeling to account for model uncertainty
  - Preliminary modeling ongoing



### Recently-Completed Field Program

- Monitoring Well Installation
- Core Description and Sampling
- Laboratory Analyses
- Groundwater Sampling for baseline constituents

Pure Water Monterey

### Field Program Objectives

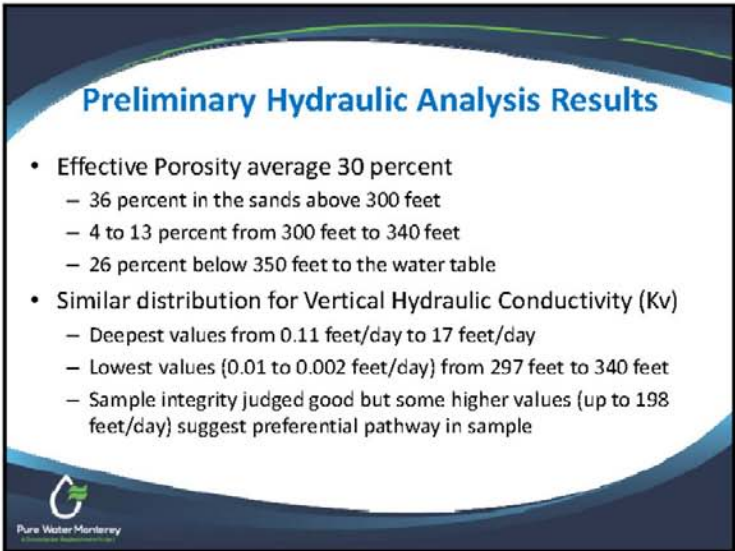
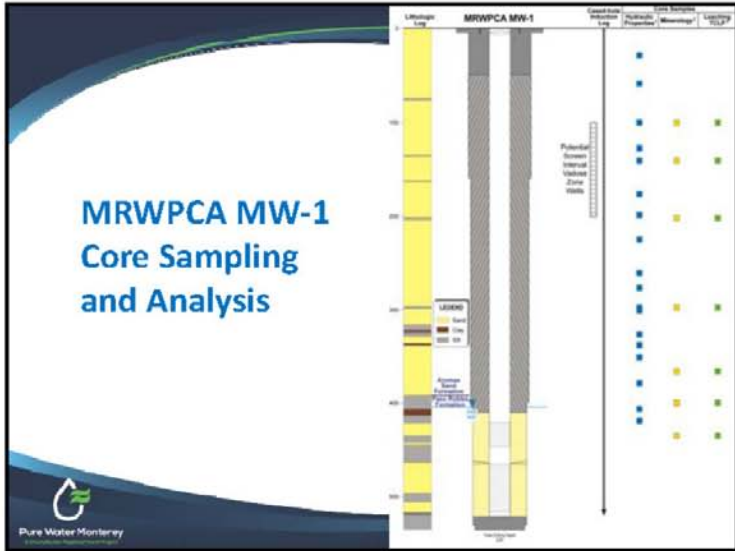
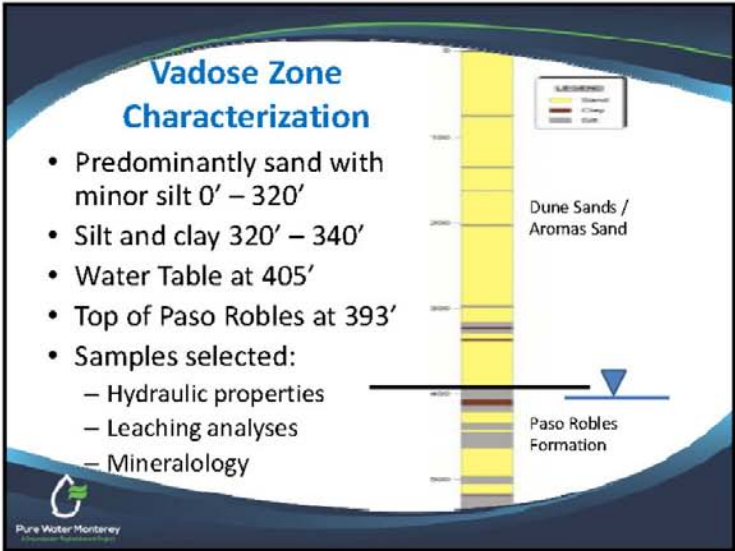
- Characterize vadose zone
- Evaluate the potential for former Fort Ord impacts
- Support geochemical modeling
- Groundwater sampling for baseline constituents

Pure Water Monterey

### Sonic Drilling Continuous Core 535 feet deep

Pure Water Monterey





## Groundwater Sampling Objectives

- Characterize Paso Robles Aquifer
- Provide upgradient groundwater quality
- Test groundwater for former Fort Ord constituents (explosives)
- Evaluate constituents required by the Recycled Water Policy including CECs (PPCPs) that will be incorporated into baseline sampling



Pure Water Monterey  
A Sustainable Water Solutions Company

## Groundwater Sampling Results Conventional Chemistry/Misc. Parameters

Analyte	Method	Units	MDL	Paso Robles	Santa Marg.	Paso Robles	Paso Robles	Paso Robles	Santa Marg.	Regulatory Requirement
				City of Seaside #	FO-7 Deep	FO-7 Shallow	MRWPC A MW-1	FRTM Mission Memorial	ASR MW-1	
Bicarbonate (HCO <sub>3</sub> <sup>-</sup> )	SM2520B	mg/L	0.060	66	210	68	70	130	270	-
Specific Conductance (EC)	SM2510B	µmhos/cm or µS/cm	1.0	340	660	280	270	440	900	CSMCL
Total Dissolved Solids (TDS)	SM2540C	mg/L	5.0	250	460	190	220	350	500	CSWCL-ESMCL
Turbidity	SM2130B	NTU	0.040	0.32	10	550	71	0.98	0.37	CFWCL-EPWCL-ESMCL
Nitrate + Nitrite as N	EPA 300.0	mg/L	0.0086	3.0	0.13	0.55	0.61	2.4	0.084	10
Total Organic Carbon (TOC)	SM5310C	mg/L	0.100	0.274	0.130	0.768	0.899**	0.519**	0.627	-

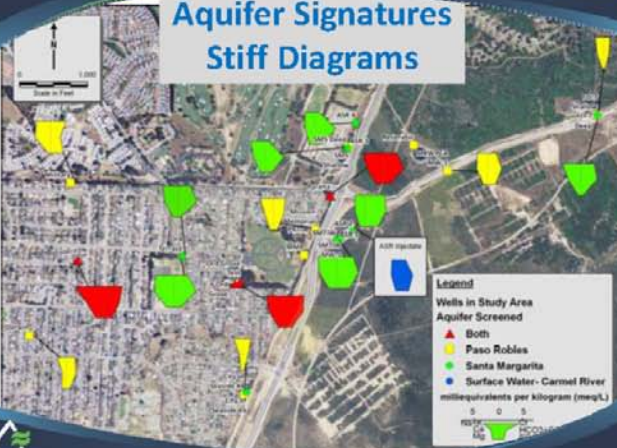
\*\* Detected in lab blank

Water chemistry varies by aquifer  
High turbidity in monitoring wells compromised some analyses



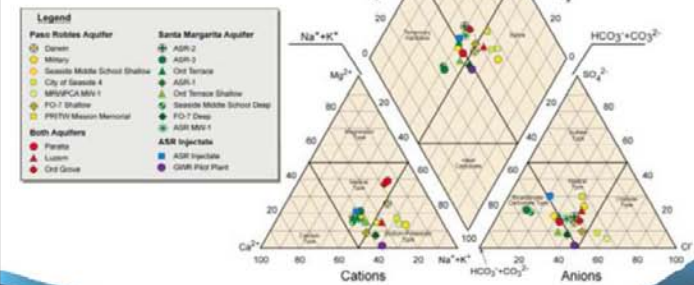
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## Aquifer Signatures Stiff Diagrams

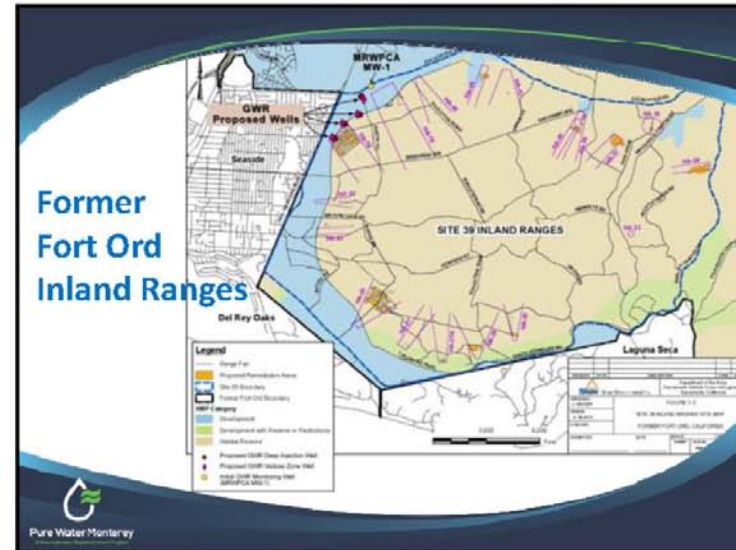
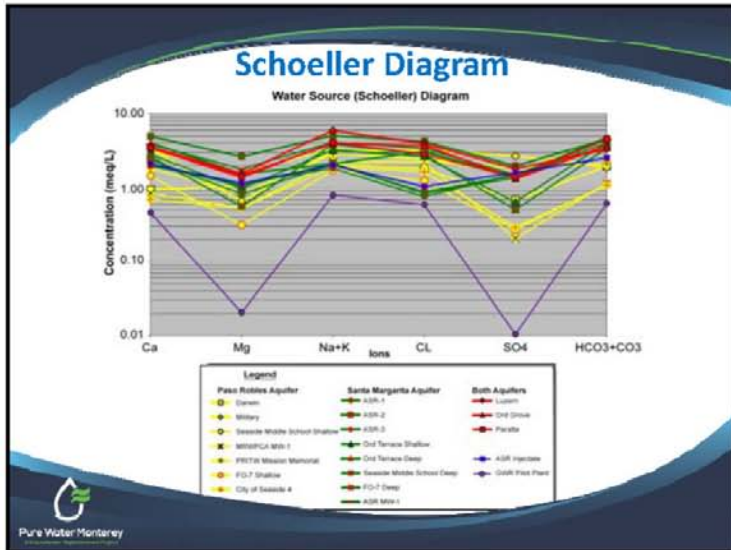


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## Water Chemistry Trilinear Diagram



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### Nitroaromatics/Nitramines (Explosives)

Analyte	Methods	MRL	City of Seaside #	FO-7 Deep	FO-7 Shallow	MW-1	PKTIW Mission Memorial	ASR MW-1	Regulatory Requirement
µg/L									
HNOK	81308	0.098	ND	ND	ND	ND	ND	ND	--
ROK	81308	0.098	ND	ND	ND	ND	ND	ND	--
1,3,5-Trinitrobenzene	81308	0.30	ND	ND	ND	ND	ND	ND	--
1,3-Dinitrobenzene	81308	0.098	ND	ND	ND	ND	ND	ND	--
3,5-Dinitroanisole	81308	0.098	ND	ND	ND	ND	ND	ND	--
Tetryl	81308	0.30	ND	ND	ND	ND	ND	ND	--
Nitrobenzene	81308	0.098	ND	ND	ND	ND	ND	ND	--
4-Amino-2,6-dinitrotoluene	81308	0.098	ND	ND	ND	ND	ND	ND	--
2-Amino-4,6-dinitrotoluene	81308	0.098	ND	ND	ND	ND	ND	ND	--
2,4,6-Trinitrotoluene	81308	0.098	ND	ND	ND	ND	ND	ND	--
2,6-Dinitrotoluene	81308	0.30	ND	0.064*	0.070*	ND	ND	0.057*	←
2,4-Dinitrotoluene	81308	0.098	ND	ND	ND	ND	ND	ND	--
2-Nitrotoluene	81308	0.10	ND	ND	ND	ND	ND	ND	--
4-Nitrotoluene	81308	0.098	ND	ND	ND	ND	ND	ND	--
3-Nitrotoluene	81308	0.098	ND	ND	ND	ND	ND	ND	--
Nitrotyrosine	81308	0.98	ND	ND	ND	ND	ND	ND	--
Pentaerythritol Tetranitrate	81308	0.49	ND	ND	ND	ND	ND	ND	--

2,6-Dinitrotoluene detected in lab blank; J values only.  
All remaining constituents below MRLs

Pure Water Monterey

- ### Groundwater Sampling Results
- No detections above Method Detection Limits for:
    - Chlorinated Pesticides and PCBs
    - Nitrogen and Phosphorus Pesticides
    - Chlorinated Acids
    - Carbamates
    - Haloacetic Acids
  - Few low level detections of VOCs; < MCLs
- Pure Water Monterey

## Pharmaceutical and PCPs

Analyte	Method	MRL	City of Seaside	FO-7 Deep	FO-7 Shallow	MRWPCA MW-1	PRTW Mission	ASR MW-1	Regulatory Requirements	Type
										µg/L
N-nitrosodimethylamine	EPA 1625M	0.002	ND	ND	NA	ND	ND	ND	--	--
N-nitrosodimethylamine	EPA 1625M	0.002	ND*	ND*	NA	ND	0.0054	ND	0.01	NL
N-nitrosodimethylamine	EPA 1625M	0.002	ND	ND	NA	ND	ND	ND	--	--
N-nitrosodimethylethylene	EPA 1625M	0.002	ND	ND	NA	ND	ND	ND	--	--
N-Nitrosomorpholine	EPA 1625M	0.002	ND	ND	NA	ND	ND	ND	--	--
N-nitrosopiperidine	EPA 1625M	0.002	ND	ND	NA	ND	ND	ND	--	--
N-Nitrosopyrrolidine	EPA 1625M	0.002	ND	ND	NA	ND	ND	ND	--	--
17- $\alpha$ -ethinylestradiol	EPA 1094M AP1	0.001	ND	ND	ND	ND	ND	ND	--	--
17- $\beta$ -estradiol	EPA 1094M AP1	0.001	ND	ND	ND	ND	ND	ND	--	--
Ethinone	EPA 1094M AP1	0.001	ND	ND	ND	ND	ND	ND	0.0009-1.8	DWEL
Progesterone	EPA 1094M AP1	0.001	ND	ND	ND	ND	ND	ND	--	--
Testosterone	EPA 1094M AP1	0.001	ND	ND	ND	ND	ND	ND	--	--
Biphenyl A	EPA 1094M ES1	0.001	0.000*	0.005*	ND*	0.390*	ND*	1.400*	--	--
Gemfibrozil	EPA 1094M ES1	0.001	ND	ND	ND	ND	ND	ND	--	--
Ibuprofen	EPA 1094M ES1	0.001	ND	ND	ND	ND	ND	ND	--	--
Iopromide	EPA 1094M ES1	0.005	ND	ND	ND	ND	ND	ND	--	--
Naproxen	EPA 1094M ES1	0.001	ND	ND	ND	ND	ND	ND	--	--

- Only one NDMA detection – below NL
- NDMA and BPA Detections in laboratory blank
- Additional low-level detections of PPCPs



## Ongoing Analyses

- Additional groundwater baseline sampling
- Laboratory results from core extraction and mineralogical analyses
- Geochemical modeling
- Vadose zone review
- Groundwater modeling and impacts analysis to support EIR



**SEASIDE BASIN WATER MASTER  
TECHNICAL ADVISORY COMMITTEE**

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

<b>MEETING DATE:</b>	June 4, 2014
<b>AGENDA ITEM:</b>	2.B
<b>AGENDA TITLE:</b>	Discussion of Issues Raised by Mr. Lifland at the April 9, 2014 Meeting
<b>PREPARED BY:</b>	Robert Jaques, Technical Program Manager

**SUMMARY:**

At the TAC's April 9, 2014 meeting Mr. David Lifland attended as a member of the public. Under the "Public Comments" section of the agenda for that meeting, Mr. Lifland raised several issues of concern which the TAC agreed to agendaize for discussion at today's meeting. Mr. Lifland subsequently provided me a written description of the questions/concerns that he would like the TAC to discuss.

Attached are Mr. Lifland's comments or questions, shown in italics, and the responses provided by MPWMD or MRWPCA, shown in regular font.

<b>ATTACHMENTS:</b>	Comments/Questions and Responses
<b>RECOMMENDED ACTION:</b>	None required

## Comments/Questions and Responses

*1. Comment or Question(s): Of primary concern to me as a resident of the Monterey Peninsula is the current planned use of the Seaside aquifer as the primary storage media not just for ASR but for GWR and Desal waters as well.*

*The major reason that Cal-Am was taken to account in 1995 was their over pumping of the Carmel River and Basin.*

*The 2009 CDO was issued as they failed to rectify their over pumping there and now all the current water plans indicate that all waters will be stored in and/or passed through the leaky Seaside aquifer for which the Watermaster is in charge.*

**Response:** While it is true that the current water supply plans as envisioned for Cal-Am's Monterey Peninsula Water Supply Project (MPWSP) proposal will rely to a greater degree on development of the water resources potential of the Seaside Groundwater Basin (SGB), it is not true that "all waters" that will supply Cal-Am customers upon completion of the MPWSP will either be stored in or passed through the SGB. Under the MPWSP proposal, Cal-Am will continue to utilize sources in the Carmel River Basin (CRB) up to their state-established water rights. In addition, Cal-Am plans to continue to utilize sources in the SGB up to their court-allowed allocation amount (less an annual reduction for a defined period to replenish amounts pumped in excess of Cal-Am's proportion of the SGB's natural safe yield and operating safe yield<sup>1</sup>. It is not clear from the above statement what is meant by the descriptor "leaky Seaside aquifer". More specifically, it is not clear if it is intended to indicate a technical term regarding aquifers that lose or receive water from surrounding formations, or if it is intended to indicate that water to be stored in the SGB and conveyed in pipes over the SGB will leak out of the basin, or if another meaning is intended. In any event case, this would need to be clarified.

<sup>1</sup> See Monterey County Superior Court Case M66343 filed 2/9/2007 for definitions.

*2. Comment or Question(s): My primary concern is simply the potential disaster that would occur should CDPH decide that GWR or Desal or even ASR be in violation of drinking water standards causing a 30 day shut down of the entire aquifer until the problem was mitigated.*

**Response:** The concern expressed above is concordant with the rationale behind current and proposed California Department of Public Health (CDPH) and Regional Water Quality Control Board (RWQCB) regulations and requirements for water supply projects, which are designed to protect drinking water supply sources. In addition, the Cal-Am delivery system under the MPWSP design will be configured to deliver water from terminal storage facilities and/or CRB sources should there be a need to supplement a source or sources within the SGB for whatever reason.

*3. Comment or Question(s): Additionally the current ASR report of 2012 from Pueblo Water Associates (available from MPWMD) seems to raise a number of significant questions regarding quantities in vs. quantities out and the potential fast contaminant spread from subsurface pumping.*

**Response:** The applicable reference for the report cited above is: Pueblo Water Resources, 2013, *Summary of Operations, Monterey Peninsula ASR Project, Water Year 2012*, prepared for MPWMD, September 2013.

*4. Comment or Question(s): Regarding water levels in Figure 12 SMS Water Level Data (pdf page 51 of the Pueblo report) which indicate a decreasing yearly lower water level for both the upper and lower aquifer levels from start 2012 to the end 2012 water year. I have not currently found access to previous*

years' data but given that the upper aquifer is now 10 – 30 feet below sea level (pdf pg 21 of the Pueblo report) I would tend to think there is some linkage between pumping and lack of rainfall.

Response: The above observation regarding decreasing water levels is consistent with other long-term hydrographs from monitor wells in the SGB, particularly for the deeper Santa Margarita aquifer in the more heavily pumped coastal areas of the basin (e.g., see Figure 25 from *WY 2012 Seawater Intrusion Analysis Report, Seaside Basin, Monterey County California*, prepared for Seaside Basin Watermaster by HydroMetrics, November 2012). Regarding the above inference to the “linkage between pumping and lack of rainfall”, it is agreed that precipitation falling on the overlying areas is in fact the ultimate source of groundwater found in the SGB. Additional detail regarding the SGB groundwater balance evaluation can be found in *Seaside Groundwater Basin: Update on Water Resource Conditions*, prepared for MPWMD by Yates, Feeney and Rosenberg, April 14, 2005.

5. Comment or Question(s): *Additionally in the Pueblo report “It is noted that in this context, ASR recovery is essentially an accounting/allocation of CAW’s various water rights and pumping from the Seaside Groundwater Basin, and does not necessarily represent a “molecule-for-molecule” recovery of the injected water. (pdf pg 11 of the Pueblo report). Which would bring me to the question of how much water truly needs to be pumped into the aquifer in order to take out a quantity. Is it 1:1 is it 1.2:1? What factor should be used in regards to the leakage of the Basin system.*

Response: The SGB is a dynamic system that changes with the various components of inflows, outflows and storage changes. It is recognized that mixing of water components does occur in the basin and that ASR recovered water is not applicable at a 1:1 “molecule-for-molecule” ratio. The water budget for this system is based on the change in storage of water over time being equal to the inputs to the system minus the outputs from the system, consistent with the basic equation governing conservation of mass in groundwater basins. It should be noted that in a coastal basin such as the SGB, groundwater outflow is required to prevent seawater intrusion. Coastal groundwater gradients presently are reversed, particularly in the main Santa Margarita aquifer and seaward gradients need to be re-established. Accordingly, the SGB is intended to be managed to optimize its storage capability while minimizing losses (outflows) that are in excess of that required to control the potential for seawater intrusion. Currently, the SGB is in a water deficit situation, i.e., the inflow components minus the outflow components results in a negative storage change situation. A combination of reduced pumping and supplemental storage are envisioned to reverse storage losses and restore the SGB’s balance. This is the principle that is guiding management of the basin.

From a legal and regulatory perspective, it is well established that an entity which conducts enhanced or artificial recharge has the right to recover that water on a 1:1 accounting basis; this is supported by the SGB Adjudication Decision as well as the resource management agencies responsible for oversight of the water resources for the Monterey Peninsula area. At such time that current overdrafting in the CRB and SGB is resolved, this concept could and should be further addressed.

6. Comment or Question(s): *Which brings up the serious mixing and dilution question raised “Because injection operations have occurred annually at Santa Margarita ASR-1 over the past 10 Water Years (injection began at this well in WY 2002), the proximate groundwater quality has been altered from the natural subsurface conditions, making a clear distinction between “native” and “non-native” water quality both complex and somewhat subjective.” (pdf pg 22 of the Pueblo report).*

Response: See discussion regarding mixing in Response above.

7. Comment or Question(s): *Under the CCRWQCB Basin Plan 2011 the Seaside Basin is listed as a source for Municipal water or water of the highest quality. Has the Seaside Watermaster allowed*

*MPWMD and Cal-Am to violate the 68-16 anti degradation policy already and if so what does the future mixing of 12,000 AFY passing through the basin going to result in?*

Response: The Seaside Basin ASR program is being operated under the regulatory oversight of the RWQCB and there is no violation of State Water Resources Control Board Resolution No. 68-16. The CRB source water for ASR has the potential to result in an overall improvement and not degradation of native water quality in the SGB. The recently-prepared SGB Salt & Nutrient Management Plan evaluates and describes the potential long-term effects and overall water-quality benefit or “freshening” of the SGB (i.e., net reduction in salts loading) in response to the operations of the water resources projects.

*8. Comment or Question(s): In regards to mixing there comes up the issue of the CDPH requirements on Ground Water Recharge (DPH 09-009 2013) which requires specific in-time separation between injection and reuse. According to Pueblo report “Injection water quality from the CAW system during WY 2012 is presented in Table 13...show injection water quality was typical of recent years. Levels of Trihalomethane (THM) and Haloacetic Acid (HAA) compounds, as well as bionutrients (oxygen, nitrogen, phosphorous, and organic carbon), were all present at levels similar to previous years. (pdf pg 31 of the Pueblo report).*

*THM in growth generally peaked in concentration approximately 60 days after the cessation of injection, followed by a gradual decline during the storage period. After approximately 90 to 150 days of storage, THMs had degraded to below the initial injection levels.”*

Response: Ms. Phyllis Stanin gave a report to the Seaside Watermaster on May 14, 2014. In this report, Ms. Stanin showed preliminary results from a laboratory analyzing various water quality results. The water quality results were very positive as very few compounds were detected in local groundwater. Further, no chemicals associated with the former Fort Ord lands were detected. Groundwater quality appears to meet primary drinking water standards. Ms. Stanin also performed sampling from other nearby ASR and production wells for the emerging compounds. Again very few compounds were detected.

*9. Comment or Question(s): Will injection requirement have to be more stringent to allow for the 90 – 150 days worth of dilution to counter-effect the build up in the basin? Will there be required periods of holding shutdown?*

Response: In the May 14, 2014 presentation, Ms. Stanin discussed the results of some groundwater model runs. These model runs were trying to determine the amount of time it took injected water to reach the ASR and production wells down gradient. In order to obtain a 6-month credit for retention time by CDPH, a one-year travel time is required to be demonstrated with a groundwater model. Preliminary modeling indicates that only one proposed injection well was modeled to be below the one-year transport time window. The MRWPCA Technical Team is still investigating these results from the modeling and will determine the best approach for moving forward with the reduction in retention time. Based on the redundancies in the water treatment process, the Technical Team is confident that a minor adjustment in retention time for one of the deep injection wells can be accounted for.

*10. Comment or Question(s): These are just the first few questions that come to mind concerning the planned storage use of the Seaside Aquifer for which I hope to get answered.*

**SEASIDE BASIN WATER MASTER  
TECHNICAL ADVISORY COMMITTEE**

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

<b>MEETING DATE:</b>	June 4, 2014
<b>AGENDA ITEM:</b>	3
<b>AGENDA TITLE:</b>	Continued Discussion of New Survey Information on the Wang Subdivision Wells
<b>PREPARED BY:</b>	Robert Jaques, Technical Program Manager

**SUMMARY:**

The September 2012 TAC recommendation to the Board, with which the Board subsequently concurred, was that the Watermaster not object to the use of the Wang wells to supply water to the subdivision for two principle reasons:

1. The Wang wells are outside of the Decision-defined Basin boundary, and therefore not within the Watermaster's jurisdiction, and
2. Based on the available data at that time, it was not possible to determine whether or not hydraulic connectivity existed between the Laguna Seca subarea and the Wang wells.

This first reason is not changed by the information provided in the recently received hydrogeologic reports. However, based on the new survey data provided in those reports it appears more likely that these wells could draw water from the Laguna Seca subarea. The uncertainty of whether or not there is a hydrogeologic connection between the Wang wells and the Laguna Seca subarea is one of the common conclusions noted in the recent comment letters on this Project from both MCWRA and MPWMD.

The Board meeting minutes from the October 10, 2012 meeting regarding this item state:

*“Moved by Director Costa, seconded by Director Sabolsice, and unanimously carried for Watermaster to issue a letter to Pillsbury et al stating no objection to the proposed Vesting Tentative Map Wang Subdivision (Monterey County APN Nos. 416-141-003, 416-151-003, and 416-151-004); Hidden Hills Lots 11, 13, and 20, incorporating the following points: Wang Wells Nos. 02-071, 07-11024, and 03-01132 are outside the Seaside Basin boundary as shown in the Decision; based upon current information available, it does not appear that the Wang wells and the Seaside Groundwater Basin Laguna Seca subarea are hydraulically connected; and the Board does not assert jurisdiction over the wells or the proposed subdivision.”*

At the May 14, 2014 TAC meeting there appeared to be consensus that the TAC should:

1. Inform the Board of MCWRA's and MPWMD's comments regarding the recent hydrogeologic reports on the proposed Wang Subdivision Project, and the fact that these reports bring into further question the matter of whether the Wang wells are hydrogeologically connected to the Laguna Seca subarea.
2. Recommend that the Board issue a new letter updating its prior letter of no objection to the Wang Project, based on the information contained in these recent reports.

At that meeting there was also consensus that the TAC should review the proposed Board agenda transmittal on this matter so that the information provided to the Board could be edited to meet the satisfaction of the TAC.

Attached is the content of my proposed transmittal to the Board, which includes a copy of the letter the Board

**SEASIDE BASIN WATER MASTER  
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**\*\*\* AGENDA TRANSMITTAL FORM \*\*\***

<b>AGENDA ITEM:</b>	3 (Continued)
<p>authorized the Executive Officer to send to the County regarding the proposed Wang Subdivision Project.</p> <p>The TAC is requested to provide edits to the content of the proposed Board transmittal on this issue, as well as any other direction it wishes to provide to the Technical Program Manager on what information about this topic should be provided to the Board, and what, if any, other recommendations the TAC should make to the Board in that regard.</p>	
<b>ATTACHMENTS:</b>	<ol style="list-style-type: none"> <li>1. Draft of proposed Board agenda transmittal regarding the proposed Wang Subdivision Project</li> <li>2. October 11, 2012 Letter on this matter from the Board to the Wang Subdivision proponents</li> </ol>
<b>RECOMMENDED ACTION:</b>	Provide edits to the content of the proposed Board transmittal on this issue and other direction on what information about this topic should be provided to the Board, and what, if any, recommendations to make to the Board in that regard

**SEASIDE GROUNDWATER BASIN  
WATERMASTER**

TO: Board of Directors

FROM: Robert S. Jaques, Technical Program Manager

DATE: June 11, 2014

SUBJECT: Updated Information for the Board's Consideration Regarding the Board's October 11, 2012 Issuance of a Letter of No Objection for a Proposed New Housing Development (the Wang Subdivision) Along Highway 68

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**RECOMMENDATIONS:**

Send a new letter revising the Watermaster's October 11, 2012 letter to state that based on information provided in updated reports prepared by the Wang Project proponents, it is not clear whether the Wang wells are hydraulically connected to the Laguna Seca subarea, and that more hydrogeologic data will need to be obtained in order to be able to make this determination.

**BACKGROUND:**

In late May 2012 the Watermaster received correspondence from a law firm representing the Wang family's proposed subdivision located in the Hidden Hills area of Monterey County, asking that the Watermaster submit a letter of no objection regarding the proposed subdivision in conjunction with seeking permits from the County to move forward with the project. On June 7, 2012 representatives of the Watermaster and MPWMD met to review and discuss these documents.

At the TAC's August 8, and September 12, 2012 meetings there was considerable discussion regarding the Wang subdivision wells, and presentations by representatives of the Wang family were made at both of those meetings. Key areas of discussion at the meetings were whether or not the wells were located within the boundaries of the Seaside Basin, and whether they were drawing water from an aquifer that could impact groundwater levels in the Laguna Seca subarea of the Basin, i.e. hydraulically connected to the Basin.

At its October 3, 2012 meeting the Board received the TAC's report on this matter, the conclusions of which can be summarized as follows:

1. The Wang wells are outside the Basin boundary as shown on the map contained in the Adjudication Decision, and
2. Based on the data available at that time, it was not possible to determine whether or not the Wang wells were hydraulically connected to the Laguna Seca subarea.
3. There was consensus, but not unanimous agreement, among the TAC members that the water level data suggested that the Wang wells were not hydraulically connected to the Laguna Seca subarea.
4. The TAC felt there were two choices the Watermaster Board could take in determining what its response to the Wang attorney's request would be:

(a) Simply compare the locations of the Wang subdivision wells with the map used by the Decision to establish the Seaside Basin boundaries, and determine whether or not they are outside of the Basin boundary. If they are outside of the boundary, conclude that they are not subject to the Watermaster's jurisdiction.

Or

(b) Determine whether or not one or more of the wells for the Wang subdivision draw from one of the principle aquifers of the Seaside Basin (the Santa Margarita). If they do, conclude that they are hydraulically connected to the Basin, and therefore that production from those wells would impact the Basin and should therefore be under the purview of the Watermaster in its Decision-assigned role of managing the Basin.

5. Taking the first choice would be consistent with the "letter" of the Decision which limits the authority of the Watermaster to those the lands (and wells) which are within the Decision-defined boundaries of the Basin. Based on current hydrogeologic knowledge of the Basin, taking the second choice would be consistent with the "spirit" of the Decision which mandates the Watermaster to manage the groundwater resources of the Basin.

Following presentations and discussions on this topic at its October 3, 2012 meeting, the Board took the following action, as recorded in the Minutes from that meeting:

*"Moved by Director Costa, seconded by Director Sabolsice, and unanimously carried for Watermaster to issue a letter to Pillsbury et al stating no objection to the proposed Vesting Tentative Map Wang Subdivision (Monterey County APN Nos. 416-141-003, 416-151-003, and 416-151-004); Hidden Hills Lots 11, 13, and 20, incorporating the following points: Wang Wells Nos. 02-071, 07-11024, and 03-01132 are outside the Seaside Basin boundary as shown in the Decision; based upon current information available, it does not appear that the Wang wells and the Seaside Groundwater Basin Laguna Seca subarea are hydraulically connected; and the Board does not assert jurisdiction over the wells or the proposed subdivision."*

Attached is a copy of the October 12, 2012 letter sent from the Watermaster to the attorney for the Wang Subdivision Project in accordance with this direction from the Board.

#### **DISCUSSION:**

The groundwater levels reported for the Wang subdivision wells in 2012 were lower than water levels in the Laguna Seca subarea, and it was therefore concluded that pumping from the Wang subdivision wells would not affect water levels in the Laguna Seca subarea. There was also discussion at that time that the Chupines fault (which approximates the southerly Decision-defined boundary of the Seaside Basin and the Laguna Seca subarea in this vicinity) appeared to provide some degree of hydrogeologic separation between the Wang wells and the Laguna Seca subarea.

In August 2013 and in January 2014 the Wang Project proponents prepared updated hydrogeologic reports which were submitted to the County and to other agencies for their review and comment.

The following are excerpts of the pertinent comments on these updated reports provided by MCWRA and MPWMD.

### MCWRA:

- While the reports demonstrate the marginal on-site availability of a long-term water supply for the proposed project, determination of impacts to the adjudicated Seaside Basin await a better understanding of the hydraulic and hydrogeologic relationships between the subject property and the Laguna Seca Subarea.
- Data presented and referenced in the reports is inconclusive as to local basin trends, gradients, flow direction and connectivity with the Seaside Basin. More data (properly located and of adequate duration and frequency) is needed to understand groundwater flow patterns and determine to what extent apparent groundwater gradients between the Laguna Seca Subarea and the Wang property actually exist and may or may not express the influence of a posited hydraulic barrier (i.e., The Chupines Fault). If the areas are hydraulically connected, the proposed project's added demand would likely add to regional overdraft and associated problems, without sufficient mitigation.

### MPWMD:

- Given the paucity of available water-level data in this area, an ongoing water-level monitoring program needs to be implemented in order to better assess water-level trends both within the Wang project area and the adjacent Laguna Seca subarea.
- Water levels in the Wang project area and in the adjacent Laguna Seca subarea are not substantially different, cited as being between 25 to 50 feet in the updated reports. This is well within the range of local water-level variability that has been recorded within the Laguna Seca subarea.
- Existing water-level data does not support the reports' conclusion that there are significant groundwater level elevation differences between the Wang project area and the Laguna Seca subarea.
- In order to more definitively understand the hydrogeologic nature and connectivity between the Wang project wells and the Laguna Seca subarea, an aquifer test with observation well monitoring data would need to be conducted.
- There is uncertainty regarding the location of the Chupines Fault, and a lack of convincing evidence of an effective groundwater barrier between the Wang wells and the Laguna Seca subarea.

The TAC extensively discussed these comments and reached consensus on providing the following information and recommendation to the Board in light of the new information provided by these updated hydrogeologic reports:

1. As noted above, back in 2012 there were two reasons for the TAC's recommendation to the Board, and the Board's subsequent concurrence, that the Watermaster not object to the use of the Wang wells to supply water to the subdivision:
  - a. The Wang wells are outside of the Decision-defined Basin boundary, and therefore not within the Watermaster's jurisdiction, and
  - b. Based on the available data at that time, it was not possible to determine whether or not hydraulic connectivity existed between the Laguna Seca subarea and the Wang wells.
2. This first reason is not changed by the information provided in the updated hydrogeologic reports. However, as the MPWMD and MCWRA comments indicate, based on the data contained in these reports, it appears that the Wang Project wells could be hydraulically connected to the Laguna Seca subarea and could therefore potentially draw water from the Laguna Seca subarea.
3. The Watermaster Board should send a new letter revising its October 11, 2012 letter to state that based on the information provided in these updated reports, it is not clear whether

the Wang wells are hydraulically connected to the Laguna Seca subarea, and that more hydrogeologic data would need to be obtained in order to be able to make this determination.

**ATTACHMENTS:**

1. October 12, 2012 letter sent from the Watermaster to the attorney for the Wang Subdivision Project.

**SEASIDE GROUNDWATER BASIN WATERMASTER  
2600 GARDEN ROAD, SUITE 228  
MONTEREY, CALIFORNIA 93940**

October 11, 2012

Pillsbury Winthrop Shaw Pittman LLP  
Attn: Mr. Scott Sommer  
PO Box 7880  
San Francisco, CA 94120-7880  
Re: Wang Subdivision

Dear Mr. Sommer,

This letter in response to your correspondence dated May 16, 2012 and received by Watermaster.

Based upon current information available, it does not appear that Wells Nos. 02-071, 07-11024, 02-072 and 03-01132 of the proposed Vesting Tentative Map Wang Subdivision (Monterey County APN Nos. 416-141-003, 416-151-003, and 416-151-004); Hidden Hills Lots 11, 13, and 20, and the Seaside Groundwater Basin Laguna Seca subarea are hydraulically connected. The wells are outside of the Seaside Basin boundary as shown in the amended final decision entered in the lawsuit, California American Water v. City of Seaside et al., Monterey Superior court (Case No. M 66343) dated March 27, 2006. Therefore, the Seaside Groundwater Basin Watermaster Board does not assert jurisdiction over the wells or the proposed subdivision. The Seaside Groundwater Basin Watermaster Board of Directors has no objection to the proposed Tentative Map Wang Subdivision.

Thank you for contacting Watermaster regarding this project. Please call the Watermaster office at (831) 641-0113 if you have any questions.

Sincerely,

Dewey Evans  
Chief Executive Officer

Cc: Watermaster Board of Directors,  
Robert Jaques, Watermaster Technical Program Manager

**SEASIDE BASIN WATER MASTER  
TECHNICAL ADVISORY COMMITTEE**

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

<b>MEETING DATE:</b>	June 4, 2014
<b>AGENDA ITEM:</b>	4
<b>AGENDA TITLE:</b>	HydroMetrics Report on Updated Modeling of the Laguna Seca Subarea
<b>PREPARED BY:</b>	Robert Jaques, Technical Program Manager

**SUMMARY:**

HydroMetrics has completed the updated modeling work on the Laguna Seca subarea (LSS) that was recommended by the TAC and approved by the Board at its April 2, 2014 meeting. Mr. Derrick Williams of HydroMetrics will make a presentation on this work at today's meeting.

These are the principle findings and conclusions of that work:

- LSS pumping is concentrated in the central LSS
  - Reducing LSS pumping significantly reduces the rate of drawdown in the central LSS
  - Reducing LSS pumping has limited impact on the eastern LSS
- Pumping east of the LSS has a significant impact on eastern LSS groundwater elevations
  - Both reducing total pumping and eliminating Toro pumping (east of the LSS) has similar impacts
  - Significant reductions are necessary to prevent all groundwater elevation declines
  - LSS pumping continues to control central LSS groundwater elevations

The purpose of this item is to provide opportunity for the TAC to ask questions about this work and to make any suggestions to Mr. Williams with how he should present this information to the Board at its June 11, 2014 meeting.

<b>ATTACHMENTS:</b>	None
<b>RECOMMENDED ACTION:</b>	None required

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

<b>MEETING DATE:</b>	June 4, 2014
<b>AGENDA ITEM:</b>	5
<b>AGENDA TITLE:</b>	Continued Discussion of HydroMetrics Modeling of the Laguna Seca Subarea
<b>PREPARED BY:</b>	Robert Jaques, Technical Program Manager

**SUMMARY:**

Note: This item was originally on the TAC's May 14, 2014 meeting agenda, but was continued to today's meeting due to the length of the May 14 meeting

At the TAC's April 9, 2014 meeting there was discussion of the Board's direction on this matter at their April 2, 2014 meeting. That direction is summarized as follows:

With regard to the TAC's Technical Recommendations the Board unanimously approved authorizing HydroMetrics to perform additional modeling to better determine:

1. Whether reducing or eliminating pumping by Alternative Producers in the Laguna Seca Subarea (LSS) would appreciably reduce the rate at which groundwater levels are falling in the LSS.
2. The impact on groundwater levels in the LSS of pumping from outside the eastern and southeastern boundaries of the LSS.
3. Have MPWMD, working as a subcontractor to HydroMetrics, do further research on wells for which well drawdown and casing elevation data was not previously available for use in HydroMetrics' modeling of the LSSA, and if such data can be obtained provide it to HydroMetrics for inclusion in the final modeling report.

With regard to the Non-Technical Issues, the Board:

1. Directed staff to notify the Court of the findings of the HydroMetrics work and to inform the Court that the Watermaster would be conducting additional modeling to get a clearer understanding of the situation. Providing this notification to the Court is being pursued by the Executive Officer.
2. The Board chose to defer notifying producers within the LSS about those findings until the additional modeling work has been performed. This topic will likely be discussed by the Board after the TAC's review of the additional modeling work has been completed and any TAC recommendations coming out of that work have been presented to the Board.
3. The Board took no action regarding making a determination as to whether Alternative Producers in the LSS should be directed to reduce their pumping, nor did it take any action regarding contacting the Court about reestablishing the Basin boundary for the LSS. These issues will likely also be taken up by the Board after HydroMetrics completes the additional modeling that was authorized at the April 2 Board meeting.

The April 2 Board discussion included two other topics which are the focus of today's discussion:

1. Potentially having a peer review performed of the HydroMetrics' modeling work on the Laguna Seca subarea.
2. Developing a scope of work for HydroMetrics to perform further modeling and analysis to determine the proper location of the boundary of the Seaside Basin in the Laguna Seca subarea.

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**AGENDA ITEM:**

5 (Continued)

**Peer Review:** With regard to the first of these two items I made the following request to a number of agencies and individuals that I believed would have knowledge of firms that would have the necessary expertise to perform a peer review:

*At some point the Watermaster may need to have a peer review done of HydroMetrics' modeling work on the Laguna Seca Subarea. This in anticipation of potentially needing to have other non-Parties to the Adjudication Decision accept the findings of that work in conjunction with discussions we may end up having with them regarding being brought into the Decision (if the Basin boundary is expanded in this area).*

*If you can provide me the names and contact information for any firms that you feel would be qualified to perform such a peer review, your input would be much appreciated. I don't envision getting into a peer review in the immediate future, but would like to start preparing for that if we need to do it.*

Here is a summary of the responses I received:

- HydroMetrics (Derrick Williams): The name you will likely hear many times is Gus Yates. He currently works for Todd Groundwater. He clearly has a history with the basin, having written some of the fundamental reports used in the model development. Additionally, he is currently conducting a peer review of our work for the Soquel Creek Water District. I don't think Gus wants to make a career around reviewing our reports, but he would be a good choice. Other suggestions might include West Yost & Associates in Davis. Tim Durbin used to work for them, and they have some good hydrogeologists, and they are working on the Carmel water transfer job [water transfer involving the Odello land near the Carmel River] (sort of local experience).
- MRWPCA (Bob Holden): We have used other hydrogeologic firms but they haven't been as good as Todd.
- MPWMD (Joe Oliver): I concur with the thoughts in HydroMetrics' response.
- Martin Feeney (hydrogeologist who performs work for the Watermaster involving the construction and operation of monitoring wells): I agree with Derrick and Joe. Gus would be the best choice. The last work I did in Laguna Seca was with Gus - he's the right guy. But if you need to have multiple choices, you might add Peter Lefler with Fugro in Oakland as a possibility.
- Todd Associates (Phyllis S. Stanin - hydrogeologists who are performing work for MRWPCA on the GWRP): We would be very interested in this. Specifically, Gus Yates, a Senior Hydrologist with Todd Groundwater, was the lead author on one of the definitive reports in Laguna Seca (Laguna Seca Subarea Phase III Hydrogeologic Update, prepared for MPWMD, Yates, Feeney, and Rosenberg, November 2002). He is also an accomplished groundwater modeler (former USGS) and is in the process of doing a peer review of a HydroMetrics model for Soquel Creek Water District. I'm sure that he would be excellent for such a task.

I am not aware of any contracting policies or rules that apply to the Watermaster in terms of having to solicit proposals from multiple firms to perform work of this type, since the Watermaster is an arm of the Superior Court and not a public entity like a city or a county. Given this, and the very specific knowledge of the Seaside Basin which would be necessary in order to perform a peer review of the work HydroMetrics has performed, I recommend that the Watermaster select Todd Groundwater, and specifically Gus Yates, when and if it is determined (by the Board) that a peer review should be performed.

**Developing a Scope of Work for HydroMetrics to Perform Further Modeling:** With regard to the second of these two items, if a proposed revised boundary for this area of the Seaside Basin does not come out of the additional Laguna Seca modeling that HydroMetrics is currently working on (it is not a scope item in that work),

**SEASIDE BASIN WATER MASTER  
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**\*\*\* AGENDA TRANSMITTAL FORM \*\*\***

<b>AGENDA ITEM:</b>	5 (Continued)
<p>we will need to develop a scope of work for further modeling and analysis to determine the proper location of the boundary of the Seaside Basin in the Laguna Seca subarea. This will likely be a complicated undertaking and a number of assumptions will likely have to be made.</p> <p>Mr. Williams of HydroMetrics will make a presentation at today's meeting regarding how this work might best be accomplished.</p> <p>Some of my thoughts about the topics the scope of work should include are:</p> <ol style="list-style-type: none"> <li>1. Develop a well inventory within a reasonable distance outside the Basin in this area, so that this information can be added to the Watermaster's existing database and input into the Model.</li> <li>2. Develop production rates to be used for wells both inside and outside the current Basin boundary to be used in performing this modeling.</li> <li>3. Hold a meeting with locally-knowledgeable parties (MPWMD, MCWRA, etc.) along with HydroMetrics and the Watermaster to discuss what is known about the geology in the Laguna Seca area and to try to reach agreement on geological issues so that the Basin Model can be revised, if necessary, to reflect any new geologic information that comes out of this discussion. As part of this discussion try to reach consensus on what a reasonable set of criteria would be to establish a new boundary for the Basin in this area. Determine if existing geologic information is sufficient or whether additional data will need to be obtained.</li> <li>4. Develop a series of hypothetical incrementally expanded Basin boundaries in this area and perform modeling within the expanded boundaries to develop Operating Safe Yields for each of the hypothetical expanded basins.</li> <li>5. Within each hypothetically expanded basin, determine the pumping reductions that would be necessary to bring the basins into hydrologic balance, i.e. to stabilize groundwater levels at levels which are acceptable.</li> <li>6. Determine how far the Basin boundary would need to be extended in order for the pumping reductions determined under item 4 above to fall within a reasonable and tolerable range.</li> <li>7. With the determination from item 5 above, prepare a proposed redefined Basin boundary in this area.</li> </ol> <p>I request the TAC's input to assist me in developing the scope of work, and would like to have a preliminary discussion of this at today's meeting, so that if a contract with HydroMetrics to perform this additional modeling is needed, we will be able to develop it in as short a time period as possible.</p>	
<b>ATTACHMENTS:</b>	None
<b>RECOMMENDED ACTION:</b>	Approve Technical Program Manager's recommendation to select Todd Groundwater to perform a peer review of the Laguna Seca modeling work HydroMetrics has performed, in anticipation of the Board directing that a peer review be performed at a future date.

**SEASIDE BASIN WATER MASTER  
TECHNICAL ADVISORY COMMITTEE**

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

<b>MEETING DATE:</b>	June 4, 2014
<b>AGENDA ITEM:</b>	6
<b>AGENDA TITLE:</b>	Report from HydroMetrics on Verifying Accuracy of Groundwater Model
<b>PREPARED BY:</b>	Robert Jaques, Technical Program Manager

**SUMMARY:**

Under RFS No. 2014-03 HydroMetrics was authorized to perform work to determine whether or not the existing Groundwater Model is accurate as-is, or whether it will need to be recalibrated. There are three steps (Tasks) in this work, but only the first Task (Task 1 - Update Groundwater Model through 2013) has been authorized. This Task is to be performed in three subtasks:

Subtask 1.1 Collect and Compile Data

Data that needs to be collected for the model update includes groundwater pumping, groundwater levels, injected water volumes, and precipitation. In addition to the precipitation, estimates of storm water percolation, septic tank leakage, and system losses are also needed as they all contribute to the recharge of the basin.

Groundwater levels and production data will be requested from Monterey Peninsula Water Management District (MPWMD). Other pumpers, such as Cal Water Service and Marina Coast Water District, which do not fall under the Watermaster, will be approached separately. Groundwater production for the golf courses outside the Seaside basin will be estimated based on assumptions made previously.

Subtask 1.2 Input New Data to Groundwater Model

The data compiled in Subtask 1.1 will be incorporated into the groundwater flow model.

Subtask 1.3 Compare Measured and Simulated Groundwater Levels

Once the model has been updated and is successfully running, hydrographs comparing measured and simulated groundwater levels will be prepared. The hydrographs produced will be the same ones used in the 2009 model report.

If there is a good match, further tasks will not be required. HydroMetrics WRI, however, will prepare a formal letter to the Watermaster's Technical Program Manager indicating whether or not calibration is necessary. If the measured and simulated groundwater levels do not match well for the updated period, the model will require recalibration and Task 2 will need to be authorized by the Watermaster.

HydroMetrics has just completed Task 1 and will present the results of this work at today's meeting. The principle conclusions of this work are:

- The model still provides reliable results in the Laguna Seca Subarea
- The model is losing some calibration – particularly in the Northern Coastal subarea, and should be recalibrated
- Groundwater elevation measurements should be screened and checked for accuracy
- Boundary conditions should be updated with measured or simulated elevations

**SEASIDE BASIN WATER MASTER  
TECHNICAL ADVISORY COMMITTEE**

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

<b>AGENDA ITEM:</b>	6 (Continued)
<p>Since some recalibration will apparently be necessary, an RFS will need to be prepared for TAC and Board approval to perform Task 2 (Model Recalibration) and Task 3 (preparation of a calibration report to document the calibration procedure and results). If the Board approves, this RFS will come to the TAC for review and approval at its July 2014 meeting.</p>	
<b>ATTACHMENTS:</b>	None
<b>RECOMMENDED ACTION:</b>	Approve recommending to the Board that an RFS to perform recalibration be developed by the TAC and submitted to the Board at a future meeting

**SEASIDE BASIN WATER MASTER  
TECHNICAL ADVISORY COMMITTEE**

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

<b>MEETING DATE:</b>	June 4, 2014
<b>AGENDA ITEM:</b>	7
<b>AGENDA TITLE:</b>	Seaside Basin Salt and Nutrient Management Plan
<b>PREPARED BY:</b>	Robert Jaques, Technical Program Manager

**SUMMARY:**

At the April 2014 TAC meeting a presentation was made by Ms. King of HydroMetrics on the Seaside Basin Salt and Nutrient Management Plan that was prepared for MPWMD by HydroMetrics.

Key points made during that presentation included:

- Chloride is not contoured in the mapping in the Plan due to limited available data. No data is available in approximately one-half of the Basin's aerial extent.
- TDS is highest in the Southern Coastal Subarea and the Laguna Seca Subarea.
- Fertilizers, septic tanks, and sewer line leakage are the main sources of non-naturally occurring constituents.
- There is a trend toward a net decrease in salts in the Basin. This is due in part to so much water being exported out of the Basin, and the importation of ASR water.
- Nitrates are increasing slightly, but they are at very low concentrations. These come mostly from septic systems, sewer line leaks, and fertilizers.
- The Regional Water Quality Control Board did not establish Water Quality Objectives for this Basin, and instead uses Drinking Water Standards. Water quality in both the shallow and deep Laguna Seca Subarea aquifers is very high in TDS. However, there is good water quality in the Seaside Groundwater Basin compared to many other basins in the State.
- The Basin cannot assimilate more TDS, but it can assimilate more chloride and more nitrates. Assimilative capacity is defined as the ability of the Basin to take in more constituents without degrading water quality above State Water Quality Standards.
- The Pasadera wastewater treatment plant has difficulty meeting its Waste Discharge Requirements because the source water there is already so high in TDS. Due to high hardness, water softeners are often used. Self-regeneration softeners contribute TDS to wastewater flows and/or groundwater recharge.
- Additional monitoring that is recommended by the Plan includes adding monitoring wells FO-4 and FO-6 in the Laguna Seca Subarea for water quality monitoring at least annually. No new monitoring wells are being recommended.
- Implementation measures recommended by the Plan pertain to TDS, chloride, and nitrate reduction methods.

At that meeting it was pointed out by Mr. Oliver that the Plan dovetails with the Integrated Regional Water Management Plan through which State funding is provided. He also commented that the Watermaster TAC is an ideal forum for feedback on the Salt and Nutrient Management Plan.

As of the date of that meeting the Draft Plan had not yet been posted for public review. However, at the suggestion of Mr. Oliver the Draft Plan was subsequently posted to the Watermaster and MPWMD websites, and an email was sent out publicizing that it is available for public review at those locations.

**SEASIDE BASIN WATER MASTER  
TECHNICAL ADVISORY COMMITTEE**

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

**AGENDA ITEM:**

7 (Continued)

Mr. Oliver recommended that an opportunity for public comments on the Draft Plan be provided at a Watermaster Board meeting. There was consensus to first have the TAC review the Draft Plan and provide its comments so that HydroMetrics can finalize the Plan. The Final Plan could then be put on the Watermaster Board's agenda for their discussion and to provide the public comment opportunity.

At today's meeting the TAC is asked to provide its comments so that the Draft Plan can be edited to become the Final Plan.

**ATTACHMENTS:**

None

**RECOMMENDED  
ACTION:**

Provide input to allow the Plan to be finalized

**SEASIDE BASIN WATER MASTER  
TECHNICAL ADVISORY COMMITTEE**

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

<b>MEETING DATE:</b>	June 4, 2014
<b>AGENDA ITEM:</b>	8
<b>AGENDA TITLE:</b>	Schedule
<b>PREPARED BY:</b>	Robert Jaques, Technical Program Manager
<b>SUMMARY:</b>	<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 is performing certain portions of the work.</p> <p>Attached is the most recent update of the Work Schedule for FY 2014.</p>
<b>ATTACHMENTS:</b>	Schedule of Work Activities for FY 2014
<b>RECOMMENDED ACTION:</b>	Provide Input to Technical Program Manager Regarding Any Corrections or Additions to these Schedules

# Seaside Basin Watermaster Monitoring and Management Program 2014 Work Schedule

ID	Task Name	2014												2015									
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	<b>CRITICAL PROJECT MILESTONES ASSOCIATED WITH TAC, BOARD, AND/OR CONSULTANT WORK</b>																						
2	<b>2015 Administration, Operations and Replenishment Budgets</b>																						
3	Prepare M&MP Draft Budgets (Same as Task 19)																						
4	TAC Approves M&MP Budgets (Same as Task 20)																						
5	Board Approves M&MP Budgets (Same as Task 21)																						
6	<b>Watermaster Prepares Quarterly Water Production, Water Level, and Water Quality Reports</b>																						
7	Watermaster Prepares Combined Quarterly Water Production, Water Level, and Water Quality Reports for 1st & 2nd Quarters (Same as Task 41)																						
8	Watermaster Prepares Annual Water Production, Water Level, and Water Quality Report for 2013 (Same as Task 42)																						
9	<b>Replenishment Assessment Unit Costs for Water Year 2014</b>																						
10	B&F Committee Develops Replenishment Assessment Unit Cost for 2014 Water Year																						
11	If Requested, TAC Provides Assistance to B&F Committee in Development of 2014 Water Year Replenishment Assessment Unit Cost																						
12	Board Adopts and Declares 2014 Water Year Replenishment Assessment Unit Cost																						
13	<b>Replenishment Assessments for Water Year 2014</b>																						
14	Watermaster Prepares Replenishment Assessments for Water Year 2014																						
15	Watermaster Board Approves Replenishment Assessments for Water Year 2014 (At November Meeting)																						
16	Watermaster Levies Replenishment Assessment for 2014																						
17	<b>Monitoring &amp; Management Program (M&amp;MP) Budgets for 2015 and 2016</b>																						

# Seaside Basin Watermaster Monitoring and Management Program 2014 Work Schedule

ID	Task Name	2014												2015									
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
18	Preliminary Discussion of Potential Scope of Work for 2015 M&MP												◆ 8/13										
19	Prepare Draft 2014 and 2015 M&MP O&M and Capital Budgets												■										
20	TAC approves Draft 2015 and 2016 M&MP O&M and Capital Budgets												◆ 9/10										
21	Board approves 2015 and 2016 M&MP O&M and Capital Budgets												◆ 10/1										
22	<b>2013 Annual Report (Note: Schedule Reflects Court Approval of Later Submittal Date for Annual Report)</b>																						
23	Prepare Preliminary Draft 2014 Annual Report												■										
24	TAC Provides Input on Draft 2014 Annual Report												■										
25	Prepare Revised Draft 2014 Annual Report (Incorporating TAC Input)												■										
26	Board Provides Input on Revised Draft 2014 Annual Report (At November Board Meeting)																						
27	Prepare Final 2014 Annual Report (Incorporating Board Input)																						
28	Watermaster Submits Final 2014 Annual Report to Judge																						
29	<b>MANAGEMENT</b>																						
30	<b>M.1 PROGRAM ADMINISTRATION (All Work Performed by Watermaster Staff)</b>																						
31	Prepare Initial Consultant Contracts for 2015												■										
32	TAC Approval of Initial Consultant Contracts for 2015												◆ 10/8										
33	Board Approval of Initial Consultant Contracts for 2015 (At November Board Meeting)																						
34	<b>IMPLEMENTATION</b>																						
35	<b>I.2.a DATABASE MANAGEMENT</b>																						
36	<b>I.2.a.1 Conduct Ongoing Data Entry/Database Maintenance</b>																						

ASSUME NOV. BOARD MEETING ONE WEEK AFTER NOV. TAC MEETING

# Seaside Basin Watermaster Monitoring and Management Program 2014 Work Schedule

ID	Task Name	2014												201									
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
37	<b>I.2.b DATA COLLECTION PROGRAM</b>																						
38	I.2.b.2 Collect Monthly Water Levels (MPWMD)																						
39	I.2.b.3 Collect Quarterly Water Quality Samples (MPWMD)																						
40	I.2.b.6 Reports (from MPWMD)																						
41	Watermaster Prepares Combined Quarterly Water Production, Water Level, and Water Quality Reports for 1st & 2nd Quarters																						
42	Watermaster Prepares Annual Water Production, Water Level, and Water Quality Report for 2014																						
43	<b>I.3.a ENHANCED SEASIDE BASIN GROUNDWATER MODEL</b>																						
44	<b>I.3.a.1 Update (and Potentially Recalibrate) Existing Groundwater Model</b>																						
45	Prepare RFS for HydroMetrics to Update Model and Check Accuracy																						
46	TAC Approves RFS to HydroMetrics																						
47	Board Approves RFS to HydroMetrics																						
48	HydroMetrics Updates Model and Checks Accuracy																						
49	HydroMetrics Presents Preliminary Model Update Report to TAC																						
50	HydroMetrics Presents Preliminary Model Update Report to Board																						
51	Prepare RFS for HydroMetrics to Recalibrate Model																						
52	TAC Approves RFS to HydroMetrics																						
53	Board Approves RFS to HydroMetrics																						
54	HydroMetrics Recalibrates Model																						



**SEASIDE BASIN WATER MASTER  
TECHNICAL ADVISORY COMMITTEE**

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

<b>MEETING DATE:</b>	June 4, 2014
<b>AGENDA ITEM:</b>	9
<b>AGENDA TITLE:</b>	Other Business
<b>PREPARED BY:</b>	Robert Jaques, Technical Program Manager
<b>SUMMARY:</b>	<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>
<b>ATTACHMENTS:</b>	None
<b>RECOMMENDED ACTION:</b>	None required – information only

**SEASIDE BASIN WATER MASTER  
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**\*\*\* AGENDA TRANSMITTAL FORM \*\*\***

<b>MEETING DATE:</b>	June 4, 2014
<b>AGENDA ITEM:</b>	10
<b>AGENDA TITLE:</b>	Set Next Meeting Date
<b>PREPARED BY:</b>	Robert Jaques, Technical Program Manager
<p><b>SUMMARY:</b>  The next TAC meeting date would normally be the 2<sup>nd</sup> Wednesday in July, which is July 9, 2014.</p> <p>Depending on the action the Board takes at its June 11, 2014 meeting, it may be desirable for the TAC to meet prior to the Board's July meeting in order to provide the TAC's input to the Board on some items. If this turns out to be the case, the most logical approach would be to change the TAC's next meeting date to the 1<sup>st</sup> Wednesday in July, July 2, and for the Board to change its July meeting date to the 2<sup>nd</sup> Wednesday, July 9.</p> <p>If this becomes necessary and email will be sent to all TAC members with an update on this.</p>	
<b>ATTACHMENTS:</b>	None
<b>RECOMMENDED ACTION:</b>	None required at this time, but concur with changing the date of the TAC's July meeting as outlined above, if this becomes necessary or desirable