# M E E T I N G  N O T I C E  AND  A G E N D A

## *TECHNICAL ADVISORY COMMITTEE OF THE SEASIDE BASIN WATER MASTER*

**DATE: Wednesday, September 12, 2012**
**MEETING TIME: 1:30 p.m.**
**Monterey Regional Water Pollution Control Agency Offices**
**5 Harris Court, Building D (Ryan Ranch)**
**Monterey, CA 93940**

***If you wish to participate in the meeting from a remote location, please call in on the Watermaster Conference Line by dialing (877)810-9415. Use the Access Code of 4560043. Please note that if no telephone attendees have joined the meeting by 10 minutes after its start, the conference call will be ended.***

**OFFICERS**
**Chairperson: Diana Ingersoll, City of Seaside**
**1st Vice-Chairperson: Eric Sabolsice, California American Water Company**
**2nd Vice-Chairperson: Rob Johnson, MCWRA**

**MEMBERS**

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



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## *SEASIDE BASIN WATER MASTER*
## *TECHNICAL ADVISORY COMMITTEE*

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

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| **MEETING DATE:** | September 12, 2012 |
| **AGENDA ITEM:** | 2.A |
| **AGENDA TITLE:** | Approve Minutes from August 8, 2012 |
| **PREPARED BY:** | Robert Jaques, Technical Program Manager |

**SUMMARY:**

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

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| **ATTACHMENTS:** | Minutes from this meeting |
| **RECOMMENDED ACTION:** | Approve the minutes |

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

**Seaside Groundwater Basin Watermaster**
**Technical Advisory Committee Meeting**
**August 8, 2012**

**Attendees: TAC Members**

City of Seaside – Rick Riedl
California American Water – Eric Sabolsice
City of Monterey – No Representative
Laguna Seca Property Owners – Bob Costa
MPWMD – Joe Oliver
MCWRA – Rob Johnson
City of Del Rey Oaks – Richard Simonitch
City of Sand City – Richard Simonitch
Coastal Subarea Landowners – Paul Bruno

**Watermaster**
Technical Program Manager - Robert Jaques
Chief Executive Officer – Dewey Evans, Laura Dadiw

**Consultants**
HydroMetrics – Derrik Williams (via telephone)

**Others:**
MRWPCA – Bob Holden
MPWMD - Jon Lear
Lombardo & Associates – Dale Ellis
Daniel B. Stephens & Associates – David Abbott
Pillsbury, Winthrop, Shaw & Pittman - Scott Sommer

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The meeting was called to order at 1:34 p.m.

1. **Public Comments**

There were no public comments.

2. **Administrative Matters:**

**A. Approve Minutes from May 9, 2012 Meeting**

On a motion by Mr. Riedl, seconded by Mr. Simonitch, the Minutes were unanimously approved as presented, with Mr. Bruno abstaining because he had not attended that meeting.

**B. Response to Question Regarding Reporting on Sand City Public Works Well**

Mr. Sabolsice summarized the agenda material for this item. There was a brief discussion with regard to the different water quality results from this well compared to others, and with regard to the aquifer from which this well takes water. Mr. Simonitch and Mr. Oliver noted that the Sand City desalination plant may be causing some circulation of water in the Aromas Sands formation. Mr. Sabolsice said that CAW has not been able to locate data on wells it had in this area in the past. Mr. Simonitch said he would look to see if his office had any such data. Mr. Lear said that more

frequent sampling (quarterly rather than annually) for water quality and water level will be taken at this well to further monitor it.

**3. Report on Investigation into Potential for Aquifer Cross-Contamination in the Coastal Wells**

Mr. Lear handed out copies of his Technical Memorandum on his work and briefly discussed the results and conclusions from that work.

Of the five recommendations on page 20 of the agenda packet, only recommendation No. 3 remains to be completed. The other four recommendations have essentially been completed. Mr. Lear said that it would probably take about 20 hours of staff time to put the data for recommendation No. 3 into the Watermaster's Database. Mr. Jaques said he would need to authorize this additional work through an RFS to MPWMD, if so directed by the TAC and the Board. Mr. Oliver said the work could be done in the upcoming fiscal year, as it is not time-critical.

There were questions and answers between Mr. Lear and members of the TAC regarding some of the specifics of the work that was done, including whether it would be desirable to verify that proper well abandonment procedures had been carried out in the coastal wells, rather than relying on Monterey County Health Department reports and surface observations of the concrete well caps over the abandoned wells.

Mr. Riedl said he felt that more investigation of wells closest to the coast should be done in order to verify that those which had been abandoned had been properly abandoned. He noted differences between Figures 3 and 6 in Mr. Lear's report in terms of wells that are shown on these figures. There was much discussion of this topic. Mr. Lear will discuss Mr. Riedl's concerns directly with him in an attempt to resolve them.

There was consensus that no further work needs to be done to verify that wells have been properly abandoned, beyond the work that Mr. Lear has already completed.

**4. Initial Discussion Regarding Scope of Work for Monitoring and Management Plan (M&MP) for FY 2013**

Mr. Jaques summarized the agenda packet material and for this item. Mr. Lear said that with regard to Task I.2.b.3 he felt that continuing the barium and chloride testing is beneficial. Mr. Johnson concurred, noting that this data is helpful. Mr. Oliver said this only adds about $100 per sample for the analytical costs. There was consensus to include continued testing for these parameters.

With regard to Task I.2.b.3 Mr. Lear noted that there was one more well site that needs retrofitting. Mr. Jaques will coordinate with MPWMD with regard to the cost and scope for this Task.

With regard to Task I.4.a, Mr. Oliver stated that this Task was intended to provide funding for MPWMD to interact with HydroMetrics on the Seawater Intrusion Analysis Report. He noted, however, that this work has always cost much less than previously budgeted, and could probably be reduced in the upcoming fiscal year's budget.

Mr. Oliver also recommended that some additional money be included under Task I.3.d for additional time to be spent keeping the Database up-to-date.

**5. Review Request for Watermaster's Approval of Installation of Wells to Serve Proposed New Housing Development Along Highway 68**

[Note: Item 5 was taken up for discussion immediately after Item 2.A, so that members of the public wishing to speak on Item 5 would not have to wait for the preceding items to be discussed.]

Mr. Jaques summarized the agenda packet materials for this item. There were questions and answers between Mr. Jaques and Mr. Sabolsice with regard to the Adjudication Decision as it pertains to this topic. There was discussion that the primary and secondary wells on the Wang property may be located just south of the Chupines fault, and thus outside of the Laguna Seca subarea of the Seaside Basin and outside of the boundaries of the Seaside Basin as depicted on the map contained in the Decision. The discussion was focused on the question of whether or not there was evidence that the proposed pumping would have an effect on groundwater levels in the Laguna Seca subarea.

Mr. Sabolsice asked Mr. Oliver if there were any other wells he was aware of that were just outside the Seaside Basin boundary. Mr. Oliver and Mr. Lear responded that there were some wells including CAW's Hidden Hills Bay Ridge well and perhaps the few others that made or may not currently be active.

Mr. Sabolsice asked Mr. Oliver if the Wang subdivision wells were within the boundaries of the MPWMD. Mr. Oliver responded yes, and that the Wang project would therefore be subject to MPWMD permitting authority.

Mr. Sabolsice asked whether the Watermaster would want to have the Wang subdivision wells included in the Decision if pumping water from the Wang property would impact the Seaside Basin. There was much discussion on this topic. Mr. Jaques commented this would be technical information that the Board would presumably want to be aware of when it considers this matter at a future Board meeting.

Mr. Sabolsice noted that if the wells for the Wang subdivision do draw from the Seaside Basin then this could affect the quantities of the 3,000 acre feet per year of Natural Safe Yield water that would be available to each of the Producers under the Decision.

Mr. Johnson reported that in the past MCWRA had asked for a pump test to be run on the Wang subdivision wells in order to determine whether it was drawing from the Seaside Basin, but said he was not aware whether such testing had been performed.

Mr. Sabolsice invited the members of the public to provide their input on this topic.

Mr. Sommer reported that he is the water rights attorney for the Wang subdivision proponent. He said pump testing has been done, but that the report made the on the primary and secondary wells for the Wang project by a consultant hired by the County to assist with a Draft EIR in 2006 made an assumption that the wells on the Wang property could draw from the Laguna Seca subarea of the Seaside Basin. However, this assumption was made without any supporting data, and water elevations on the north and south sides of the Chupines fault were not checked or considered. Thus, the effect of the Chupines fault as a barrier was not addressed. Mr. Sommer went on to say that after being hired in at the beginning of 2012, the Wang project proponent retained David Abbott of D.B. Stephens & Associates to do a hydrogeologic study of the wells on the Wang property, as well as onsite recharge, and to address the question of effect, if any, on the Seaside Basin of pumping of the Wang wells. The results were summarized in the Abbott report dated May 14, 2012 that was included in the TAC agenda packet. The report summarizes additional data that was not considered in 2006 and concludes that the primary and secondary wells on the Wang property do not appear to be directly and hydraulically connected to the Seaside Basin, based on significant groundwater elevation differences between the planned subdivision and the Laguna Seca subarea wells, and other data summarized in the Abbott report.

Mr. Sommer reported that he and Dale Ellis had met recently with County Planning and other County agencies, including Tom Moss of MCWRA, and discussed the matter of defects in the 2006 report, and

that the County had decided to replace the 2006 report with a new report from David Abbott that would include the data on the Chupines fault, and that Mr. Abbott's report would be reviewed by MCWRA.

Concerning this question of tests to determine if pumping from the Wang subdivision wells could be detected in wells on the north side of the Chupines fault, Mr. Sommer stated that in order to estimate water level drawdown in wells in the Laguna Seca subarea from pumping of the Wang subdivision wells, it would be necessary to project drawdown impacts at a distance of several thousands of feet away from these wells. He expressed the view that making projections over such a long distance in the absence of appreciable hydrogeologic data for this area would a speculative. He noted that pump testing is expensive and questioned what benefit might be obtained from conducting further pump testing.

Mr. Sommer said that Tom Moss of MCWRA and the County had agreed with that conclusion, and agreed to dispense with any such requirement. He referred to the data in the Abbott report dated May 14, 2012 that the Wang subdivision wells have much different water levels in them (from 50 feet to 70 feet lower) than water levels in the nearby portion of the Laguna Seca subarea of the Seaside Basin. He added that in some other water rights litigation such differences in water levels have been deemed to represent a barrier, i.e. that the wells are not drawing from the same aquifer.

Mr. Sommer reported that the Wang subdivision is currently in the process of going through the County planning process and this will likely lead to questions as to whether the Watermaster has any concerns about the use of these wells. He reported that well 02-072 has a higher water level than water levels in the Laguna Seca subarea, but the Wang subdivision does not plan to use well 02-072 for water supply purposes and that County Planning had stated that it was not necessary to include further information on 02-072. He noted that on-site recharge within the Wang subdivision will be significant, and that the Abbott report had estimated the net use to only be about 12.5 acre feet per year.

Mr. Sommer cited section I.A of the Adjudication Decision with regard to the issue of where the Chupines fault is located. He reported that he has been discussing this matter with Russ McGlothlin and that he and Tony Lombardo had spoken with Don Freeman and Russ McLaughlin. He said that because of the overlying landowner water rights issues on the Wang property, the Abbott report data of differing water levels in the Wang wells as compared to wells in the Laguna Seca Subarea as evidence of a barrier, and the significant on-site recharge, that they were supportive of the request, although they did not have the technical reports available to them to review at that time.

Mr. Jaques asked Mr. Sommers for clarification with regard to whether or not pump testing as requested by MCWRA had been done. At this point Mr. Ellis addressed the Committee. He reported that the subdivision proposal from the Wangs dates back to 2003 and that source capacity tests had been required by the County Department of Environmental Health. He went on to say that three of the wells met these requirements, while the fourth well (02-72) did not produce enough water and was dropped from consideration for use as a water supply well for the Wang subdivision.

Mr. Ellis reported that "PES" (a hydrogeologic consulting firm) estimated it would cost approximately $120,000 to do pump testing to better determine if the Wang subdivision wells are pumping from the Seaside Basin, and that this information is in the EIR for the subdivision. He said that the available data indicates that if any connectivity exists between the aquifer(s) from which the Wang subdivision wells draw, and the wells in the Laguna Seca subarea of the Seaside Basin, it is very minor.

Mr. Bruno asked Mr. Abbott to describe the Chupines fault. Mr. Abbott responded that there is limited data available with regard to the fault in the Wang subdivision area. He said that he had the Lahaina Water Company make groundwater level measurements in the Wang subdivision wells, and it was found that the eastern well water levels are all about 50 feet lower than the water levels in the Laguna Seca subarea. The westerly well, however, has a higher water level elevation than the Laguna Seca

subarea. He said there is not sufficient data to precisely map the fault location in the vicinity of the Wang subdivision. He went on to say that the water level differences indicate the existence of a barrier between the Wang wells and the Laguna Seca subarea wells. He reported that the area south of the fault has been uplifted, and still has some of the Santa Margarita formation in it, but this does not mean that the Santa Margarita formation to the south of the fault is connected to the Santa Margarita formation to the north of the fault (in the Laguna Seca subarea), because of this uplifting.

Mr. Oliver reported that cross sections could be prepared and could be used to visually depict the complexities of the fault in this area. He said that the PES report, of which he has a copy, shows the Wang well water levels to be about 50 feet higher than those listed in Mr. Abbott's report, and he asked if there was any apparent explanation for this. Mr. Abbott responded that he felt there had been errors in the naming of wells in the PES report and that this may contribute to this discrepancy. Mr. Oliver concurred noting that he found errors himself. However, Mr. Oliver said he would like the water levels to be verified, since they differ from the prior PES report.

Mr. Abbott said that pumping tests had been done on the Wang subdivision wells, and that these indicated a very low level of transmissivity. Therefore, he reported, it would take considerable pumping in order to lower groundwater levels a long distance away from the wells themselves. Consequently, using monitoring wells several thousand feet away (in the Laguna Seca subarea) would require extensive pumping to produce enough drawdown to provide any indication of whether pumping from the Wang subdivision wells would have any effect on groundwater levels in the Laguna Seca subarea.

Mr. Williams commented that because of the significant water level differences in the Wang subdivision wells compared to water levels in the nearby Laguna Seca subarea, he felt the Wang subdivision wells were likely located in an area that is separated, at least to some extent, by the Chupines fault, and would thus have little impact on groundwater levels within the Laguna Seca subarea. He did say, however, that he would like to see cross sections and more data provided to better understand the geology in this area and whether the area south of the fault is separated from the area to the north. Also, he was interested in learning why the water levels are so low in the Wang subdivision wells, and wondered if water was draining away from that area.

Mr. Bruno questioned how far the Chupines fault should be "chased" i.e. should the applicant be expected to produce data to determine the fault's precise location.

Mr. Abbott said that not enough well data was available to prepare good cross-sections. He said there is little data just to the north of the fault for this purpose. Mr. Oliver said that MPWMD may be able to provide some data to help with this, as additional well data is now available beyond what is in the Watermaster's database. Mr. Sabolsice said that MPWMD would provide to Mr. Abbott whenever information they have that would be helpful for this purpose.

Mr. Sommer said that generating cross-sections can be very time-consuming and costly, if sufficient data is not currently available from which cross-sections can be prepared. Mr. Sabolsice said the TAC was only asking for what can reasonably be prepared with available or reasonably available data. Providing more information will help the TAC make a better-informed technical recommendation on this topic.

Mr. Abbott said that well information and geophysical logs are what he needs to be able to prepare useful cross-sections. Mr. Sommer said he will see what they can do utilizing available data to provide the information that is being requested by the TAC, but that the Wang project had overlying landowner water rights to the water underneath the Wang property, and could not be reasonably expected to install wells and conduct expensive tests at considerable distances.

There was discussion about considering evaluating whether the "de minimis" limitation in the Decision applies to the Wang subdivision.

Mr. Jaques asked Mr. Abbott if he could provide some further information for consideration by the TAC at its September 12 meeting. The agenda deadline for that meeting is September 5th. Mr. Abbott said he felt he could provide more information assuming that MPWMD could provide him additional well information prior to that time.

**6. Schedule**

Mr. Jaques summarized the agenda packet materials for this item. There was brief discussion regarding getting a report from HydroMetrics on the Groundwater Modeling at the September 2012 TAC meeting, with a complete written report on this work to come from shortly after that time.

**7. Other Business**

Mr. Sabolsice noted that for approximately three years he has been attending TAC meetings, and during that time he has not seen Ms. Ingersoll attend a TAC meeting. He felt it would be appropriate to select a chair of the TAC that regularly attends the meetings, rather than always having to have the Vice Chair run the meanings in the absence of the Chair. Mr. Sabolsice requested that consideration be given to rotating the Chair position responsibilities among the TAC members. He also recommended electing officers for 2013 at the next TAC meeting.

Mr. Johnson requested that Mr. Jaques provide background information with regard to the original selection of the Chair of the TAC and any matters pertaining to the procedures to be used to periodically select a new Chair in conjunction with presenting material on this topic for action by the TAC at its next meeting.

Mr. Oliver reported that another ASR well is in the process of being installed, and some temporary facilities are visible along General Jim Moore Boulevard as part of this work.

**8. Set Next Meeting Date**

The next meeting date was set for Wednesday September 12, 2012 at 1:30 p.m. at the MRWPCA Board Room

The meeting was adjourned at 3:42 p.m.

## *SEASIDE BASIN WATER MASTER*
## *TECHNICAL ADVISORY COMMITTEE*

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

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| **MEETING DATE:** | September 12, 2012 |
| **AGENDA ITEM:** | 2.B |
| **AGENDA TITLE:** | Election of Officers for 2013 |
| **PREPARED BY:** | Robert Jaques, Technical Program Manager |

**SUMMARY:**

At the August 8, 2012 TAC meeting Mr. Sabolsice requested that an item be placed on the September 12, 2012 TAC meeting agenda for Election of Officers for the TAC. In conjunction with preparing the Agenda packet materials for this item, I was asked to provide the TAC with background information on how TAC officer positions are to be filled. Since I was not affiliated with the TAC when it was first created, I was not personally aware of any specific direction the Board may have taken on this matter when it created the TAC, so I contacted persons that were present and involved with the Board at that time and asked for their input. Here is what I learned:

1. In the Board adopted Rules and Regulations Under Section 3.3 -Advisory Committees, the second sentence states "The Watermaster Board shall appoint the Chairperson of any such committee or subcommittee."
2. The Board named Diana Ingersoll as the initial Chair of the TAC, and has never named a successor Chair since her initial appointment.

While the Board must make the actual appointment of the Chair of the TAC, I believe the Board would appreciate the TAC's recommendation of the person to fill this position. I believe the TAC could develop its recommendation using any manner it feels is appropriate. In other governing bodies and committees with which I am familiar, election of officers is generally done by having the acting Chair call for nominations from the members of the body at a regularly scheduled meeting, and then holding an election of officers by oral vote at that meeting. This is the approach that I recommend the TAC follow at today's meeting.

Currently we have as officers three positions: Chair, 1st Vice Chair, and 2nd Vice Chair. We found it necessary to have a 2nd Vice Chair, because the Chair (Diana Ingersoll) has not normally attended the TAC meetings, and sometimes the Vice Chair was also unable to attend, leaving no designated TAC member to Chair the meetings.

If a new Chair is elected from the ranks of the members that regularly attend the TAC meetings, then we can probably do away with having a 2nd Vice Chair, so I recommend having as TAC officers just the two positions of Chair and Vice-Chair.

In some cases the body establishes term durations, and/or term limits, for its officers, but not in all cases. At the August TAC meeting there was a brief discussion about rotating the Chairmanship duties among the TAC members, so there would be no inference of preferentiality toward any member or the entity he/she represents.

## *SEASIDE BASIN WATER MASTER*
## *TECHNICAL ADVISORY COMMITTEE*

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

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| **AGENDA ITEM:** | 2.B (Continued) |

I believe there is a benefit to having a person serve in an office position for at least a moderate length of time, rather than rotating the position among the members on a frequent basis. Having some longevity, I believe, will improve the efficiency of conducting the meetings, and will aid in my coordination with the Chair on agenda and other TAC issues. Therefore, I recommend that the Chair and Vice Chair positions be held for a minimum period of at least 6 months, and preferably for one year. A one year term for officers is the norm in most other bodies with which I have worked.

Once the TAC has completed the election process, I will use that information to prepare an Agenda Transmittal to the Board recommending that the Board approve the person elected by the TAC to be the new Chair. In that same Agenda Transmittal I will also:

- Inform the Board that the TAC has also created the position of Vice Chair and that the TAC has elected a TAC member to fill that position.
- Inform the Board what the TAC recommends the terms of office to be.

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| **ATTACHMENTS:** | None |
| **RECOMMENDED ACTION:** | Elect a Chair and a Vice Chair |

## *SEASIDE BASIN WATER MASTER*
## *TECHNICAL ADVISORY COMMITTEE*

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

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| **MEETING DATE:** | September 12, 2012 |
| **AGENDA ITEM:** | 2.C |
| **AGENDA TITLE:** | Board Meeting Agenda Planning |
| **PREPARED BY:** | Robert Jaques, Technical Program Manager |

**SUMMARY:**

The following Board meeting agenda plans are provided for the TAC's information:

- The regular Board meeting of October 3rd will include:
  - The cross-aquifer contamination report prepared by Jon Lear of MPWMD.
  - The Wang subdivision request.
  - The Hydrometrics groundwater modeling results.
  - The FY 2013 Watermaster budgets, including the 2013 M&MP Work Plan and the 2013 and 2014 M&MP Operations and Capital Budgets.
  - The proposed Unit Cost for WY 2012/13 Over Production Replenishment Assessment amount. It is likely that the Budget and Finance Committee will again recommend that the Board approve the $2,780 per acre-foot figure that the Board has adopted for the past several years. TAC involvement in developing the Unit Cost is not currently anticipated, unless requested by the Budget and Finance Committee.

- The Board will probably be asked to cancel their regularly scheduled November 7th meeting and replace it with a Special meeting later in the month, potentially November 28th, to approve the Annual Report. This revised scheduling of the Board meeting is intended to allow time for the TAC to meet on our regular November 14th date to review and approve the Draft Annual Report, so it can go to the Board with the TAC's recommendation for approval at the Board's revised November meeting date. This should provide enough time to make whatever corrections/changes may be recommended by the Board and still meet the December 15th deadline for filing the Annual Report with the Court.

Also, on the November 2012 Special Meeting the Board will be asked to make the annual Declaration regarding the Unavailability of Artificial Replenishment Water, if applicable, and to approve the Professional Services Agreements for FY 2013 for MPWMD and HydroMetrics.

The Board in the past has been able to cancel its regular December meeting by completing all essential business of the year during November.

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| **ATTACHMENTS:** | None |
| **RECOMMENDED ACTION:** | No action required – information only |

## *SEASIDE BASIN WATER MASTER*
## *TECHNICAL ADVISORY COMMITTEE*

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

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| **MEETING DATE:** | September 12, 2012 |
| **AGENDA ITEM:** | 3 |
| **AGENDA TITLE:** | Continued Discussion Regarding Request for Watermaster's Approval of Installation of Wells to Serve Proposed New Housing Development Along Highway 68 |
| **PREPARED BY:** | Robert Jaques, Technical Program Manager |

At the TAC's August 8, 2012 meeting there was considerable discussion regarding correspondence from the law firm representing the Wang family's proposed subdivision located in the Hidden Hills area of Monterey County. These discussions are summarized in the Meeting Minutes included in Agenda Item No. 2.A of today's agenda packet. A considerable amount of documentation regarding this matter was included in the August 8th meeting Agenda packet, and is therefore not included in today's packet.

Discussion of this topic was continued from the August 8th meeting to today's meeting, in order for the Wang subdivision proponents to provide further information in response to questions raised at the August 8th meeting. Attached is the additional information that has been provided. It consists of a letter David Abbott prepared describing the conclusions formed from the review of the DWR Well Completion Reports that were provided by MPWMD. His letter also describes three cross sections that were prepared by Clark Geological in 2009, and the Clark Geological report is also included.

Mr. Abbott's letter appears to conclude that the documents provided to him by MPWMD do not materially improve the understanding of whether the Wang wells are connected, or disconnected, from the aquifers in the Laguna Seca Subarea of the Seaside Basin. It does, however, point out and describe what Mr. Abbott considers to be a number of inaccuracies in the Clark Geological report

As noted at the August 8th TAC meeting, there appear to be two choices the Watermaster could take in determining what its response to the Wang attorney's request will be:

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

or

2. Determine whether or not the main well for the Wang subdivision draws from one of the principle aquifers of the Seaside Basin (the Santa Margarita). If it is determined that the well is hydraulically connected to the Basin, conclude that production from that well would impact the Basin and should therefore be under the purview of the Watermaster in its Decision-assigned role of managing the Basin. If it is determined that the well is hydraulically <u>disconnected</u> from the principle aquifer(s) of the Seaside Basin, conclude that production from that well would have little if any impact on the Basin and therefore need not be under the purview of the Watermaster.

## *SEASIDE BASIN WATER MASTER*
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| **AGENDA ITEM:** | 3 (Continued) |

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

Depending on the conclusions reached by taking the second choice could lead to drawing a new boundary map of the Basin, based on current hydrogeologic knowledge. A new boundary might impact property owners that were not part of the original adjudication process. This could lead to further court action to enable those property owners to participate in the process of redefining the Basin boundaries. It might also result in a change in the allocations of production rights within the Basin, if more wells are determined to be drawing from the Basin.

The TAC is requested to develop its technical recommendations on this matter, so these can be provided to the Board when it considers the request that the Watermaster provide a letter stating it has no objections to the proposed Wang subdivision.

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| **ATTACHMENTS:** | September 5, 2012 letter from David Abbott of Daniel Stephens & Associates and well location maps prepared by Mr. Abbott |
| **RECOMMENDED ACTION:** | Prepare technical recommendations to the Board for their consideration in responding to the Wang family's request |

September 5, 2012

Mr. Joseph W. Oliver
Monterey Peninsula Water Management District
5 Harris Court, Building G
P.O. Box 85
Monterey, CA 93942-0085

**Re**: Review of existing driller's logs provided by the Monterey Peninsula Water Management District in the vicinity of the Wang proposed Subdivision (PLN #010422) in the Hidden Hills area of Monterey County, CA

Dear Joe,

The Technical Advisory Committee (TAC) to the Seaside Basin Water Master met in Monterey on August 8, 2012. I attended the meeting on behalf of the Wang proposed Subdivision (PLN #010422) that is located in the Hidden Hills area of Monterey County south of Highway 68. The TAC discussed the planned project and requested that the Monterey Peninsula Water Management District (MPWMD) provide copies of available and existing California Department of Water Resources (DWR) Well Completion Reports (WCRs; also known as driller's logs) to me for review. In addition, the TAC suggested that cross sections may help to visualize the subsurface geology and hydraulic relationships between the proposed Subdivision wells and the Laguna Seca Subarea of the Seaside Basin.

The proposed Subdivision water supply wells are located south of, next to, or within the Chupines Fault zone which serves to delineate the southern boundary of the Laguna Seca Subarea. It has been assumed that if the wells were located south of the Chupines Fault then the wells are not under the authority of the Seaside Basin Water Master but would be under the jurisdiction of the MPWMD. This letter discusses briefly the review of the WCRs received from the MPWMD and presents three cross sections that were prepared by Clark Geological (2009).

## Review of DWR Well Completion Reports

On August 10, 2012, I requested from the MPWMD all well logs in Sections 5 and 8 of Township 16 South, Range 2 East (16S/2E-5 and 8). In addition to the four wells installed for the proposed Subdivision, 17 WCRs were received from the MPWMD on August 17, 2012. All WCRs were for wells located in 16S/2E-5; no driller's logs were received from 16S/2E-8; and one well log (07-11128) included in the package recorded the repair of an existing well. Hence, I reviewed twenty wells. The driller's logs that were received varied in completeness and accuracy, both in technical quality and location coordinates. Relevant information and clarification remarks were written, initialed, and dated on the driller's logs by MPWMD and additional pages were attached to many of the logs. Some of these attachments included: Monterey County drilling permit applications, geophysical logs, well profiles, location maps, DWR Well Data/Well Record sheets, MPWMD Well Data Sheets, and PG&E Pump Test Reports.

*Daniel B. Stephens & Associates, Inc.*
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Oakland, CA 94610-5058

On August 24, 2012, I requested from MPWMD a map showing the corresponding well locations. The map from Google Earth was received on August 28, 2012. Figure 1 shows the approximate well locations identified by the MPWMD. The well locations were reviewed and were verified with information provided with the WCRs; no fieldwork was conducted to verify the well locations other than the wells installed for the proposed Subdivision. There were several (14 wells) undocumented wells (i.e., no WCRs) provided on the MPWMD map that are shown (yellow dots) without labels on Figure 1; four of those wells were north of Highway 68, while nine were adjacent to and south of Highway 68.

Table 1 summarizes the well construction information for all the wells (white dots and labels on the map) including the proposed Subdivision wells in red. The labels for each well on the map are either the Well permit number or the unique DWR "page" number (extreme left column of the table). Table 1 is arranged in two groups: (a) logs provided by the MPWMD and (b) wells installed for the proposed Subdivision. The wells are then arranged by the date of construction. Missing data in the table include estimated well head elevations and location coordinates while many of the WCRs do not include the non-pumping or static water levels (SWL) at the time of well construction. Most of the wells (63%) from the MPWMD database were designed, installed, and constructed without conducting a geophysical log which provides an objective geophysical description of the subsurface geology by inference from geophysical properties. The geophysical log for Well 02-051, water quality for all wells, and pumping test data were not included in the package received from the MPWMD.

In contrast, the four proposed Subdivision wells are very well documented including location, geophysical logs, water levels, construction details, pumping tests, and water quality. This information was used to evaluate the subsurface geology in the vicinity of the Chupines Fault. The proposed Subdivision wells exceed depths of 750 feet and were drilled at least to the Santa Margarita Sandstone - Monterey Formation (Tsm-Tm) contact and then some through the Monterey Formation. The Tsm-Tm contact is a critical marker to identify relative displacement and correlation of geologic units on opposite sides of the fracture zone or faults in this area. Well depths from the driller's logs provided by the MPWMD ranged between 395 and 720 feet. Many of these wells were drilled to shallower depths which does not identify the depth to the key Tsm-Tm contact.

Two faults are recognized in the study area. The major fault is the Chupines Fault which trends at this location in an east-west direction and the minor Ord Terrace Fault or splay which abruptly begins in the vicinity of Well 02-072 and trends in a northwest direction. A splay fault is a minor fault that branches off of a larger fault; commonly major faults terminate in an array of splays (AGI, 2005). Clark Geological (2009) suggests that the structurally complex area may occupy a wide zone in the marginal valley north of the proposed Subdivision.

The MPWMD database included the Saunders Well (W2008 - now destroyed), which is located near the easternmost project wells (Wells 02-071, 03-01132, and 07-11024). Well W2534 (location unknown) is about 1,000 feet north of the western Subdivision well (Well 02-072). The remaining 14 wells are located adjacent to and north of Highway 68 and are too great a distance from the Chupines Fault to evaluate the

subsurface geology between the proposed Subdivision wells and the Laguna Seca Subarea. The closest well (W4722) is 2,850 feet from the eastern wells. Well W2534 is included in the cross sections discussed below.

In summary, the well logs provided by the MPWMD for 16S/2E-5 and 8 provided no additional useful information to evaluate the subsurface hydraulic connection between the proposed Subdivision wells and Laguna Seca Subarea. The wells were either too far from the Chupines Fault near the eastern wells (02-071, 03-01132, and 07-11024) or too shallow for the western well (02-072) to be useful. There is a large area between the Chupines Fault (proposed Subdivision wells) and Highway 68 that contains no wells and correlations between the project site and the Laguna Seca Subarea are, at best, speculative.

**Review of Cross Sections**

Clark Geological (2009) prepared three cross sections lines for the proposed project using the proposed Subdivision wells, three wells located in the Laguna Seca Subarea (Wells 01-014, 00-259, and W2534), and information from the geologic map. The location for Well W2534 is generally unknown according to the MPWMD. All three Laguna Seca Subarea wells used for the cross sections are too shallow and do not encounter the Tsm-Tm contact. Cross sections A-A' and C-C' are generally oblique from the Chupines Fault, while cross section B-B' parallels the fault. Wells 01-014 and 00-259 are common to cross sections A-A' and C-C'. Figure 2 shows the geologic map and the location of the cross sections. Figures 3 and 4 reproduce the cross sections (left side) and include cross sections that have been modified (right side) to show clearly that much the subsurface correlations were speculative. Clark Geological noted these speculative correlations using a dashed and queried contact line but the modified cross sections explicitly show that limited available subsurface information was used to construct the cross sections.

In addition to the limited number of useful wells, Clark Geological used incorrect well head elevations and identified a pumping test on Well 02-072 that was never conducted (see page 3 of the Clark Geological report) - the pumping test data Clark Geological refers to was conducted on 02-071 in March 2003; I was unable to identify any historical water level data for Well 02-072, even on the WCR. The modified cross sections show the corrected water levels. Significantly, the water level for Well 02-071 (see cross section A-A') is at a lower elevation than shown by Clark Geological which suggests that groundwater flows from Laguna Seca Subarea to the Chupines Fault (north to south) rather than from south to north. Clark Geological cross section C-C' also shows that groundwater flow is from Well W2534 to Well 02-072 (north to south) while the revised cross section shows that groundwater flow is from south to north. Water level data used by Clark Geological was from existing information including driller's logs and pumping tests; Water level data used for the modified and revised cross sections were collected in March 22, 2012 with their corresponding x, y, and z location coordinates using global positioning system (GPS) technology. I have included with this letter the original report by Clark Geological (2009) with some of my comments on the Clark Geological report.

In Summary, the cross sections constructed by Clark Geological are highly speculative between the Chupines Fault and Highway 68 because of the lack of subsurface data, especially deep geological

information. Clark Geological did not measure water levels nor verified well head elevations but used water levels from the WCRs and pumping tests.

**References**

American Geological Institute (AGI). 2005. Glossary of Geology (fifth edition). Editors: Klaus K.E. Neuendorf, James P. Mehl, Jr., and Julia A. Jackson. Alexandria, Virginia

Clark Geological. 2009. Letter to Dr. Wang: Potential ground-water barrier evaluation Peter C. and Grace L. Wang property subdivision (PLN #10422) Monterey County, California. 10p. and 5 figures.

**Closing**

If you have any questions, please don't hesitate to call me at 510.444.1353.

Sincerely yours

David W. Abbott, PG, CHg
Senior Hydrogeologist
Daniel B. Stephens & Associates, Inc.

Attachments: Table 1 and Figures 1 - 4
Clark Geological (2009) report

## Table 1

### Summary of Well Logs Received from MPWD for the Wang Proposed Subdivision Investigation

| | | | | | | Depths | | Screen | | | | | | | | | | | | Location | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Elev. | Total | Comp. | Top | Bott. | OAL | Slot | Type | Diam. | Material | SWL | Drilling | Meth. | GeoLog | Comments | Long | Lat | Elev. | |
| DWR No. | Permit No. | 40-acre | | Owner | Date | ft msl | feet | feet | feet | feet | feet | inch | | inch | | feet | Contractor | | | | degrees | | ft msl | pages |
| 5465 | -- | M | 3 | C-B Livestock Co. | Nov-56 | 323 | 705 | 670 | 262 | 670 | 216 | 0.156 | Perforations | 12 | Steel | -- | Valley Pump | R | Yes | Main Gate 1 | | | | 4 |
| 117626 | -- | F | x | Laguna Seca Ranch | Feb-65 | -- | 698 | 540 | 228 | 540 | 312 | -- | Perforations | 12 | Steel | -- | Valley Pump | R | Yes | Paddock 4 | | | | 6 |
| 75035 | -- | M | f | Laguna Seca Ranch | Aug-72 | 337 | 559 | 498 | 306 | 498 | 192 | -- | Louver | 12 | Stainless | 154 | Valley Pump | R | | Paddock 1 | 121.7785 | 36.56 | 337 | 8 |
| 141759 | -- | M | 7 | Laguna Seca Ranch | Mar-77 | 330 | 711 | 470 | 230 | 440 | 210 | 0.094 | Louver | 10 | Stainless | 146.8 | Salinas Pump | R | Yes | Main Gate 2 | | | | 5 |
| 136599 | W2534 | N | x | Hidden Hills Land Co. | Oct-79 | -- | 395 | 368 | 178 | 348 | 170 | 0.094 | Louver | 10 | Steel | 148 | Chappell | R | Yes | Pratt Well | | | | 6 |
| 63951 | W2008 | Q | 1 | Saunders | Oct-79 | -- | 926 | 552 | 408 | 552 | 144 | 0.094 | Shutter | 10 | Steel | -- | Salinas Pump | R | | | | | | 1 |
| 85829 | 29007 | -- | 1 | Roerdan | Oct-79 | -- | 510 | 503 | 463 | 503 | 40 | 0.031 | Perforations | 6 | Steel | 273 | Fred Ash | R | | Hidden Hills | | | | 2 |
| 176969 | 4578 | F | a | Bishop Water Co. | Nov-87 | -- | 610 | 600 | 350 | 600 | 40 | 0.05 | Slot | 2 | PVC | -- | Eaton Drilling | R | | destroyed test hole. | | | | 4 |
| 186286 | W4722 | K | a | Stolich | Mar-88 | -- | 600 | 600 | 100 | 580 | 300 | 0.094 | Slots | 5 | PVC | 80 | Roy Alsop | R | | | | | | 1 |
| 327348 | W4897 | F | c | Bishop Water Co. | Nov-88 | 435 | 610 | 540 | 320 | 520 | 200 | 0.05 | Wirewrap | 12 | Stainless | 191.4 | Eaton Drilling | Rev | | destroyed, east valley 1 | 121.7697 | 36.5735 | 435 | 11 |
| 498010 | W6886 | G | e | MC Parks Dept. | Nov-92 | -- | 700 | 670 | 330 | 650 | 320 | -- | -- | 8 | Stainless | 169.3 | Chappell | DR | | Well 1 now | | | | 2 |
| 701027 | 99-119 | F | b | Cal American Water | Aug-99 | -- | 720 | 700 | 380 | 690 | 170 | 0.04 | Wirewrap | 12 | Steel | 205 | Beylik Drilling | Rev | | Bishop East 2 | | | | 5 |
| 783297 | 01-014 | -- | | Fowler | Feb-01 | -- | 620 | 560 | 320 | 520 | 200 | 0.06 | -- | 6 | Steel | 200 | Arthur Orum | R | | | | | | 1 |
| 743223 | 00-259 | L | d | Shoreline Church | Oct-01 | -- | 620 | 600 | 400 | 600 | 200 | 0.04 | Slot | 8 | PVC | 60 | Arthur Orum | -- | | | | | | 1 |
| 788672 | 02-051 | G | f | MC Parks Dept. | Apr-03 | -- | 675 | 650 | 330 | 630 | 300 | 0.04 | Wirewrap | 10 | Steel | -- | Maggiora | MR | Yes/na | Well 2 now | | | | 2 |
| e067374 | 07-11128 | M | g | Pasadera CC LLC | Jul-07 | -- | -- | -- | 230 | 380 | 150 | 0.032 | Liner | 6 | PVC | -- | Roy Alsop | -- | | Repair Existing Well | | | | 1 |
| -- | 10-11766 | F | d | Cal American Water | Sep-10 | 415 | 720 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Zim | Rev | Yes | Bishop Well 3 now | 121.7701 | 36.5734 | 415 | 15 |
| 808170 | 02-071 | Q | | Peter Wang | Jul-02 | 482 | 755 | 750 | 250 | 730 | 180 | 0.032 | Slots | 8 | PVC | 388 | Maggiora | MR | Yes | | 121.7689 | 36.5625 | 482 | |
| 808152 | 02-072 | N | | Peter Wang | Aug-02 | 370 | 805 | 790 | 140 | 780 | 400 | 0.032 | Slots | 5 | PVC | -- | Maggiora | MR | Yes | | 121.7761 | 36.5635 | 370 | |
| 900592 | 03-01132 | Q | | Peter Wang | Jul-03 | 429 | 800 | 800 | 360 | 780 | 200 | 0.032 | Slots | 8 | PVC | 314 | Maggiora | MR | Yes | | 121.7712 | 36.5622 | 429 | |
| e057392 | 07-11024 | Q | | Peter Wang | Aug-07 | 485 | 800 | 800 | 320 | 780 | 300 | 0.032 | Slots | 8 | PVC | 397 | Salinas Pump | MR | Yes | | 121.7689 | 36.5625 | 485 | |

All wells located in Township 16 South and Range 2 East - Section 5 except DWR No. 85829 which is in Section 9.

DWR No. - Department of Water Resources sequential "page" number.

Permit No. - County well drilling permit number.

40-acre - Location in the 40-acre parcel of Section 5.

Date - Well Construction datae.

Elev. - Elevation datum in feet mean sea level (ft msl).

Depths - Total Depth and Completed (Comp.) Depth.

Screen - Dimensions and Properties: Top, Bottom (Bott.), and Over All Length (OAL) of Screen; aperture (slot) size; type of perforation, diameter (Dia.), and material type.

Meth. - Method of drilling - rotary (R); reverse rotary (Rev); direct rotary (DR); mud rotary (MR).

Pages - Number of pages provided for each well by the MPWMD.

na - Not available.

-- Missing information.

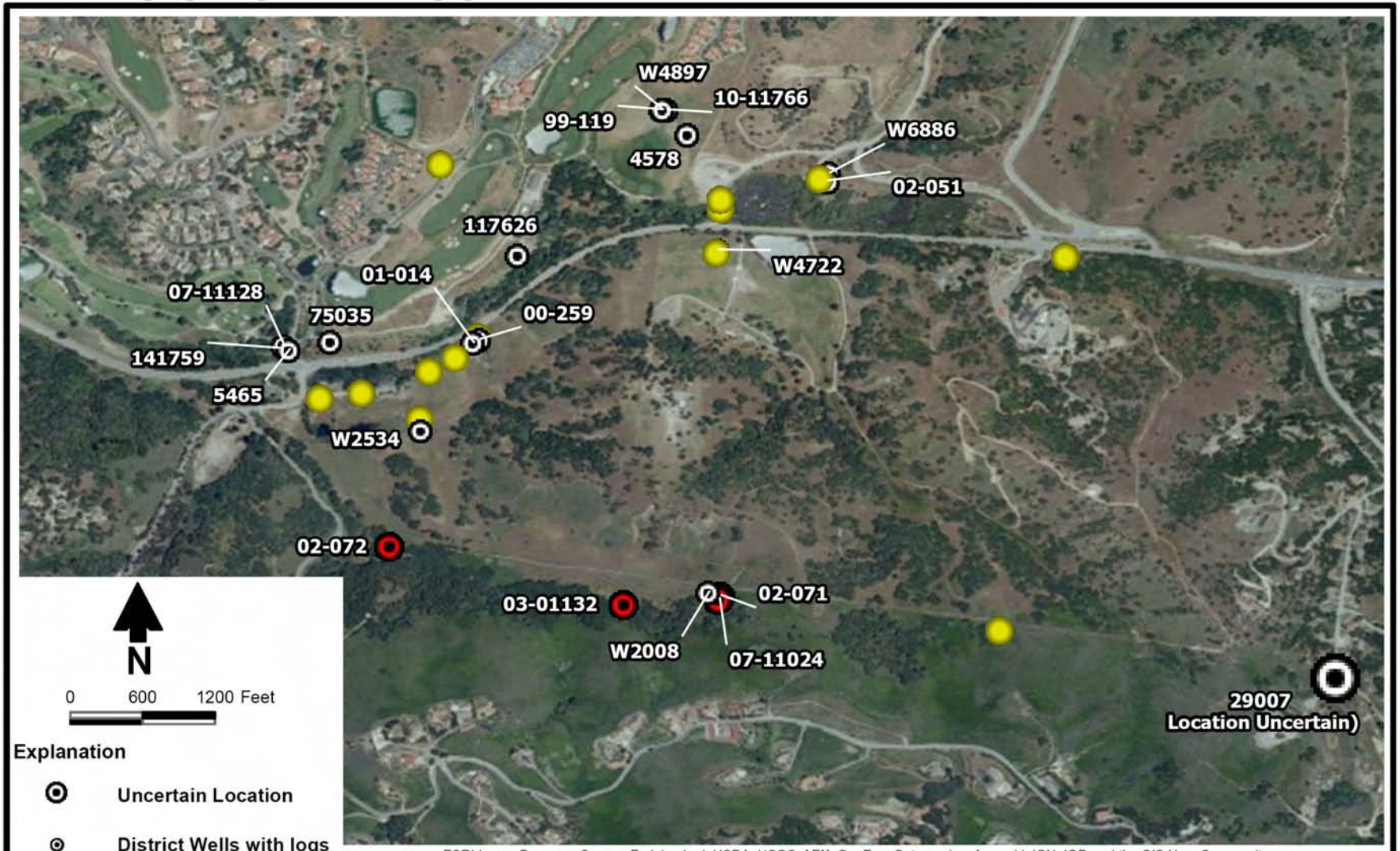
SWL - Static Water Level.

GeoLog - Geophysical Log.

Long - Longitude.

Lat. - Latitude.

S:\PROJECTS\WR12.0041_WANG_PROPOSED_SUBDIVISION\GIS\MXDS\FIG01_KML_TESTING.MXD



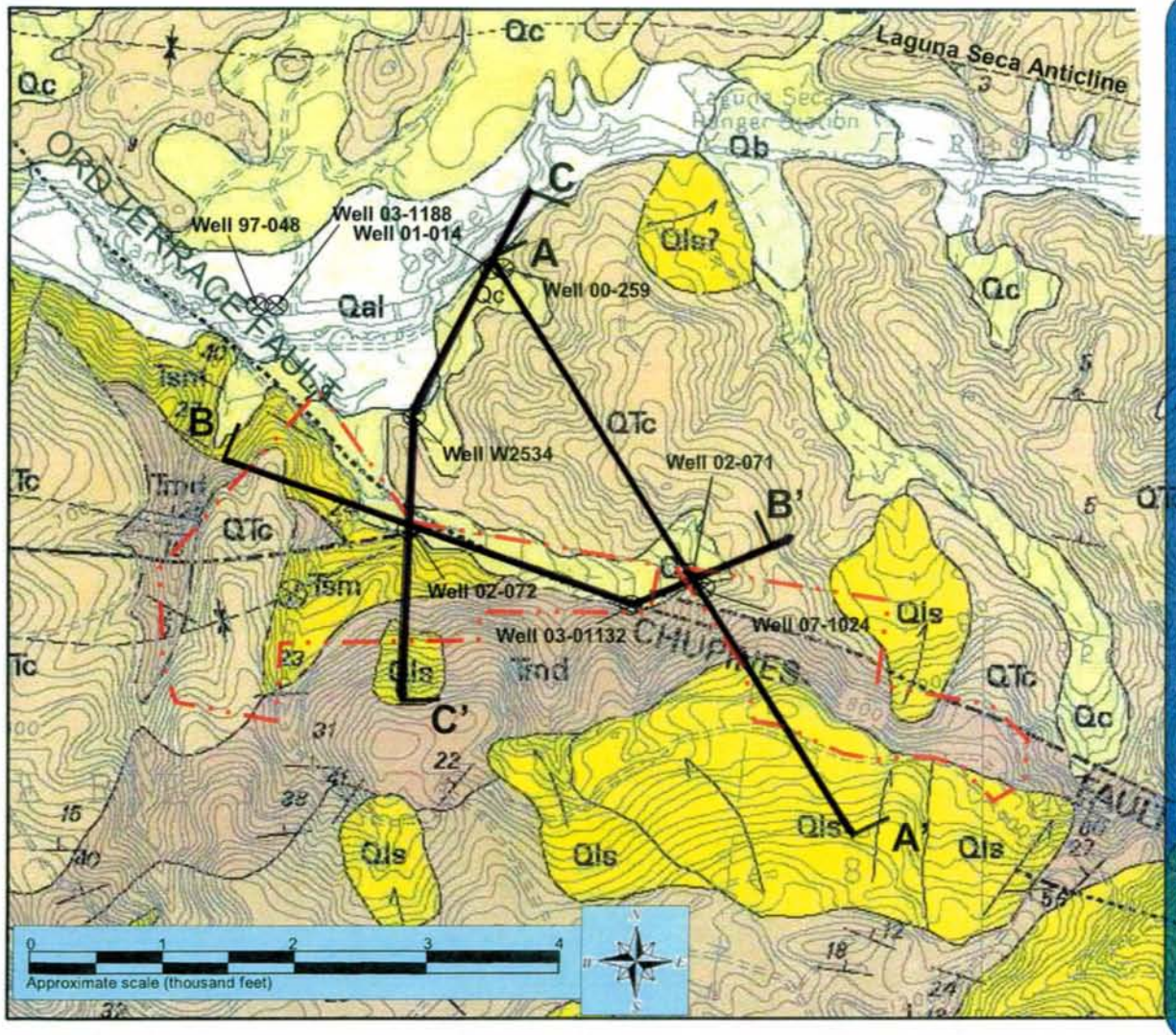

ESRI Image Basemap Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

*Daniel B. Stephens & Associates, Inc.*
05/14/2012
JN WR12.0041

WANG PROPOSED SUBDIVISION
**Well Location Map**
**Proposed Subdivision (PLN #010422)**

Figure 1

S:\PROJECTS\WR12.0141_BAILEY_COUNTY_WELL_FIELD_MODELING\VR_DRAWINGS\FIG02_CLARK_CROSS_SEC_LOC_MAP.CDR

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ClarkGeo.com

Qal Alluvium
Qc colluvium
Qls landslide
QTc Continental
Tsm Santa Margarita
Tmd Monterey dolomite
TM Monterey
Appx property ln.
Well
C'
Line of cross section

Map source: Clark and others, 1997

No. | Date

Project Name
Wang Subdivision Ground-Water Barrier Evaluation

Plate Title
Geologic Map

Project No.: GE007-A
Date: April 22, 2009
Compiled by: AMC
File Name:

Plate 2

Information presented on this graphic are approximate and informational only and are not to be used for design purposes.

Figure 2

**Source:** Clark Geological, 2009

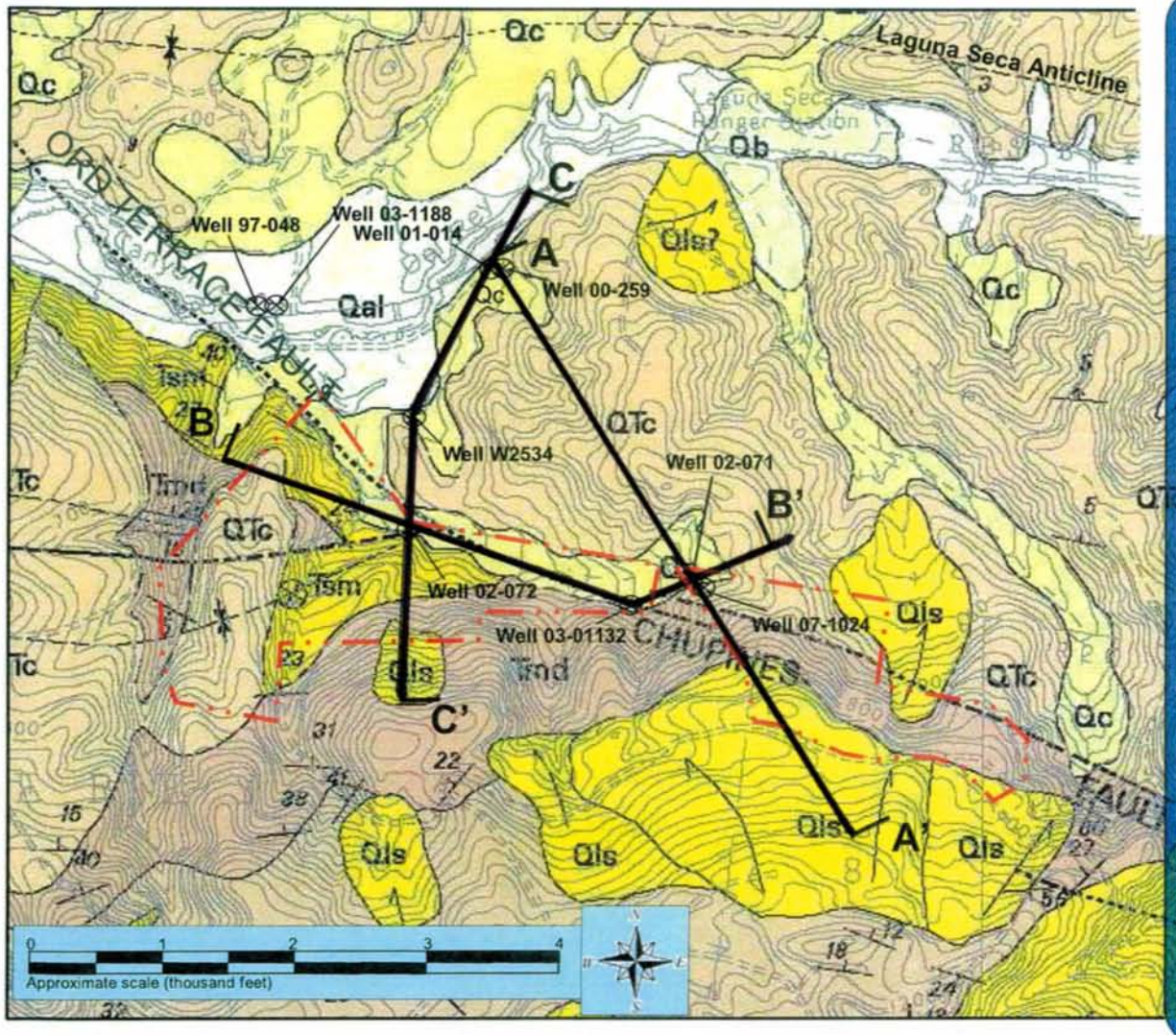
WANG PROPOSED SUBDIVISION

**Geologic and Cross Section Location Map**

*Daniel B. Stephens & Associates, Inc.*

9-5-12 JN WR12.0041

S:\PROJECTS\WR12.0141_BAILEY_COUNTY_WELL_FIELD_MODELING\VR_DRAWINGS\FIG02_CLARK_CROSS_SEC_LOC_MAP.CDR

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Appx property ln.
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C'
Line of cross section

Map source: Clark and others, 1997

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|---|---|
| | |

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Plate 2

Information presented on this graphic are approximate and informational only and are not to be used for design purposes.

Figure 2

**Source:** Clark Geological, 2009

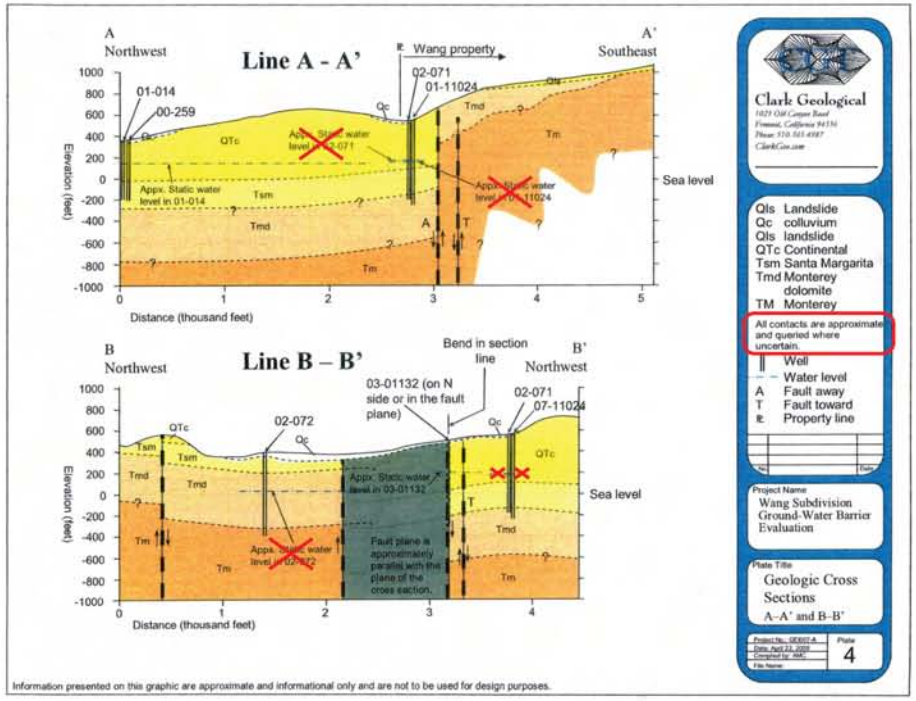
WANG PROPOSED SUBDIVISION

**Geologic and Cross Section Location Map**

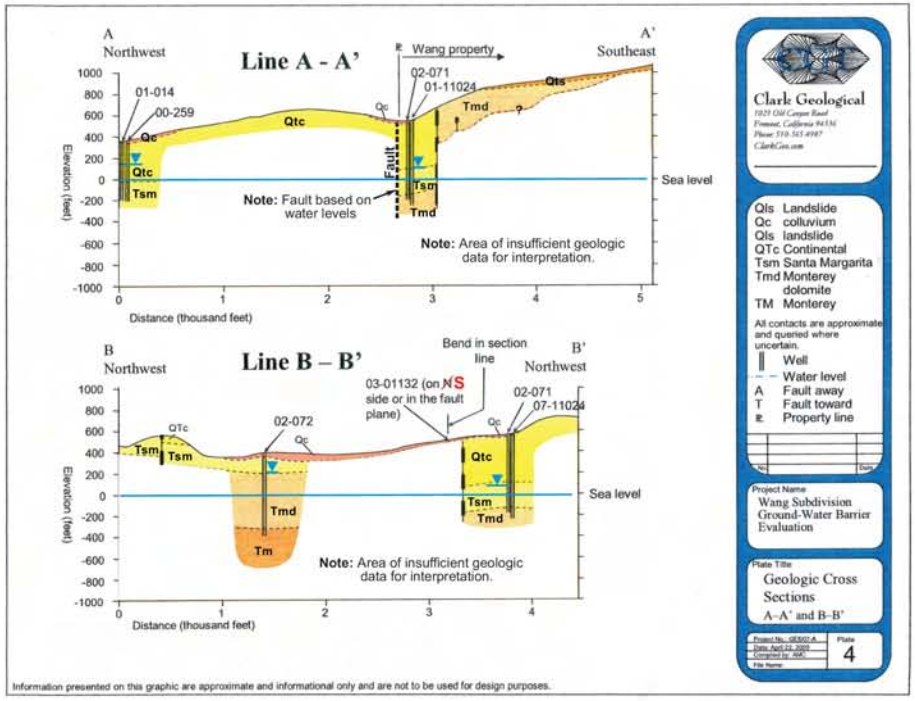
*Daniel B. Stephens & Associates, Inc.*

9-5-12 JN WR12.0041

## Clark Hydrogeologic Interpretation




## DBS&A Hydrogeologic Interpretation




**Explanation**

Water level data identified by DBS&A as incorrect

*Daniel B. Stephens & Associates, Inc.*
9-5-12 JN WR12.0041

WANG PROPOSED SUBDIVISION
**Hydrogeologic Interpretation of Cross Sections A-A' and B-B'**

Figure 3

S:\PROJECTS\WR12.0141 BAILEY COUNTY WELL FIELD MODELING\VR DRAWINGS\FIG03_04_CROSS SECTIONS.CDR

# Clark Geological

*1023 Old Canyon Road*
*Fremont, California 94536*

*Phone: (510) 565-4987* *Web: ClarkGeo.com*


April 22, 2009
CGT File: L&G001-A

Dr. Peter Wang
c/o Dale Ellis, AICP
Lombardo & Gilles, LLP
318 Cayuga Street
Salinas, CA 93901

**Via Email: dale@lomgil.com**

Subject: **Potential Ground-Water Barrier Evaluation**
**Peter C. and Grace L. Wang Property Subdivision (PLN #10422)**
**Monterey County, California**

Dear Dr. Wang:

Clark Geological has completed this limited ground-water evaluation of the proposed Peter C. and Grace L. Wang Subdivision (Wang property) in the Hidden Hills area of Monterey County. The study evaluates the possible presence or absence of a ground-water barrier between well 02-071 (designated Primary Well) and the Laguna Seca Subarea of the Seaside Ground-Water Basin. The area of the Laguna Seca Subarea and location of the planned subdivision are depicted on the Site Vicinity Map, Plate 1. The approximate locations of the water wells used in this study relative to local geology are shown on the Geologic Map, Plate 2.

## *1.1. Background*

We understand that the Primary Well (permit # 02-071) has been pump tested at over 100 gallons per minute (gpm) with a specific capacity of about 0.6 gpm/ft. However, we also understand that the Monterey County Water Resources Agency (MCWRA), Monterey County Health Department, and Monterey Peninsula Water Management District (MPWMD) have expressed concern that water from the Primary Well may be derived from the overdrafted Laguna Seca Subarea to the

north of the Wang property. According to the oversight water agencies, water used for the Wang Subdivision should not be drawn from the Laguna Seca Subarea.

A pumping test of the Primary Well while observing possible drawdown in a well within the Laguna Seca Subarea has been proposed to evaluate the possible connectivity between that well and the overdrafted basin. The purpose of the pumping test would be to evaluate whether the Primary Well draws water from the Laguna Seca Subarea or is isolated from the subarea by a ground-water barrier created by the Chupines fault. However, prior to the pumping test and drilling and construction of an observation well, Clark Geological has been requested to conduct a literature study to assess the possible presence or absence of the Chupines ground-water barrier between the Primary Well and the Laguna Seca Subarea based on subsurface geologic conditions.

### *1.2. Scope of Service*

After review of the available reports and well logs in our library and those provided by Lombardo & Gilles, we evaluated the subsurface geologic structure between the Wang property and the Laguna Seca Subarea by interpretation of well logs, projection of subsurface geologic units and structure from mapping by others, and construction of geologic cross sections. As described in our proposal dated March 18, 2009 our project scope included the following:

- Research and review geologic, hydrogeologic, and geotechnical reports and maps covering the site and vicinity available in our library and provided by Lombardo & Gilles;
- Construct interpretative geologic cross-sections; and
- Evaluate the researched data and prepare this written report with conclusions regarding possible presence or absence of a hydrogeologic barrier between the Primary Well on the Wang property and the Laguna Seca Subarea.

### *1.3. Data Review*

The Laguna Seca Subarea (Plate 1), as described by Yeats and others (2002), occupies the southeast portion of the Seaside Groundwater Basin. The Subarea is a roughly east-west trending linear structural basin located north of the Wang property extending from the Chupines fault along the north boundary of the property to the Laguna Seca Anticline located about ¾-mile north of Highway 68 (Plate 2).

Our ground-water analysis draws on previous mapping by several investigators and data from four

on-site and five nearby off-site water wells. The nine wells used in this study are listed in the following table with estimates of elevations of wellheads and static water levels. Approximate locations of these wells relative to the Wang property are depicted on the Geologic Map, Plate 2.

## Table 1. Water Wells available for this study

| Well ID (permit No.) | Est. Wellhead Elev. | Total Well Depth | Screen Intervals | Static Water Depth | Date of Measur-ment | Static Water Elev. | Water-Data Source | Est. Depth to Monterey Formation |
|---|---|---|---|---|---|---|---|---|
| 02-071 | 482 ~~557~~ | 750 | 250-270<br>350-370<br>430-470<br>490-510<br>610-650<br>690-730 | 399<br>378 | 3/22/2012<br>9/10/2002 | 83<br>~~179~~ 104 | pumping test | 725 |
| ~~07~~ 01-11024 | 485 ~~553~~ | 800 | 320-380<br>400-520<br>560-580<br>620-660<br>680-700<br>720-740<br>760-780 | 400.5<br>397 | 3/22/2012<br>8/11/2007 | 84.5<br>~~156~~ 88 | driller's log | 725 |
| 03-01132 | 429 ~~499~~ | 800 | 360-380<br>400-420<br>420-460<br>480-500<br>520-540<br>560-580<br>620-640<br>660-680<br>720-740<br>760-780 | 322.2<br>314 | 3/22/2012<br>7/11/2003 | 106.8<br>~~185~~ 115 | driller's log | 475 |
| 02-072 | 370 ~~405~~ | 790 | 140-250<br>280-370<br>360 400<br>440-460<br>600-640<br>680-700<br>740-780 | 114.9<br>~~377~~ | 3/22/2012<br>~~3/3/2003~~ | 253.1<br>~~28~~ | ~~pumping test~~ NO PUMPING TEST CONDUCTED ON 02-072 | 180 |
| 97-048 | 346 | 200 | 120-480 | 72 | 3/18/97?? | --- | driller's log | 448 |
| 03-01188 | 346 | 490 | 260-480 | 100 | 4/17/2003 | 246 | driller's log | 360 |
| W2534 | 354 | 370 | 178-348 | 148 | 10/1/1979 | 206 | driller's log | 350 |
| 00-259 | 365 | 600 | 400-600 | 60?? | 10/26/2001 | --- | --- | > 600 |
| 01-014 | 370 | 560 | 320-520 | 216 | 10/4/2005 | 154 | pumping test | > 560 |

All measurements in feet

Well head elevations from WWD Tentative maps

It should be noted that the Static Water Depths listed above for the data wells were recorded over a period of 28 years. During that time, the water table in the Laguna Seca Subarea has fluctuated and generally declined. Several other factors, in addition to measuring water levels at different times, can affect water levels between wells in the same basin. Such factors can include (but are not limited to): differences in well construction, i.e. screens located at different intervals; pumping history or interference from nearby wells at the time of measurement; and differences in topography. Of the nine wells presented above, usable static water-level elevations were not obtained from two wells (97-048 at the golf course north of Highway 68 and near well 03-01188, and well 00-259 near well 01-014). These two wells were not used in our evaluation although data from adjacent wells were used.

The 1974 U.S. Geological Survey map (Clark and others, 1974) which includes the Wang property shows the convergence of the Ord Terrace and Chupines faults on the project site and the continuation of the merged faults to the east through the property. The location of the faults on the Wang property by Clark and others (1974) is based on surface mapping and projection of data from exploration oil wells. The 1974 map shows the Chupines fault to be located on the Wang property north of well 02-072 and south of well 07-11024 (Plate 2). This interpretation of the fault's location places the Primary Well in the Laguna Seca Subarea.

Subsequent maps by Geoconsultants (1986), Clark and others (1997), and Kleinfelder (2005) show the Chupines fault traversing the Wang property in significantly different locations. The Geoconsultants' investigation included geophysical surveys of seismic refraction, electrical resistivity, and magnatometry, as well as interpretations of borehole logs. According to Geoconsultants, the trace of the Chupines fault is north of all wells on the Wang property, suggesting that the wells are not in the Laguna Seca Subarea as defined.

The study by Clark and others (1997, Plate 2) closely follows the fault location shown on the 1974 map. The geotechnical study by Kleinfelder (2005) investigated possible fault locations by excavating and logging exploratory trenches on the Wang property. The Kleinfelder report describes an exposure on an active fault trace west of Bit Road with a strike of N60°E and with a near-surface dip of 43° to the west.

The above discussion demonstrates that the confluence of the Ord Terrace and Chupines faults is structurally complex and that the faults probably occupy a wide zone in the vicinity of the north marginal valley of the Wang property. The question is, "does the Chupines fault (or zone of faults) act as a ground-water barrier and is the Primary Well hydrogeologically isolated from the Laguna Seca Subarea?"

### *1.4. Data Compilation and Interpretation*

The following table presents a matrix showing the elevations of water in each of the seven data wells relative to the others.

**Table 2.**

**Differences in static water-level elevations among data wells (at different times).**

| Well Id. | Static elev. | 02-071 | 01-11024 | 03-01132 | 02-072 | 01-014 | W2534 |
|---|---|---|---|---|---|---|---|
| 01-11024 | 156 | 23 | | | | | |
| 03-01132 | 185 | -6 | -29 | | | | |
| 02-072 | 28 | **151** | **128** | **157** | | | |
| 01-014 | 154 | 25 | 2 | 31 | **-126** | | |
| W2534 | 206 | -27 | -56 | -21 | **-178** | 40 | |
| 03-01188 | 246 | -67 | -90 | -61 | **-218** | 0 | -40 |
| | Static elev. | 179 | 156 | 185 | 28 | 246 | 206 |

WATER LEVELS ARE INCORRECT DWR

All measurements in feet.

Elevation differences are relative to water elevations shown along the bottom of the chart.

Water elevation in well 02-072 differs from the average of the other six wells by about 160 feet. This difference in ground-water elevations is almost twice the maximum water-level difference among the other wells. A review of Table 2 suggests that water in well 02-072 is probably isolated from water in the other wells (bold values in Table 2) based on the disproportionate difference in water elevations between this well and the other wells (bold values in Table 2). The significant difference of the water-level elevation in well 02-072 from the other data wells corroborates the geologic mapping described above that indicates that this well is not located in the Laguna Seca Subarea. In addition, the driller's log of this well shows that the materials encountered during drilling below a depth of 180 feet coincide with Monterey formation rock,

which is exposed at ground surface or encountered at shallower depths on the south side of the Chupines fault than on the north side (Table 1).

Considering the topographic high on the south side of the fault, water in wells south of the fault would normally be expected to be higher than water in wells north of the fault (ground water tends to follow topography). However, the lower water level in well 02-072 belies that conclusion. Nevertheless, the description of shallow Monterey rock encountered in this well and the difference in water elevation between this well and others to the north strongly argues that the Chupinus fault, acting as a ground-water barrier, lies just north of this well.

To evaluate the location of the Primary Well (02-071) with respect to the Chupines fault, we constructed two scenario diagrams that include the seven data wells. Scenario One (Plate 3) is constructed showing the Primary Well (02-071) and other Wang property wells on the south side of the Chupines fault as would be the case if Geoconsultants' (1986) fault location is used. This scenario shows water levels in the Primary Well and wells 07-11024 and 03-01132 to be significantly different from the water level in well 02-072, which in this scenario are all on the same side of the Chupines fault. Scenario Two shows the well configurations if the fault is interpreted to be south of the Primary Well. Scenario Two shows water levels of the six wells north of the fault to be within a range of about 92 vertical feet and the water in the three wells near the center of the Wang property (02-071, 07-11024, and 03-01132) within a range of 29 feet, compared to water in well 02-072 that is 160 feet below the average of the other six wells.

### *1.5. Conclusions*

The observation that well 02-072 shows a significant difference in ground-water elevation compared to wells to the north provides persuasive evidence that: 1) the Chupines fault lies north of this well and 2) the fault acts as a ground-water barrier. Within limits of the available data, the analysis described herein appears to show that water levels in wells near the center of the Wang property (in wells 02-071, 07-11024, and 03-01132) are near the same elevations of water levels in the Laguna Seca Subarea as opposed to water in the well (02-072) that is interpreted to be south of the Chupines fault.

Based on the exploratory conclusions drawn above, we have constructed interpretative geologic cross sections A – A', B – B', and C – C' (Plates 4 and 5). These sections graphically show the

subsurface interpretation of geologic formations and structures, and ground-water conditions in the vicinity of the proposed Wang Subdivision. The cross sections show that the interpretation of the Chupines fault's location south of the Primary Well is geologically reasonable and that ground water in that well probably is derived at least partially from the Laguna Seca Subarea.

While we acknowledge that the line of evidence followed in this study is acutely limited by the absence of complete and up-to-date water-level data, there is persuasive evidence to suggest that the Primary Well, at least partially, draws from the Laguna Seca Subarea. Based on the evidence available, conducting a pumping test on the Primary Well on the Wang property most likely would be detected as observable drawdown in a nearby observation well conclusively located in the Laguna Seca Subarea.

## *1.6. Other Observations*

### *1.6.1 Potential Well Locations*

During the course of this brief study, we have had the opportunity to quickly review alternative well locations that would not draw water from the Laguna Seca Subarea but which, nevertheless, may provide sufficient water for the proposed development. In our opinion, consideration should be given to exploring other possible production-well locations on the property.

### *1.6.2 Possible Drawdown in an Observation Well*

In the event a pumping test is conducted to test connectivity of the Primary Well with the Laguna Seca Subarea, we estimated the possible drawdown that may occur in an observation well at selected distances from the Primary Well, assuming that both wells are located in the Laguna Seca Subarea. Transmissivity used in these estimates was calculated from the recovery curve from the Maggiora Brothers pumping test of the Primary Well conducted on 3/3/03. Assuming that the water drawn for the Primary Well is under un-confined conditions and that the pumping rate for the test will the 108 gpm, the following drawdown values are estimated for an observations wells placed 100 or 200 feet from the Primary Well.

**Table 3. Possible drawdown in observation well**

| Distance from pumping well | Pumping duration | | |
|---|---|---|---|
| | 12hr | 24hr | 72hr |
| 100ft | 0ft | ~2ft | ~12ft |
| 200ft | 0ft | 0ft | ~1ft |

Other assumptions used in the drawdown estimates in Table 3 well include that the water source for the Primary Well is homogeneous and no barrier conditions exist within the zone of pumping influence. Because the Primary Well may partially derive its water from Laguna Seca Subarea, the actual drawdown may be less than shown above. The distance the observation well is placed north of the Primary Well should be coordinated with the oversight agencies so that all agree that the well conclusively is located in the Laguna Seca Subarea.

### *1.7. Limitations*

Clark Geological offers a range of environmental, geotechnical, and hydrogeological services to suit the varying needs of our clients. Although risk can never be eliminated, more detailed and extensive investigations yield more information, which may help understand and manage the degree of risk. Re-measuring ground-water depths in the data wells all at one time (one day) could significantly reduce the uncertainty of the presence or absence of a ground-water barrier. Since such detailed services involve greater expense, our clients participate in determining the level of service that provides adequate information for their purposes at acceptable levels of risk. Clark Geological performs its services in a manner consistent with the standards of care and skill ordinarily exercised by members of the profession practicing under similar conditions in the geographic vicinity and at the time the services will be performed. Therefore, no warranty or guarantee, expressed or implied, is part of the services provided, nor does it create any fiduciary responsibility to our client.

### *1.8. Closure*

We thank you for the opportunity to conduct this study and look forward to working with you on this or other projects in the future. If you have any questions, please do not hesitate to contact us.

Respectfully submitted,

**CLARK GEOLOGICAL**

Michael Clark, C.Hg. 161
Project Hydrogeologist

Reviewed by

Joyce Lucas-Clark, PhD, P.G. 6418

Attachments:

References
Plate 1 Site Vicinity Map
Plate 2 Geologic Map
Plate 3 Fault Location Scenarios
Plate 4 Geologic Cross Sections A – A' and B - B'
Plate 5 Geologic Cross Sections C – C'

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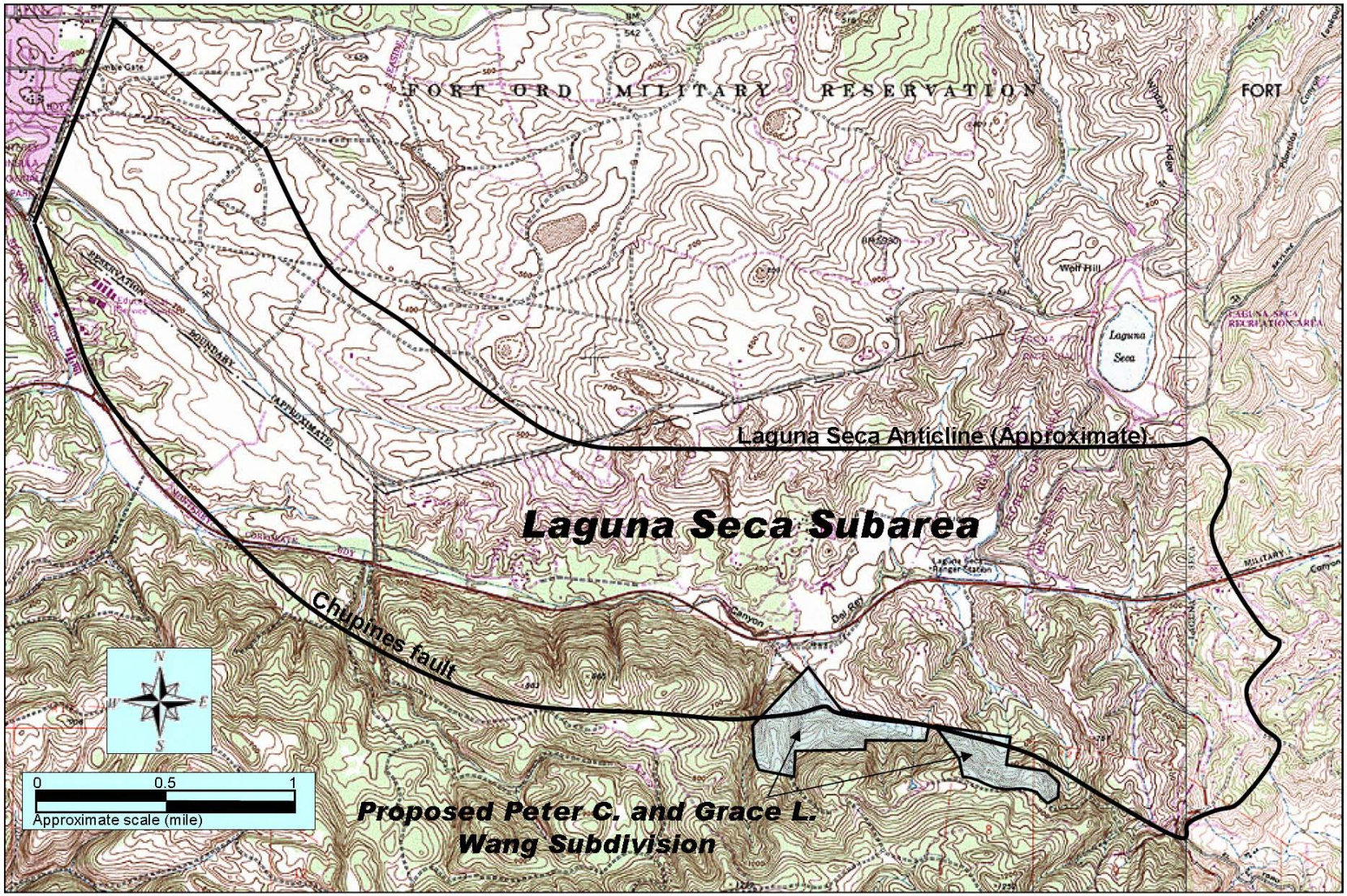


*Laguna Seca Subarea boundary based on Yeats and others, 2002*

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Project No.: L&G001-A
Date: April 22, 2009
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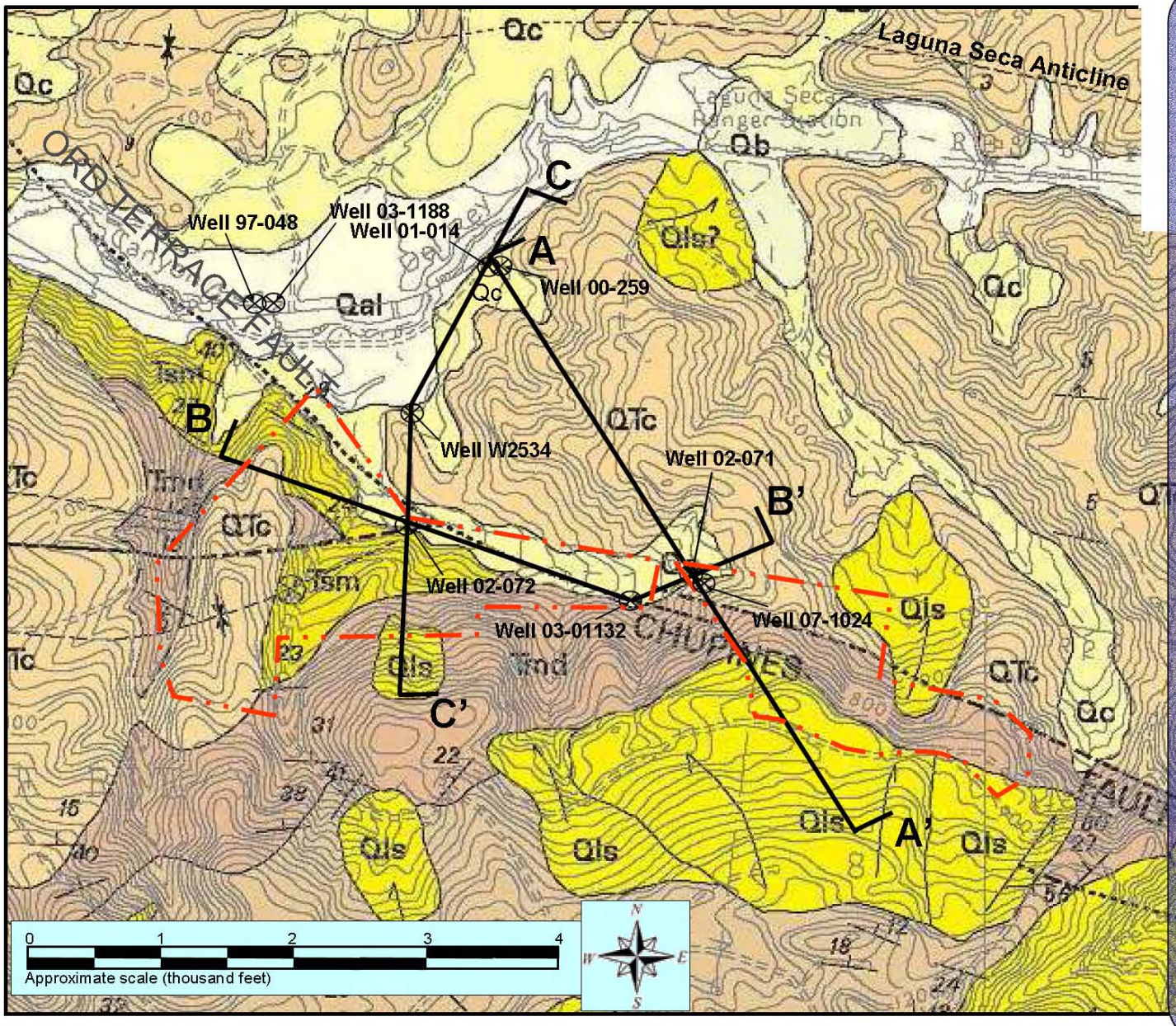
File Name:

Plate Title
Site Vicinity Map

Project Name
Wang Subdivision, Ground-Water Barrier Evaluation

Plate
1

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Qal Alluvium
Qc colluvium
Qls landslide
QTc Continental
Tsm Santa Margarita
Tmd Monterey dolomite
TM Monterey
Appx property ln.
Well
C'
Line of cross section

Map source: Clark and others, 1997

| No. | | Date |
|---|---|---|
| | | |

**Project Name**
Wang Subdivision Ground-Water Barrier Evaluation

**Plate Title**
Geologic Map

| | |
|---|---|
| Project No.: GEI007-A | Plate 2 |
| Date: April 22, 2009 | |
| Compiled by: AMC | |
| File Name: | |

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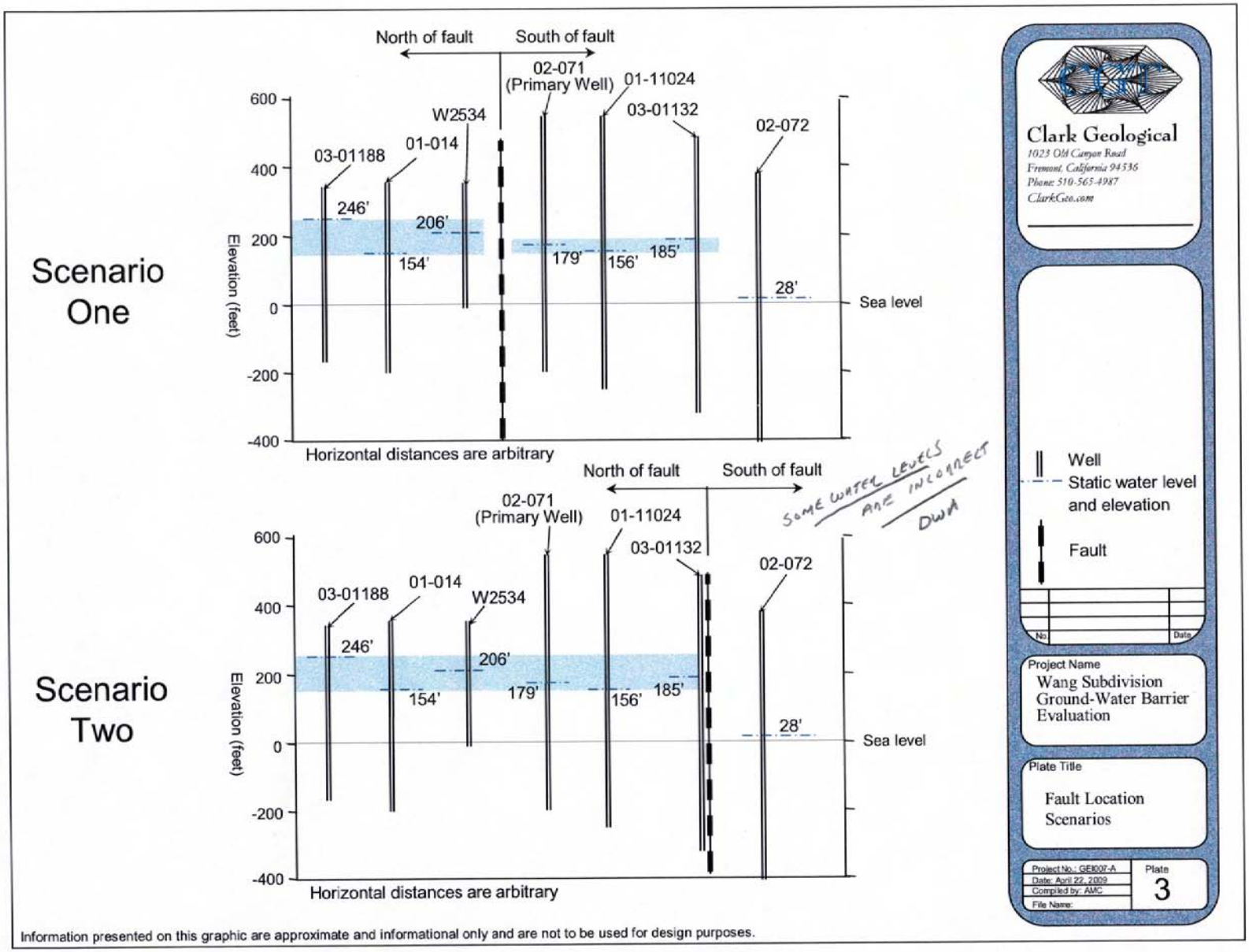
Scenario One
North of fault
South of fault
02-071 (Primary Well)
01-11024
03-01132
02-072
W2534
01-014
03-01188
246'
206'
154'
179'
156'
185'
28'
Sea level
Elevation (feet)
600
400
200
0
-200
-400
Horizontal distances are arbitrary
Scenario Two
North of fault
South of fault
SOME WATER LEVELS ARE INCORRECT DWR
02-071 (Primary Well)
01-11024
03-01132
02-072
03-01188
01-014
W2534
246'
206'
154'
179'
156'
185'
28'
Sea level
Elevation (feet)
600
400
200
0
-200
-400
Horizontal distances are arbitrary
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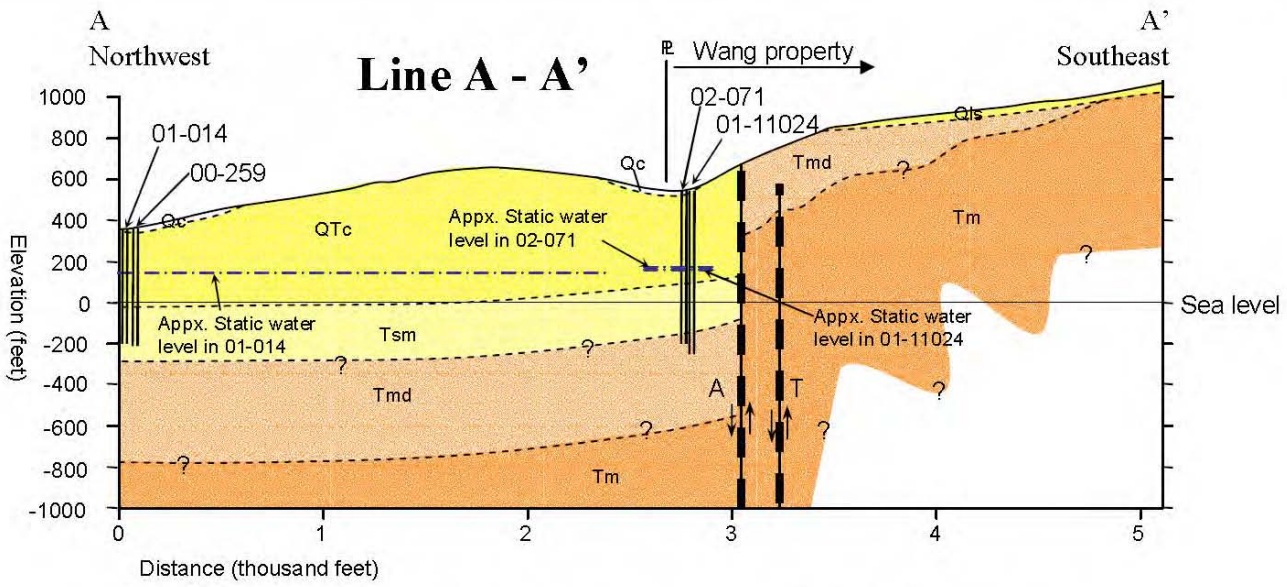
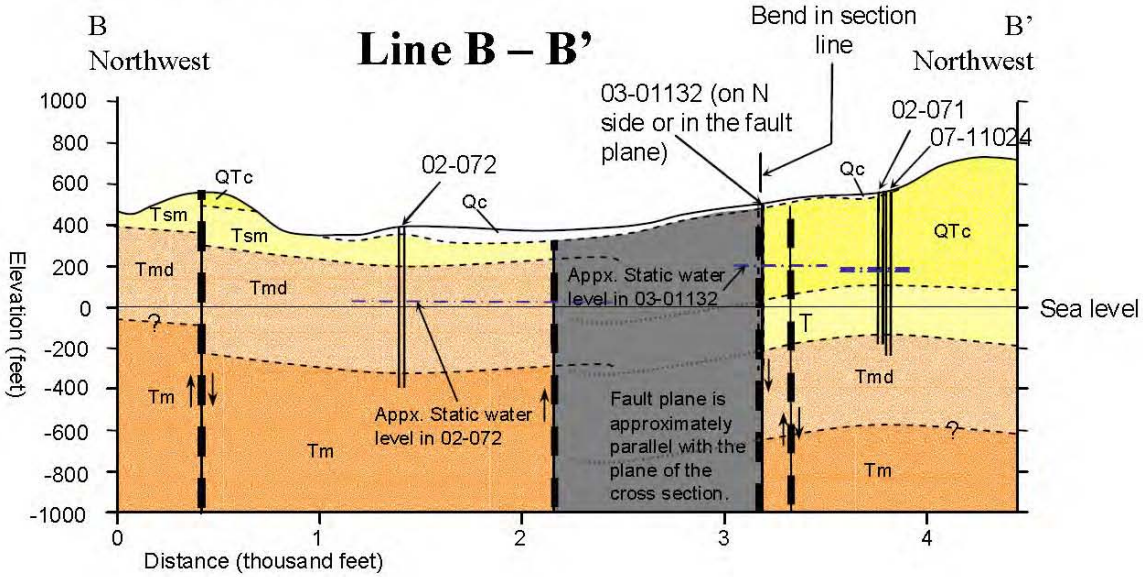
Well
Static water level and elevation
Fault
No.
Date
Project Name
Wang Subdivision Ground-Water Barrier Evaluation
Plate Title
Fault Location Scenarios
Project No.: GEI007-A
Date: April 22, 2009
Compiled by: AMC
File Name:
Plate
3
Information presented on this graphic are approximate and informational only and are not to be used for design purposes.

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Qls Landslide
Qc colluvium
Qls landslide
QTc Continental
Tsm Santa Margarita
Tmd Monterey dolomite
TM Monterey

All contacts are approximate and queried where uncertain.

Well
Water level
A Fault away
T Fault toward
PL Property line

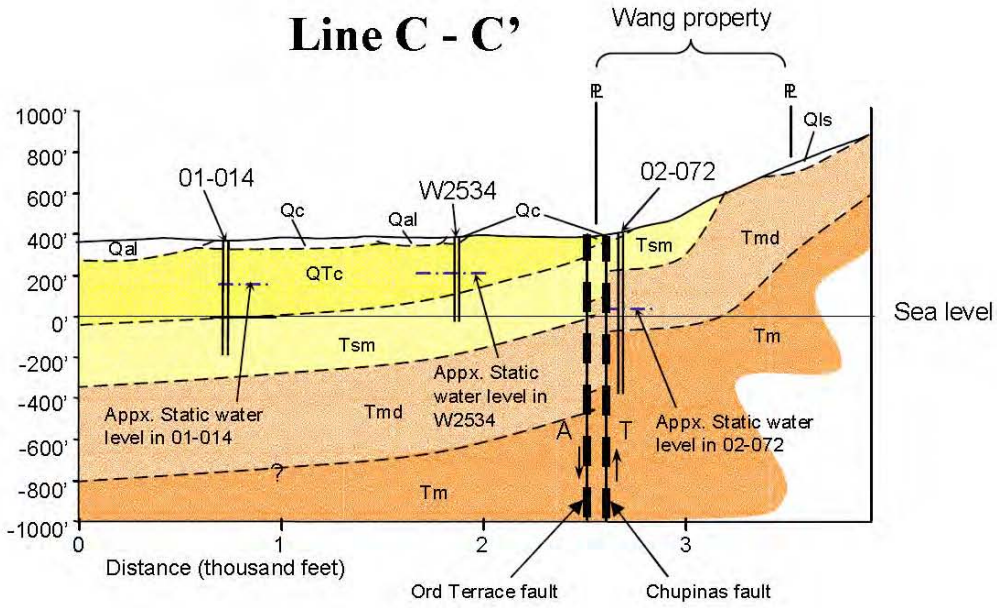
| No. | | Date |
|---|---|---|
| | | |

Project Name
Wang Subdivision Ground-Water Barrier Evaluation

Plate Title
Geologic Cross Sections
A–A' and B–B'

| | |
|---|---|
| Project No.: GEI007-A | Plate 4 |
| Date: April 22, 2009 | |
| Compiled by: AMC | |
| File Name: | |

# Line C - C'

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Qc colluvium
Qls landslide
QTc Continental
Tsm Santa Margarita
Tmd Monterey dolomite
TM Monterey

All contacts are approximate and queried where uncertain.

‖ Well
Water level
A Fault away
T Fault toward
PL Property line

| No. | | Date |
|---|---|---|
| | | |

Project Name
Wang Subdivision Ground-Water Barrier Evaluation

Plate Title
Geologic Cross Section C - C'

| | |
|---|---|
| Project No.: GEI007-A | Plate 5 |
| Date: April 22, 2009 | |
| Compiled by: AMC | |
| File Name: | |

## *SEASIDE BASIN WATER MASTER*
## *TECHNICAL ADVISORY COMMITTEE*

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

| | |
|---|---|
| **MEETING DATE:** | September 12, 2012 |
| **AGENDA ITEM:** | 4 |
| **AGENDA TITLE:** | Approve Scope of Work for FY 2013 Management and Monitoring Program (M&MP) and FY 2013 and 2014 M&MP Operations and Capital Budgets |
| **PREPARED BY:** | Robert Jaques, Technical Program Manager |

**SUMMARY:**

The Schedule calls for the TAC to approve the proposed Management and Monitoring Program (M&MP) Work Plan and Budgets at its September 2012 meeting. Attached are the proposed M&MP 2013 Work Plan, and the proposed M&MP Operations and Capital Budgets for 2013 and 2014. The Board has asked that two-year budgets be developed to alert the Board to any appreciable changes in scope and/or cost that the TAC anticipates in future years.

The M&MP 2013 Work Plan which is attached reflects revisions recommended by the TAC when it reviewed the Draft M&MP 2012 Work Plan at its August 8, 2012 meeting, as well as the following revisions that resulted from subsequent discussions with MPWMD and HydroMetrics representatives:

- Installation of additional dataloggers on certain wells under Task I.2.b.2
- Completing well retrofits and providing ongoing maintenance funding for the sample collection equipment under Task I.2.b.3
- Incorporating into the Watermaster's Database data from wells that were newly identified by the work performed in 2012 under Task I.3.d
- 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 as discussed at TAC meetings. This work is under Task I.4.b.

As shown in the attachments, the proposed 2013 M&MP Operations Budget is $1,560 higher than the 2012 Budget. This is in part due to the additional work added to the scope of the Work Plan this year, as described above, and to increases in hourly rates by both MPWMD and HydroMetrics.

MPWMD's hourly rates (with very minor exception) have not changed since 2007. MPWMD's new CFO has been updating rates for all MPWMD staff labor and revisions are being incorporated into MPWMD's updated Rules & Regulations, so MPWMD must apply those updated rates in all of its contract work. Even with the adjusted rates, they are well below the rates charged by consulting firms doing equivalent work in this area.

In my negotiations with MPWMD on their contracts for 2013, we were able to largely compensate for the increased hourly rates and the additional scope items by reducing, where possible, the time spent on various tasks compared to previous years' contracts with MPWMD.

The proposed 2013 budget also includes only modest cost increases for the work HydroMetrics performs.

| AGENDA ITEM: | 4 (Continued) |
|---|---|

I am not recommending that any new monitoring wells be installed in either 2013 or 2014. Consequently, it is proposed that no monies be budgeted in the M&MP Capital Budgets for either 2013 or 2014.

Following TAC approval of the Work Plan and Budgets, they will be forwarded to the Board for their approval at the Board's October 2012 meeting.

| | |
|---|---|
| **ATTACHMENTS:** | • Proposed 2013 M&MP Work Plan<br>• Proposed 2013 and 2014 M&MP Operations Budgets<br>• Proposed M&MP Capital Budgets for 2013 and 2014 |
| **RECOMMENDED ACTION:** | Approve, or make changes to, the attached Work Plan and Budgets, and recommend that the Board approve the 2013 Work Plan and 2013 Operations and Capital Budgets |

# Seaside Groundwater Basin Management and Monitoring Program
# FY 2013 Work Plan

The tasks outlined below are those that are anticipated to be performed during 2013. Some Tasks listed below are specific to 2013, while others Tasks recur throughout the program, such as data collection and database entry, and Program Administration Tasks.

Within the context of this document the term "Consultant" refers either to a firm providing professional engineering or other types of technical services, or to the Monterey Peninsula Water Management District (MPWMD). The term "Contractor" refers to a firm providing construction or field services such as well drilling, induction logging, or meter calibration.

## *M.1 Program Administration*

| | |
|---|---|
| **M. 1. a Project Budget and Controls ($0)** | Consultants will provide monthly or bimonthly invoices to the Watermaster for work performed under their contracts with the Watermaster. Consultants will perform maintenance of their internal budgets and schedules, and management of their subconsultants. The Watermaster will perform management of its Consultants. |
| **M. 1. b Assist with Board and TAC Agendas ($0)** | Watermaster staff will prepare Board and TAC meeting agenda materials. No assistance from Consultants is expected to be necessary to accomplish this Task. |
| **M. 1. c. & M. 1. d Preparation for and Attendance at Meetings ($5,500)** | The Consultants' work will require internal meetings and possibly meetings with outside governmental agencies and the public. For meetings with outside agencies, other Consultants, or any other parties which are necessary for the conduct of the work of their contracts, the Consultants will set up the meetings and prepare agendas and meeting minutes to facilitate the meetings. These may include planning and review meetings with Watermaster staff. The costs for these meetings will be included in their contracts, under the specific Tasks and/or subtasks to which the meetings relate. The only meeting costs that will be incurred under Tasks M.1.c and M.1.d will be:<br>• Those associated with attendance at TAC meetings (either in person or by teleconference connection), including providing written monthly progress reports to the Watermaster for inclusion in the agenda packets for the TAC meetings, when requested by the Watermaster to do so. These progress reports will typically include project progress that has been made, problem identification and resolution, and planned upcoming work. and<br>• From time-to-time when Watermaster staff asks Consultants to make special presentations to the Watermaster Board and/or the TAC, and which are not included in the Consultant's contracts for other tasks.<br><br>Appropriate Consultant representatives will attend TAC meetings when requested to do so by Watermaster Staff (either in person or by teleconference connection), but will not be asked to prepare agendas or meeting minutes. As necessary, Consultants may provide oral updates to their progress reports (prepared under Task M.1.d) at the TAC meetings. |
| **M. 1. e Peer Review of Documents and Reports ($3,100)** | When requested by the Watermaster staff, Consultants may be asked to assist the TAC and the Watermaster staff with peer reviews of documents and reports prepared by various other Watermaster Consultants and/or entities. |
| **M. 1. f QA/QC ($0)** | A Consultant (MPWMD) will provide general QA/QC support over the Seaside Basin Monitoring and Management Program. |

## *I. 2 Comprehensive Basin Production, Water Level and Water Quality Monitoring Program*

### I. 2. a. Database Management

| | |
|---|---|
| **I. 2. a. 1 Conduct Ongoing Data Entry and Database Maintenance/ Enhancement ($11,724)** | The database will be maintained by a Consultant (MPWMD) performing this work for the Watermaster. MPWMD will enter new data into the consolidated database, including water production volumes, water quality and water level data, and such other data as may be appropriate. Another Consultant will periodically post database information to the Watermaster's website, so it will be accessible to the public and other interested parties. No enhancements to the database are anticipated during 2013. |
| **I. 2. a. 2 Verify Accuracy of Production Well Meters ($0)** | To ensure that water production data is accurate, the well meters of the major producers were verified for accuracy during 2009. No additional work of this type is anticipated during 2013. |

### I. 2. b. Data Collection Program

| | |
|---|---|
| **I. 2. b. 1 Site Representation and Selection. ($0)** | The monitoring well network review that was started in 2008 has been completed, and sites have been identified where future monitoring well(s) could be installed, if it is deemed necessary to do so in order to fill in data gaps. No further work of this type is anticipated in 2013. |
| **I. 2. b. 2 Collect Monthly Manual Water Levels. ($7,076)** | Each of the monitoring wells will be visited on a monthly basis. Water levels will be determined by either taking manual water levels using an electric sounder, or by dataloggers. Pursuant to the Management and Monitoring Program approved by the Court in 2006, in 2013 wells at 2 additional sites in the Laguna Seca Subarea will be equipped with dataloggers taking measurements in two aquifers at each site. The cost included in this Task for equipping these additional wells is $2,400. Also included in the cost for this Task is the purchase of one replacement datalogger @ $500. |
| **I. 2. b. 3 Collect Quarterly Water Quality Samples. ($48,738)** | Water quality data will be collected quarterly from certain of the monitoring wells. In 2012 water quality analyses were expanded to include barium and iodide ions, to determine the potential benefit of performing these additional analyses. These two parameters have been useful in analyzing seawater intrusion potential in other vulnerable coastal groundwater basins, and are briefly mentioned in the Watermaster's annual Seawater Intrusion Analysis Reports. These parameters were added to the annual water quality sampling list for the four 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). Barium and iodide analyses will continue being performed in 2013.<br><br>Water quality data may come from water quality samples that are taken from these wells and submitted to a State Certified analytic laboratory for general mineral and physical suite of analyses, or the data may come from induction logging of these wells and/or other data gathering techniques. The Consultant selected to perform this work will make this judgment based on consideration of costs and other factors.<br><br>Under this Task in 2013 retrofitting will be completed on the wells that are sampled on an annual basis to use the new low-flow purge approach for getting water quality samples. The wells that are sampled quarterly have previously been retrofitted, and all except two of the wells that are sampled annually have been retrofitted. These two wells are FO-9 (Shallow) and FO-9 (Deep). The cost included in this Task to retrofit these two wells in 2013 is $1,500. |

| | |
|---|---|
| | This sampling equipment sits in the water column and may periodically need to be replaced or repaired. $500 is included in the cost of this Task for performing ongoing maintenance and/or replacement of the sample collection equipment. |
| **I. 2. b. 4 Update Program Schedule and Standard Operating Procedures. ($0)** | All recommendations from prior reviews of the data collection program have been implemented. No additional work of this type is anticipated in 2013. |
| **I. 2. b. 5. Monitor Well Construction ($0)** | An additional monitoring well was installed in 2009. No further work of this type is anticipated in 2013. |
| **I. 2. b.6 Reports ($5,448)** | The groundwater level and quality monitoring will be conducted on a monthly, quarterly, and annual basis, as described in the Consultant's Scope of Work. Reports summarizing data collected and analyzed will be submitted to the Watermaster on a schedule to be established during the year, and will consist of:<br>• One combined report summarizing the water production data and summarizing and analyzing the water quality and water level data from the 1st & 2nd Quarters of the Water Year.<br>• One annual report summarizing the water production data and summarizing and analyzing the water quality and water level data from the 3rd & 4th Quarters of the Water Year, and containing tables consolidating the data from the quarterly reports and a narrative summarization of the findings, conclusions, and recommendations from the quarterly reports. This annual report may include, as attachments, each of the quarterly reports. |
| | ***I. 3 Basin Management*** |
| **I. 3. a. Enhanced Seaside Basin Groundwater Model (Costs listed in subtasks below)** | The Watermaster and its consultants use a Groundwater Model for basin management purposes. |
| **I.3.a.1 Update the Existing Model ($0)** | The existing 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 (Tasks I.3.a.2 and I.3.a.3). No further work of this type is anticipated in 2013. |
| **I. 3. a. 2 Develop Protective Water Levels ($25,000)** | A series of cross-sectional models was created in 2009 in order to develop protective water levels for selected production wells, as well as for the Basin as a whole. This work is discussed in Hydrometrics' "Seaside Groundwater Basin Protective Water Elevations Technical Memorandum." In subsequent years further work was scheduled and budgeted to be done to refine these protective water levels to find the most cost-effective approach to provide the desired degree of protection. However, not all of the information needed to perform the refinements was available in those years, so this Task has been rescheduled to occur in 2013. |

| | |
|---|---|
| **I. 3. a. 3 Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions ($25,000)** | In 2009 the updated Model was used to evaluate different scenarios to determine such things as the most effective methods of using supplemental water sources to replenish the Basin and/or to assess the impacts of pumping redistribution. This work is described in HydroMetrics' "Seaside Groundwater Basin Groundwater Model Report." In 2010 HydroMetrics used the updated Model to develop answers to some questions associated with Basin management. If requested by the Watermaster additional work may be performed in 2013 to answer additional questions. |
| **I. 3. b. Complete Preparation of Basin Management Action Plan ($0)** | The Watermaster's Consultant completed preparation of the Basin Management Action Plan (BMAP) in February 2009. The BMAP serves as the Watermaster's long-term seawater intrusion prevention plan. The Sections that are included in the BMAP are:<br>Executive Summary<br>Section 1 – Background and Purpose<br>Section 2 – State of the Seaside Groundwater Basin<br>Section 3 – Supplemental Water Supplies<br>Section 4 –Groundwater Management Actions<br>Section 5 – Recommended Management Strategies<br>Section 6 – References<br>The only work which is anticipated to be performed on the BMAP in 2013 is discussed under Task I. 3. c. |
| **I. 3. c. Refine and/or Update the Basin Management Action Plan ($25,000)** | During 2013 it may be beneficial to update the BMAP based on new data, and/or knowledge that is gained from the work described under Tasks I. 3. a. 2 and/or I. 3. a. 3. Such work might involve issues pertaining to Basin storage capacity, water storage rights, or pumping redistribution strategies. This work has been scheduled and budgeted in several of the preceding years, but not all of the information needed to update the BMAP was available at those times. Therefore, the updating has been rescheduled to occur in 2013. This task is included primarily for budgeting purposes in the event such work is deemed necessary. |
| **I. 3. d. Evaluate Coastal Wells for Cross-Aquifer Contamination Potential ($4,700)** | If seawater intrusion were to reach any of the coastal wells in any aquifer, and if a well was constructed without proper seals to prevent cross-aquifer communication, or if deterioration of the well had compromised these seals, it would be possible for the intrusion to flow from one aquifer to another. An evaluation of this was completed in 2012 and is described in MPWMD's Memorandum titled "Summary of Seaside Groundwater Basin Cross-Aquifer Contamination Wells Investigation Process and Conclusions" dated August 8, 2012. This Memorandum did not recommend performing any further work on this matter at this time, other than to incorporate into the Watermaster's Database data from wells that were newly identified by the work performed in 2012. |
| ***I. 4 Seawater Intrusion Response Plan (formerly referred to as the Seawater Intrusion Contingency Plan)*** | |
| **I. 4. a. Oversight of Seawater Intrusion Detection and Tracking ($4,664)** | Consultants will provide general oversight over the Seawater Intrusion detection program. |
| **I. 4. b. Focused Hydrogeologic Evaluation ($7,520)** | A Consultant will compile 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 as discussed at TAC meetings. The results of this work will be summarized in a brief Technical Memorandum with conclusions and recommendations. |

| | |
|---|---|
| **I. 4. c.**<br>**Annual Report- Seawater Intrusion Analysis ($25,750)** | At the end of each water year, a Consultant will reanalyze all water quality data. Semi-annual chloride concentration maps will be produced for each aquifer in the basin. Time series graphs, trilinear graphs, and stiff diagram comparisons will be updated with new data. The annual EM logs will be analyzed to identify changes in seawater wedge locations. All analyses will be incorporated into an annual report that follows the format of the initial, historical data report. Potential seawater intrusion will be highlighted in the report, and if necessary, recommendations will be included. The annual report will be submitted for review by the TAC and the Board. Modifications to the report will be incorporated based on input from these bodies, as well as Watermaster staff. |
| **I. 4. d**<br>**Complete Preparation of Seawater Intrusion Response Plan ($0)** | The Watermaster's Consultant (HydroMetrics) completed preparation of the long-tem Seawater Intrusion Response Plans (SIRP) in February 2009. The Sections that are included in the SIRP are:<br>Section 1 – Background and Purpose<br>Section 2 – Consistency with Other Documents<br>Section 3 – Seawater Intrusion Indicators and Triggers<br>Section 4 –Seawater Intrusion Contingency Actions<br>Section 5 - References<br>No further work on the SIRP is anticipated in 2013. |
| **I. 4. e.**<br>**Refine and/or Update the Seawater Intrusion Response Plan ($0)** | At the beginning of 2009 it was thought that it might be beneficial or necessary to perform work to refine the SIRP and/or to update it based on new data or knowledge that was gained subsequent to the preparation of the SIRP. However, this did not prove to be necessary, and no further work of this type is anticipated in 2013. |
| **I. 4. f.**<br>**If Seawater Intrusion is Determined to be Occurring, Implement Contingency Response Plan ($0)** | The SIRP will be implemented if seawater intrusion, as defined in the Plan, is determined by the Watermaster to be occurring. |

| Management and Monitoring Plan Operations Budget For Tasks to be Undertaken in 2013 | | | | | | | | Comparative Costs from 2012 Budget |
|---|---|---|---|---|---|---|---|---|
| Task | Subtask | Sub-Subtask | Cost Description | CONSULTANTS & CONTRACTORS[3] | | | Total | |
| | | | | MPWMD | Private Consultants | Contractors | | |
| **Labor** | | | | | | | | |
| | | | Technical Project Manager | $0 | $60,000 | $0 | $60,000 | $60,000 |
| **M.1 Program Administration** | | | | | | | | |
| | M.1.a | | Project Budget and Controls | $0 | $0 | $0 | $0 | $0 |
| | M.1.b | | Assist with Board and TAC Agendas | $0 | $0 | $0 | $0 | $0 |
| | M.1.c & M.1.d | | Preparation for and Attendance at Meetings[8] | $0 | $5,500 | $0 | $5,500 | $5,150 |
| | M.1.e | | Peer Review of Documents and Reports[8] | $0 | $3,100 | $0 | $3,100 | $3,100 |
| | M.1.f | | QA/QC | $0 | $0 | $0 | $0 | $0 |
| **I.1 Initial Phase 1 Monitoring Well Construction (Task Completed in Phase 1)** | | | | | | | | |
| **I.2 Production, Water Level and Quality Monitoring** | | | | | | | | |
| | I. 2. a. | | Database Management | | | | | |
| | | I. 2. a. 1. | Conduct Ongoing Data Entry/ Database Maintenance/Enhancement | $9,324 | $2,400 | $0 | $11,724 | $12,300 |
| | | I. 2. a. 2. | Verify Accuracy of Production Well Meters | $0 | $0 | $0 | $0 | $0 |
| | I. 2. b. | | Data Collection Program | | | | | |
| | | I. 2. b. 1. | Site Representation and Selection[7] | $0 | $0 | $0 | $0 | $0 |
| | | I. 2. b. 2. | Collect Monthly Water Levels[6] | $7,076 | $0 | $0 | $7,076 | $3,450 |
| | | I. 2. b. 3. | Collect Quarterly Water Quality Samples[1][5][6] | $33,238 | $0 | $15,500 | $48,738 | $55,520 |
| | | I. 2. b. 4. | Update Program Schedule and Standard Operating Procedures. | $0 | $0 | $0 | $0 | $0 |
| | | I. 2. b. 5. | Monitor Well Construction[7] | $0 | $0 | $0 | $0 | $0 |
| | | I. 2. b. 6. | Reports | $3,948 | $1,500 | $0 | $5,448 | $6,900 |
| **I.3 Basin Management** | | | | | | | | |
| | I. 3. a. | | Enhanced Seaside Basin Groundwater Model | (Costs Shown in Subtasks Below) | | | | |
| | | I. 3. a. 1 | Update the Existing Model | $0 | $0 | $0 | $0 | $0 |
| | | I. 3. a. 2 | Develop Protective Water Levels [11] | $0 | $25,000 | $0 | $25,000 | $25,000 |
| | | I. 3. a. 3 | Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions[11] | $0 | $25,000 | $0 | $25,000 | $25,000 |
| | I. 3. b. | | Complete Preparation of Basin Management Action Plan | $0 | $0 | $0 | $0 | $0 |
| | I. 3. c. | | Refine and/or Update the Basin Management Action Plan [11] | $0 | $25,000 | $0 | $25,000 | $25,000 |
| | I. 3. d | | Evaluate Coastal Wells for Cross-Aquifer Contamination Potential | $4,700 | $0 | $0 | $4,700 | $5,000 |
| **I.4 Seawater Intrusion Contingency Plan** | | | | | | | | |
| | I. 4. a. | | Oversight of Seawater Intrusion Detection and Tracking | $2,664 | $2,000 | $0 | $4,664 | $5,750 |
| | I. 4. b. | | Provide focused area hydrogeologic investigation for Sand City Public Works | $7,520 | $0 | $0 | $7,520 | $0 |
| | I. 4. c. | | Annual Report- Seawater Intrusion Analysis | $0 | $25,750 | $0 | $25,750 | $25,750 |
| | I. 4. d. | | Complete Preparation of Seawater Intrusion Response Plan[2] | $0 | $0 | $0 | $0 | $0 |
| | I. 4. e. | | Refine and/or Update the Seawater Intrusion Response Plan[2][9] | $0 | $0 | $0 | $0 | $0 |
| | I. 4. f. | | If Seawater Intrusion is Determined to be Occurring, Implement Contingency Response Plan[2] | (No Costs are Included for This Task, as This Task Will Likely Not be Necessary During 2013. If it Does Become Necessary, Use of Contingency Funds or a Budget Modification Will Likely be Necessary) | | | | |
| **TOTALS CONSULTANTS & CONTRACTORS** | | | | **$68,470** | **$175,250** | **$15,500** | | |
| SUBTOTAL not including Technical Program Manager = | | | | | | | $199,220 | $197,920 |
| Contingency (not including Technical Program Manager) @ 20%[4] = | | | | | | | $39,844 | $39,584 |
| Technical Program Manager = | | | | | | | $60,000 | $60,000 |
| **TOTAL=** | | | | | | | **$299,064** | $297,504 |

**Footnotes:**

(1) An outside contractor would be used to perform the induction logging, and potentially to also collect some water quality samples in conjunction with doing the induction logging. MPWMD is expected to perform portions of the work of this Subtask, and will be the party that subcontracts with the Contractor to perform the induction logging and sample collection work on certain of the wells.

(2) The response plan would only be implemented in the event sea water intrusion is determined to be occurring.

(3) Within the context of this document the term "Consultant" refers either to a Private Consultant providing professional engineering or other types of technical services, or to the Monterey Peninsula Water Management District (MPWMD). The term "Contractor" refers to a firm providing construction or field services such as well drilling, induction logging, or meter calibration.

(4) Due to the uncertainties of the exact scopes of some of the Tasks listed above at the time of preparation of this Budget, e.g. Tasks I.3.a, I.3.c, and I.3.d, it is recommended that a 20% Contingency be included in the Budget.

(5) Includes $1,500 in well site retrofitting costs to make some of these wells available for use as monitoring wells, as well as $500 to maintain equipment previously installed for this purpose. Also includes lab costs to analyze for barium and iodide ions in certain of these wells as was done in 2012.

(6) Does not include costs for MPWMD to collect water level data or water quality samples from wells other than those that are part of the basic monitoring well network, i.e. for private well owners who have requested that the Watermaster obtain this data for them. Costs to obtain that data are to be reimbursed to the Watermaster by those well owners, so there should be no net cost to the Watermaster for that portion of the work under these Tasks.

(7) No additional monitoring well is expected to be constructed in 2013.

(8) For HydroMetrics to provide hydrogeologic consulting assistance to the Watermaster, beyond that associated with performing other Tasks, when requested to do so by the Technical Program Manager.

(9) If work under this Task is found to be necessary, it will be funded through the Contingency line item in this Budget.

(10) Does not include funds for Database enhancement, as it is assumed that all desired enhancements have already been made.

(11) If necessary to reflect knowledge gained from modeling work or other data sources. Provides funds for work originally budgeted in prior years, but which has been rescheduled to 2013.

# Management and Monitoring Plan Operations Budget
## For Tasks to be Undertaken in 2014[12]

| Task | Subtask | Sub-Subtask | Cost Description | CONSULTANTS & CONTRACTORS[3] | | | Total |
|---|---|---|---|---|---|---|---|
| | | | | MPWMD | Private Consultants | Contractors | |
| **Labor** | | | | | | | |
| | | | Technical Project Manager | $0 | $60,000 | $0 | $60,000 |
| **M.1 Program Administration** | | | | | | | |
| | M.1.a | | Project Budget and Controls | $0 | $0 | $0 | $0 |
| | M.1.b | | Assist with Board and TAC Agendas | $0 | $0 | $0 | $0 |
| | M.1.c & M.1.d | | Preparation for and Attendance of at Meetings[8] | $0 | $5,665 | $0 | $5,665 |
| | M.1.e | | Peer Review of Documents and Reports[8] | $0 | $3,193 | $0 | $3,193 |
| | M.1.f | | QA/QC | $0 | $0 | $0 | $0 |
| **I.1 Initial Phase 1 Monitoring Well Construction (Task Completed in Phase 1)** | | | | | | | |
| **I.2 Production, Water Level and Quality Monitoring** | | | | | | | |
| | I. 2. a. | | Database Management | | | | |
| | | I. 2. a. 1. | Conduct Ongoing Data Entry/ Database Maintenance/Enhancement | $9,604 | $2,472 | $0 | $12,076 |
| | | I. 2. a. 2. | Verify Accuracy of Production Well Meters | $0 | $0 | $0 | $0 |
| | I. 2. b. | | Data Collection Program | | | | |
| | | I. 2. b. 1. | Site Representation and Selection[7] | $0 | $0 | $0 | $0 |
| | | I. 2. b. 2. | Collect Monthly Water Levels[6] | $7,288 | $0 | $0 | $7,288 |
| | | I. 2. b. 3. | Collect Quarterly Water Quality Samples[1][5][6] | $32,690 | $0 | $15,965 | $48,655 |
| | | I. 2. b. 4. | Update Program Schedule and Standard Operating Procedures. | $0 | $0 | $0 | $0 |
| | | I. 2. b. 5. | Monitor Well Construction[7] | $0 | $0 | $0 | $0 |
| | | I. 2. b. 6. | Reports | $4,066 | $1,545 | $0 | $5,611 |
| **I.3 Basin Management** | | | | | | | |
| | I. 3. a. | | Enhanced Seaside Basin Groundwater Model | (Costs Shown in Subtasks Below) | | | |
| | | I. 3. a. 1 | Update the Existing Model | $0 | $0 | $0 | $0 |
| | | I. 3. a. 2 | Develop Protective Water Levels[13] | $0 | $25,000 | $0 | $25,000 |
| | | I. 3. a. 3 | Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions[13] | $0 | $25,000 | $0 | $25,000 |
| | I. 3. b. | | Complete Preparation of Basin Management Action Plan | $0 | $0 | $0 | $0 |
| | I. 3. c. | | Refine and/or Update the Basin Management Action Plan [11][13] | $0 | $25,000 | $0 | $25,000 |
| | I. 3. d | | Evaluate Coastal Wells for Cross-Aquifer Contamination Potential[14] | $0 | $0 | $0 | $0 |
| **I.4 Seawater Intrusion Contingency Plan** | | | | | | | |
| | I. 4. a. | | Oversight of Seawater Intrusion Detection and Tracking | $2,744 | $2,060 | $0 | $4,804 |
| | I. 4. b. | | Analyze and Map Water Quality from Coastal Monitoring Wells | (Costs Included Under I.4.a) | | | |
| | I. 4. c. | | Annual Report- Seawater Intrusion Analysis | $0 | $26,523 | $0 | $26,523 |
| | I. 4. d. | | Complete Preparation of Seawater Intrusion Response Plan[2] | $0 | $0 | $0 | $0 |
| | I. 4. e. | | Refine and/or Update the Seawater Intrusion Response Plan[2][9] | $0 | $0 | $0 | $0 |
| | I. 4. f. | | If Seawater Intrusion is Determined to be Occurring, Implement Contingency Response Plan[2] | (No Costs are Included for This Task, as This Task Will Likely Not be Necessary During 2014. If it Does Become Necessary, Use of Contingency Funds or a Budget Modification Will Likely be Necessary) | | | |
| | | | **TOTALS CONSULTANTS & CONTRACTORS** | **$56,393** | **$176,458** | **$15,965** | |
| | | | | | | SUBTOTAL not including Technical Program Manager = | $188,815 |
| | | | | | | Contingency (not including Technical Program Manager) @ 20%[4]= | $37,763 |
| | | | | | | Technical Program Manager | $60,000 |
| | | | | | | **TOTAL=** | **$286,578** |

**Footnotes:**

(1) An outside contractor would be used to perform the induction logging, and potentially to also collect some water quality samples in conjunction with doing the induction logging. MPWMD is expected to perform portions of the work of this Subtask, and will be the party that subcontracts with the Contractor to perform the induction logging and sample collection work on certain of the wells.

(2) The response plan would only be implemented in the event sea water intrusion is determined to be occurring.

(3) Within the context of this document the term "Consultant" refers either to a Private Consultant providing professional engineering or other types of technical services, or to the Monterey Peninsula Water Management District (MPWMD). The term "Contractor" refers to a firm providing construction or field services such as well drilling, induction logging, or meter calibration.

(4) Due to the uncertainties of the exact scopes of some of the Tasks listed above at the time of preparation of this Budget, e.g. Tasks I.3.a, I.3.c, and I.3.d, it is recommended that a 20% Contingency be included in the Budget.

(5) A portion of this cost is for maintaining sampling equipment that was installed in prior years.

(6) Does not include costs for MPWMD to collect water level data or water quality samples from wells other than those that are part of the basic monitoring well network, i.e. for private well owners who have requested that the Watermaster obtain this data for them. Costs to obtain that data are to be reimbursed to the Watermaster by those well owners, so there should be no net cost to the Watermaster for that portion of the work under these Tasks.

(7) No additional monitoring well is expected to be constructed in 2014.

(8) For HydroMetrics to provide hydrogeologic consulting assistance to the Watermaster, beyond that associated with performing other specified Tasks, when requested to do so by the Technical Program Manager.

(9) If work under this Task is found to be necessary, it will be funded through the Contingency line item in this Budget.

(10) Does not include funds for Database enhancement, as it is assumed that all desired enhancements have already been made.

(11) If necessary to reflect knowledge gained from modeling work or other data sources.

(12) Includes a 3% inflation factor on most 2013 Budget costs, except the Technical Program Manager cost which has no inflation factor applied to it.

(13) Costs included for these Tasks would only be incurred if the Board determined to defer this work from 2013 to 2014, or determined to perform additional work beyond that performed in 2013.

(14) No further work on this Task is anticipated in 2014.

## Management and Monitoring Plan Capital Budget For Tasks to be Undertaken in 2013

**No Capital projects are anticipated to be undertaken in 2013, so this budget is $0.**

## Management and Monitoring Plan Capital Budget For Tasks to be Undertaken in 2014

**No Capital projects are anticipated to be undertaken in 2014, so this budget is $0.**

## *SEASIDE BASIN WATER MASTER*
## *TECHNICAL ADVISORY COMMITTEE*

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

| | |
|---|---|
| **MEETING DATE:** | September 12, 2012 |
| **AGENDA ITEM:** | 5 |
| **AGENDA TITLE:** | Presentation of Findings from Groundwater Modeling by HydroMetrics |
| **PREPARED BY:** | Robert Jaques, Technical Program Manager |

**SUMMARY:**

Derrik Williams and Georgina King of HydroMetrics have recently completed performing the groundwater modeling requested by the Watermaster. The results of this modeling work are intended for the use of the Board in determining whether or not to request the Court to allow a temporary suspension of the 10% triennial pumping reductions required under the Adjudication Decision.

Because of the tight schedule imposed on HydroMetrics for the performance of this work, Mr. Williams will be making only an oral presentation, supported with PowerPoint slides, on the findings of the work at today's TAC meeting. Attached is Mr. Williams' preliminary report on the results of the modeling. He will have more graphics and more information available at today's meeting.

The TAC is encouraged to raise any questions it would like Mr. Williams to answer at today's meeting, so that those issues can be addressed in the Final Report.

HydroMetrics' Final Report on the work is expected to be received by the Watermaster later in September, and will be emailed to all TAC members at that time.

The Final Report, along with the TAC's recommendations from today's meeting, is expected to go to the Board for its consideration at its October 3, 2012 regular meeting.

| | |
|---|---|
| **ATTACHMENTS:** | Preliminary Results from Modeling Temporary Pumping Rollback |
| **RECOMMENDED ACTION:** | Provide the TAC's recommendations on this matter to the Board |

# Preliminary Results from Modeling Temporary Pumping Rollback

HydroMetrics WRI used the Seaside Groundwater Basin model to simulate both a revised baseline and a new project simulation. The new project includes rolling back some pumping in the basin to Pre-2011 levels between Water Year 2013 and Water Year 2017. In discussions with TAC members, we realized various members of the TAC may still have differing opinions on the assumptions included in the baseline and project simulations. Therefore, in an attempt to ensure that the TAC has the information it needs to provide the Board of Directors in a timely fashion, we have simulated two different baselines and two different project simulations. We have named these two sets of simulations the TAC simulations and the Cal-Am simulations. We will discuss the differences between the simulations at the September 12 TAC meeting.

We have attached example hydrographs from key wells for both sets of simulations. Each hydrograph shows simulated water levels for three simulations: the original 2009 baseline simulation; the new 2012 baseline simulation; and the 2012 project simulation. Although the two sets of simulations have different assumptions, the general water level pattern is similar in both simulation sets.

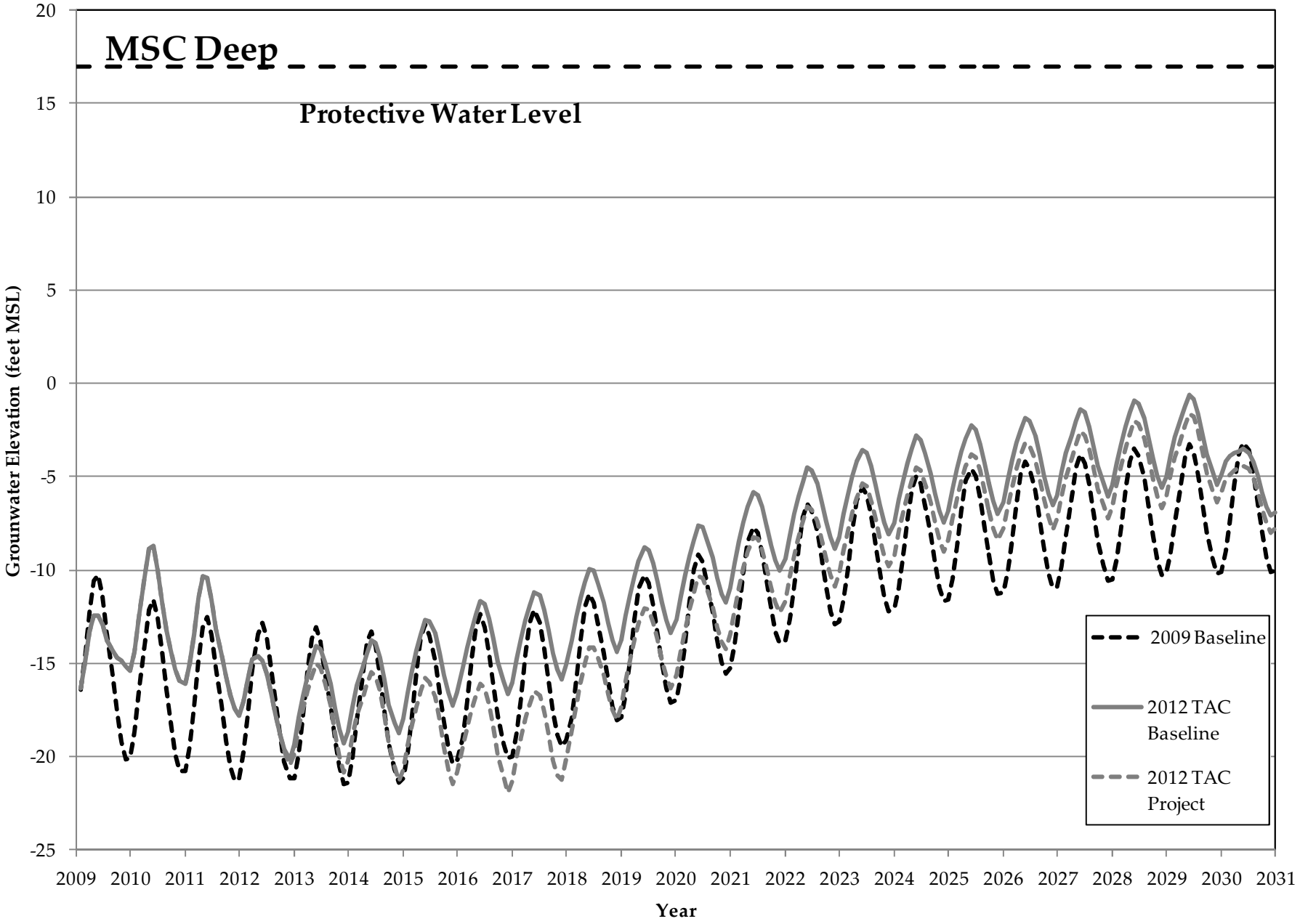
Differences between the 2009 baseline and the 2012 baseline are due to a number of factors. Although there are many factors that changed between the 2009 and 2012 baseline simulations, a few example factors include:

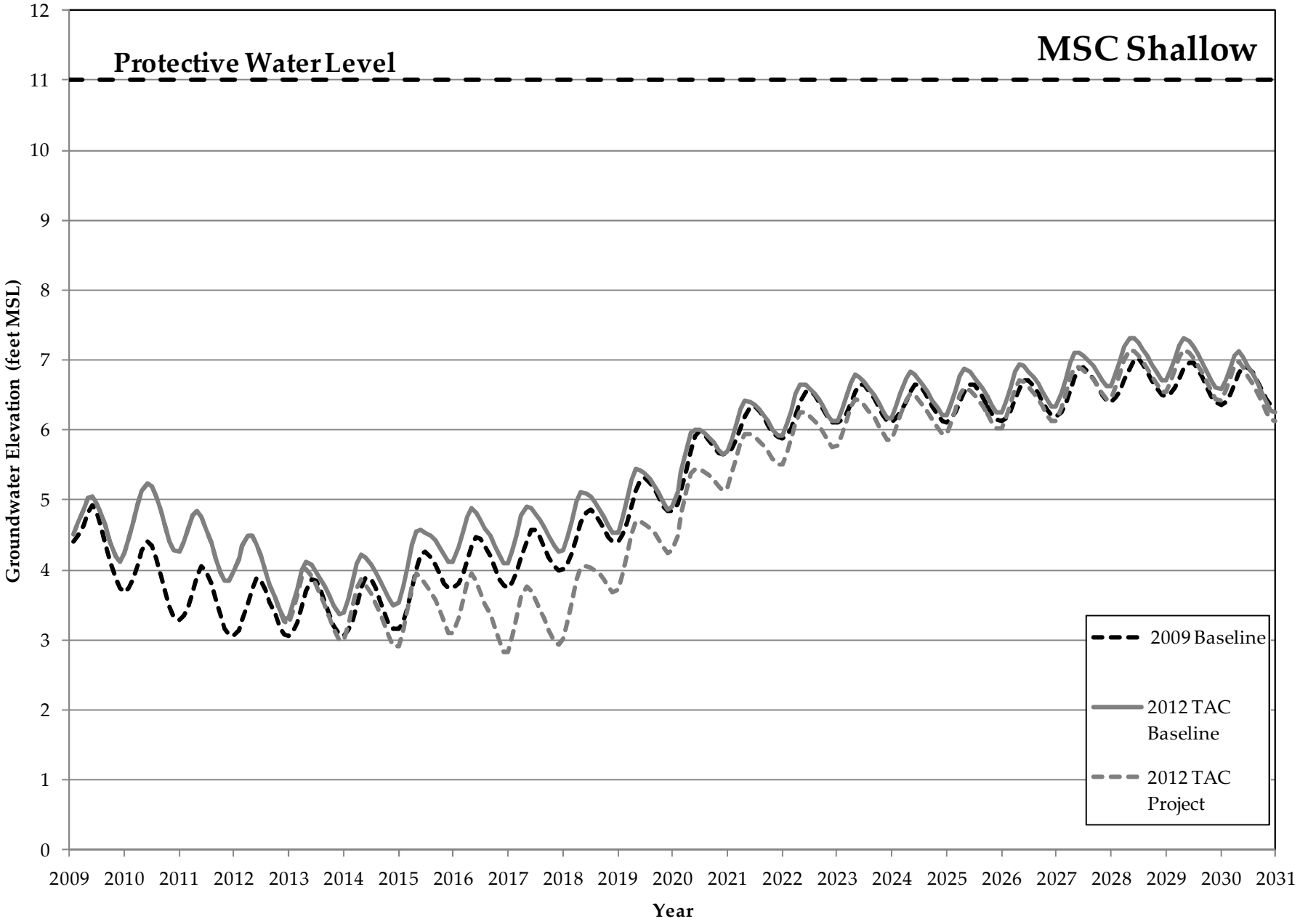
- The first three years of the 2012 simulations include actual pumping, rather than the assumed maximum pumping that was incorporated into the 2009 baseline.
- After 2012, there is more ASR injection in the 2012 simulations (1,500 acre-feet per year), than was in the 2009 simulations (960 acre-feet per year).
- Golf courses pump less in the 2012 simulation due to assumed conservation practices.
- Based on recent pumping practices, Cal-Am transfers more pumping to the Laguna Seca area in the 2012 simulations than in the 2009 baseline simulation.

Differences between the 2012 baseline and 2012 project simulations are more informative. In both sets of simulations, the baseline and project water levels diverge after 2012 due to the assumed rollback to pre-2011 pumping. After 2017, the rollback ends, and 2012 project water levels slowly converge towards the 2012 baseline water levels. At the end of both simulations, the water levels in the 2012 baseline and project simulations are very similar: generally separated by a foot or less. As expected, the most significant difference between the 2012 baseline simulation and the 2012 project simulation is observed at the end of Water Year 2017. There appears to be little difference between the 2012 baseline simulations and the 2012 project simulations by 2031, although the difference can be measured.

We will discuss these model results, as well as other model results regarding groundwater gradients, at the September 12 TAC meeting.

# 2012 TAC Baseline and Project Simulations


MSC Deep
Protective Water Level
Grounwater Elevation (feet MSL)
20
15
10
5
0
-5
-10
-15
-20
-25
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
Year
2009 Baseline
2012 TAC Baseline
2012 TAC Project


MSC Shallow
Protective Water Level
Groundwater Elevation (feet MSL)
Year
2009 Baseline
2012 TAC Baseline
2012 TAC Project
0
1
2
3
4
5
6
7
8
9
10
11
12
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
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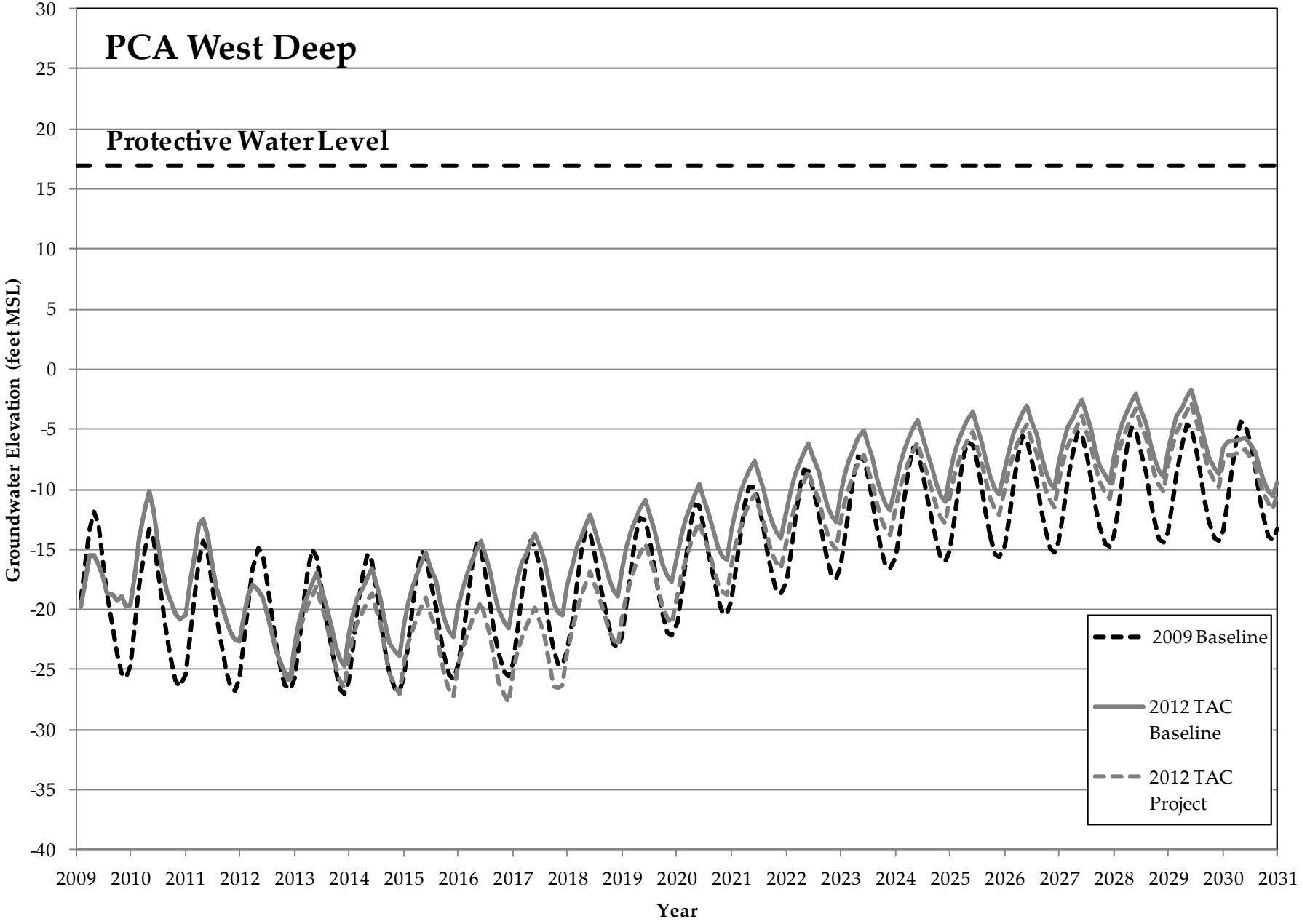
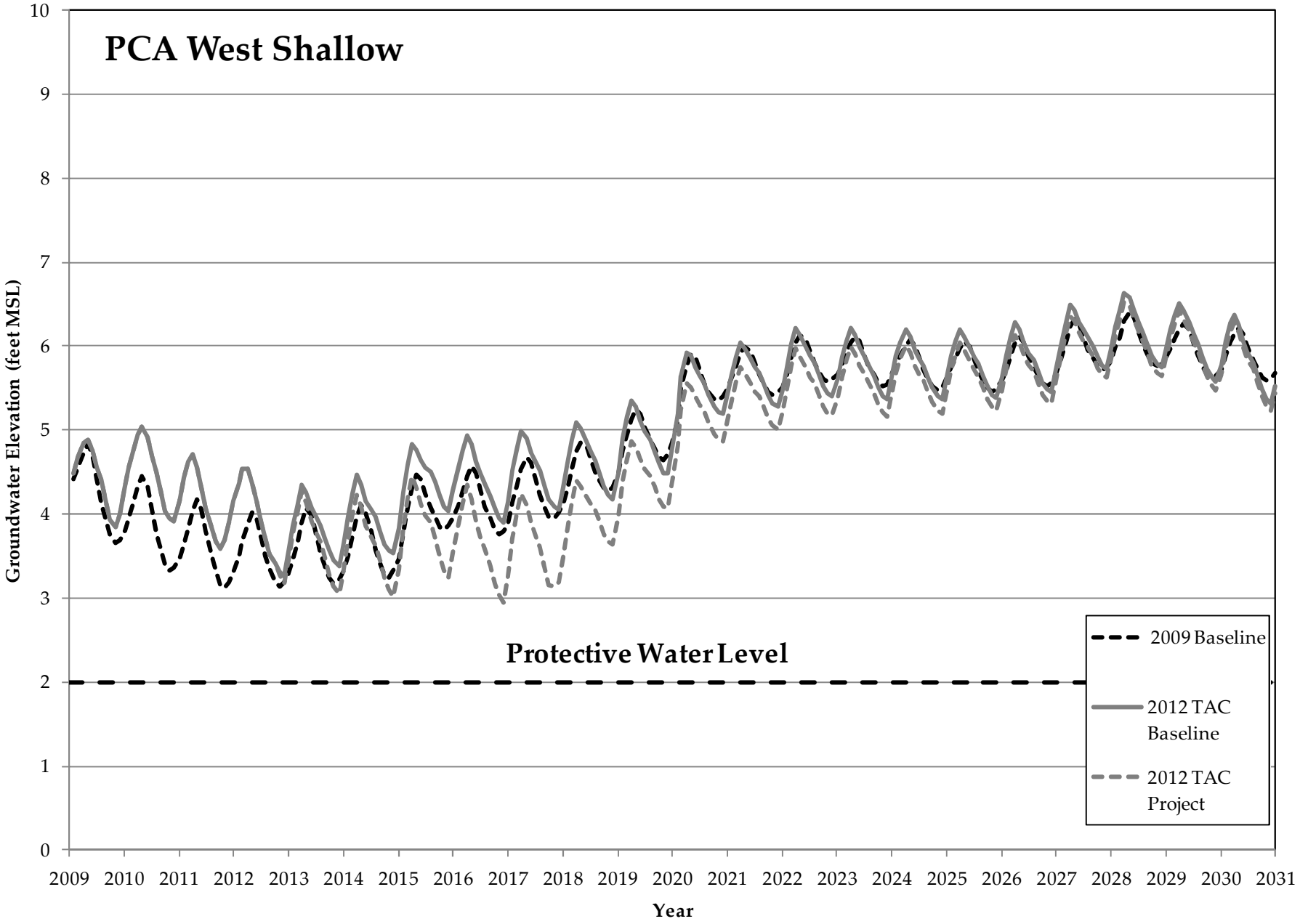
2028
2029
2030
2031


PCA West Deep
Protective Water Level
Groundwater Elevation (feet MSL)
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
-40
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
Year
2009 Baseline
2012 TAC Baseline
2012 TAC Project


PCA West Shallow
Groundwater Elevation (feet MSL)
Year
Protective Water Level
2009 Baseline
2012 TAC Baseline
2012 TAC Project
0
1
2
3
4
5
6
7
8
9
10
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
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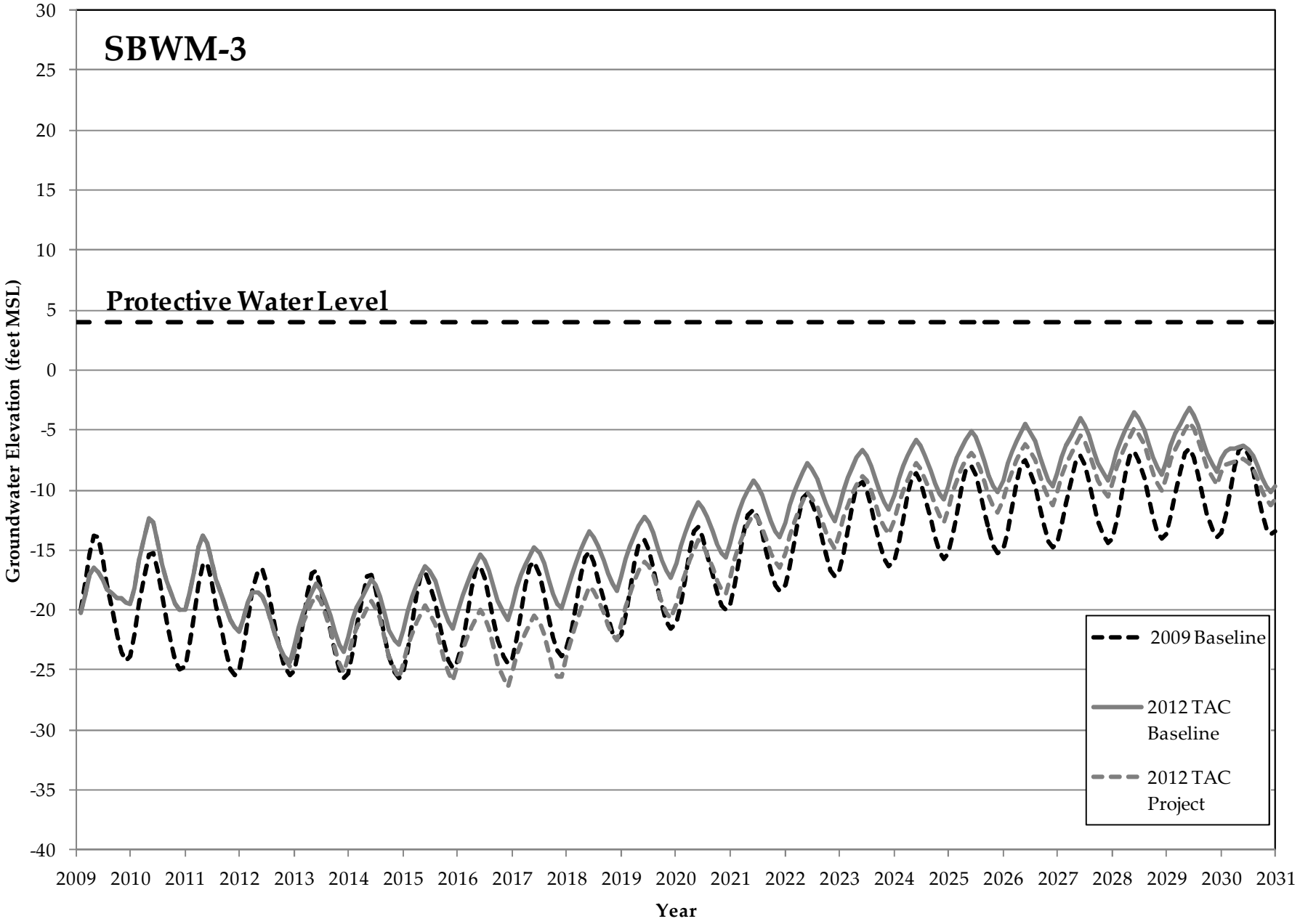
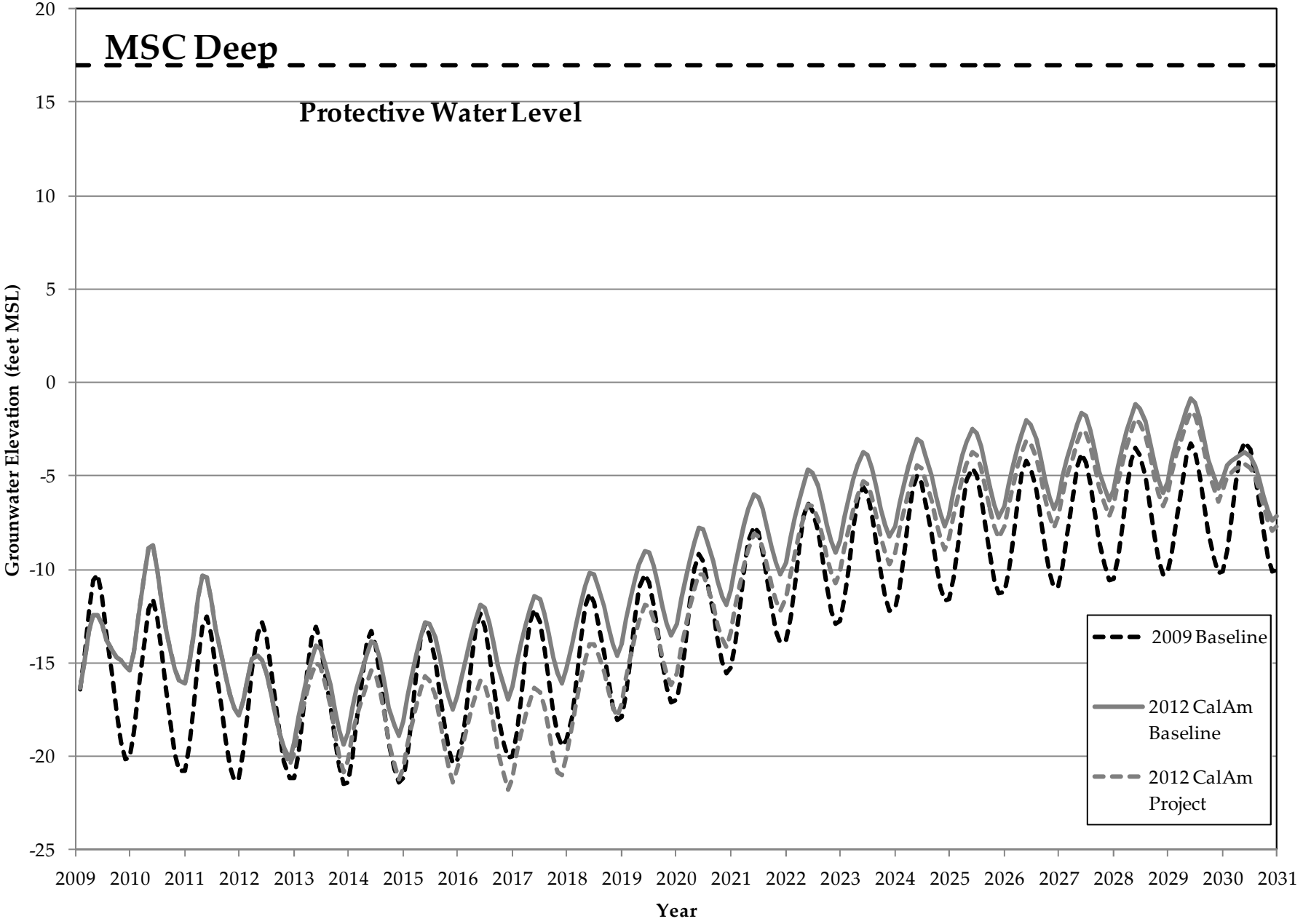
2026
2027
2028
2029
2030
2031


SBWM-3
Protective Water Level
Groundwater Elevation (feet MSL)
Year
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
-40
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2009 Baseline
2012 TAC Baseline
2012 TAC Project

# 2012 Cal-Am Baseline and Project Simulations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Year
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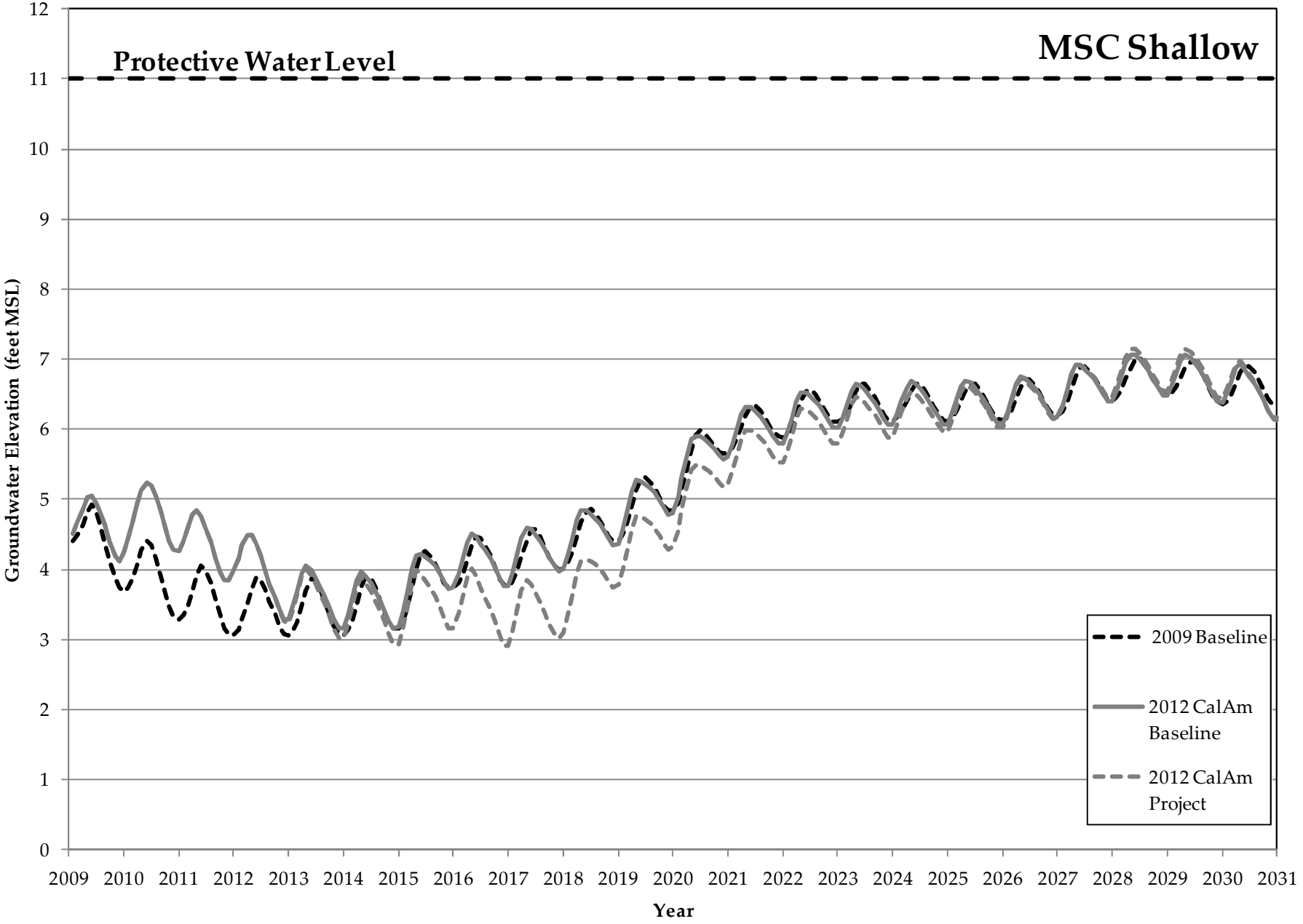
2012 CalAm Baseline
2012 CalAm Project


MSC Shallow
Protective Water Level
Groundwater Elevation (feet MSL)
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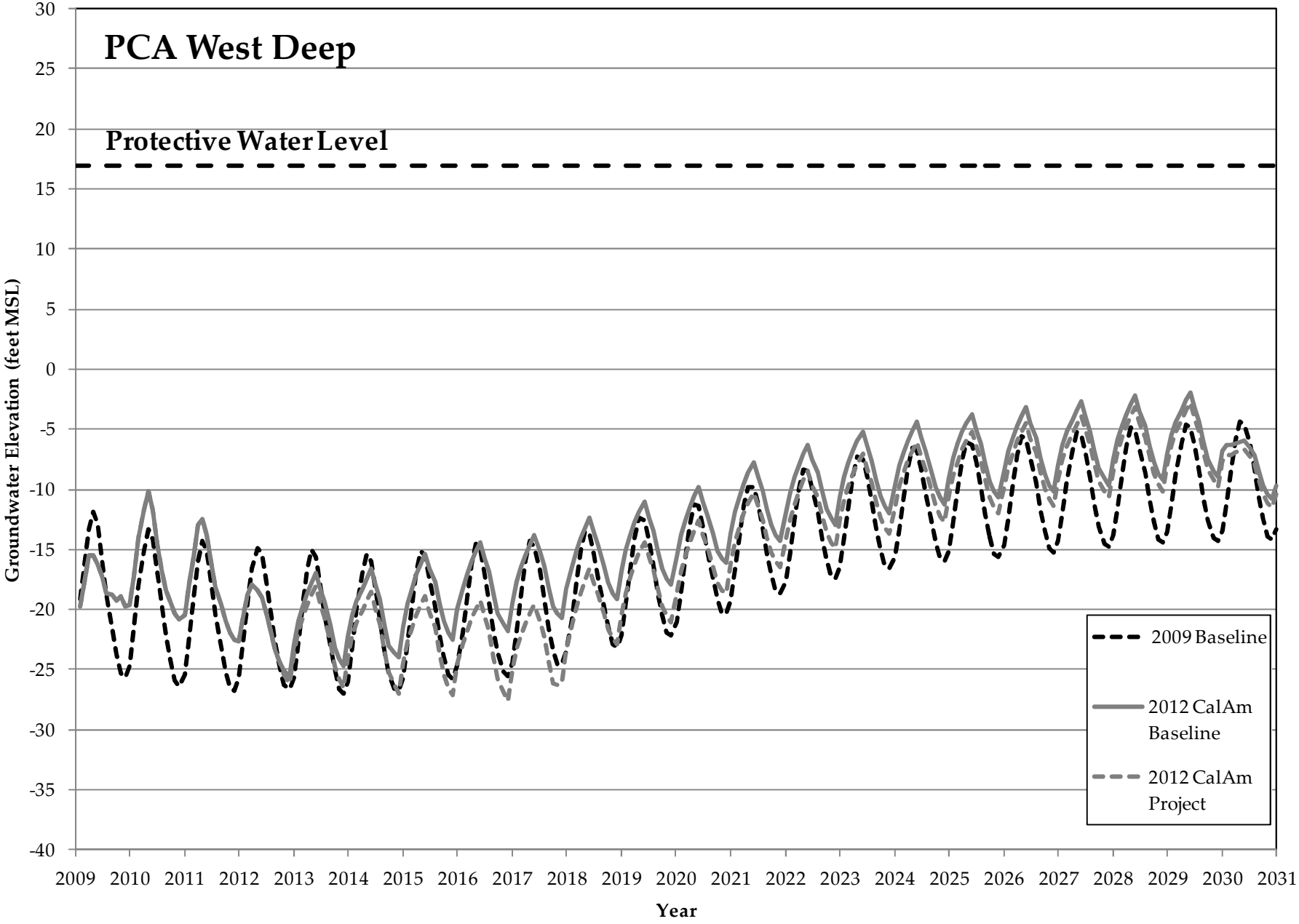
PCA West Deep
Protective Water Level
Groundwater Elevation (feet MSL)
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Year
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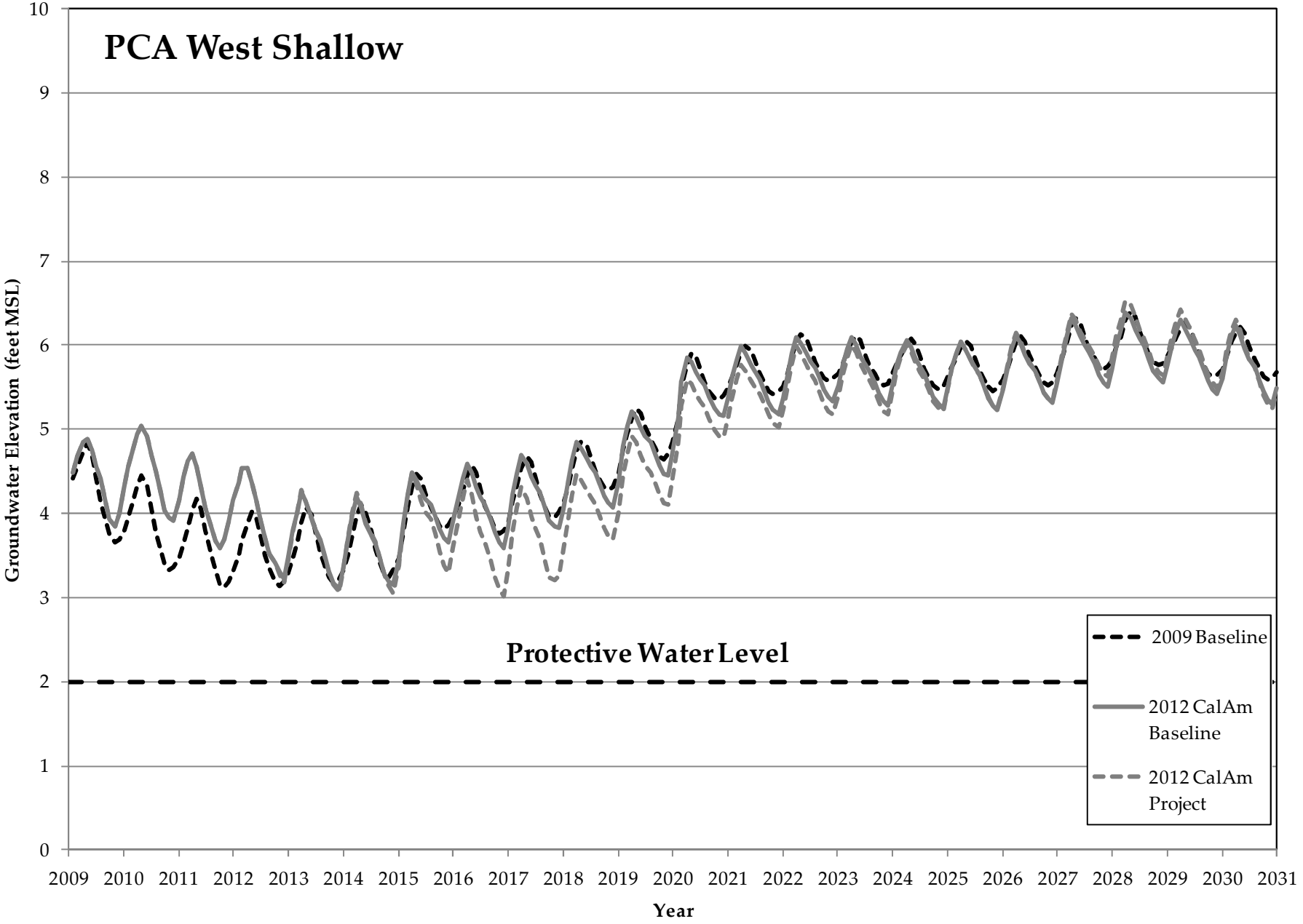
2012 CalAm Project


PCA West Shallow
Groundwater Elevation (feet MSL)
Year
Protective Water Level
2009 Baseline
2012 CalAm Baseline
2012 CalAm Project
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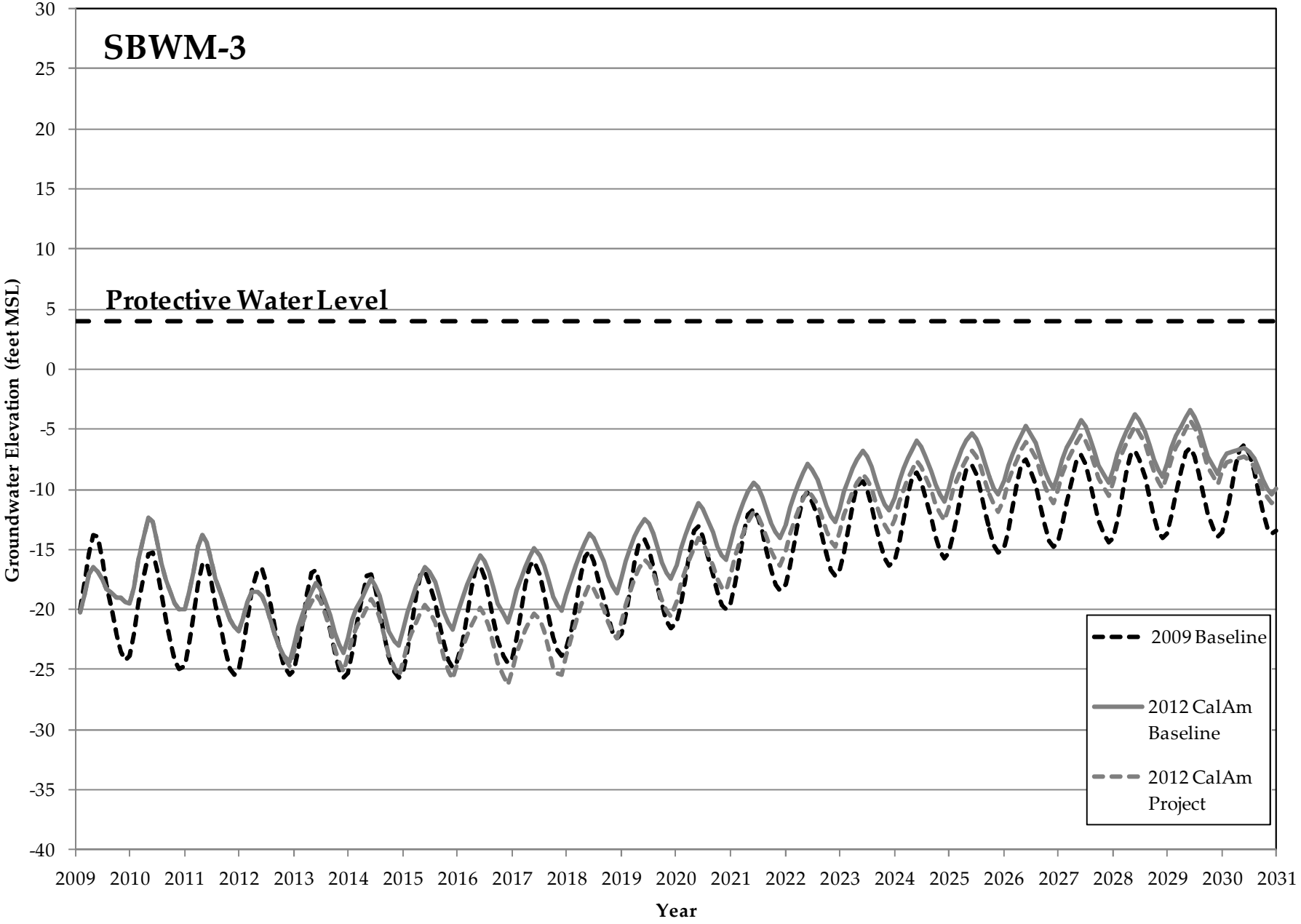
SBWM-3
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Groundwater Elevation (feet MSL)
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2009 Baseline
2012 CalAm Baseline
2012 CalAm Project

## *SEASIDE BASIN WATER MASTER TECHNICAL ADVISORY COMMITTEE*

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

| | |
|---|---|
| **MEETING DATE:** | September 12, 2012 |
| **AGENDA ITEM:** | 6 |
| **AGENDA TITLE:** | Discussion of "Repayment" of Overpumped Groundwater |
| **PREPARED BY:** | Robert Jaques, Technical Program Manager |

**SUMMARY:**

The water supply quantities that the Regional Water Supply Project will provide for the purpose of reducing the production of water from the Seaside Basin, as shown in Table 2-2 of the Final EIR (FEIR), are described below.

| | | |
|---|---|---|
| Seaside Groundwater Basin Replacement (Entire Basin) | 2,975 | MPWMD Technical Memorandum 2006-02 (MPWMD, 2006a) and Seaside Basin Watermaster (2009). MPWMD's 2006 technical memorandum estimated that, based on water years 1996-2006, CalAm's average annual production from the Coastal Subarea (3,695 afy) adjusted for weather is 3,983 afy, minus CalAm's eventual allocation[c] of 1,494 afy needed replacement for CalAm would be 2,489.<br><br>The MPWMD technical memorandum estimated that, based on water years 1996-2006, MPWMD CalAm's average annual production from the Laguna Seca Subarea (432 afy), adjusted for weather, is 466 afy; assuming CalAm's eventual allocation[c] for this subarea of 0 afy, needed replacement supply is 466 afy.<br><br>The combined replacement supply for the two subareas estimated by MPWMD (2,955 afy) was adjusted upward by 20 afy to reflect 2009 information from the Seaside Basin Watermaster that CalAm's eventual allocation for the entire basin will be 1,474 afy. |
| Seaside Groundwater Basin - Non-CalAm Production | 272 | MPWMD Technical Memorandum 2006-02 (MPWMD, 2006a). Adjudication of water rights in the Seaside Basin reduced the amount of water other producers may extract to prevent long-term damage to the Basin. The eventual allocation of other producers will require replacement of 272 afy to meet existing demand. |

These figures indicate that while the Regional Water Supply Project is intended to reduce pumping from the Seaside Basin to sustainable levels, i.e. pumping at the Natural Safe Yield which is naturally replenished each year through rainfall, the Project does not include additional water to help bring groundwater levels back up to protective levels.

The Project includes piping and appurtenant facilities for CAW's use to facilitate CAW's ability to reduce its pumping from the Basin. However, it is not clear how the Project will supply water to the Non-CAW users in the Basin so that they, too, can reduce their pumping to NSY levels.

There is a "Memorandum of Understanding Between Seaside Basin Watermaster and California American Water" pertaining to CAW's Replenishment Assessments and Replenishment Assessment Credits. Paragraph 2(a) of that MOU states that upon completion of "…a water supply augmentation project.." which presumably would include the Regional Project, CAW is to provide, at no cost

## *SEASIDE BASIN WATER MASTER*
## *TECHNICAL ADVISORY COMMITTEE*

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

| **AGENDA ITEM:** | 6 (Continued) |
|---|---|

to the Watermaster, either water for artificial replenishment or in-lieu replenishment of the 6,390.1 AF of CAW's overproduction from Water Years 2006, 2007, and 2008. A copy of the MOU is attached.

Paragraph 2(b) i of that MOU states that CAW will have a similar obligation for future Water Years beyond 2008, based on the amount of overproduction that CAW experiences in those years, if the Watermaster determines that no water for artificial replenishment is available in those years.

To help clarify CAW's intentions, Mr. Sabolsice will lead a discussion on such topics as:

- CAW's plans regarding the amount of pumping it will reduce from the Seaside Basin when the Regional Project comes on-line.
- Whether CAW will reduce its pumping to the NSY level or whether it will continue to pump up to its Operating Yield after the Regional Project is on-line.
- How the water necessary for non-CAW producers to lower their pumping levels to NSY will be delivered to them.
- The time schedule over which CAW will repay its prior overpumping in order to fulfill its obligations under its MOU with the Watermaster regarding Replenishment Assessment credits.

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| **ATTACHMENTS:** | 1. Discussion paper describing Replenishment Assessments.<br>2. "Memorandum of Understanding Between Seaside Basin Watermaster and California American Water" pertaining to CAW's Replenishment Assessments and Replenishment Assessment Credits. |
| **RECOMMENDED ACTION:** | None required – information only |

# Replenishment Assessments

**What is the Replenishment Assessment?**
The Amended Decision filed with the Court February 9, 2007 (the "Order") contains the following statements and/or requirements pertaining to the Replenishment Assessment on pages 32 and 33:

> *Each Water Year, the Watermaster will determine a Replenishment Assessment for Artificial Replenishment of the Seaside Basin necessary to offset the cumulative Basin Over-Production (as defined in Section III.A. 21), and levy a Replenishment Assessment. Replenishment Assessments based on Over-Production and on Operating Yield Over-Production shall be assessed within 60 days of the end of each Water Year on a per acre-foot basis on each acre-foot, or portion of an acre-foot, of Over-Production, and payment shall be due no later than January 15th of the following year. The per acre-foot amount of the Replenishment Assessments shall be determined and declared by Watermaster in October of each Water Year in order to provide Parties with advance knowledge of the cost of Over-Production in that Water Year.*

Section III.A.21 of the Order defines Over-Production to mean, with regard to all Production from the Seaside Basin, *"…that quantity of Production which exceeds an initially assumed Natural Safe Yield of 3,000 AFY."* With regard to each Producer, Over-Production means *"…that quantity of Water Produced in any Water Year in excess of that Producer's Baser Water Right, as applied to an assumed Natural Safe Yield of 3,000 AFY."*

Replenishment Assessments are collected from Standard Producers (and Alternative Producers but only if they exceed their allocations) in proportion to the amount that they have cumulatively pumped in excess of their allocation of the Basin Natural Safe Yield of 3,000 AFY. If a Standard Producer has not pumped in excess of their allocation, then they are not charged a Replenishment Assessment.

The actual calculation of the Assessments gets complex and will therefore not be discussed or explained in this paper. The purpose of this paper is to describe the Replenishment Assessments and the purpose for which the monies collected through these Assessments are intended to be used.

**What Are the Monies Collected Through the Replenishment Assessments to be Used for**?
On Page 34 of the Order it states that *"…All proceeds of Replenishment Assessments shall be used to procure Non-Native water, including, if appropriate, substitute reclaimed water."*

Although there is some variation in language between several sections of the Order, it is clear that the monies collected through the Replenishment Assessments are intended to be used to obtain water to recharge the Basin to the extent necessary to reduce the net water production taken from the Basin to a level at or below the Natural Safe Yield of 3,000 AFY. It could also be used to obtain water to bring groundwater levels in the Basin up to protective levels to prevent seawater intrusion from occurring. The recharge water could be such things as water imported from another water supply outside the Basin, recycled water used to reduce pumping for landscape irrigation, or recycled water used for recharge through direct injection or spreading.

**How is the Per Acre-Foot Cost of the Replenishment Assessments to be Determined?**
Per page 33 of the Order, *"The per acre-foot amount of the Replenishment Assessments shall be determined and declared by Watermaster in October of each Water Year in order to provide Parties with advance knowledge of the cost of Over-Production in that Water Year."* Thus, the per acre-foot amount declared by the Board in October of each year will be used to calculate Replenishment Assessments for

pumping that occurs during the Water Year which begins on October 1 of that year and ends on September 30 of the following year.

On pages 9 and 10 (Section 6.5) of the Watermaster Rules and Regulations, there is a discussion of how the Replenishment Assessment per acre-foot costs are to be calculated. It states that *"The per acre- foot cost of Replenishment Assessments for Production in excess of Natural Safe Yield shall be based on the anticipated cost of Artificial Replenishment, including the cost to construct, operate, and maintain facilities necessary for replenishment of the Basin. Replenishment Assessment may only be used for Artificial Replenishment."* The Order defines Artificial Replenishment to mean the act of engaging in or contracting for Non-Native Water to be added to the Groundwater Basin through spreading or direct injection to offset the cumulative Over-Production from the Basin in any particular Water Year. It can also include programs in which Producers agree to refrain from exercising their rights to pump their full Production Allocations where the intent is to cause the replenishment of the Basin through forbearance in lieu of the injection or spreading of Non-Native Water.

So the per acre-foot cost used to determine the Replenishment Assessments should be the cost that would have to be paid, per acre-foot, to obtain water to recharge the Basin to the extent necessary to offset the cumulative over-production above the Natural Safe Yield, during a given Water Year. The projected per acre-foot cost may change due to changes in projected costs of recharge water and in the timing of the projects which will provide that water. Therefore, the per acre-foot cost may need to be periodically recalculated using updated cost projections and implementation schedules for these recharge projects.

If recharge water is not available to be purchased in a given Water Year to offset the cumulative over-production that occurred in that year, then the monies collected through the Replenishment Assessments in that Water Year may be accumulated for multiple Water Years until they can be used to purchase recharge water.

**[Approved by Watermaster Board on 10/23/08 with Redline Showing Changes Requested by the Board]**

**MEMORANDUM OF UNDERSTANDING BETWEEN SEASIDE BASIN WATERMASTER AND CALIFORNIA AMERICAN WATER**

This Memorandum of Understanding between the Seaside Basin Watermaster (Watermaster) and California American Water (CAW) is entered into pursuant to a motion passsed by Watermaster on December 3, 2008 with respect to the following:

RECITALS

A. The Amended Decision in Case No. M66343 filed February 9, 2007 (Decision) provides that Standard Producers that exceed their allocation of Natural Safe Yield are subject to a Replenishment Assessment for each acre foot of Over-Production for each Water Year. Under Section III.M1.d of the Decision, CAW has the right to claim a credit against its Replenishment Assessment (Replenishment Credit) for costs incurred for water supply augmentation that has or will result in replenishment of the Basin.

B. Wastermaster has calculated the Replenishment Assessments for CAW for Fiscal Year 2006 (Water Year 05/06), Fiscal Year 2007 (Water Year 06/07) and Fiscal Year 2008 (Water Year 07/08) in the total amount of $10,166,640. Pursuant to Section III.M.1.d of the Decision, CAW applied for a Replenishment Credit for expenditures totaling $12,305,924.00 that CAW has made through calendar year 2006 for water supply augmentation associated with pre-construction expenses for the Coastal Water Project. The request was made on March 5, 2008 and supplemented with further information on May 2, 2008.

C. Watermaster approved CAW's request for a Replenishment Credit in the amount of $12,305,924.00, subject to conditions set forth in the motion which provide that CAW will ensure replenishment of the Basin with water from the Coastal Water Project, or a comparable alternative project, at no cost to Watermaster, in an amount equivalent to the quantity of water that CAW has overproduced, and thus incurred a Replenishment Assessment obligation for Fiscal Years 2006, 2007 and 2008.

D. Watermaster and CAW desire to enter into this Memorandum of Understanding regarding future CAW requests pursuant to Section III.M.1.d of the Decision for Replenishment Credits against future Replenishment Assessment obligations.

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C1144-029/10-30-08/jsd/jsd

# AGREEMENT

Watermaster and CAW agree as follows:

1. At the end of each Water Year, Watermaster shall determine the Replenishment Assessments in accord with Section III.L.3.j.iii of the Decision. Within 40 days of CAW's receipt of Watermaster's notice of Replenishment Assessment against CAW for the preceding Water Year, CAW shall provide Watermaster any claim for a Replenishment Credit pursuant to Section III.M.1.d of the Decision. Such claim shall be based upon expenditures for a water supply augmentation project (such as the Coastal Water Project and/or other projects that produce water that can be used to replenish the Seaside Basin (hereinafter "Project(s)")) that CAW contends has or will result in replenishment of the Basin.

2. Watermaster agrees that the Project will result in replenishment of the Basin, and therefore:

(a) Watermaster hereby grants CAW's current request for a Replenishment Credit in the amount of $12,305,924.00. Such Credit shall be immediately applied to CAW's Replenishment Assessments for Fiscal 2006 (Water Year 05/06), Fiscal Year 2007 (Water Year 06/07) and Fiscal Year 2008 (Water Year 07/08), which total $10,166,640, subject to the condition that, upon completion and implementation of a water supply augmentation Project, CAW shall provide Watermaster, at no cost to Watermaster, and on a schedule that is Feasible either (1) water for Artificial Replenishment through direct replenishment and/or (2) cause in-lieu replenishment of the Basin by forbearing to produce water to which CAW is entitled as CAW's share of the Native Safe Yield, in an amount equal to CAW's total acre feet of Over-Production for the Water Years 05-06, 06-07, and 07-08, which total is 6,390.1acre feet. Future CAW requests for Replenishment Credit shall be granted subject to the same conditions set forth in this Section 2 (a).

(b) In future Water years Watermaster shall address future requests by CAW for a Replenishment Credit as follows:

i. For years in which Watermaster declares that water for Artificial Replenishment is not available, Watermaster shall grant CAW's request for a Replenishment Credit for that Water year, subject to CAW's obligation to provide future Artificial Replenishment as set forth in Section 2(a) herein.

ii. For years in which Watermaster declares that water for Artificial Replenishment is available from sources other than a CAW water supply augmentation Project, Watermaster shall have the option of either: (i) requiring CAW to pay all or part of CAW's Replenishment Assessment for that Water Year for the purpose of providing Watermaster with funds to obtain Artificial Replenishment in sufficient quantities to replenish that quantity of Over-Production for which CAW pays a Replenishment Assessment; or (ii) granting CAW's request for a Replenishment Credit subject to CAW's obligation to provide future Artificial Replenishment as provided for in section 2(a) herein. . If Watermaster is unable to purchase Replenishment Water equal to CAW's total Over-Production for that Water Year,

the Watermaster shall grant CAW a Replenishment Credit for the balance of CAW's Over-Production for that Water year, subject to CAW's obligation to provide future Artificial Replenishment as set forth in Section 2(a) herein.

3. The sum of the acre feet of water to be provided to Watermaster for replenishment either by direct replenishment and/or in-lieu replenishment for each Water Year shall equal the number of acre feet for which CAW is assessed a Replenishment Assessment for the Water Year at issue. In no event shall the total amount of direct replenishment and/or forbearance by CAW be greater than the cumulative total of acre feet of CAW's Over-Production for all Water Years for which CAW is granted Replenishment Credits.

4. Upon completion and implementation of the Project(s), at any stage in CAW's direct replenishment and/or in-lieu replenishment pursuant to conditions set by Watermaster upon granting of Replenishment Credits, CAW shall have the right to request that the Court determine that, based upon principles of the physical solution set forth in the Decision, the Basin has been replenished in an amount sufficient to prevent seawater intrusion or the Basin has been protected by alternative seawater intrusion preventive measures. Upon such determination by the Court, CAW's obligations under conditions set by Watermaster upon granting of Replenishment Credits and any obligation under this Memorandum of Understanding to provide direct replenishment water and/or in-lieu replenishment at no cost to Watermaster shall be deemed fully satisfied.

5. All terms used in this Memorandum of Understanding that are defined terms in the Decision shall be defined herein as set forth in Section III.A of the Decision.

IN WITNESS WHEREOF the Parties hereby agree to the full performance of the terms set forth herein.

| SEASIDE BASIN WATERMASTER | CALIFORNIA AMERICAN WATER |
|---|---|
| Chair, Seaside Basin Watermaster | President, California American Water |
| Date: January 21, 2009 | Date: 1-29-2009 |

## *SEASIDE BASIN WATER MASTER*
## *TECHNICAL ADVISORY COMMITTEE*

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

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|---|---|
| **MEETING DATE:** | September 12, 2012 |
| **AGENDA ITEM:** | 7 |
| **AGENDA TITLE:** | Schedule |
| **PREPARED BY:** | Robert Jaques, Technical Program Manager |

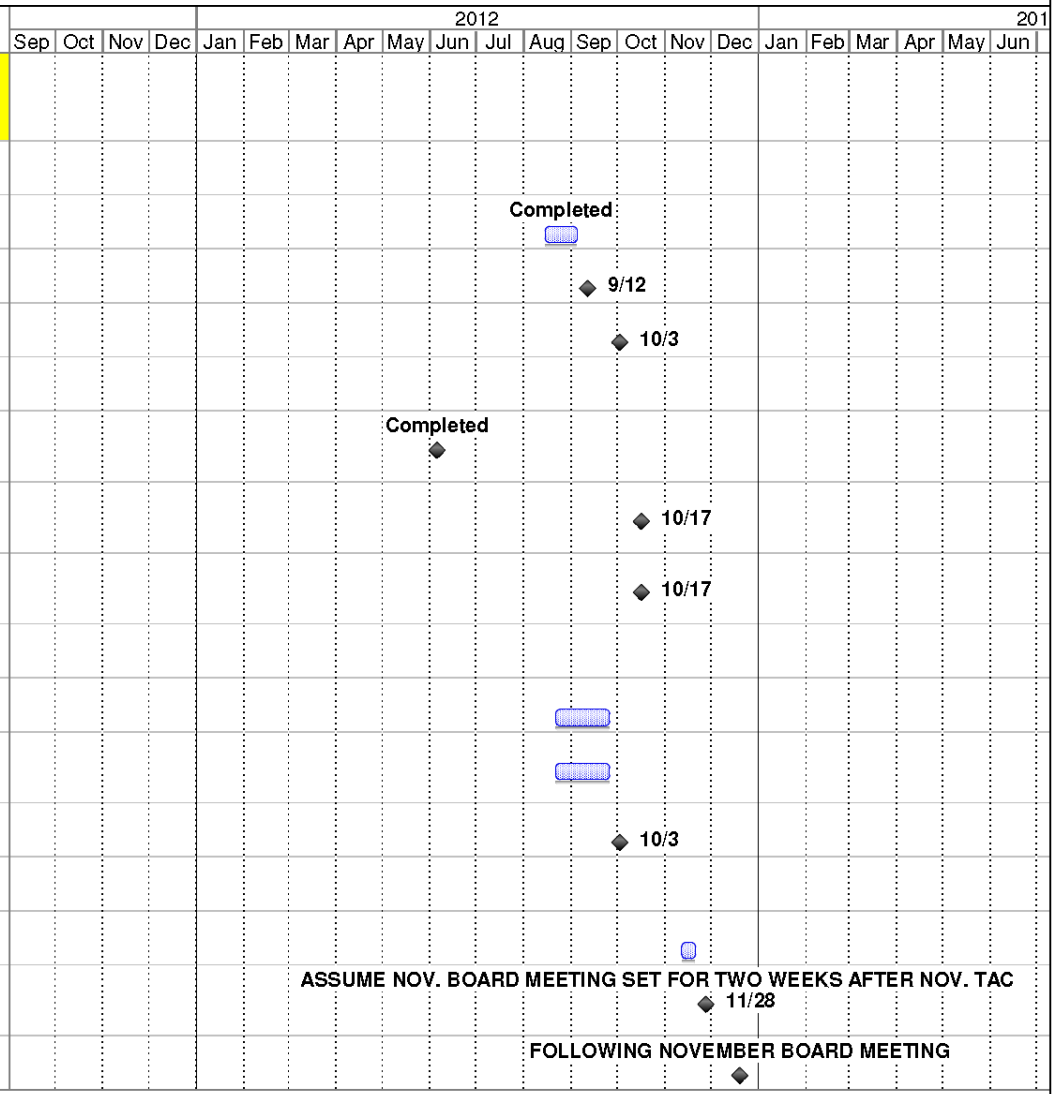
**SUMMARY:**
As a regular part of each monthly TAC meeting, I will provide the TAC with an updated Schedule of the activities being performed by the Watermaster, its consultants, and the public entity, MPWMD, which is performing certain portions of the work.

Attached is the most recent update of the Work Schedule for FY 2012.

| | |
|---|---|
| **ATTACHMENTS:** | Schedule of Work Activities for FY 2012 |
| **RECOMMENDED ACTION:** | Provide Input to Technical Program Manager Regarding Any Corrections or Additions to this Schedule |

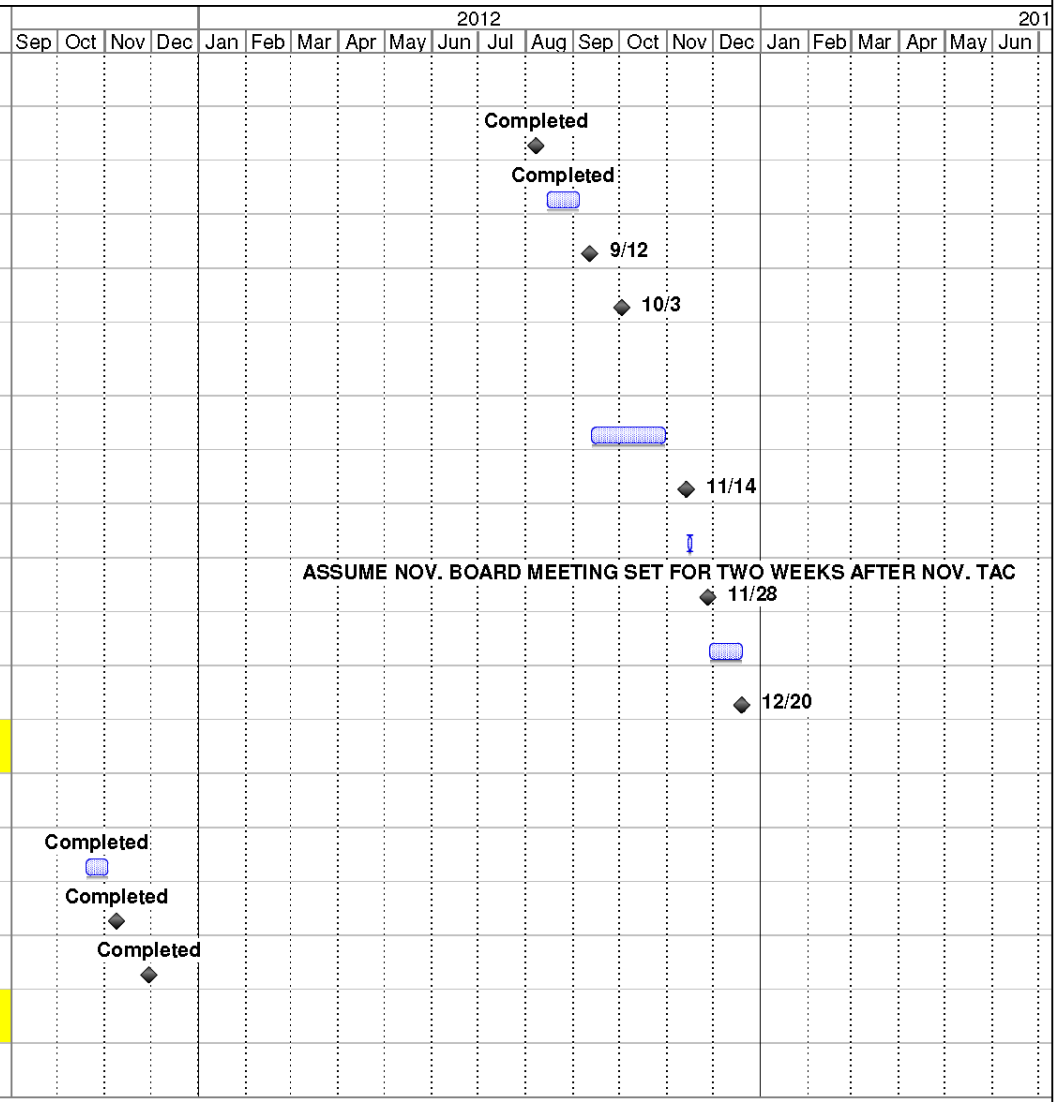
# Seaside Basin Watermaster
# Monitoring and Management Program
# 2012 Work Schedule

| ID | Task Name |
|---|---|
| 1 | ***CRITICAL PROJECT MILESTONES ASSOCIATED WITH TAC, BOARD, AND/OR CONSULTANT WORK*** |
| 2 | **2011 Administration, Operations and Replenishment Budgets** |
| 3 | Prepare M&MP Draft Budgets (Same as Task 19) |
| 4 | TAC Approves M&MP Budgets (Same as Task 20) |
| 5 | Board Approves M&MP Budgets (Same as Task 21) |
| 6 | **Watermaster Prepares Quarterly Water Production, Water Level, and Water Quality Reports** |
| 7 | Watermaster Prepares Combined Quarterly Water Production, Water Level, and Water Quality Reports for 1st & 2nd Quarters (Same as Task 41) |
| 8 | Watermaster Prepares Quarterly Water Production, Water Level, and Water Quality Reports for 3rd and 4th Quarters (Same as Task 42) |
| 9 | Watermaster Prepares Annual Water Production, Water Level, and Water Quality Report for 2012 (Same as Task 43) |
| 10 | **Replenishment Assessment Unit Costs for Water Year 2012** |
| 11 | B&F Committee Develops Replenishment Assessment Unit Cost for 2013 Water Year |
| 12 | If Requested, TAC Provides Assistance to B&F Committee in Development of 2013 Water Year Replenishment Assessment Unit Cost |
| 13 | Board Adopts and Declares 2013 Water Year Replenishment Assessment Unit Cost |
| 14 | **Replenishment Assessments for Water Year 2012** |
| 15 | Watermaster Prepares Replenishment Assessments for Water Year 2012 |
| 16 | Watermaster Board Approves Replenishment Assessments for Water Year 2012 (At November Meeting) |
| 17 | Watermaster Levies Replenishment Assessment for 2012 |

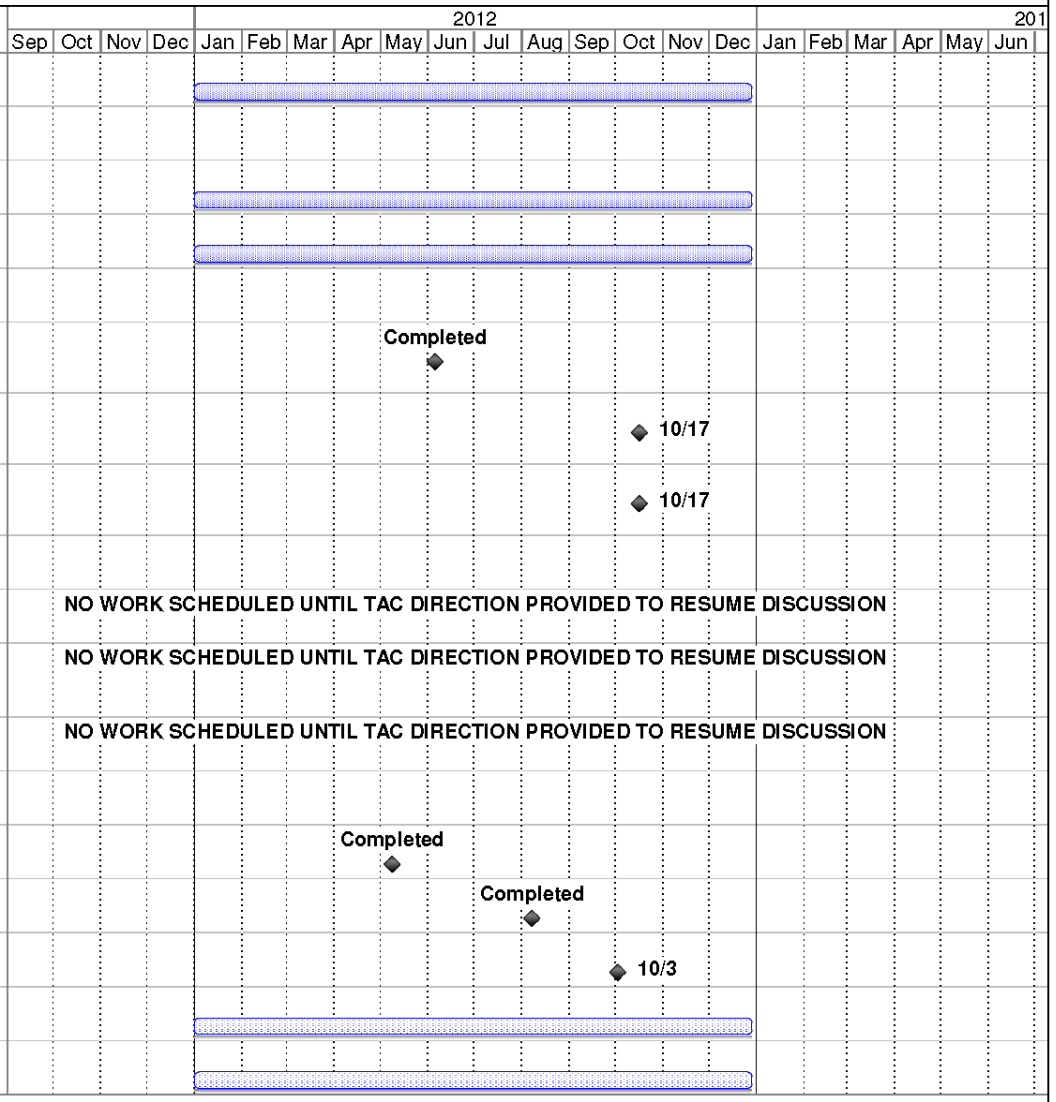


# Seaside Basin Watermaster
# Monitoring and Management Program
# 2012 Work Schedule

| ID | Task Name |
|---|---|
| 18 | **Monitoring & Management Program (M&MP) Budgets for 2012 and 2013** |
| 19 | Preliminary Discussion of Potential Scope of Work for 2013 M&MP |
| 20 | Prepare Draft 2013 and 2014 M&MP O&M and Capital Budgets |
| 21 | TAC approves Draft 2013 and 2014 M&MP O&M and Capital Budgets |
| 22 | Board approves 2013 and 2014 M&MP O&M and Capital Budgets |
| 23 | **2012 Annual Report (Note: Schedule Reflects Court Approval of Later Submittal Date for Annual Report)** |
| 24 | Prepare Preliminary Draft 2012 Annual Report |
| 25 | TAC Provides Input on Draft 2012 Annual Report |
| 26 | Prepare Revised Draft 2012 Annual Report (Incorporating TAC Input) |
| 27 | Board Provides Input on Revised Draft 2012 Annual Report (At November Board Meeting) |
| 28 | Prepare Final 2012 Annual Report (Incorporating Board Input) |
| 29 | Watermaster Submits Final 2012 Annual Report to Judge |
| 30 | ***MANAGEMENT*** |
| 31 | **M.1 PROGRAM ADMINISTRATION (All Work Performed by Watermaster Staff)** |
| 32 | Prepare Initial Consultant Contracts for 2012 |
| 33 | TAC Approval of Initial Consultant Contracts for 2012 |
| 34 | Board Approval of Initial Consultant Contracts for 2012 (At November Board Meeting) |
| 35 | ***IMPLEMENTATION*** |
| 36 | **I.2.a DATABASE MANAGEMENT** |



# Seaside Basin Watermaster
# Monitoring and Management Program
# 2012 Work Schedule



# Seaside Basin Watermaster
# Monitoring and Management Program
# 2012 Work Schedule

| ID | Task Name | 2012 | | | | | | | | | | | | | | | | 201 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun |
| 55 | **I.4.c Annual Seawater Intrusion Analysis Report (SIAR)** | | | | | | | | | | | | | | | | | | | | | | |
| 56 | HydroMetrics Provides Draft SIAR to Watermaster | | | | | | | | | | | | | | | ◆ 11/8 | | | | | | | |
| 57 | TAC Approves Annual Seawater Intrusion Analysis Report (SIAR) | | | | | | | | | | | | | | | ◆ 11/14 | | | | | | | |
| 58 | Board Approves Annual Seawater Intrusion Analysis Report (SIAR) | | | | | | | ASSUME NOV. BOARD MEETING SET FOR TWO WEEKS AFTER NOV. TAC | | | | | | | | ◆ 11/28 | | | | | | | |
| 59 | **I.4.d Complete Preparation of Seawater Intrusion Response Plan (SIRP)** | | | | | WORK COMPLETED - NO FURTHER WORK PLANNED IN 2012 | | | | | | | | | | | | | | | | | |
| 60 | **I.4.e Refine and/or Update the SIRP** | | | | | | NOT NECESSARY | | | | | | | | | | | | | | | | |

## *SEASIDE BASIN WATER MASTER*
## *TECHNICAL ADVISORY COMMITTEE*

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

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|---|---|
| **MEETING DATE:** | September 12, 2012 |
| **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.

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| **ATTACHMENTS:** | None |
| **RECOMMENDED ACTION:** | None required – information only |