MEETING NOTICE AND AGENDA

TECHNICAL ADVISORY COMMITTEE OF THE SEASIDE BASIN WATER MASTER

DATE: Wednesday, November 12, 2014
MEETING TIME: 1:30 p.m.
Monterey Regional Water Pollution Control Agency Offices
5 Harris Court, Building D (Ryan Ranch)
Monterey, CA 93940

We will again be using the new conference line at this meeting. If you wish to participate in the meeting from a remote location, please call in on the Watermaster Conference Line by dialing (712) 432-1212. 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: 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 County Water Resources Agency**
Monterey Peninsula Water Management District

SEASIDE BASIN WATER MASTER TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	November 12, 2014
AGENDA ITEM:	2.A
AGENDA TITLE:	Approve Minutes from the September 10, 2014 Meeting
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

Draft Minutes from this meeting was emailed to all TAC members. Any changes requested by TAC members have been included in the attached version.

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 10, 2014

Attendees: TAC Members

City of Seaside – Rick Riedl (by telephone)
California American Water – Eric Sabolsice
City of Monterey – Norm Green
Laguna Seca Property Owners – Bob Costa
MPWMD – Joe Oliver
MCWRA – German Criollo
City of Del Rey Oaks – No Representative
City of Sand City – Leon Gomez (by telephone)
Coastal Subarea Landowners – No Representative

Watermaster
Technical Program Manager - Robert Jaques

Consultants
None

Others
MPWMD – Dave Stoldt

The meeting was convened at 1:37 p.m. after a quorum had arrived.

1. Public Comments
There were no public comments.

2. Administrative Matters:

A. Approve Minutes from the August 13, 2014 Meeting

On a motion by Mr. Criollo, seconded by Mr. Gomez, the Minutes were unanimously approved as presented.

3. Update on Status and Schedule for MRWPCA-MPWMD Groundwater Replenishment Project

Mr. Jaques introduced Mr. Israel who made a presentation regarding the Groundwater Replenishment Project.

Mr. Israel introduced Paul Scudo who is the new Deputy General Manager for MRWPCA, replacing Brad Hageman. Using the attached PowerPoint slides, Mr. Israel proceeded with his presentation.

The Regional Treatment Plant flow has been dropping over the years and from 2010 to 2014 it has dropped to less than 17 million gallons per day.

A trial diversion of flows from the Salinas Industrial Wastewater Treatment Plant, which was started in April and will continue through mid-October, is now providing 3.5 to 4.0 million gallons per day of extra flow to the Regional Treatment Plant, bringing the flow to the Regional Treatment Plant to over 21 million gallons per day. The diversion occurs in the industrial waste pipeline where it passes adjacent to

MRWPCA's Salinas pump station. The industrial waste consists mainly of produce wash water. The Industrial Wastewater Treatment Plant was starting to exceed its treatment capacity, so the diversion was beneficial to the city of Salinas. The Industrial Wastewater Treatment Plant summertime flow is approximately 4.0 million gallons per day, with an average annual flow of about 2.4 million gallons per day. Flows to the Industrial Wastewater Treatment Plant have been increasing about 10 percent per year in recent years. UniCool may start to discharge to the Industrial Wastewater Treatment Plant sometime in the near future, and this has the potential to double the flow to the Industrial Wastewater Treatment Plant. Mr. Israel explained that ideally industrial wastewater would be stored in the winter and then diverted to the Salinas pump station in the summer when the maximum demand for recycled water occurs.

The CEQA process for the Groundwater Replenishment Project Draft Environmental Impact Report has been delayed until approximately March of 2015 to allow time to complete the Memorandum of Understanding with MCWRA, but its schedule will still coordinate with the California American Company's Monterey Peninsula Water Supply Project schedule. He said he is hopeful of getting an updated Memorandum of Understanding approved by MCWRA and MRWPCA by the end of September. The new Memorandum of Understanding may be a four-way agreement with MCWD, MRWPCA, MPWMD, and MCWRA.

The CPUC has been contacted by MRWPCA with a request to make some revisions to the Groundwater Replenishment Project's schedule to coordinate with the overall Monterey Peninsula Water Supply Project schedule. The proposed revised schedule is as follows:

CPUC testimony-11/15
Hearings-1/16
Proposed Decision-5/16
Final Groundwater Replenishment Project Decision-6/16.

Based on this schedule it is projected that the Groundwater Replenishment Project could be operational by late 2017. It would be constructed using a design-build contract, similar to California American Water's approach on the desalination plant. Groundwater replenishment would provide about one-third of the needed water.

Mr. Sabolsice asked if there had been any clarification on how long recycled water has to reside in the basin before it is withdrawn for potable use. Mr. Israel responded that the State is using the National Water Research Institute to evaluate groundwater replenishment projects on these types of issues. That body will provide a report to the State with its recommendations on this and other regulatory technical issues. Conceptual approval for the Groundwater Replenishment Project was given by the State in June of 2014. The technical issues are straight-forward. The State has waived its former dilution requirement for groundwater recharge.

Mr. Sabolsice asked if there was an updated cost estimate. Mr. Israel responded that this is being worked on and it is realized that the project cost needs to be less than $18 million in order to be cost-effective. The energy requirement for groundwater replenishment treatment is about 1/6 of the energy requirement for desalination, so groundwater replenishment will provide a long-term power cost savings.

Mr. Criollo asked how much water the Groundwater Replenishment Project will provide. Mr. Israel responded that it will provide about 3,500 acre feet per year. Also, the brine produced by the groundwater replenishment treatment process will have a much lower total dissolved solids level than the brine from the desalination plant. Better dilution at the outfall into Monterey Bay will be achieved if the two brine flows are combined.

Mr. Oliver asked Mr. Sabolsice if he felt the two project schedules were satisfactorily coordinated. Mr. Sabolsice responded he believed the Groundwater Replenishment Project schedule and the California American schedule are about the same. Mr. Israel noted that with the Groundwater Replenishment Project the desalination plant would be smaller, and it could become operational sooner than a larger desalination plant.

Mr. Oliver asked Mr. Israel if any delays in the Monterey Peninsula Water Supply Project schedule would result in corresponding delays in the Groundwater Replenishment Project schedule. Mr. Israel said he did not know if the CPUC would allow the Groundwater Replenishment Project to be implemented ahead of the desalination project, if the desalination project experienced delays. Mr. Stoldt noted that it may not be possible to obtain State Revolving Fund money until the CPUC decision on the Groundwater Replenishment Project is made. He also commented that a water purchase agreement may not be possible in the time frame needed to maintain the schedule, unless certain financing obstacles can be overcome.

Mr. Sabolsice asked Mr. Israel how much money would be needed before the State Revolving Fund money comes in. Mr. Israel responded that this is still being evaluated. He went on to say that a 10 percent design submittal is being prepared for use in the design-build Request for Proposals, but that a 30 percent design document would be better, if possible.

Mr. Green asked Mr. Israel what other water sources were being pursued. Mr. Israel responded that Tembladero Slough and Blanco Drain waters are other possible sources for the Groundwater Replenishment Project. He said it would be desirable to be able to "bank" some additional replenishment water in the Seaside basin as a water reserve. Replenishment water would be produced by a new Advanced Water Treatment Plant located at the Regional Treatment Plant site. Source water for the Advanced Water Treatment Plant would be secondary effluent from the Regional Treatment Plant, and the Advanced Water Treatment Plant would be separate from the Salinas Valley Reclamation Project Plant. MRWPCA is seeking to partner with MCWD for joint use of the Regional Urban Water Augmentation Project transmission line.

Mr. Sabolsice commented that it appears the Salinas Industrial Wastewater Treatment Plant flow has provided the additional water that is needed, but wondered if growers might allege a claim to this water. Mr. Israel said the city of Salinas owns the rights to this water.

4. Discuss Calibration of Water Meters

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

Mr. Sabolsice said that due to modeling results it would be desirable to do well-site inspections and possibly pump tests. He noted that Mr. Craig Evans of California American Water Company can perform this type of work to see if wells appear to be properly metered. Mr. Oliver suggested doing a small sample of wells to see if more should be inspected, but Mr. Sabolsice said he was thinking of having all wells inspected to see if anything looks like it is not working properly such that it would affect the accuracy of metered production data.

There was discussion about checking the repair condition, making an additional assessment, and determining if any follow-up action should be taken.

Mr. Costa asked Mr. Oliver if any external technique for metering flow existed. Mr. Oliver and Mr. Jaques responded that clamp-on types of flow meters are often used when performing pump tests. Mr. Oliver said it is also possible to check the meter installation piping configuration to see whether that is having an effect on metering accuracy.

Mr. Sabolsice noted that California American Water already does this type of evaluation on its own wells, and that he could have Mr. Evans check other well site installations in October.

Mr. Sabolsice suggested budgeting $10,000 in 2015 for possible meter calibration or pump testing work, if the initial evaluation indicated that this would be desirable. If the initial evaluation is performed later this year, the results of those inspections would be available for any work needed in 2015. California American Water and MPWMD said they will coordinate on doing this work in October 2014.

Mr. Oliver asked Mr. Jaques if it would be possible to include in the next production data reminder notice that the Watermaster sends out, a brief statement that this type of work will be undertaken so that well-owners will be alerted.

Mr. Sabolsice made a motion to include $10,000 for testing services in the 2015 M&MP Budget, if such services are found to be needed based on the initial evaluation. The motion was seconded by Mr. Oliver and passed unanimously.

At this point in the meeting Mr. Costa had to depart for another commitment.

5. Approve Work Plan for FY 2015 Management and Monitoring Program (M&MP) and FY 2015 and 2016 M&MP Operations and Capital Budgets

Mr. Jaques summarized the agenda packet material for this item. He said he would put $10,000 in the Budget for the work discussed under the previous agenda item.

Mr. Oliver recapped some of the August 2014 TAC meeting discussions with regard to the possible future benefit of having an additional monitoring well installed in the eastern part of the Basin in the future.

Mr. Sabolsice commented that California American Water will have no production from the Laguna Seca subarea after its allocation goes to zero due to the ramp-down.

Mr. Sabolsice made a motion to approve the Work Plan and Budgets. The motion was seconded by Mr. Criollo and passed unanimously.

6. Approve Initial RFSs for MPWMD and HydroMetrics for 2015

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

A motion was made by Mr. Sabolsice to approve these consultant contracts. It was seconded by Mr.Criollo, and passed unanimously.

7. Schedule

Mr. Jaques reported that no October TAC meeting will be necessary and that the next TAC meeting would be on its normal date of November 12, 2014.

8. Other Business

There were no Other Business items to discuss.

9. Set Next Meeting Date

The next meeting date was set for November 12, 2014.

The meeting adjourned at 3:14 p.m.

Pure Water Monterey

Groundwater Replenishment Project
Update to Seaside Basin Water Master
Technical Advisory Committee

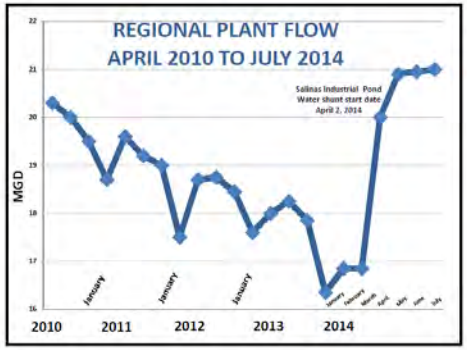
September 10, 2014

Keith Israel, MRWPCA General Manager

Partners for Pure Water Solutions

General Topics

- General background
- Update on MOU negotiations with growers/MCWRA
- Status of CEQA activities
- Requested schedule adjustment to CPUC
- Overall Project Schedule



Status of CEQA Activities

- Continued preparation of materials needed for Draft EIR
- Coordination of GWR CEQA with those for overall water project
- Need finalized MOU so that GWR Draft EIR will be complete
- Anticipate draft EIR distribution in March 2015

Update on GWR MOU Negotiations

Late 2012	• General Public Discussions
August 2013-April 2014	• Discussions with MCWRA Board Negotiators
April 2014-July 2014	• Discussions with expanded group to include selected growers
August 2014	• Discussion with four Agency Managers to refine MOU
Early Sept 2014	• Updated MOU to MCWRA/ Growers for consideration

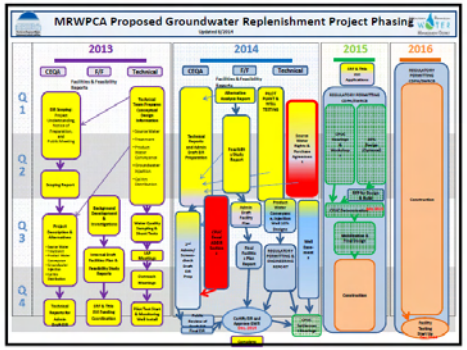
Requested CPUC Schedule Adjustment for GWR

- CPUC ALJ has approved two schedule changes to allow time for preparation of overall water project EIR
- Aug CPUC Schedule change allows for overall draft EIR to be completed by end of Jan 2015
- GWR parties requesting revised schedule to CPUC by Sept 15 to allow for GWR coordination with overall draft EIR

PROPOSED GWR SCHEDULE

- CPUC Testimony Nov 2015
- Evidentiary Hearings – Jan 2016
- Proposed Decision – May 2016
- Final GWR Decision – June 2016

Note: Expected GWR Operational by 2017



Questions?

For more information contact:
Keith Israel, General Manager

Monterey Regional Water Pollution Control Agency
(831) 645-4603

www.mrwpca.org
www.mpwaterreplenishment.org

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	November 12, 2014
AGENDA ITEM:	2.B
AGENDA TITLE:	Report on Geophysical Survey Meeting
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

At its June 2013 meeting the TAC received a presentation from Adam Pidlisecky, a Professor from the University of Calgary who is collaborating with Professor Rosemary Knight of Stanford University on the research she is doing in the Monterey Bay area related to saltwater intrusion.

This research focuses on the development of geophysical methods for groundwater evaluation and management, and the challenge of imaging (non-invasively mapping out) saltwater intrusion along the California coast. At its November 2013 meeting the TAC further discussed this topic and indicated its interest in continuing to follow the work being done by Stanford University, in particular in the Monterey Bay area.

The researchers on this work held a meeting on October 8, 2014 at Hopkins Marine station to provide an update on their work and to engage representatives from water districts and other agencies with regard to how their work could most effectively used for groundwater management decision-making.

Attached are my notes from attending this meeting. As my notes indicate they are advancing the technology, but have not yet been able to obtain data from sufficient depths to be of direct use in the Seaside Basin. However, they indicate their intent to continue trying to increase the depth at which the technology can be used, and I therefore recommend that we continue to follow this work, with update reports to the TAC when more information is provided by the researchers.

ATTACHMENTS:	Notes from October 8, 2014 meeting
RECOMMENDED ACTION:	None required – information only

GEOPHYSICAL SURVEY
MEETING NOTES

October 8, 2014
Hopkins Marine Station, Pacific Grove, CA
2:00 p.m.

Attendees: Seaside Basin Watermaster – Bob Jaques
Representatives from: California State Parks, MCWRA, MPWMD, Stanford University, HydroMetrics, Soquel Creek Water District, Pajaro Valley Water District, Worley-Parsons Inc., Central Basin Water District

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1. In Monterey County 99 percent of the freshwater that is produced is from groundwater. Nationally, the average is about 77 percent.

2. Seawater intrusion is occurring all along Central Monterey Bay in the shallow aquifers, and in central portion of the coastline of Monterey Bay in the deeper aquifers. There is little or no data on this in the northern Monterey Bay area.

3. This geophysical survey work is like medical imaging to map out the seawater/freshwater interface. It uses electrical resistivity imaging. This is very sensitive to salinity in the water. They are referring to this as "sentinel geophysics".

4. The technology has been in use since 1996. Much of the work is related to tracking contamination plumes in groundwater. Also, prospecting for coal, gas, and oil reserves.

5. They want to do a "proof of concept" pilot study along the Seaside - Marina coastline. They use "geophysical inversion" which is very much like medical imaging but with poorer resolution. They would like to do a 9 km long section of the coastline.

6. The aquatard is much more continuous in the Seaside Basin than in the Salinas Basin meaning that saltwater does not migrate downward to the lower aquifers in the Seaside Basin nearly as easily as it can in the Salinas Basin. There prior work only went to about 150 m deep, but they are now trying to go deeper. They will ultimately go from Seaside to Capitola, a distance of about 40 kilometers. The work is just started (October 2014) and they have already covered 17 km of the 40 km distance. They can get over 300 meters deep now. They have done some logging of wells to get data to compare to the imaging results, similar to how our groundwater model is calibrated by taking actual measurements and comparing them to the model-predicted measurements.

7. Moving forward they are interested in: (1) Decision aware investigation and (2) Time-lapse inversion to see the intrusion off the coast (called "peripheral inversion"). Can currently only see about 1/2 km offshore at most. This information would be useful in estimating where the seawater intrusion front is relative to the coastline along the Seaside Basin. However, the technology currently is not able to go deep enough to detect this interface in the production aquifers in the Seaside Basin.

8. Soquel Creek Water District is about to start preparing a groundwater model (HydroMetrics is their consultant).

9. Seismic methods can be used to map subsurface geology, and some of this work has apparently already been done in Monterey Bay. This information would be useful in estimating where the aquifers in the Seaside Basin daylight into the ocean.

10. There were a number of questions and answers between the attendees and the presenters with regard to how the technology can be beneficially used. The researchers were very interested in how they can make their work most useful to these public agencies, and they will likely be in further contact with us as they progress in their work.

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	November 12, 2014
AGENDA ITEM:	3
AGENDA TITLE:	Update on Preliminary Work Pertaining to Calibration of Water Meters
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY: At the September 12 TAC meeting during discussion of the 2015 Work Plan for the Management and Monitoring Program (M&MP) there was discussion about the calibration of production well meters. Mr. Sabolsice made a motion to include $10,000 for testing services in the 2015 M&MP Budget, if such services are found to be needed based on a preliminary initial evaluation to be performed in late 2014 or early 2015.

The purpose of the preliminary well-site inspections (and possibly pump tests) would be to see if anything looks like it is not working properly such that it would affect the accuracy of metered production data on any of the production wells, and to determine if any follow-up action should be taken. There was a brief discussion of initially only doing a small sample of wells to see if more should be inspected, but there was consensus to have all production wells inspected.

Mr. Sabolsice noted that California American Water (CAW) already does this type of evaluation on its own wells, and that he could have Mr. Evans of CAW check other well site installations in October. CAW and MPWMD said they will coordinate on doing this work in October 2014.

At Mr. Oliver's suggestion, the most recent production data reminder notice that the Watermaster sent out contained a brief statement that this type of work will be undertaken, so that well-owners would be alerted.

At today's meeting MPWMD and CAW representatives will provide an oral update on the initial preliminary evaluation work.

ATTACHMENTS:	None
RECOMMENDED ACTION:	None required – information only

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	November 12, 2014
AGENDA ITEM:	4
AGENDA TITLE:	Discuss and Provide Recommendations on Issues Raised by the Board at its October 1, 2014 Meeting
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

At the Board's October 1, 2014 meeting several issues were discussed for which the Board requested TAC review and recommendations. These are described below and documents pertinent to these issues are attached.

Issue 1: A September 30, 2014 letter sent to the Watermaster from the attorney representing Bishop, McIntosh & McIntosh (who operates the Laguna Seca Golf Resort) questions some of the findings and conclusions in the August 26, 2014 HydroMetrics Draft Technical Memorandum describing the Laguna Seca Safe Yield modeling. A copy of this letter is attached. The Board requested that HydroMetrics review and comment on this letter, and that the TAC then also review and comment on this issue. I forwarded the letter to Derrik Williams of HydroMetrics and requested he provide a letter responding to the attorney's comments. A copy of the HydroMetrics response letter is attached.

The attorney's letter makes the following requests and raises the following points:

Request 1: That the Watermaster should clarify, in any communication it makes with the Court, the issues regarding the Natural Safe Yield (NSY) of the Laguna Seca Subarea (LSSA) apparently being considerably lower than the NSY reported in the Adjudication Decision, and what the Watermaster's plans are to stabilize groundwater levels in the LSSA over the long term.

Request 2: That the Watermaster should work directly with the LSSA Alternative Producer representative on how this matter is addressed in the Annual Report as well as in communications with the Court.

Point 1: The El Toro area pumpers do not have a Court-determined prior right to groundwater originating in the LSSA. Therefore, it would be a mistake for the Watermaster to suggest to the Court that the true NSY for the LSSA is lower than the NSY cited in the Decision. The Technical Memorandum's subsurface outflow assumptions for the LSSA should be revisited before drawing any conclusions regarding whether the NSY of the LSSA is different than the NSY cited in the Decision.

Point 2: The attorney's letter cites some of the language from the Technical Memorandum pertaining to the matter of pumping from outside the LSSA Decision boundary as affecting groundwater levels in the LSSA, and that this is beyond the Watermaster's control, and whether the boundary in the Decision is correctly drawn for the LSSA. However, the letter does not appear to question any of this language.

Point 3: The attorney's letter cites some of the language from the Technical Memorandum indicating that the LSSA has negligible influence on seawater intrusion, and that groundwater levels in both the Southern Coastal Subarea and the LSSA are high enough to prevent seawater intrusion. However, the letter does not appear to question any of this language.

Technical Program Manager's Comments and Conclusions:

1. With regard to the attorney's two requests, I believe it is the Board's intent to do both of these things. Although there is no Board membership position titled "alternative producer representative," there is

a "Laguna Seca Subarea Landowner" representative (Mr. Costa) who is a member of both the TAC and the Board and who regularly attends the meetings of both of those bodies. Hence, the LSSA alternative producers, through Mr. Costa, are represented in all of these deliberations.

2. HydroMetrics' October 13 response letter refutes Point 1 in the attorney's letter which characterizes the 1,556 AFY of subsurface outflow from the LSSA as being only an estimate of what might be flowing out of the LSSA. HydroMetrics points out that the detailed groundwater model that was developed for the Watermaster, and which was used to perform this modeling, accurately reports and predicts groundwater levels and flows within numerous "cells" within the LSSA. The predicted values were compared to field-measured values during the model calibration process, and the modeling assumptions and parameters were adjusted until the predicted and field-measured values matched. Therefore, the model is the most accurate currently available means of predicting flows and water levels within the LSSA. Using the model the 1,556 AFY subsurface outflow was calculated, and this is the most accurate value of subsurface outflow that currently exists. I concur with HydroMetrics's response to Point 1, and that the estimated subsurface outflow of 1,556 AFY as predicted by the model is the most accurate figure currently available and should be used in calculating the NSY for the LSSA.
3. There does not appear to be any disagreement or unresolved issues associated with Points 2 and 3 in the attorney's letter. Seawater intrusion does not appear to be influenced by pumping within or to the east of the LSSA. The most significant finding of the LSSA modeling is that pumping to the east of the LSSA Decision-created boundary is contributing to the continued lowering of groundwater levels in the LSSA. The significance of this is that the Decision does not provide authority to the Watermaster to regulate that pumping.

Issue 2: The Board asked for a "second opinion" to be obtained from another hydrogeologic consultant on the LSSA modeling that HydroMetrics had performed, and that a cost estimate to perform such a "peer review" be provided to the Board for its approval. Funding of this work, if approved by the Board, would likely come from the $40,000 line item in the 2015 budget for "additional consulting."

At the TAC's June 4, 2014 meeting we discussed the issue of having a peer review of HydroMetrics's modeling work. An excerpt from the Agenda and Minutes of that meeting pertaining to this topic is attached. Based on the very specific knowledge of the Seaside Basin which would be necessary in order to properly perform a peer review of the work HydroMetrics has performed, the TAC unanimously recommended that Gus Yates of Todd Groundwater be selected to perform this work. Consequently, I requested a Scope and Cost Proposal from Todd Groundwater to perform this work. Todd Groundwater said the Watermaster's standard contract forms, consisting of the Professional Services Agreement and subsequent Requests for Service (RFS), are acceptable to them. Therefore, using the Scope and Cost Proposal I received from Todd Groundwater I prepared contract documents for TAC review and approval. These are contained in Agenda Item No. 4.A. Once they are approved by the TAC, I will forward them to the Board with the TAC's recommendations for approval at the Board's November 19, 2014 meeting.

Issue 3: The Board approved retaining special legal counsel to (1) file a motion for a hearing to update the Court on Monterey Peninsula water supply matters, (2) seek relief from the triennial pumping reduction that would become effective October 1, 2014, and (3) to notify the Court of material injury potential in the LSSA. In conjunction with these items the Board asked the TAC to perform a technical review of the issues and to provide its recommendations on them to help the legal counsel prepare the Court documents. Based on subsequent discussions with Dewey Evans, Executive Officer, and

discussion at the Board's Administrative Committee meeting on November 6, it appears that the Board might defer, or not act on, retaining a legal counsel, and might also defer or decide not to pursue items (1) and (3). For this reason on today's TAC agenda I ask only that the TAC discuss and provide its comments to the Board regarding item (2). With regard to this item, at the October 1 Board meeting Mr. Sabolsice asked for the TAC's recommendation on whether it would be desirable and technically supportable to seek relief from the 10% pumping reduction.

In the Board's discussion of whether or not to request that the Court waive this triennial 10% pumping reduction, Mr. McGlothlin (water issues attorney for the City of Seaside) suggested that the basis for seeking a waiver would be that 2,500 AF will be replenished by the City of Seaside's Golf Course In-lieu Replenishment Project by the end of Water Year 2018, and the total amount of pumping reduction that would occur by that date, if the 10% reduction were imposed, would only total 560 x 3 years = 1,680 AF.

In the Board's discussions Mr. Sabolsice pointed out that imposing the reduction does not actually require producers to lower their production, but rather creates an incentive to do so. The incentive being that Replenishment Assessments are levied for Standard Producers that pump more water than their pumping allocations. Thus, imposing the 10% reduction would result in Standard Producers that overpump their allocations incurring a higher Replenishment Assessment than they would if the 10% reduction was waived.

Technical Program Manager's Comments and Conclusions: All of the modeling and water level measurement work to date demonstrates that the Basin is in an overdrafted condition, and is vulnerable to potential seawater intrusion in areas where groundwater levels are below sea level. Consequently, there appears to be no question that reducing pumping would be beneficial by reducing the rate of drawdown of groundwater levels. However, since the 10% reduction does not necessarily cause pumping to be reduced, the decision of whether or not to pursue Court approval to waive the 10% reduction appears to be a policy decision, not a technical one. I recommend that the TAC state this finding to the Board and defer to the Board on making that decision.

ATTACHMENTS:	1. September 30, 2014 comment letter from Eric Robinson, attorney for Bishop, McIntosh & McIntosh 2. October 13, 2014 response letter from HydroMetrics 3. Excerpts from June 4, 2014 TAC meeting Agenda and Minutes pertaining to peer review
RECOMMENDED ACTION:	Concur with, or modify, the "Technical Program Manager's Comments and Conclusions" pertaining to Issues 1 and 3, and provide these to the Board at its November 19, 2014 meeting. Address Issue 2 under Agenda Item 4.A.

KRONICK MOSKOVITZ TIEDEMANN & GIRARD
A LAW CORPORATION

Eric N. Robinson

916.321.4500
erobinson@kmtg.com

September 30, 2014

Dewey Evans
Chief Executive Officer
Seaside Groundwater Basin Watermaster
2600 Garden Road, Suite 228
Monterey, CA 93940

Re: *Laguna Seca Subarea Natural Safe Yield Calculations*

Dear Mr. Evans:

This letter is submitted by Bishop, McIntosh & McIntosh, which holds an Alternative Production Allocation in the Laguna Seca Subarea ("LSSA") of the Seaside Basin. The staff report for Item VIII(A) on the October 1, 2014, Seaside Groundwater Basin Watermaster Regular Board Meeting Agenda recommends that the Watermaster:

> "(1) Inform the Court in the 2014 Annual Report that modeling results show the Natural Safe Yield specified in the Adjudication for the LSSA appears to be higher than the actual Natural Safe Yield, and that water levels will continue to drop in the area even after CAW ceases production there, with negligible influence on seawater intrusion by LSSA production, and
>
> (2) develop a strategy to stabilize groundwater levels over the long-term."

The first recommendation makes two points that are not correct or might be misunderstood. If the Watermaster communicates with the Court about recent Laguna Seca Subarea modeling, those points should be corrected or clarified. The Watermaster should direct that its staff, and any counsel, work directly with the Laguna Seca Subarea alternative producer representative on the treatment of this matter in the 2014 Annual Report and any other communication with the Court.

Point 1: The staff report recommendation says: "the Natural Safe Yield specified in the Adjudication for the LSSA appears to be higher than the actual Natural Safe Yield". That statement is based on the August 6, 2014, Draft Technical Memorandum from Hydrometrics to the Watermaster's Technical Director, Bob Jacques re Results of Laguna Seca Safe Yield

Analysis (Revised) ("Draft Memo").[1] The Draft Memo uses a formula defining "Natural Safe Yield" as follows:

"*Natural Safe Yield = Aerial Recharge + Subsurface Inflow - Subsurface Outflow*"

The Draft Memo assumes:

> Aerial Recharge is 866 acre-feet per year ("AFY");
> Subsurface Inflow is 930 AFY, and
> Subsurface Outflow is 1,556 AFY.

866 AFY + 930 AFY – 1,556 AFY = 240 AFY, so the Draft Memo concludes Natural Safe Yield is 240 AFY.

Under the formula, any change in the values assumed for Aerial Recharge, Subsurface Inflow or Subsurface Outflow would cause the Natural Safe Yield value to change. For example, if the Subsurface Outflow value were reduced, the Natural Safe Yield would increase. If the assumed Subsurface Outflow were 1,188 AFY, the Natural Safe Yield would be 608 AFY.

The Draft Memo's assumption that Subsurface Outflow is 1,556 AFY is not based on immutable fact. It is apparently an estimate of how much groundwater might be flowing out of the Laguna Seca Subarea (i.e., "simulated average annual subsurface outflow"). The amount of groundwater flowing out the eastern end of the Laguna Seca Subarea has increased due to pumping by Cal-Am and others in the El Toro area. As El Toro pumping drives groundwater elevations lower, the Subsurface Outflow gradient becomes steeper, and the Laguna Seca Subarea loses more Subsurface Outflow.[2]

The El Toro area pumping has not been determined to be sustainable, and no Court has determined that any El Toro groundwater pumpers have a prior right to groundwater originating from the Laguna Seca Subarea. Therefore, it would be a mistake for the Watermaster to suggest

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1 The Draft Memo is available on the Watermaster website at: http://www.seasidebasinwatermaster.org/Other/HydroMetrics%20Technical%20Memorandum%20Laguna%20Seca%20Modeling%20with%20Additional%20Scope%20Updated%20with%20Don%20Freeman%20Wording%208-6-14.pdf

2 The Draft Memo explains "The flow out of the subarea along the eastern boundary, for example, is driven by the groundwater levels in the LSSA being higher than water levels to the east. As groundwater levels in the LSSA rise [i.e., due to pumping reductions on adjudicated rights holders], the gradient from the LSSA to the east increases and drives more water out of the subarea."

to the Court that "the Natural Safe Yield specified in the Adjudication for the LSSA appears to be higher than the actual Natural Safe Yield."

The Watermaster must revisit the Subsurface Outflow assumption in the Draft Memo before reaching any preliminary conclusions about whether the Natural Safe Yield for the Laguna Seca Subarea might appear to be different from the value determined in the Court's Judgment.

Point 2: The staff report recommendation says: "water levels will continue to drop in the area even after CAW ceases production there".

That statement is based on the Draft Memo, which explains that "eliminating all pumping from the subarea does not completely halt the predicted decline in groundwater elevations," which "suggests that pumping from wells outside of the LSSA prevents the subarea from achieving stable groundwater elevations" "due to the amount of pumping from wells located outside of the LSSA."

The Draft Memo explains "[t]he wells just outside and east of the LSSA . . . pump roughly twice as much as all of the wells within the LSSA," and "either the original boundary in this portion of the Seaside Basin was incorrectly drawn, or the boundary has shifted to the east due to changes in pumping practices."

The Draft Memo concludes that the preceding boundary issue:

> ". . . highlights the difficulty that can arise when trying to manage only a subset of an aquifer system when that subset is fully integrated with the system surrounding it. In the case of the LSSA, the surrounding system contains several wells that appear to have a direct influence on the conditions that exist within the subarea. This influence is beyond the control of the Watermaster and draws into question the ability of establishing an operational safe yield for the LSSA . . . ."

Point 3: The staff report recommendation says LSSA production has negligible influence on seawater intrusion. The Watermaster's ongoing assessment of the seawater intrusion threat continues to confirm that groundwater levels in the Southern Coastal Subarea and Laguna Seca Subarea (which is located immediately "upstream" from the Southern Coastal Subarea) remain more than sufficient to prevent seawater intrusion. (*See* Water Year 2013 Seawater Intrusion Analysis Report, Seaside Basin, Monterey County California [December 2013] at pp. 45-51 ["groundwater elevations have always been above sea level and have continued to remain stable over time"].)

Conclusion: We look forward to continuing to work with the Watermaster to develop a strategy to stabilize groundwater levels over the long term throughout the Basin.

Sincerely,

KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD
A Professional Corporation

ENR/ll

ERIC N. ROBINSON

cc: Bob Jacques
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Pasadera Country Club
York School

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HydroMetrics WRI

1814 Franklin St., Suite 501
Oakland, CA 94612

Mr. Bob Jaques
Seaside Groundwater Basin Watermaster
83 Via Encanto
Monterey, CA 93940

October 13, 2014

Subject: Review of September 30, 2014 letter from Bishop, MacIntosh & MacIntosh
Re: Laguna Seca subarea natural safe yield calculations

Mr. Jaques:

At the request of the Seaside Groundwater Basin Watermaster Board of Directors, HydroMetrics WRI has reviewed the above referenced letter. The letter makes three points concerning a staff report for item VIII(A) on the October 1, 2014 Seaside Groundwater Basin Watermaster regular board meeting agenda. Our assessment of each point, and responses, are detailed below.

POINT 1

This point discusses the methodology and results of HydroMetrics WRI's estimated Laguna Seca Subarea (LSSA) natural safe yield. The letter first reviews how the natural safe yield was estimated. In the middle of page 2, the letter states that, "Under the formula, any change in the values assumed for Aerial Recharge, Subsurface Inflow or Subsurface Outflow would cause the natural safe yield value to change." This statement is correct.

The following paragraph states, "The Draft Memo's assumption that subsurface outflow is 1,556 AFY is not based on an immutable fact." This statement is correct. However, the following statement that this flow is an estimate of how much groundwater **might** be flowing out of the LSSA is misleading [*emphasis added*]. This outflow is the current best estimate of how much groundwater is flowing out of the LSSA, on an annual average, based on our modeling results.

The average annual outflow was extracted from the simulated baseline future conditions scenario. This is the scenario in which Alternative producers continue to pump at 2011 levels (approximately 520 acre-feet per year), and Cal-Am pumping is reduced to zero due to triennial reductions.

Average annual inflows and outflows are calculated using the model's simulated groundwater elevations. Groundwater elevations at every model cell inside the LSSA boundary are compared with groundwater elevations in the adjacent model cell, immediately outside the LSSA boundary. Using the difference in groundwater elevations, combined with the transmissivity, the model can calculate both the direction of groundwater flow and the amount of groundwater flow into or out of the LSSA.

These boundary flow calculations assume the modeled groundwater elevations are accurate. During model calibration, simulated groundwater elevations were matched to measured groundwater elevations, ensuring that the modeled groundwater elevations, and the resulting boundary flow estimates, are accurate.

During the November 13, 2013 Seaside Watermaster Technical Advisory Committee (TAC) meeting, the appropriate amount of outflow to use in the natural safe yield calculations was discussed. Although not specifically included in the meeting minutes, it is our recollection that the TAC agreed that using the current average annual outflow estimate was appropriate for estimating the natural safe yield. Therefore, the 1,556 AFY estimate is the correct value for estimating natural safe yield.

The last paragraph on page 2 of the letter states, "… no court has determined that any El Toro groundwater pumpers have a prior right to groundwater originating from the Laguna Seca Subarea." This is a legal question we cannot comment on. This paragraph further states, "… it would be a mistake for the Watermaster to suggest to the Court that 'the Natural Safe Yield specified in the adjudication for the LSSA appears to be higher than the actual Natural Safe Yield.'" We disagree with this statement. Based on the TAC's agreement of using the existing outflow in the natural safe yield estimates, our analysis shows that both the natural safe yield specified in the adjudication, and the current pumping in the LSSA exceeds our calculated natural safe yield of the LSSA.

POINT 2

This point reviews the staff recommendation stating, "water levels will continue to drop in the area even after CAW ceases production there". The letter quotes a number of

items from the HydroMetrics WRI's Draft Memo. We have no disagreement with this point.

POINT 3

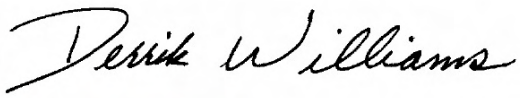
This point addresses the notion that LSSA pumping has negligible influence on seawater intrusion. HydroMetrics WRI is on record as agreeing with this idea, although the word "negligible" could use further clarification. We furthermore generally agree with the statement that, "… groundwater levels in the Southern Coastal Subarea … remain more than sufficient to prevent seawater intrusion." We believe the limited monitoring data from the Southern Coastal Subarea support this statement. The 2013 SIAR states, "In the Southern Coastal subarea, the KMART monitoring well is representative of groundwater levels near the coast (Figure 25). The hydrograph shows that groundwater elevations have always been above sea level and have continued to remain stable over time." Also, Figure 34 in the 2013 SIAR shows groundwater elevations in well CDM-MW4 have always been, and still remain, high enough to prevent seawater intrusion.

There are no wells near the coast that monitor the deep aquifer in the Southern Coastal Subarea, and there is some question as to whether the deep aquifer extends all the way to the coast in this Subarea. Therefore, we have no knowledge of whether there is any threat of seawater intrusion to the deep aquifer in this subarea. If the deep aquifer does not extend to the coast, there is no threat of seawater intrusion to the deep aquifer in the Southern Coastal Subarea.

Including the Laguna Seca Subarea in the statement, "… groundwater levels in the Southern Coastal Subarea **and Laguna Seca Subarea** … remain more than sufficient to prevent seawater intrusion." [*emphasis added*] adds some confusion to the discussion. If groundwater levels in the Laguna Seca Subarea do not substantially influence seawater intrusion, then it cannot be said that these LSSA groundwater elevations, "remain more than sufficient to prevent seawater intrusion." This is a minor point, however it may bring up the question of how negligible of an influence the LSSA groundwater elevation have on seawater intrusion.

Thank you for the opportunity to review this letter. If you have any further questions, please do not hesitate to contact us.

Sincerely,



Derrik Williams
President, HydroMetrics Water Resources Inc.

Georgina King
Senior Hydrogeologist

Excerpts Pertaining to Peer Review from Agenda Packet and Minutes of the June 4, 2014 TAC Meeting

Agenda Packet Material:

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 (Derrik 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 Derrik 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.

Meeting Minutes: With regard to performing a Peer Review, Mr. Franklin, Mr. Oliver and Mr. Lear said they supported selection of Gus Yates to perform this work, if the Board so directs. A motion was made by Mr. Oliver, seconded by Mr. Franklin, to recommend selection of Gus Yates to perform the Peer Review, and the motion was approved unanimously.

SEASIDE BASIN WATER MASTER TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	November 12, 2014
AGENDA ITEM:	4.A
AGENDA TITLE:	Approve Professional Services Agreement and Request for Service No. 2014-01 with Todd Groundwater
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

As discussed under Issue 2 in Agenda Item No. 4, the Board requested that a peer review of HydroMetrics' recent modeling work for the Watermaster be performed.

Attached are a Professional Services Agreement and Request for Service (RFS) No. 2014-01 with Todd Groundwater to perform this peer review.

ATTACHMENTS:	1. Professional Services Agreement 2. RFS No. 2014-01
RECOMMENDED ACTION:	Approve both of these documents and forward them to the Board for approval

PROFESSIONAL SERVICES AGREEMENT

THIS AGREEMENT TO PROVIDE PROFESSIONAL SERVICES is made and entered into on _____ by and between SEASIDE GROUNDWATER BASIN WATERMASTER, hereinafter referred to as "WATERMASTER," and TODD GROUNDWATER, a California Corporation, hereinafter referred to as "PROFESSIONAL," as follows:

SECTION I: ADHERENCE TO TERMS OF AGREEMENT

WATERMASTER intends to literally interpret and strictly apply all terms and conditions of this Agreement. All approvals which are required to be in writing must be in writing to be valid and binding. PROFESSIONAL is encouraged to raise to WATERMASTER any questions with regard to interpretation or applicability of any provision of this Agreement before undertaking the work.

SECTION II: EMPLOYMENT

WATERMASTER hereby employs PROFESSIONAL, as an independent contractor to furnish the professional services covered by this Agreement, and the Requests for Service issued under it, in accordance with the terms and conditions set forth below, and PROFESSIONAL hereby accepts such employment.

SECTION III: WORK ASSIGNMENTS

It is the intent of WATERMASTER and PROFESSIONAL to authorize the performance of work under this Agreement by executing a series of written work assignments setting forth the specific description, scope, and costs of the work to be performed. Such assignments shall be called "Requests For Service" (RFS) and shall be numbered consecutively. Each RFS, upon execution by PROFESSIONAL and by WATERMASTER, shall become and be considered as a part of this Agreement, and all provisions herein shall apply to said RFSs. The RFS form to be used is contained in Attachment A to this Agreement.

SECTION IV: TIME OF PERFORMANCE

A. General - Time is of the essence on the work of the RFSs issued under this Agreement. Therefore, PROFESSIONAL shall perform its services in a

timely manner. Specific performance times shall be specified for each individual RFS under this Agreement. PROFESSIONAL shall make every reasonable effort, including assigning of additional personnel to the work and/or working overtime, to complete the authorized work within these stipulated time periods. The taking of such additional measures to complete the work within the stipulated time periods will not entitle PROFESSIONAL to additional compensation, if the work is being performed under the Lump Sum Payment Method, except as provided for in Section V, Paragraph B.

B. Subcontracted Services - For subcontracted services PROFESSIONAL shall contract for and schedule such services in a timely fashion in accordance with the requirements of the work, and shall be fully responsible for the performance and quality of all work performed by its subcontractors.

C. Extensions of Time - The time of performance established for a particular RFS may be extended at any time prior to completion of the work by mutual agreement in writing between WATERMASTER and PROFESSIONAL.

SECTION V: COMPENSATION

A. General - WATERMASTER and PROFESSIONAL shall negotiate the costs and fees for each specific RFS. The method of payment of said costs and fees shall be either on a lump-sum basis, on a cost-plus-a-fixed-fee basis, or on a time-and-expense basis. The method of payment will depend on the specific conditions, the scope of work, and the services to be performed for each specific RFS.

B. Projected Cost Overruns Under Cost-Plus-a-Fixed-Fee or Time-and-Expense Payment Methods - If, at any time in the performance of the work of a specific RFS under the Cost-Plus-a-Fixed-Fee or Time-and-Expense payment methods, PROFESSIONAL has reason to believe that the costs which it expects to incur to complete the work of that RFS will exceed the total amount authorized for that RFS, PROFESSIONAL shall notify WATERMASTER in writing to that effect. The notice shall:

(1) State the reason(s) why PROFESSIONAL anticipates a cost overrun;

(2) State the estimated amount of additional funds beyond the total amount currently authorized that will be required to complete the work authorized by the RFS; and

(3) Provide recommendations of how the overrun can be avoided;

If, after such notification, additional funds are not allotted, WATERMASTER will, if required in writing by PROFESSIONAL, terminate the work of that particular RFS pursuant to the provisions in Section VI, TERMINATION.

C. Lump-Sum Payment Method - WATERMASTER may elect to pay PROFESSIONAL a lump sum Total Price amount to be determined for a specific RFS. In addition to this lump sum amount, a Special Services allowance, as defined in this section, may also be established.

1. Lump Sum Total Price - PROFESSIONAL shall perform all work authorized by a lump sum type of RFS for the lump sum Total Price amount. No additional payments for said work will be requested by PROFESSIONAL or authorized by WATERMASTER, unless both parties agree that there is additional work, beyond the scope of services authorized by the RFS, which must also be performed. Before any such additional work is undertaken, WATERMASTER and PROFESSIONAL shall execute a separate amendment to the RFS setting forth the scope and costs of the additional work to be performed.

2. Special Services Allowance - To cover unforseen circumstances, WATERMASTER and PROFESSIONAL may negotiate a Special Services allowance. PROFESSIONAL shall provide WATERMASTER with written notification stating the reasons for requiring the utilization of any or all of the Special Services allowance. No utilization of any portion of the allowance shall occur without the prior written approval of the WATERMASTER. Special Services costs will be charged in accordance with the Time-and-Expense Payment Method as defined in Paragraph D of this section.

D. Cost-Plus-A-Fixed-Fee Payment Method - WATERMASTER may elect to

pay PROFESSIONAL on a cost-plus-a-fixed-fee basis which shall be the sum of (1) Direct Salaries, (2) Overhead Costs, (3) Direct Non-Salary Expenses, and (4) A Fixed Fee.

1. Direct Salaries - Shall be the amount paid by PROFESSIONAL to its employees for time directly chargeable to a given RFS, exclusive of costs for fringe benefits for said employees and other payroll costs not paid to the employee.

2. Overhead Cost - Shall be a percentage of the Direct Salaries. The percentage to be charged shall be negotiated between WATERMASTER and PROFESSIONAL, and it shall be stipulated in each RFS for which this type of payment method will be used.

3. Direct Non-Salary Expenses - Shall be all identifiable costs directly chargeable to each RFS including, but not limited to: travel and subsistence expenses; work subcontracted to others; reproduction of plans, specifications, reports and other documents; equipment rental; and, drafting and stenographic supplies used in the work. The chargeable rate for automobile mileage for the work to be performed under this shall be stated in the RFS.

4. Fixed Fee - Shall be a fixed amount for interest on invested capital, readiness to serve, and profit. A fixed fee shall be established for each specific RFS for which the cost-plus-a-fixed-fee payment method will be used. This fixed fee will not change regardless of whether the Total Estimated Cost is greater than or less than the actual costs, unless both parties agree that there has been a change in scope. In such instance, the fixed fee will be renegotiated.

5. Total Estimated Cost - Is the sum of categories (1), (2), and (3) above.

6. Total Price - Is the sum of categories (1), (2), (3), and (4) above.

7. Invoices - Invoices shall include the costs incurred in categories (1), (2), and (3), plus a proportionate amount of the category (4) Fixed Fee.

E. Time-and-Expense Payment Method - For tasks for which the scope of work is not readily definable, WATERMASTER may elect to pay PROFESSIONAL on a time-and-expense basis in accordance with the PROFESSIONAL's most current Standard Schedule of Compensation. The hourly rates set forth in the Standard Schedule of Compensation shall be inclusive of all direct and indirect salary costs, overhead, fringe benefits, profit, and other costs, and shall reflect the total hourly charge for each listed job category. Other direct non-salary expenses for the performance of work authorized under the Time-and-Expense Payment Method shall be all identifiable costs directly chargeable to each RFS including, but not limited to: travel and subsistence expenses; work subcontracted to others; reproduction of plans, specifications, reports and other documents; equipment rental; and, drafting and stenographic supplies used in the work. The chargeable rate for automobile mileage for the work to be performed under this Agreement shall be stated in the RFS. Direct non-salary expenses shall be compensated for at their actual cost, unless otherwise stated in the RFS, providing they have been authorized in advance by WATERMASTER. A Total Price, which may not be exceeded without WATERMASTER's prior written approval, will be established for each specific RFS for which this payment method will be used.

F. Terms of Payment - PROFESSIONAL shall invoice WATERMASTER monthly for work completed during the previous month, unless a different invoicing frequency is agreed to by both parties to this Agreement. All invoices shall be due and payable within thirty (30) days of the date of receipt by WATERMASTER, provided all costs included in the invoice are adequately supported by documentation accompanying the invoice. If payment is not made within sixty (60) days of the date of receipt by WATERMASTER, interest on the unpaid balance will accrue beginning with the sixty-first day at the rate of 1.0 percent per month, or the maximum interest rate permitted by law, whichever is the lesser. Such interest shall become due and payable at the time said overdue payment is made.

G. Penalty for Late Performance - The PROFESSIONAL is not responsible for delays in the schedule caused by events outside PROFESSIONAL's reasonable control. However, in the event PROFESSIONAL fails to properly complete work within thirty (30) days of the date such work is due (pursuant to schedules developed in accordance with Section IV of this Agreement), because of events within PROFESSIONAL's reasonable

control, WATERMASTER SHALL reduce the total compensation established for the work of that RFS by ten percent (10%). Said reduction shall be deemed liquidated damages for the untimely performance of work required by this Agreement. PROFESSIONAL shall be deemed to have waived any claim for such amount by reason of his failure to perform in a timely fashion.

SECTION VI: TERMINATION

Notwithstanding the above, WATERMASTER reserves the right to terminate any RFS to this Agreement at any time prior to the completion of the services to be furnished by PROFESSIONAL under said RFS by giving a written Notice of Termination to PROFESSIONAL, in which event WATERMASTER shall pay PROFESSIONAL only for work done and direct costs incurred by PROFESSIONAL under said RFS prior to receipt of such notice of termination. Such costs will include reasonable costs to bring the work to a halt, and costs to deliver to WATERMASTER the documentation described in the following paragraph. Termination of a particular RFS will not affect any other operative RFS.

Upon receipt of a Notice of Termination, PROFESSIONAL shall (1) promptly discontinue all services affected (unless the notice directs otherwise), and (2) deliver to WATERMASTER all data, drawings, specifications, reports, estimates, summaries, and such other information and materials as may have been accumulated by PROFESSIONAL in performing work under this Agreement, whether completed or in process.

Upon termination WATERMASTER may take over the work and prosecute the same to completion by agreement with another party or otherwise. Any work taken over by WATERMASTER for completion will be completed at WATERMASTER's risk, and WATERMASTER will hold harmless PROFESSIONAL from all claims and damages arising out of improper use of PROFESSIONAL's work.

SECTION VII: WATERMASTER LIABILITY

PROFESSIONAL understands that this Agreement is with WATERMASTER alone, and that none of the members of WATERMASTER are liable for any sums which may be payable hereunder, or for any debts of WATERMASTER.

SECTION VIII: CHANGES

WATERMASTER may, at its discretion and from time to time, revise, correct, or modify the work to be performed under an RFS. All such changes shall be made formally and in writing to PROFESSIONAL. PROFESSIONAL shall comply with such changes. Should PROFESSIONAL determine that said changes will result in an increase or decrease in costs to PROFESSIONAL, these costs shall be evaluated by WATERMASTER and PROFESSIONAL for negotiation as to adjustment in the compensation due PROFESSIONAL, and written agreement as to said adjustment shall be reached between the parties prior to commencement of any work that will cause an increase or decrease in PROFESSIONAL's costs. Any increased costs in excess of the Total Price incurred by PROFESSIONAL prior to execution of a written agreement covering said increased costs shall not be compensable.

SECTION IX: DUTIES OF WATERMASTER

WATERMASTER agrees to perform duties in connection with this Agreement and RFS issued under it as follows:

A. To assist PROFESSIONAL in obtaining any available information concerning location and details of facilities under control of WATERMASTER that may affect the work of an RFS, and to render reasonable assistance to PROFESSIONAL;

B. To examine within a reasonable time so as not to delay the work of PROFESSIONAL, all studies, reports, sketches, drawings, specifications, cost estimates, proposals and other documents presented by PROFESSIONAL to WATERMASTER for such purpose;

C. To give prompt written notice to PROFESSIONAL whenever WATERMASTER observes or otherwise becomes aware of any defect in the work of PROFESSIONAL;

SECTION X: DATA FURNISHED BY WATERMASTER

For the purpose of aiding PROFESSIONAL in the performance of its obligations under this Agreement and RFS issued under it, WATERMASTER shall furnish PROFESSIONAL all relevant data in its possession and shall render all reasonable assistance to PROFESSIONAL in connection with its performance hereunder. WATERMASTER is responsible for the reasonable correctness of data so furnished, but

it shall likewise be the responsibility of PROFESSIONAL to apply reasonable caution in its use and interpretation of the data and to promptly advise WATERMASTER of any incorrectness or suspected incorrectness in the data furnished.

WATERMASTER shall provide to PROFESSIONAL in a timely manner all materials, decisions, and direction which are necessary to the progress of the work and which are basically the prerogative of WATERMASTER, but which PROFESSIONAL is not required to determine or provide under the terms of this Agreement.

SECTION XI: RESPONSIBILITIES OF PROFESSIONAL

PROFESSIONAL is employed to render a professional service only, and any payments made to him are compensation solely for such services as he may render and recommendations he may make in carrying out the work. PROFESSIONAL shall follow professional practices to make findings, opinions, factual presentations, and professional advice and recommendations.

PROFESSIONAL's review or supervision of work prepared or performed by other individuals or firms employed directly by WATERMASTER shall not relieve those individuals or firms of complete responsibility for the adequacy of their work.

PROFESSIONAL shall be responsible for the professional quality, technical accuracy, timely completion, and the coordination of all designs, drawings, specifications, reports and other services furnished by PROFESSIONAL under this Agreement. PROFESSIONAL shall, without additional compensation, correct or revise any errors, omissions or other deficiencies in his designs, drawings, specifications, reports and other services.

PROFESSIONAL shall perform such professional services as may be necessary to accomplish the work required to be performed under this Agreement and in accordance with this Agreement.

Approval by WATERMASTER of drawings, designs, specifications, reports, and incidental engineering work or materials furnished hereunder shall not in any way relieve PROFESSIONAL of responsibility for the technical adequacy of his work. Neither WATERMASTER's review, approval or acceptance of, nor payment for, any of the services rendered under this Agreement shall be construed to operate as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement.

PROFESSIONAL shall be and remain liable in accordance with applicable law for all damages to WATERMASTER caused by PROFESSIONAL's negligent performance of any of the services furnished under this Agreement. The only exception in this regard will be for errors, omissions or other deficiencies to the extent attributable to WATERMASTER, WATERMASTER-furnished data or any third party not under the control of PROFESSIONAL. PROFESSIONAL shall not be responsible for any time delays in the project caused by circumstances beyond PROFESSIONAL's control.

SECTION XII: SUBCONTRACT

WATERMASTER has entered into this Agreement in order to receive the professional services of PROFESSIONAL. PROFESSIONAL will therefore not make an assignment to a third party of all or any portion of the services required of PROFESSIONAL under this Agreement and RFSs thereto without first obtaining the written consent of WATERMASTER. PROFESSIONAL may, however, make use of the part-time assistance of other experts possessing unique skills, the utilization of which will, in the opinion of PROFESSIONAL, enhance the quality of its service to WATERMASTER under this Agreement provided, however, that any such additional assistants, part-time or otherwise, shall be considered employees of PROFESSIONAL or of PROFESSIONAL's subcontractor(s), and the responsibility for same shall rest with PROFESSIONAL.

SECTION XIII: INDEPENDENT PROFESSIONAL

PROFESSIONAL shall perform the services hereunder as an independent contractor, and nothing herein contained shall be construed to be inconsistent with this relationship or status. The employees of PROFESSIONAL shall not be deemed to be the employees of WATERMASTER, and WATERMASTER shall have no right to control the physical conduct of PROFESSIONAL's employees.

SECTION XIV: USE OF DOCUMENTS

For all work performed under this Agreement and all RFSs thereto, PROFESSIONAL shall provide to WATERMASTER copies of all plans, drawings, specifications, studies, reports, analyses, calculations, and all other work products and supporting documentation developed in the course of performing the work authorized by these agreements. The costs for reproducing, assembling, and delivering said copies of these documents to WATERMASTER shall be considered to have been included in the price for performing each RFS, whether or not specifically stated therein. Unless stated

otherwise in the RFS, one paper copy, and the electronic file on disc or on CD (e.g. in MS Word, MS Excel, etc.), of each document shall be provided by PROFESSIONAL to WATERMASTER. WATERMASTER shall have the right, and permission of PROFESSIONAL, to use any such document for any purpose which WATERMASTER deems appropriate. Use of documents for other than their intended purpose shall be at WATERMASTER's risk. WATERMASTER shall hold PROFESSIONAL harmless from all claims and damages arising out of improper use of said documents.

SECTION XV: AMENDMENTS AND SCOPE OF AGREEMENT

WATERMASTER hereby reserves the right to amend the provisions of this Agreement from time to time as may be in the best interest of WATERMASTER. Such amendments, upon acceptance by PROFESSIONAL and by WATERMASTER, shall become and be considered as part of this Agreement, and all provisions herein shall apply to such amendments.

This Agreement constitutes the entire agreement between the parties relative to the subject matters hereof, and no modifications thereof shall be effective unless and until such modifications are evidenced by written amendments, signed by both parties, to this Agreement. There are no understandings, agreements, conditions, representations, warranties, or promises with respect to the subject matter of this Agreement which are not actually contained in the Agreement, except those expressly contained in such written amendments.

SECTION XVI: SUCCESSORS AND ASSIGNS

This Agreement and all amendments thereto shall be binding upon and inure to the benefit of any successors and assigns of the respective parties hereto.

SECTION XVII: ATTORNEYS' FEES

If any legal action is necessary to enforce or interpret the terms or provisions of this Agreement and all amendments thereto, and the respective rights and duties of the parties hereunder, the prevailing party shall be entitled to reasonable attorneys' fees in addition to any other relief to which he may be entitled.

SECTION XVIII: JURISDICTION

This Agreement shall be administered and interpreted under the laws of the State

of California. Jurisdiction of litigation arising from this Agreement shall be in this state. If any part of this Agreement is found to be in conflict with applicable laws, such part shall be inoperative, null and void insofar as it is in conflict with said laws, but the remainder of the Agreement shall be in full force and effect.

SECTION XIX: INSURANCE

PROFESSIONAL shall procure and maintain for the duration of this Agreement insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by PROFESSIONAL, his agents, representatives, employees or subcontractors.

A. Minimum Scope and Limits of Insurance

PROFESSIONAL shall maintain the types of insurance with limits no less than those set forth below, and having no deductibles, except as noted.

The coverage shall be at least as broad as:

1. Insurance Services Office Commercial General Liability coverage (occurrence Form CG 0001).
2. Insurance Services Office Form No. CA 0001 covering Automobile Liability, Code 1 (any auto).
3. Workers Compensation insurance as required by the State of California and Employer's Liability Insurance.
4. Errors and Omissions Liability insurance appropriate to the consultant's profession. For architects and engineers this coverage shall be endorsed to include contractual liability.

Required coverage:

1. General Liability Insurance: Combined single limit of $1,000,000 per occurrence and $2,000,000 annual aggregate for bodily injury, personal injury, and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this project/location, or the general aggregate limit shall be twice the required occurrence limit.

2. Automobile Liability Insurance: $1,000,000 per accident for bodily injury and property damage.

3. Employer's Liability Insurance: $1,000,000 per accident for bodily injury or disease. If PROFESSIONAL has no employees, this coverage is not required.

4. Workers' Compensation Insurance: As required by the State of California.

5. Errors and Omissions Insurance: PROFESSIONAL shall procure and maintain errors and omissions liability insurance appropriate to the type of professional services that PROFESSIONAL will be providing under this Agreement. The minimum coverage shall be $1,000,000 per claim and in the aggregate.

B. Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to and approved by WATERMASTER before any work under this Agreement is performed.

C. Other Insurance Provisions

The general liability and automobile liability policies are to contain, or be endorsed to contain, the following provisions:

1. WATERMASTER, its officers, officials, employees, and volunteers are to be covered as insureds as respects: liability arising out of activities performed by or on behalf of PROFESSIONAL; products and completed operations of PROFESSIONAL; premises owned, occupied or used by PROFESSIONAL; or, automobiles owned, leased, hired or borrowed by PROFESSIONAL. The coverage shall contain no special limitations on the scope of protection afforded to WATERMASTER, its officers, officials and employees.

2. For any claims related to this project, PROFESSIONAL's insurance coverage shall be primary insurance as respects WATERMASTER, its officers, officials, employees, and volunteers. Any insurance or self-insurance maintained by WATERMASTER, its officers, officials, employees, or volunteers shall be excess of PROFESSIONAL's insurance and shall not contribute with it.

3. Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to

WATERMASTER, its officers, officials and employees.

4. PROFESSIONAL's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

5. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party, reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to WATERMASTER.

6. Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under Subdivision (b) of Section 2782 of the Civil Code.

E. Acceptability of Insurers

Insurance is to be placed with insurers with a current A. M. Best's rating of no less than A:VII, unless otherwise acceptable to WATERMASTER.

F. Verification of Coverage

PROFESSIONAL shall furnish WATERMASTER with original certificates and amendatory endorsements effecting coverage required by this section. The endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. All endorsements are to be received and approved by WATERMASTER before work commences. If this is not possible due to time constraints prior to commencement of work, PROFESSIONAL may initially furnish Certificates of Insurance in lieu of endorsements, as long as the endorsements are provided within forty-five (45) days from the date of execution of this Agreement.

G. Subcontractors

PROFESSIONAL shall include all subcontractors as insureds under its policies or shall furnish separate evidence of coverage and endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein.

SECTION XX: INDEMNIFICATION

PROFESSIONAL shall indemnify and hold harmless WATERMASTER and its officers, officials, employees and agents from and against all losses, claims, demands, payments, suits, actions, recoveries, and judgements of every nature and description brought or recoverable against it or them by reason of any negligent act, negligent error, or negligent omission of PROFESSIONAL, his agents, or employees for work performed under this Master Agreement. The only exception in this regard will be for errors, omissions or other deficiencies to the extent attributable to WATERMASTER, WATERMASTER-furnished data or any third party not under the control of PROFESSIONAL.

SECTION XXI: WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person or by mail to the individuals and at the addresses listed below:

A. WATERMASTER: Chief Executive Officer
Seaside Basin Watermaster
2600 Garden Road, Suite 228
Monterey, CA 93940

B. PROFESSIONAL: Gus Yates
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

IN WITNESS WHEREOF, the parties hereto have executed this Agreement consisting of fifteen (15) pages and one (1) Attachment in duplicate on the date hereinabove written.

WATERMASTER	PROFESSIONAL
SEASIDE BASIN WATERMASTER	TODD GROUNDWATER
By _____	By _____
Dewey D. Evans	Phyllis S. Stanin
Chief Executive Officer	Vice President and Secretary

ATTACHMENT A
SEASIDE BASIN WATERMASTER
REQUEST FOR SERVICE

DATE: _____ **RFS NO**._____
(To be filled in by WATERMASTER)

TO: _____ **FROM**:_____

Services Needed and Purpose:

_____

_____

_____

_____

(Provide detailed scope of work description on page A-2, or attach Scope of Work marked "Attachment 1".)

Completion Date:_____ (Attach schedule marked "Attachment 2" if appropriate.)

Method of Compensation:_____(As defined in Section V of Agreement.)

Total Price Authorized by this RFS: $_____(Cost is authorized only when evidenced by signature below.)

Total Price may not be exceeded without prior written authorization by WATERMASTER in accordance with Section V. COMPENSATION.

Requested by: _____ Date:_____.
WATERMASTER Technical Program Manager

Authorized by: _____ Date:_____.
WATERMASTER Chief Executive Officer

Agreed to by: _____ Date:_____.
PROFESSIONAL

Detailed Scope of Work for RFS No.____:

ESTIMATED COST SUMMARY

Job Category*	Hours	Hourly Rate*	Cost

* Per Standard Schedule of Compensation attached hereto.

Subtotal: $_____

Other Direct Costs (description): _____

_____

_____

_____

_____

Vehicle mileage @ $ /mile _____ $_____

Total Estimated Cost: **$**_____

Note: Regardless of the use of the term "Estimated Cost" on this page A-3 of this RFS, if the work of this RFS is to be compensated for using Lump Sum Payment method, it is understood and agreed to by PROFESSIONAL that the Total Price listed on page A-1 of this RFS is binding and limiting as defined in Section V of the Agreement.

SEASIDE BASIN WATERMASTER
REQUEST FOR SERVICE

DATE: November 20, 2014

RFS NO. 2014-01
(To be filled in by WATERMASTER)

TO: Gus Yates
Todd Groundwater
PROFESSIONAL

FROM: Robert Jaques
WATERMASTER

Services Needed and Purpose: Perform a peer review of hydrogeologic modeling and other related work performed by HydroMetrics WRI. See detailed Scope of Work in Attachment 1.

Completion Date: If notice-to-proceed is issued by WATERMASTER to PROFESSIONAL by December 1, 2014, all work of this RFS shall be completed not later than March 31, 2015, and shall be performed in accordance with the Schedule contained in Attachment 1. If notice-to-proceed is issued later than December 1, 2014, a commensurate later completion date will be specified.

Method of Compensation: Time and Materials (As defined in Section V of Agreement.)

Total Price Authorized by this RFS: $ 25,420.00 (Cost is authorized only when evidenced by signature below.) (See Attachment 1 for Estimated Costs).

Total Price may not be exceeded without prior written authorization by WATERMASTER in accordance with Section V. COMPENSATION.

Requested by: _____ Date: _____.
WATERMASTER Technical Program Manager

Authorized by: _____ Date: _____.
WATERMASTER Chief Executive Officer

Agreed to by: _____ Date: _____.
PROFESSIONAL

ATTACHMENT 1

SCOPE OF WORK AND ESTIMATED COSTS

Background

At its October 1, 2014 meeting the Watermaster Board directed staff to have a peer review performed on the Technical Memoranda that HydroMetrics WRI (HMWRI) has recently prepared for the Watermaster consisting of (1) updating the Basin model and checking its accuracy of predicted vs. measured ground water levels, and (2) evaluating various issues pertaining to the Laguna Seca Subarea of the Basin.

Both of these Technical Memos from HMWRI are posted on the Watermaster's website which is: http://www.seasidebasinwatermaster.org/sbwmARC.html. The two Technical Memos are the July 30 and July 31, 2014 postings in the "Reports" column of the "Postings and Records" tab of the website. The Laguna Seca memo is marked "Draft" since the Board wanted to have the peer review done to determine if any changes should be made to the Memorandum before it is finalized.

Due to the size of these Technical Memoranda they are not attached to this RFS No. 2014-01, but are incorporated herein by this reference thereto as background documents that PROFESSIONAL has reviewed in order to prepare the "Peer Review of Laguna Seca Analysis and Seaside Basin Groundwater Modeling" that is contained in Exhibit "A."

Scope of Work

The Scope of Work of this RFS No. 2014-01will include an investigation of two areas where recent model results could directly affect basin management decisions: groundwater outflow from the Laguna Seca subarea to the El Toro subarea, and apparent errors in simulated water levels in the Northern Coastal subbasin. It will involve reviewing reports and memoranda, meetings with HMWRI personnel, sensitivity testing of the Groundwater Model, and preparing a Peer Review Memorandum. The peer review is expected to shed additional light on trans-boundary pumping effects in the Laguna Seca subarea and uncertainty in simulation results in the northern Coastal Subbasin, both of which are issues important to current water management decisions.

Based on past experience with peer reviews and PROFESSIONAL's initial review of HMWRI technical memoranda, it is anticipated that additional information from the simulation results will need to be extracted and that a small number of model sensitivity tests will need to be implemented. The most efficient way to accomplish that is with the assistance of HMWRI. Accordingly, the tasks include actions for PROFESSIONAL and for HMWRI. HMWRI has reviewed the task list contained in Exhibit "A" and provided a cost estimate for their part of the work, which is attached along with PROFESSIONAL's cost estimate for its part of the work.

The Scope of Work is described in detail in Exhibit "A."

Estimated Costs

The estimated costs for PROFESSIONAL to complete the peer review as described in Exhibit "A" is $25,420.00. A breakdown of these costs is also contained in Exhibit "A." The total cost authorized by this RFS No. 2014-01 is $25,420.00.

EXHIBIT "A"

TODD GROUNDWATER

October 30, 2014

MEMORANDUM

To: Bob Jaques, Seaside Basin Watermaster

From: Gus Yates, PG, CHG and Iris Priestaf, PhD, Todd Groundwater

Re: Peer review of Laguna Seca Analysis and Seaside Basin groundwater Modeling

The following tasks describe the approach we recommend for completing a technical peer review of recent studies by HydroMetrics Water Resources, Inc. (HMWRI) related to yield in the Laguna Seca subarea of the Seaside Basin and updated groundwater modeling of the entire basin. The review will be more than purely academic. It will include an investigation of two areas where recent model results could directly affect basin management decisions: groundwater outflow from the Laguna Seca subarea to the El Toro subarea, and apparent errors in simulated water levels in the Northern Coastal subbasin.

Based on past experience with peer reviews and a brief preliminary review of HMWRI technical memoranda, we anticipate wanting to extract additional information from the simulation results and implement a small number of model sensitivity tests. The most efficient way to accomplish that is with the assistance of HMWRI. Accordingly, the tasks include actions for me and for HMWRI. HMWRI provided a cost estimate based on a preliminary description of potential modeling work that we provided. For your information, their cost estimate is attached along with the cost estimate for our review work.

Gus Yates will serve as the primary peer reviewer. He has previously completed studies of groundwater in the Seaside Basin, including a groundwater model of the Laguna Seca Subarea. Furthermore, he has completed peer reviews of groundwater technical studies in four other basins during the past year, for which he efficiently and impartially identified strengths, uncertainty and limitations of modeling studies.

SCOPE OF WORK

Task 1. Review Reports and Memoranda

Mr. Yates will carefully review the July 2014 Model Update Report and the August 2014 Laguna Seca Yield Analysis, referring to the original 2009 Groundwater Modeling Report as needed. He will compile a list of questions regarding model assumptions, algorithms and output related to: 1) the effects of external pumping on water levels and yield in the Laguna Seca Subarea and 2) discrepancies between measured and simulated water levels in the

northern coastal subarea during the 2008-2013 model update period. He will also prepare a list of additional model output from recent simulations that would help address the questions. For example, this might include contours of simulated groundwater levels in the Laguna Seca-El Toro area and water balances for subareas within that region. He will submit the questions and information request in an informal written communication to HMWRI.

Task 2. First Meeting with HydroMetrics WRI

HMWRI will compile information and prepare responses to the questions raised by Mr. Yates. HMWRI and Mr. Yates will meet to discuss the information and explore any concerns related to accuracy or bias in model output or conclusions drawn from modeling results. The discussion might identify additional tests of the model that would present a clearer picture of its strengths and weaknesses. For example, this might include sensitivity of simulation errors in the northern coastal subarea to assumptions or parameters related to the ocean boundary, vertical leakance between model layers, and storativity.

Task 3. Sensitivity Testing of Groundwater Model

HMWRI will complete additional tests of the model as agreed upon at the first meeting and transmit a summary of the results to Mr. Yates in an informal e-mail. Mr. Yates will review those results in preparation for the second meeting.

Task 4. Second Meeting with Hydrometrics WRI

Mr. Yates and HMWRI staff will meet again to discuss the results of the model sensitivity tests as well as the overall strengths and weaknesses of the model and the associated degree of confidence in water resources management recommendations that are based on model output.

Task 5. Prepare Peer Review Memorandum

Mr. Yates will summarize his findings and the results of the meetings and model tests in a draft memorandum to the Watermaster. He will attend a meeting of the TAC and/or Board in Seaside to present and discuss the draft report and receive comments. If the Watermaster, technical advisory committee or Board members have verbal or written questions or comments, Mr. Yates will address those in a final version of the peer review memorandum. Any questions or comments that require additional modeling might need to be supported by a budget augmentation for HMWRI.

SCHEDULE

Following a notice to proceed, the anticipated schedule to complete the tasks is as follows:

Task 1 ..... 3 weeks

Task 2 ..... 2 weeks

Task 3	4 weeks
Task 4	2 weeks
Task 5 (draft)	2 weeks
Task 5 (final)	2 weeks after receipt of comments
Total	15 weeks

COST

The estimated cost for Todd Groundwater to complete the peer review is $13,110. HMWRI estimates that their cost to support the peer review will be a maximum of $12,310. If fewer sensitivity tests are needed, the cost would be lower. The total combined cost is $25,420. Details of the cost estimates by person and task are attached.

Cost Estimate for Peer Review of Laguna Seca and Seaside Basin Groundwater Modeling Studies

Todd Groundwater

	Iris Priestaf	Gus Yates	Drafting /GIS	Admin	Total Hours	Total Labor Costs	Expenses	Total Labor and Expenses
	Principal	Senior Hydrologist						
	$205	$185	$100	$90				
Task 1. Review Reports and Memoranda	**1**	**16**		1	18	$3,255	$0	$3,255
Task 2. First Meeting with HydroMetrics WRI		**4**			4	$740	$0	$740
Task 3. Sensitivity Testing of Groundwater Model		**6**			6	$1,110	$0	$1,110
Task 4. Second Meeting with HydroMetrics WRI		**4**			4	$740	$0	$740
Task 5. Prepare Peer Review Memorandum	**3**	**28**	4	1	36	$6,285	$100	$6,385
Total	**4**	**58**	**4**	**2**	**68**	**$12,130**	**$980**	**$13,110**

Todd submits invoices monthly on a time and materials basis; we regard this estimate as a not-to-exceed budget. 30-Oct-14

Cost Estimate for HydroMetrics WRI Support of Todd Groundwater Peer Review

Tasks	HydroMetrics WRI Labor						TOTALS
	Derrik Williams	Georgina King	Stephen	Haleemah	Labor Total		
	President	Senior Hydrogeologist	Hydrogeologist 3	Hydrogeologist 1			
Rates	$215	$185	$125	$100	**Hours**	**($)**	**($)**
Task 2. First Meeting with Todd Groundwater	4	0	0	0	4	$ 860	$ 860
Task 3. Run Model, Export Output, and Analyze Model Output	8	4	30	8	50	$ 7,010	$ 7,010
Task 4. Second Meeting with Todd Groundwater	4	0	0	0	4	$ 860	$ 860
Task 5. Respond to Additional Questions from TAC/Board	8	6	6	0	20	$ 3,580	$ 3,580
TOTAL	***24***	***10***	***36***	***8***	***78***	***$ 12,310***	***$ 12,310***

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	November 12, 2014
AGENDA ITEM:	5
AGENDA TITLE:	Discuss and Provide Input on the 2014 Seawater Intrusion Analysis Report (SIAR)
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

HydroMetrics has completed preparing the Draft Seawater Intrusion Analysis Report (SIAR) for Water Year 2013-2014, and the Executive Summary from the Draft SIAR 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 as soon as HydroMetrics completes it, so TAC members wishing to review the entire document can do so.

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 fresh water 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 indicated the presence of seawater intrusion in the existing monitoring wells. HydroMetrics has reported essentially these same findings and conclusions in the 2014 Draft SIAR.

A representative from HydroMetrics 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.

ATTACHMENTS:	Executive Summary from the Draft 2014 SIAR
RECOMMENDED ACTION:	Discuss and either modify the Draft SIAR findings and recommendations or recommend that the Board approve the Draft SIAR

EXECUTIVE SUMMARY

This annual report addresses the potential for, and extent of, seawater intrusion in the Seaside Groundwater Basin. Continued pumping in excess of recharge and fresh water inflows, pumping depressions near the coast, and ongoing seawater intrusion in the nearby Salinas Valley all suggest that seawater intrusion could occur in the Seaside Groundwater Basin. No seawater intrusion is currently observed in existing monitoring and production wells, as demonstrated by the different tools and analyses that are used to investigate for evidence of seawater intrusion.

- Piper diagrams for groundwater samples collected from depth-discreet monitoring wells during Water Year 2014 show no changes in water chemistry towards seawater.

- No groundwater samples collected in Water Year 2014 and plotted on Stiff diagrams, show chemistry indicative of incipient seawater intrusion.

- Overall, chloride concentration trends have been stable for most monitoring wells, with only two wells showing increasing trends over the past few years. These are sentinel well SBWM-1 and SBWM-2.

- Maps of chloride concentrations for the shallow aquifer do not show chlorides increasing towards the coast. The deep aquifer maps show that the highest chloride concentrations are limited to coastal monitoring wells PCA-West Deep and sentinel well SBWM-4. The chloride concentrations in these wells apprears to be stable.

- Although production wells have a different water quality than the monitoring wells, this is probably as a result of them being screened across both shallow and deep zones. The production well water qualities are not indicative of seawater intrusion.

- Induction logging data at the coastal sentinel wells do not indicate changes indicative of seawater intrusion.

- Groundwater levels continue to be below protective elevations in the deep coastal target monitoring wells for which protective elevations were developed (MSC deep, PCA-West, and sentinel well SBWM-3). Two of the three shallow wells' groundwater levels are above protective elevations: PCA-W shallow and CDM-MW4. MSC shallow remains below protective elevations.

Based on the findings of this report, the following recommendations should be implemented to continue to monitor and track potential seawater intrusion.

1. **Verification Water Quality Sampling and Analysis for Sentinel Well SBWM-1**
   Because of the 47 mg/L increase in chloride and 31 mg/L increase in sodium at sentinel well SBWM-1 since last year, it is recommended that this well be resampled in the next quarter to verify these increases at both sample depths.

2. **Continue to Analyze and Report on Water Quality Annually**
   Seawater intrusion is a threat, and data must be analyzed regularly to identify incipient intrusion. Maps, graphs, and analyses similar to what are found in this report should continue to be developed every year.

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	November 12, 2014
AGENDA ITEM:	6
AGENDA TITLE:	Discuss and Provide Input on the Preliminary Draft Watermaster 2014 Annual Report
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

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.

A Preliminary Draft Annual Report for 2014 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 2014 Annual Report cannot be included with the agenda packet. However, a copy of the body of the Preliminary Draft is attached. A few of the attachments to the Annual Report, were still being prepared, and are therefore not included. A copy of the complete Preliminary Draft Annual Report, with those attachments that have been completed, is posted on the Watermaster's website for anyone that would like to examine the entire document.

Please note the following:

- MPWMD is still compiling the data for the WY 2014 Water Level/Water Quality Monitoring Report which constitutes Attachment 7 to the Annual Report. However, the Executive Summary from this Report is included in the Preliminary Draft Annual Report. Some of the Water Quality data were collected late in the Water Year and are not yet worked up. The Monitoring Report will be included in the Annual Report as soon as it becomes available.
- The Preliminary Draft Annual Report does not include the complete Draft 2014 Seawater Intrusion Analysis Report (SIAR) because some of the data needed to complete the report came in later than expected. However, the incomplete Draft has been included and its findings and conclusions are not expected to change where the remaining data has been processed. The Draft SIAR will hopefully be inserted into the Draft Annual Report before it goes to the Board at its November 19, 2014 meeting, and will subsequently be replaced with the Final SIAR to reflect any changes or additions made by the Board at that meeting.
- There is discussion in Section J "Water Quality Monitoring and Basin Management" under the subheadings "*Updating and Evaluating the Accuracy of the Groundwater Model" and "Modeling of the Laguna Seca Subarea"* pertaining to the Board's recent discussion and direction on these matters.

ATTACHMENTS:	Preliminary Draft 2014 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

PRELIMINARY DRAFT

ANNUAL REPORT – 2014

November 6, 2014

[Note: This Preliminary Draft Annual Report has been prepared primarily for internal review purposes and does not include all of the supporting documentation that was still in the process of being prepared and compiled when this Preliminary Draft was prepared. The items that were still being prepared, or which are considered to be most likely to change as a result of direction from the Watermaster's Technical Advisory Committee or Board of Directors at their November 12, and November 19, 2014 meetings, respectively, are highlighted in yellow. Other changes beyond those that are highlighted may also be made during those meetings.]

Table of Contents

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 2014 Annual Report is being filed on or before December 15, 2014, consistent with the provisions of the Decision, as amended by the Annual Report Review and Order dated January 7, 2011. 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 a section pertaining to Water Quality Monitoring and Basin Management.

A. Groundwater Extractions

The schedule summarizing the Water Year 2014 (WY 2014) 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 2014." For the purposes of this Annual Report Water Year 2014 is defined as beginning October 1, 2013 and ending on September 30, 2014.

B. Groundwater Storage

Monterey Peninsula Water Management District (MPWMD), in cooperation with California American Water (CAW), operated the Seaside Basin Aquifer Storage and Recovery (ASR) program during WY 2014. During WY 2014, a total of 0 (zero) acre-feet (AF) of water was diverted by CAW from its Carmel River sources during periods of flow in excess of NOAA-Fisheries' bypass flow requirements, and transported through the existing CAW distribution system for injection and storage in the Seaside Basin at the MPWMD's Santa Margarita ASR site and CAW's Seaside Middle School ASR site. In WY 2014, rainfall in the area was about 50% of normal, but due to the rainfall distribution pattern throughout the season, Carmel River flow was only 10% of normal. WY 2014 was the third consecutive hydrologic "drought" year on the Monterey Peninsula and was classified as "Critically Dry" by MPWMD. Accordingly, there were no periods during WY 2014 when flows exceeded the SWRCB minimum bypass flow requirements for ASR diversions to the Seaside Basin.

Based upon production reported for WY 2014, the following Standard Producers are entitled to Free and Not-Free Carryover Credits to 2015 in accordance with the Decision, Section III. H. 5:

Producer	Free Carryover Credit (Acre-feet)	Not-Free Carryover Credit (Acre-feet)
Granite Rock	121.57	78.85
DBO Development	238.88	152.52
CAW	00.00	00.00
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 2014 the Watermaster indirectly engaged in In-lieu Replenishment of the Basin. Non-native water was made available to the Basin during Water Year 2014 and is foreseeable for Water Year 2015 under a 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. 552.38 acre-feet was in-lieu replenished to the Basin by the program in Water Year 2014.

This in-lieu replenishment program was extended by the Board at its April 3, 2013 meeting. Under the original terms of the MOU it would have terminated following the end of WY 2012. Under projected irrigation demands the City of Seaside estimated that its remaining Marina Coast Water District entitlement would provide sufficient irrigation water to satisfy the irrigation demands of the golf courses through WY 2018. Consequently, it was agreed that the in-lieu replenishment program should continue without interruption pursuant to the terms of this MOU. The extended MOU was made retroactively effective to January 1, 2013 and will continue until all of the City's remaining MCWD entitlement has been used within the Program, and all of the City's Replenishment Assessment Credit has either been used by the City, or by another party if the City transfers its Replenishment Assessment Credit. A copy of the extended MOU was contained in Attachment 13 of the 2013 Annual Report.

D. Leases or sales of Production Allocation and Administrative Actions

No sale of Production Allocation and no actions pertaining to real property and/or water rights occurred during WY 2014.

In 2013 the Watermaster approved a request by California American Water (CAW) to convert three of its production wells to monitoring wells and to retire and destroy one of its production wells in the Seaside Basin. These were CAW's Hilby, Military, Luxton, and Darwin wells. In 2014 three of these wells (Hilby, Military, and Luxton) were converted from production wells to monitoring wells, and the Darwin well was destroyed.

During WY 2014 the Watermaster Board did not make any revisions to its *Rules and Regulations*.

During WY 2014 the Watermaster Board was comprised of the following Members and Alternates:

MEMBER	ALTERNATE	REPRESENTING
Director Paul Bruno	N/A	Coastal Subarea Landowner
Eric Sabolsice	Roger Hulbert	California American Water
Director Bob Costa	N/A	Laguna Seca Subarea Landowner
Director Bob Brower	Jeanne Byrne	MPWMD
Mayor Dave Pendergrass	Kelly Morgan	City of Sand City
Supervisor Dave Potter	Jane Parker	Monterey County (MCWRA)
Mayor Jerry Edelen	Kristin Clark	City of Del Rey Oaks
Mayor Chuck Della Sala	Libby Downey	City of Monterey
Mayor Ralph Rubio	Dennis Alexander	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 CAW/MPWMD ASR Program did not operate in WY 2014 and accordingly, 0 (zero) acre-feet of water was injected into the Basin as Stored Water Credits and 0 (zero) acre-feet was extracted.

Even though no water was imported from the Carmel Basin for the ASR program as described in **Section B** above, during WY 2014 552.38 acre-feet of imported water was used to irrigate golf courses owned by the City of Seaside overlying the Seaside Basin, as discussed above in **Section C**. The terms and conditions under which this in-lieu replenishment water was used to generate a credit to be applied against the City of Seaside's overproduction replenishment assessments is described in the "Memorandum of Understanding Between the Seaside Basin Watermaster and the City of Seaside" which was contained in Attachment 3 to the Watermaster's 2010 Annual Report. This is the only imported, reclaimed or desalinated water used either directly or for storage in the groundwater basin that has been reported to the Watermaster during WY 2014.

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.

The Watermaster made a declaration regarding the availability of Artificial Replenishment for WY 2015 at its Board meeting of November 19, 2014. A copy of this declaration is contained in Attachment 2. [Note: This Declaration is scheduled for Board consideration at its November 19, 2014 meeting] In WY 2014 the Watermaster continued the previously implemented 10% water production reductions required under Section III.B.2 of the Decision. No additional water production reductions were implemented in WY 2014.

Total pumping for WY 2014 exceeded the Operating Yield (OY) for the Seaside Basin, and exceeded the Natural Safe Yield (NSY) of the Basin.

CAW and the City of Seaside reported annual pumping quantities that exceeded their Standard Production NSY allocations by 616.76 and 47.94 acre-feet, respectively, and reported annual pumping quantities that exceeded their Operating Yield allocations by 416.01 and 4.77 acre-feet, respectively. The City of Seaside did not exceed its Alternative Production NSY. The Watermaster will assess CAW and 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 though the end of Fiscal Year 2014 amounted to $85,000 including a $19,000 dedicated reserve. Costs include maintaining an office and paying a part time administrator and some part time staff to take and transcribe minutes of the Watermaster Board meetings during 2014. The "Fiscal Year 2014 Administrative Fund Report" is provided as Attachment 3.

H. Replenishment Assessments

As reported in the 2013 Annual Report, a Replenishment Assessment unit cost of $2,702 per acre-foot was established by the Watermaster for use during WY 2014. At its meeting of October 1, 2014 the Watermaster Board determined that this same Replenishment Assessment unit cost of $2,702 per acre-foot should be used against WY 2015 pumping. The Agenda transmittal from that meeting discussing this determination is contained in Attachment 4.

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 2014, CAW's Replenishment Assessment for Overproduction in excess of its share of the Natural Safe Yield is $1,666,492.90, and for Overproduction in excess of its share of the Operating Yield is $1,124,046.05. The City of Seaside's Replenishment Assessment for its Municipal System for Overproduction in excess of its share of the Natural Safe Yield is $129,523.41, and for overproduction in excess of its share of the Operating Yield is $12,866.25. The City of Seaside did not exceed its Alternative Production Allocation for

its Golf Course System production. A summary of the calculations for Replenishment Assessment for WY 2014 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 Fiscal Year 2014 adopted budgets are contained in Attachment 6. The Chief Executive Officer provides monthly financial status reports to the Watermaster Board 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 2014 from the enhanced network of monitoring wells. The low-flow sampling method implemented in 2009 continued to be used in 2014 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, during WY 2014 the Watermaster reduced the frequency of water quality sampling at SBWM-MW5, the most recently installed Watermaster monitoring wells located on the Bureau of Land Management site within the former Fort Ord and far inland from the coastline, to once every 3 years.

No other modifications to the quarterly data collection frequency from the enhanced network of monitoring wells were made during WY 2014 and none are being proposed for WY 2015.

Up until WY 2010 quarterly geophysical (induction) logging was performed at the four coastal Watermaster Sentinel wells that were installed in 2007. The induction logging results showed very little variations and trends were steady since that monitoring began, indicating that the coastal water quality conditions were not changing at this sample frequency. Therefore, beginning in WY 2010 the Court approved reducing the induction logging frequency to semi-annually at these wells. Water samples from these wells continue to be collected on an annual basis.

The expanded water quality analyses begun in WY 2012 were continued in WY 2014, and will be continued in WY 2015, for the four coastal Watermaster Sentinel wells (SBWM-1, SBWM-2, SBWM-3, and SBWM-4), and also for the 3 most coastal MPWMD monitoring wells (MSC, PCA, and FO-09).

Copies of the sampling results are contained in Attachment 7. Analysis of the results indicate no evidence of water quality changes indicative of seawater intrusion at the locations and depths sampled in the coastal areas of the basin.

All of the recommendations contained in the report in Attachment 7 are being actively pursued by the Watermaster. Funds to pursue these recommendations have been included in the adopted FY 2014 budgets contained in Attachment 6.

Management and Monitoring Program Work Plan

The Management and Monitoring Program (M&MP) 2015 Work Plan contained in Attachment 9 includes the types of basin management activities conducted in prior years as well as revisions recommended by the TAC when it reviewed the Draft M&MP 2015 Work Plan at its September 10, 2014 meeting, and revisions that resulted from subsequent discussions with MPWMD and HydroMetrics representatives. The major changes from the 2014 M&MP Work Plan are:

Task I.2.a.2: This task that was first performed in 2009, and the TAC felt it should be again performed in 2015. It consists of verifying the accuracy of production well water meters. The Watermaster's Rules and Regulations state that all parties are required to install water meters and to maintain their meters in good working order. It also states that the Watermaster is to inspect Producers' wells as often as appropriate to ensure they are being properly operated, and to calibrate/test the meters. The TAC felt that, in light of the recent modeling work that has been performed which raised some issues of concern regarding overpumping in the Laguna Seca Subarea, it would be desirable to perform a re-evaluation of the wells to ensure there are no wells where metering data may be inaccurate. The initial reevaluation would be performed at no out-of-pocket cost to the Watermaster in late 2014 or early 2015. If the reevaluation revealed wells where metering data was suspect, follow-up work such as pump testing and/or meter calibration might be performed. The $10,000 allocated to this Task is intended to cover the costs of performing that follow-up work if it becomes necessary.

Task I.2.b.2: MPWMD's hourly rates have increased since 2014, resulting in slightly higher costs for this task. Also, two replacement dataloggers @ $750 each, plus $100 for installation parts, have been included in this task.

Task I.2.b.3: MPWMD's hourly rates have increased since 2014, resulting in slightly higher costs for this task. Also, the induction logging subcontractor that Martin Feeney has used in the past is no longer able to perform that portion of this work, and the cost for the replacement induction logging subcontractor is higher.

Task I.2.b.6: MPWMD's hourly rates have increased since 2014, resulting in slightly higher costs for this task.

Task I.3.a.1: This Task consists of three subtasks as follows:

Step1: Update the Watermaster's Seaside Basin groundwater model and check its accuracy
Step 2: Recalibrate the model (if necessary)
Step 3: Prepare report describing the work that was done (if recalibration is necessary)

Step 1 was completed in 2014, however, because there was no immediate need to do any further modeling, other than perhaps in the Laguna Seca Subarea, Steps 2 and 3 were not performed in 2014. These steps may need to be performed in 2015 and that work is therefore included in the scope of work for this Task in 2015.

Tasks I.4.a and I.4.c: Costs for MPWMD's assistance on Task I.4.a have been moved to Task I.4.c where they are more correctly charged. Also, MPWMD's hourly rates have increased since 2014, resulting in slightly higher costs for this task. Since HydroMetrics has not needed to charge to this Task in the past, it has been deleted from their scope of work.

The 2015 M&MP Operations Budget is $24,734 higher than the 2014 Budget. This increase is largely because (1) the induction logging subcontractor that previously performed work under Task I.2.b.3 is no longer able to perform this work and the new subcontractor's costs are higher by approximately $8,000, (2) money was allocated to verifying the accuracy of production well meters, and (3) MPWMD's hourly rates have increased since 2014. Partially offsetting these increases was a decrease in laboratory analytical costs for some of the Tasks as a result of MPWMD getting a more favorable rate from the laboratory.

No new monitoring wells are planned for installation in 2015. Consequently no monies are budgeted in the M&MP Capital Budget for 2015.

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 2015.

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)

HydroMetrics LLC was hired by the Watermaster to prepare the BMAP which contains these Sections:

- Executive Summary

- The Background and Purpose of the Plan
- The State of the Basin
- Supplemental Water Supplies (long-term water supply solutions)
- Groundwater Management Actions (to be taken as interim measures while long-term supplies are being developed)
- Recommended Management Strategies
- References

The Final BMAP was approved by the Watermaster Board at its February 2009 meeting, and the Executive Summary from the BMAP was contained in Attachment 9 of the 2009 Annual Report. The complete document may be viewed and downloaded from the Watermaster's website at: http://www.seasidebasinwatermaster.org/.

Updating of the BMAP may be performed in FY 2015, but only if new data or other information warrants doing so. It is Task I.3.c in the M&MP Work Plan contained in Attachment 9.

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 are planned in 2015.

Seawater Intrusion Analysis Report

The Watermaster retained HydroMetrics LLC to prepare the WY 2014 Seawater Intrusion Analysis Report (SIAR) required by the M&MP. The WY 2014 SIAR provides an analysis of data collected during this Water Year.

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. The WY 2014 SIAR states that depressed groundwater levels, continued pumping in excess of recharge and fresh water 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 SIAR reports that neither the Piper nor the Stiff Diagrams, chloride levels, or other water quality parameters indicate the presence of seawater intrusion in the existing monitoring wells.

In the 2012 SIAR a trend toward increasing chloride concentration in a few of the near-coast monitoring wells, and decreasing sodium/chloride molar ratios in some of those wells led HydroMetrics to recommend increasing the monitoring frequency in those wells. As a result of preparing the 2013 SIAR HydroMetrics concluded that the cause of these changes in water quality at these wells was the change in the method samples were

collected. A low-flow sampling technique was implemented in 2009, replacing the previously used air-lift sampling technique. The 2013 SIAR discussed this topic and explained the basis for this conclusion.

The SIAR is lengthy, but the full *Executive Summary Section* from it is provided in Attachment 8. A complete copy of the document will be posted for viewing and downloading from the Watermaster's website at: http://www.seasidebasinwatermaster.org/ as soon as the complete SIAR has been prepared. All recommendations contained in the SIAR are being 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.

Aquifer Cross-Contamination Investigation

In 2012 the Watermaster had MPWMD perform an evaluation of coastal wells for cross-aquifer contamination potential. This work concluded that:

- For the 261 wells that were assessed, no problems related to maintenance or abandonment were evident from this work.
- 18 wells in the coastal zone were found to either have been completed in two aquifer zones or to have been drilled through the upper aquifer and completed in the deeper aquifer. These are potential conduits for seawater intrusion, as wells screened in two aquifers potentially provide a direct connection and wells completed in the deeper zone could contribute to cross-aquifer contamination through improperly constructed or failed seals. The 18 identified wells are currently being used as production, backup production, or monitoring wells.
- If seawater intrusion is detected in the locality of one or more of these wells at some future date, it will be necessary to perform focused evaluation to inspect the integrity of well materials and determine the effects of well completions on the movement of seawater between aquifers at specific wells on a case by case basis. Seawater intrusion has not been detected or reported in the locality of any of these wells. Therefore, no further investigative work is warranted at this time.

A complete copy of the MPWMD investigation was contained in Attachment 10 of the Watermaster's WY 2012 Annual Report. No further work regarding aquifer cross-contamination is planned for 2015.

Investigation into Water Quality Anomalies at the City of Sand City Public Works Well

Under Task I. 4. b in the 2013 M&MP, MPWMD undertake a "Focused Hydrogeologic Evaluation" of the Sand City Public Works well. This work was envisioned as consisting of compiling historical and current water quality data in the coastal area to provide more in-depth evaluation of conditions in the shallow Dune Sand/Aromas Sand aquifer in the vicinity of the Sand City Public Works well, where unique water quality conditions and variability have recently been observed. However, after an exhaustive search, including

inquiries to California American Water who at one time had wells in this area (these have all since been abandoned), MPWMD was only able to locate a very small amount of historical water quality data that could be used to perform the evaluation. Therefore, it was not possible to definitively determine the cause of the water quality anomalies. The Technical Memorandum summarizing the work that MPWMD performed was contained in Attachment 14 of the 2013 Annual Report. The Watermaster will continue performing sampling of this well at the increased (quarterly) frequency that was initiated in 2012 in order to identify any water quality trends at this well.

Groundwater Modeling

During FY 2009 the previous Groundwater Model of the Basin was updated and a separate Groundwater Model was developed to determine protective water levels within the Basin. The modeling work was performed by HydroMetrics LLC. This Model development work was described in the 2009 Annual Report.

Revising Protective Water Levels

In FY 2009 the Watermaster completed development of preliminary Protective Water Levels (PWLs) for each of the Basin's production aquifers at the locations of several coastal wells. It was believed that additional hydrogeologic data and information obtained since then might lead to a lowering of the 2009 protective water levels. However, further investigation performed in 2013 led to the conclusion that the 2009 protective water levels were reasonable and should not be lowered. This was discussed in Section 2.0 of the modeling report contained in Attachment 10 of the 2013 Annual Report.

Updating and Evaluating the Accuracy of the Groundwater Model

The Watermaster's existing Seaside Basin Groundwater Model (the Model), described in the report titled "Groundwater Flow and Transport Model" dated October 1, 2007, was updated in 2009 in order to develop protective water levels, and to evaluate replenishment scenarios and develop answers to Basin management questions. In 2014 the Model was again updated by incorporating recent pumping data, groundwater level data, rainfall data, and other data into the Model. The Model output was then checked to see if the simulated groundwater levels matched the measured groundwater levels. The plan for performing this work was as follows:

Task 1: Update the Watermaster's Seaside Basin groundwater model and check its accuracy.

Task 2: Recalibrate the model. This Task would only be performed if recalibration was found to be necessary under Task 1.

Task 3: Prepare a report describing the work that was done under Task 2. This Task would only be performed if recalibration is performed under Task 2.

Four conclusions resulted from the work of Task 1:

1. The performance of the model for Laguna Seca subarea wells indicates that the model continues to provide reliable simulations for the Laguna Seca subarea. As a result, recent simulations of future groundwater conditions in the Laguna Seca subarea are plausible and can currently be trusted for making management decisions.

2. Although the accuracy of the model for the update period 2009-2014 is not as good as it was when it was previously updated in 2009, the calibration of the model remains within acceptable standards.
3. The northern boundary condition of the model needs to be updated to reflect real groundwater elevation variations for the model period of 2005-2013. An alternative method for defining this boundary condition will have to be developed that does not rely upon simulations from the Salinas Valley Integrated Groundwater Surface Water Model (SVIGSM). SVIGSM results were not available for model years 2005-2013. To approximate the groundwater elevations along the northeastern boundary for this period, the final 12 months of available SVIGSM results (from year 2004) were applied to each of the remaining years 2005-2013. As a result, the northeastern boundary repeats the same seasonal cycle for the final ten years of the simulation. The behavior of the northern boundary will impact flows and the ability to calibrate the model for the area of the model that is adjacent to the northern boundary.
4. The groundwater model should be updated in a maximum of five years and its calibration reevaluated at that time. However, if groundwater related projects are implemented in the Basin before that time, the update and calibration reevaluation may need to be performed sooner.

A copy of the Technical Memorandum describing the work is contained in Attachment 10.

As a result of these findings the Watermaster determined that it was not necessary to recalibrate the Model in 2014. However, funds were included in the 2015 M&MP Budget to perform Tasks 2 and 3 if that work is deemed to be necessary in 2015.

Modeling of the Laguna Seca Subarea

In response to questions and concerns raised about the steady decline in water levels in the Laguna Seca Subarea (LSS), the outlook for long-term water supply in the LSS, and whether or not Cal Am's Operating Yield for the LSS would drop to zero by 2021 when all of the 10% pumping cutbacks mandated by the Adjudication Decision will be completed, at its September 4, 2013 meeting the Watermaster Board directed that modeling of the LSS be performed for the purposes of:

1. Estimating impacts if Cal-Am Discontinues Laguna Seca Pumping
2. Estimating Laguna Seca subarea Natural Safe Yield
3. Estimating Laguna Seca subarea Operational Safe Yield

The modeling work led to the following initial tentative conclusions:

1. Even if Cal-Am discontinues all pumping from its LSS wells, groundwater elevations in the subarea will continue to decline. The eastern side of the subarea will suffer the greatest and most persistent declines. With all Cal Am pumping in this subarea eliminated, groundwater elevations will fall below the top of the well screens under pumping conditions in some of the production wells several years prior to 2041.

2. The model estimates that the average annual natural safe yield from the Laguna Seca subarea is only 240 acre feet per year. This is considerably lower than the perennial

safe yield of 608 acre feet per year set forth in the adjudication Decision. This finding is particularly significant because 240 acre feet per year is much less than the 644 acre feet per year of annual production the Decision allocates to the Alternate Producers alone in the LSS. The natural safe yield is a mass balance number that simply looks at inflows and outflows to a basin. It assumes that it is possible to extract the positive difference between inflows and outflows, and this difference constitutes the natural safe yield. However, depending on well locations, pumping this amount may still result in lowering groundwater levels. For example, if all the wells in a basin were concentrated in a single city block, one might have a natural safe yield of so many acre-feet per year based on a water balance approach, but one could not extract that much water from this tight cluster of wells without the wells going dry. Therefore, the "operational safe yield" was also evaluated. The operational safe yield accounts for the actual locations of existing (or planned) wells. The operational safe yield looks at how much water can be practically extracted without causing undesirable lowering of groundwater levels in wells. The operational safe yield is always equal to or less than the natural safe yield.

3. Even if pumping in the LSS is reduced to the natural safe yield of 240 acre feet per year, groundwater levels will not be high enough to keep levels at all wells above their well screens. This is because there are seasonal and year-to-year variations in the amount of rainfall recharge of the subarea, and the amount of pumping needed to meet seasonal demands, resulting in fluctuating groundwater levels.

4. Eliminating all pumping from the LSS (including pumping by all Alternate Producers) does not completely halt the predicted decline in groundwater elevations in the easternmost monitoring wells.

5. Pumping from wells east of the LSS influences groundwater elevations in the eastern portion of the subarea. These wells (outside of the LSS) are contributing to the subarea's inability to achieve stable groundwater elevations.

6. The influence of well pumping outside of the LSS could be evaluated using the groundwater model as follows: Multiple scenarios could be run in which pumping from individual wells outside of the LSS is either removed or their pumping is reduced. The resulting changes to groundwater levels in the LSS could then be compared to baseline conditions to determine the influence that each of these wells has on the subarea.

Because of the significance and complexity of the findings from this initial modeling work, at its April 2, 2014 meeting the Board directed that further modeling work on the LSS be performed to determine:

1. Whether reducing or eliminating pumping by Alternative Producers in the 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.

This additional modeling work led to the following <u>tentative</u> conclusions:

1. Reducing Alternative producer pumping has only a minor impact on groundwater levels in the western LSS.
2. The most significant benefits from reducing Alternative producer pumping are realized in the central LSS. Most the subarea's groundwater is extracted from

wells located in the central part of the subarea, and therefore this is where the greatest benefit would occur.

3. Reducing Alternative producer pumping has only a minor impact on groundwater levels in the eastern LSS because groundwater elevations in the eastern LSS are largely controlled by pumping outside of the LSS. Reducing pumping in the LSS cannot raise groundwater elevations along the LSS's eastern boundary.
4. Reducing pumping south and east of the LSS has a small but discernible impact in the central LSS, but none of the four scenarios that were evaluated had enough effect to completely eliminate long-term water level declines in the central LSS. The impact in the central LSS area from reducing pumping south and east of the LSS was notably less than the impact from reducing Alternative producer pumping.
5. Reducing well pumping south and east of the LSS has a significant impact on groundwater levels in the eastern portion of the LSS. In this portion of the subarea, reducing outside pumping or eliminating Toro well pumping has a similar impact. However, to completely eliminate declining water levels in the eastern area of the LSS, all pumping from wells south and east of the LSS must be eliminated.
6. Given these results, there will need to be significant pumping reductions both inside and outside of the LSS to halt groundwater level declines throughout the LSS.

Copies of the two Technical Memorandums describing this LSS modeling work are contained in Attachment 11.

Because of the potential legal and political significance of the findings of this initial modeling work, the Watermaster Board at its October 1, 2014 meeting directed staff to:

1. Mark the initial modeling Technical Memorandums as "Draft" to allow a peer review of this work to be performed by an independent hydrogeologist to confirm its accuracy or to make recommendations for modifications to the findings and conclusions before these documents are finalized.
2. Identify and recommend an independent hydrogeologist with suitable qualifications and experience to perform the peer review.

The work directed by the Board at its October 1, 2014 meeting will be started in late 2014, and will likely be completed in early 2015 at which time the Watermaster will propose actions it intends to take in response to the modeling results.

K. 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 1, 2014 the Board adopted the budgets contained in Attachment 6, which support carrying out all elements of the "Seaside Groundwater Basin Management and Monitoring Program Anticipated 2015 Work Plan." That Work

Plan describes the M&MP activities that will be conducted during Fiscal Year 2015. A copy of this Work Plan is contained in Attachment 9.

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.

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	November 12, 2014
AGENDA ITEM:	7
AGENDA TITLE:	Schedule
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

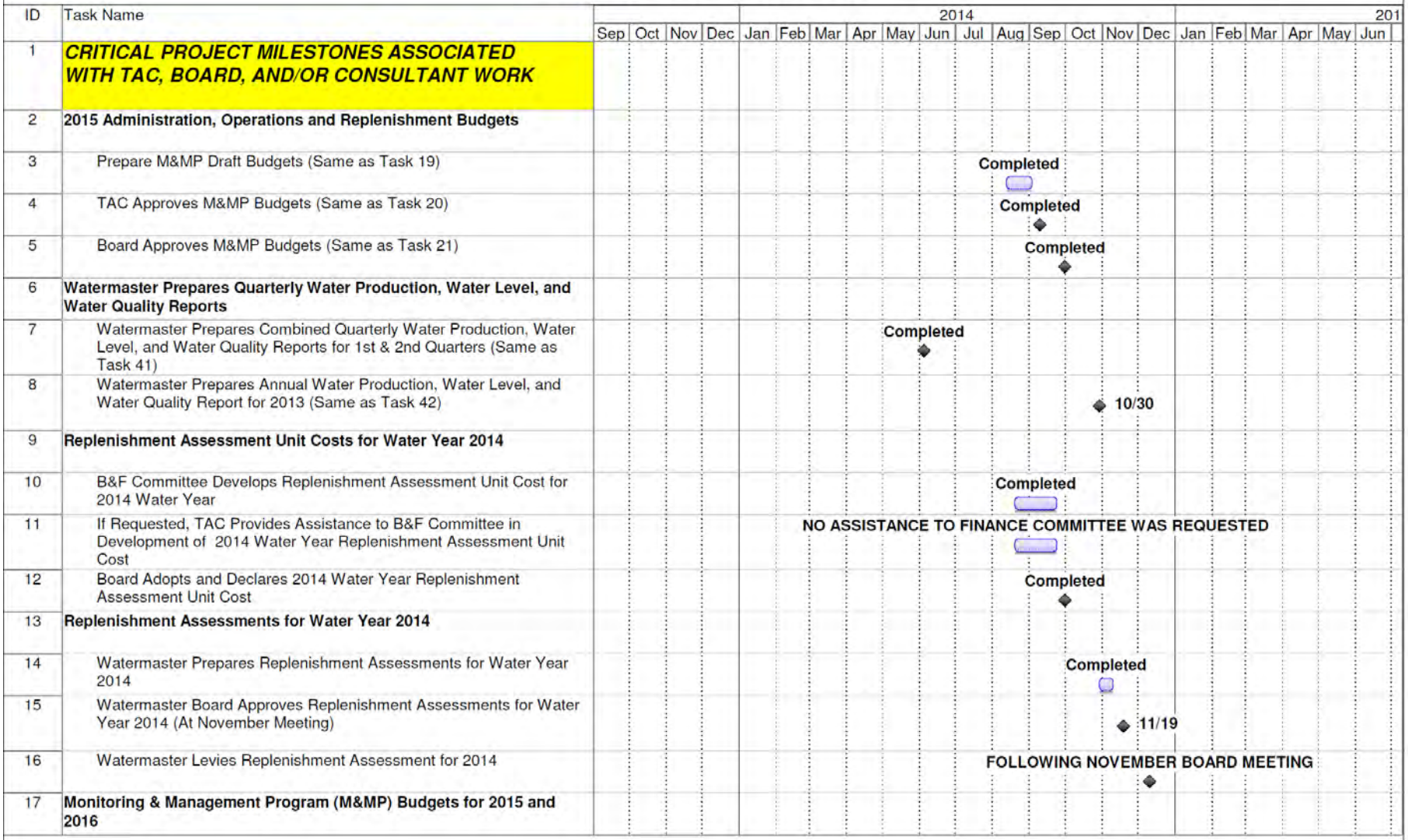
As a regular part of each monthly TAC meeting, I will provide the TAC with an updated Schedule of the activities being performed by the Watermaster, its consultants, and the public entity, MPWMD, which is performing certain portions of the work.

Attached is the most recent update of the Work Schedule for FY 2014.

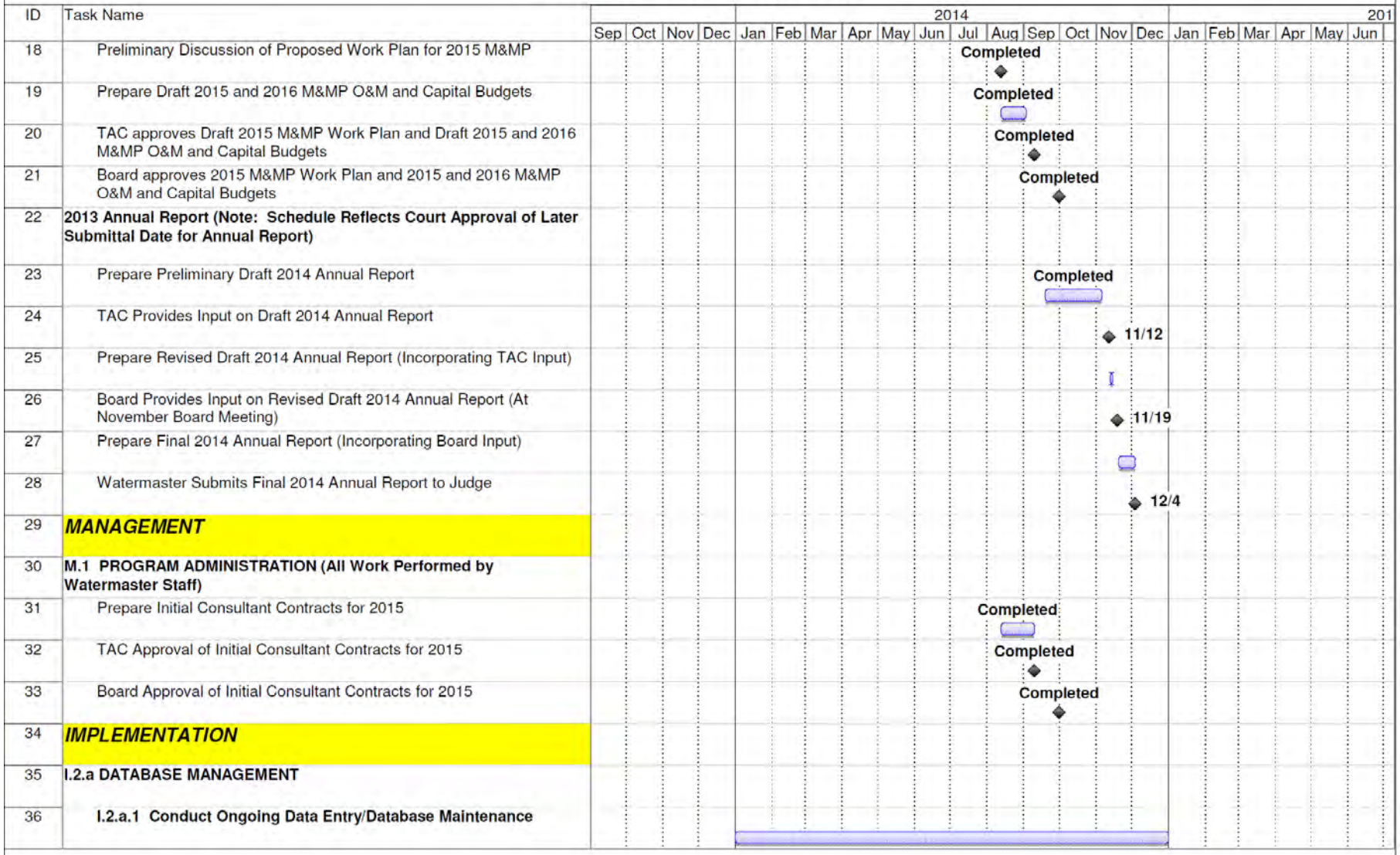
Also attached is a Work Schedule for FY 2015.

ATTACHMENTS:	1. Schedule of Work Activities for FY 2014 2. Schedule of Work Activities for FY 2015
RECOMMENDED ACTION:	1. Provide Input to Technical Program Manager Regarding Any Corrections or Additions to the Schedules

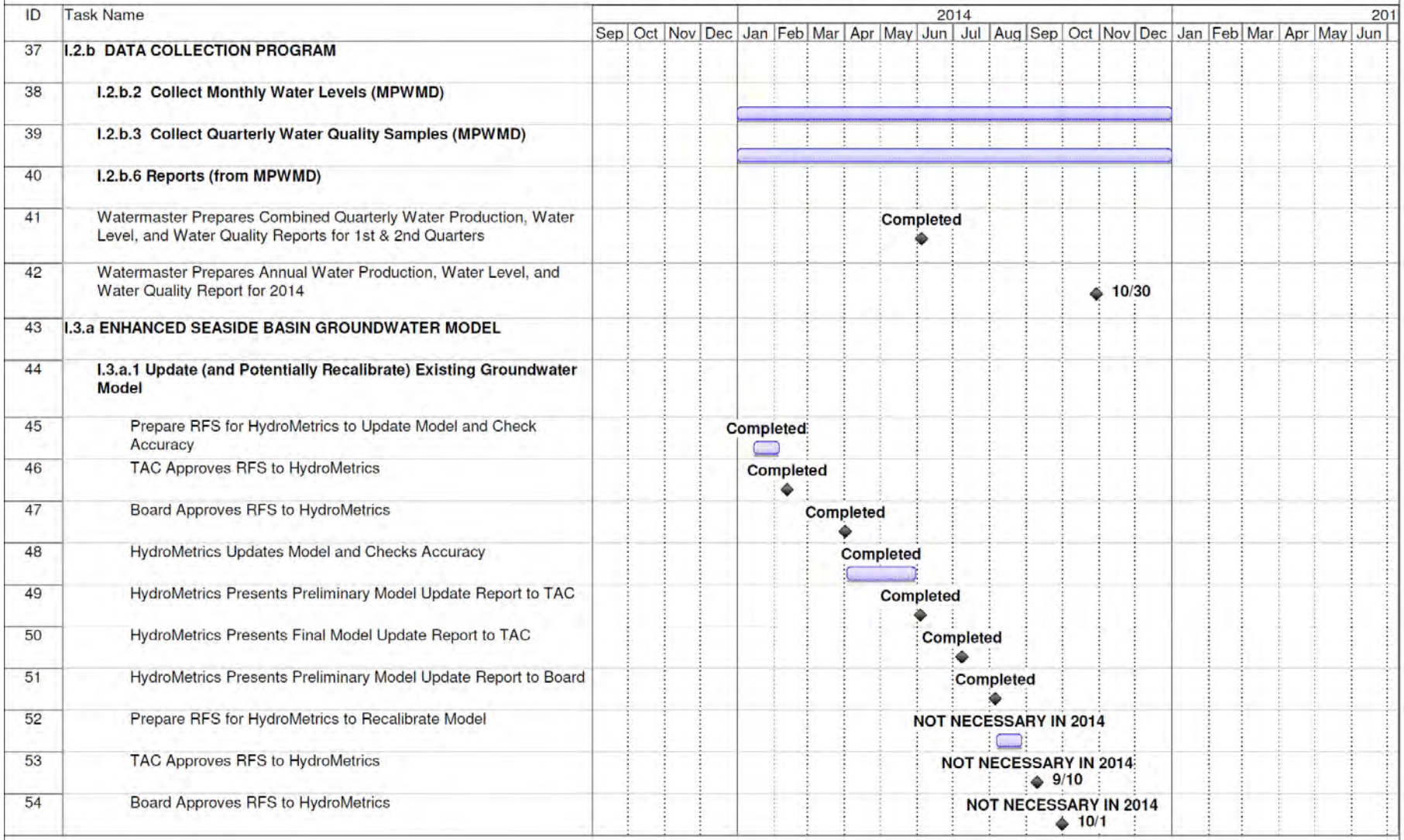
Seaside Basin Watermaster
Monitoring and Management Program
2014 Work Schedule



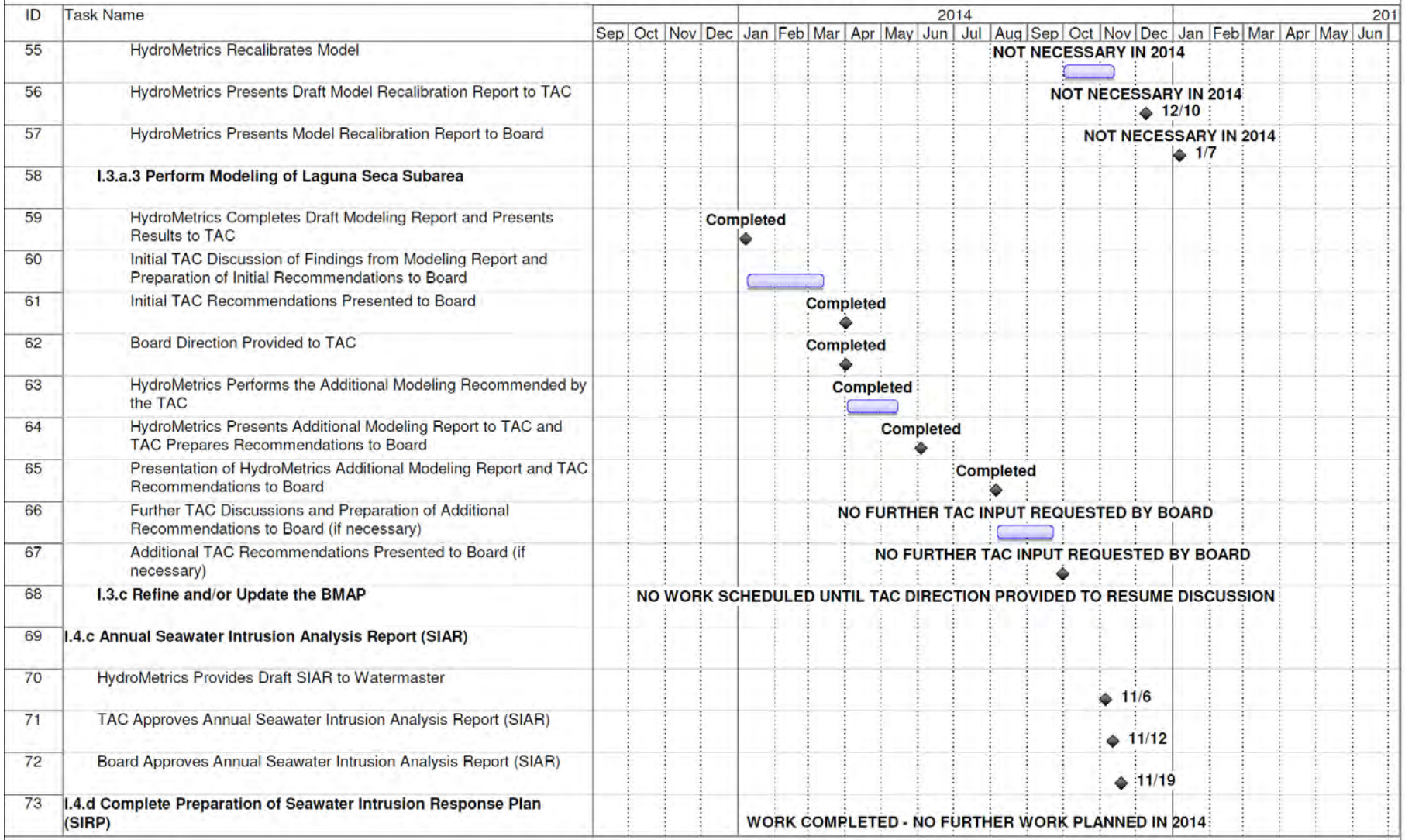
Seaside Basin Watermaster
Monitoring and Management Program
2014 Work Schedule



Seaside Basin Watermaster
Monitoring and Management Program
2014 Work Schedule



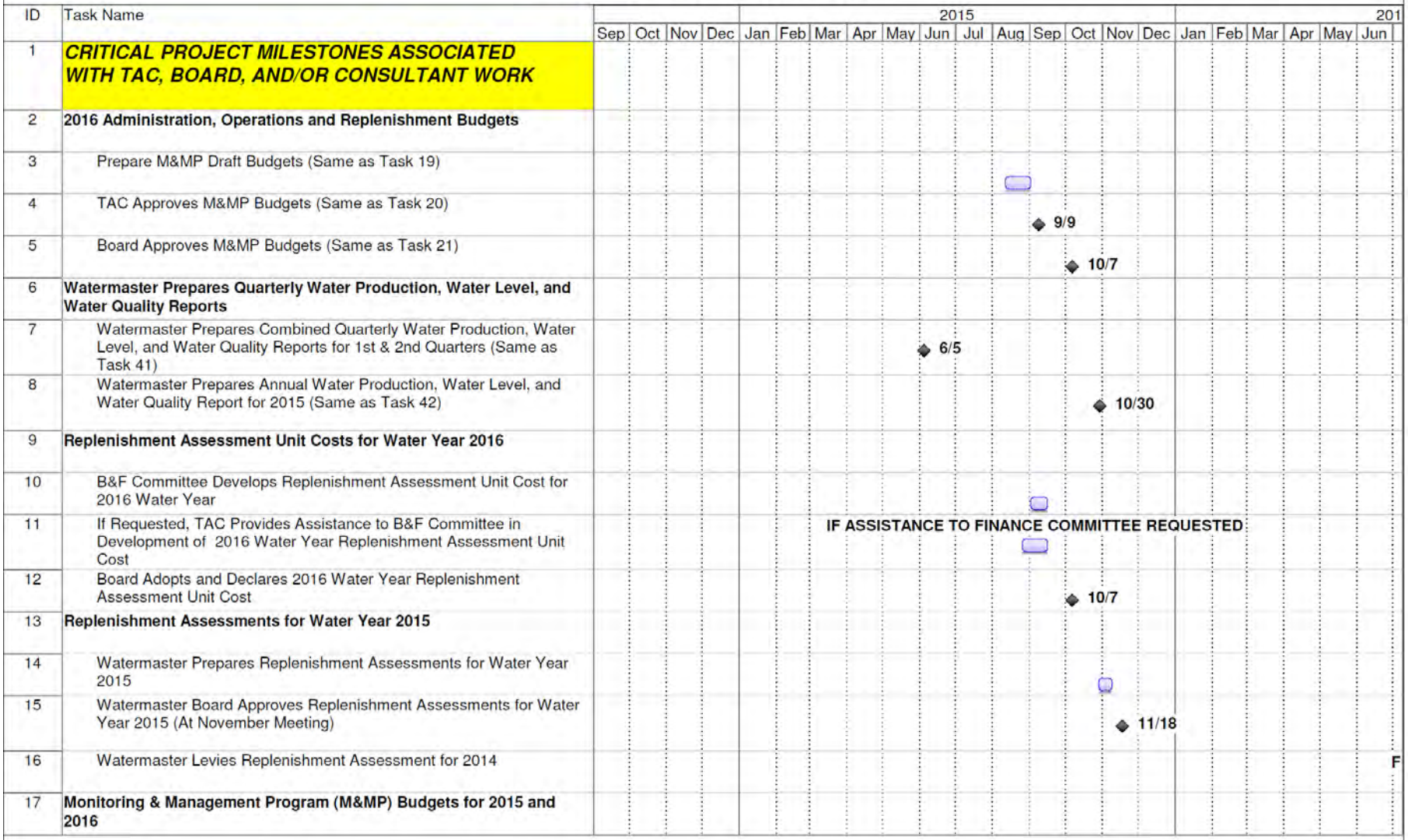
Seaside Basin Watermaster
Monitoring and Management Program
2014 Work Schedule



Seaside Basin Watermaster
Monitoring and Management Program
2014 Work Schedule

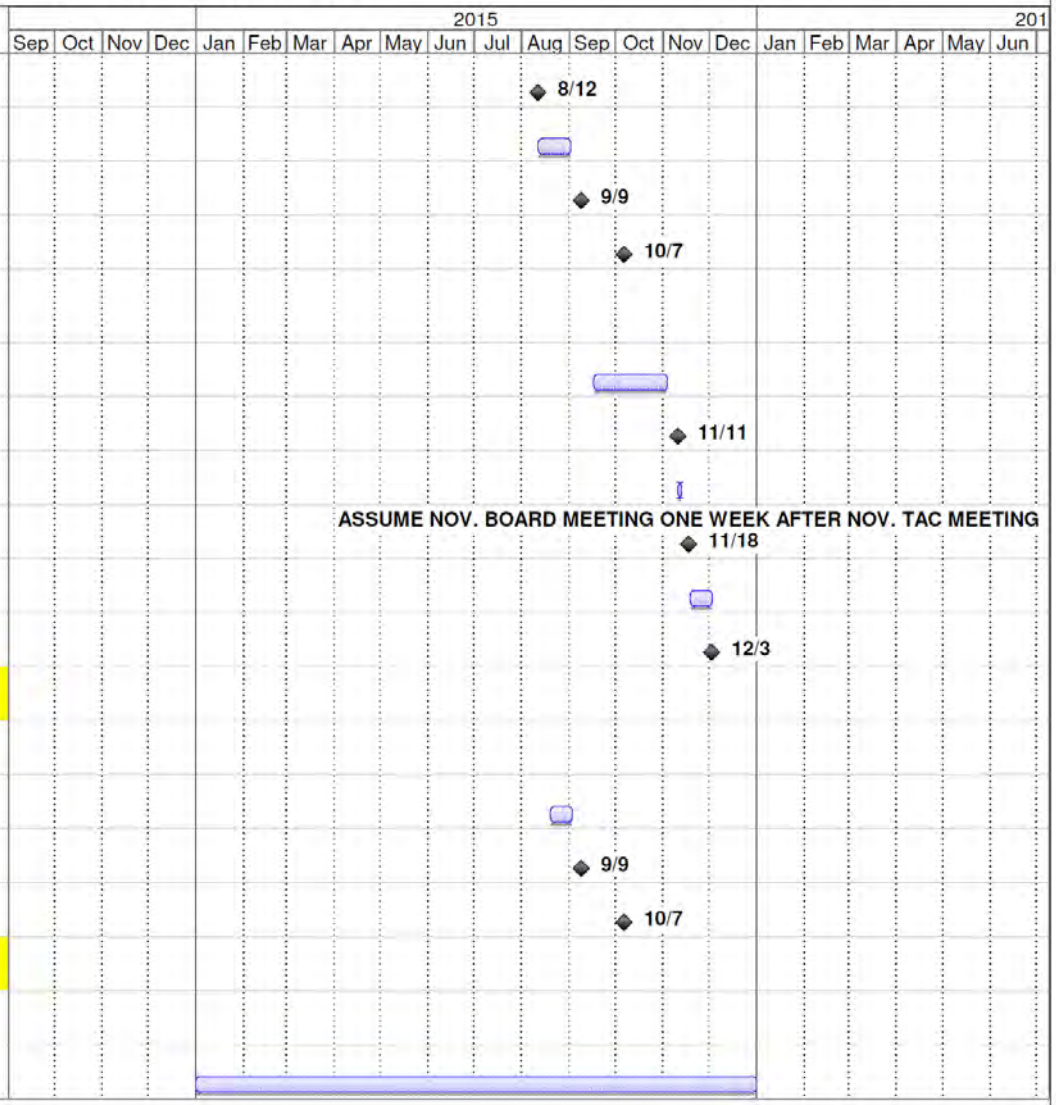
ID	Task Name	2014														201					
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
74	**I.4.e Refine and/or Update the SIRP**						**NOT NECESSARY**																

Seaside Basin Watermaster
Monitoring and Management Program
2015 Work Schedule



Seaside Basin Watermaster
Monitoring and Management Program
2015 Work Schedule

ID	Task Name
18	Preliminary Discussion of Potential Scope of Work for 2016 M&MP
19	Prepare Draft 2016 and 2017 M&MP O&M and Capital Budgets
20	TAC approves Draft 2016 and 2017 M&MP O&M and Capital Budgets
21	Board approves 2016 M&MP O&M and Capital Budgets
22	**2015 Annual Report (Note: Schedule Reflects Court Approval of Later Submittal Date for Annual Report)**
23	Prepare Preliminary Draft 2015 Annual Report
24	TAC Provides Input on Preliminary Draft 2015 Annual Report
25	Prepare Draft 2015 Annual Report (Incorporating TAC Input)
26	Board Provides Input on Draft 2015 Annual Report (At November Board Meeting)
27	Prepare Final 2015 Annual Report (Incorporating Board Input)
28	Watermaster Submits Final 2015 Annual Report to Judge
29	***MANAGEMENT***
30	**M.1 PROGRAM ADMINISTRATION (All Work Performed by Watermaster Staff)**
31	Prepare Initial Consultant Contracts for 2015
32	TAC Approval of Initial Consultant Contracts for 2015
33	Board Approval of Initial Consultant Contracts for 2015
34	***IMPLEMENTATION***
35	**I.2.a DATABASE MANAGEMENT**
36	**I.2.a.1 Conduct Ongoing Data Entry/Database Maintenance**



Seaside Basin Watermaster
Monitoring and Management Program
2015 Work Schedule

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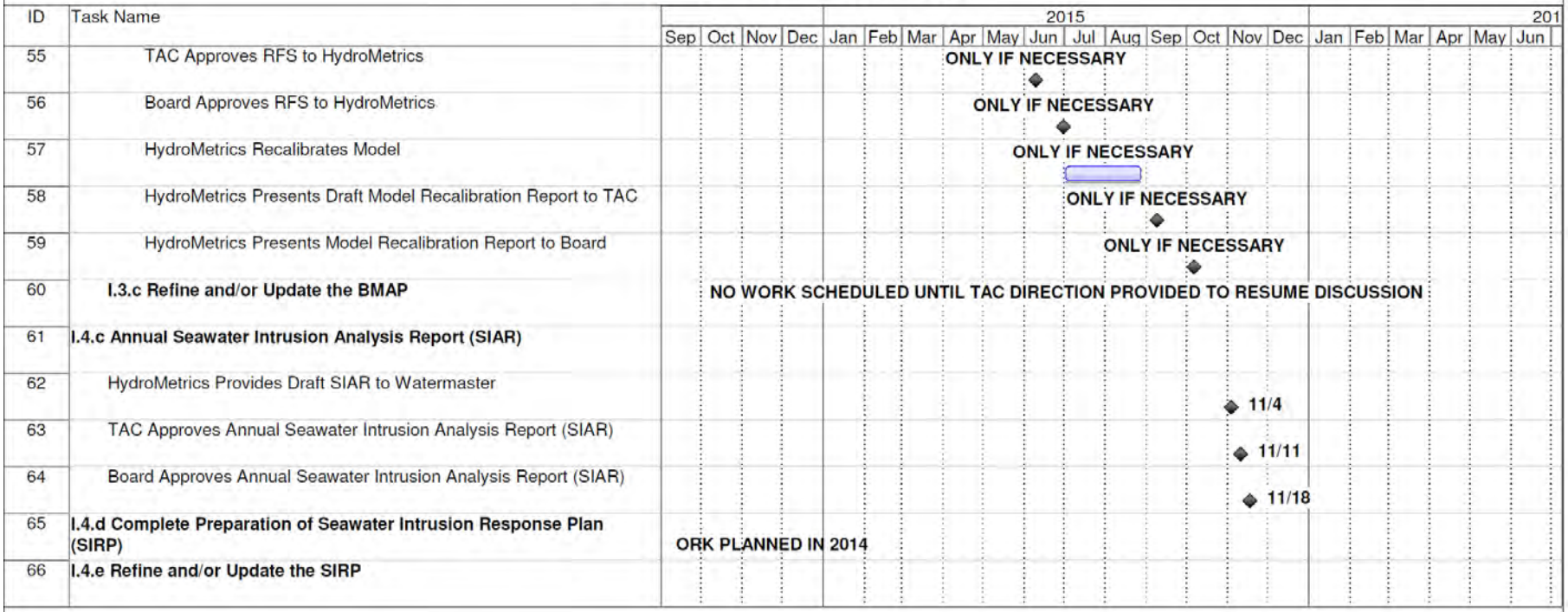

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	November 12, 2014
AGENDA ITEM:	8
AGENDA TITLE:	Other Business
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:
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.

ATTACHMENTS:	None
RECOMMENDED ACTION:	None required – information only

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	November 12, 2014
AGENDA ITEM:	9
AGENDA TITLE:	Set Next Meeting Date
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

There is currently no TAC meeting business that needs to be conducted in December, so there should be no need for a December TAC meeting.

I recommend that the next TAC meeting be held on the regular 2nd Wednesday in January, January 14, 2015.

ATTACHMENTS:	None
RECOMMENDED ACTION:	Approve skipping having a TAC meeting in December and holding the next TAC meeting on January 14, 2015