

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

DATE: Wednesday, February 12, 2014

MEETING TIME: 1:30 p.m.

**Monterey Regional Water Pollution Control Agency Offices
5 Harris Court, Building D (Ryan Ranch)
Monterey, CA 93940**

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: Eric Sabolsice, California American Water Company

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		

Agenda Item

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The next regular meeting will be held on Wednesday March 12, 2014 at 1:30 p.m. at the MRWPCA Board Room.	

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

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

MEETING DATE:	February 12, 2014
AGENDA ITEM:	2.A
AGENDA TITLE:	Approve Minutes from the January 8, 2014 Meeting
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.	
ATTACHMENTS:	Minutes from this meeting
RECOMMENDED ACTION:	Approve the minutes

D-R-A-F-T
MINUTES

**Seaside Groundwater Basin Watermaster
Technical Advisory Committee Meeting
January 8, 2014**

Attendees: TAC Members

City of Seaside – Rick Riedl
California American Water – Roger Hulbert
City of Monterey – Norm Green
Laguna Seca Property Owners – Bob Costa
MPWMD – Jon Lear
MCWRA – Howard Franklin
City of Del Rey Oaks – No Representative
City of Sand City – Leon Gomez
Coastal Subarea Landowners – No Representative

Watermaster

Technical Program Manager - Robert Jaques

Consultants

HydroMetrics - Derrik Williams (in person), Georgina King (via telephone)

Others

Leonard McIntosh
Tom Reeves – City of Monterey
Sarah Hardgrave – City of Pacific Grove
Jim Cullem – Monterey Peninsula Regional Water Authority

The meeting was called to order at 1:37 p.m., once a quorum was present. Due to the absence of both the Chair and the Vice Chair, Mr. Hulbert served as Chair of this meeting.

1. Public Comments

There were no public comments.

2. Administrative Matters:

A. Approve Minutes from the November 13, 2013 Meeting

On a motion by Mr. Costa, seconded by Mr. Gomez, the minutes of the November 13, 2013 meeting were unanimously approved as presented. Mr. Gomez reported that he no longer represents the City of Del Rey Oaks on the Watermaster TAC, and effective this meeting he is only representing the City of Sand City. In response to a question from Mr. Jaques, Mr. Gomez said it was his understanding that the City of Del Rey Oaks will be sending its own representative to the TAC meetings in the future.

B. Update on Storm Water Issues

Mr. Jaques summarized the materials on this agenda item.

Mr. Cullem reported that the MPWRA had adopted a portfolio approach for water supplies. He said that about one-third of CAW's desalination plant production requirement

could be served by the MRWPCA groundwater replenishment project, if that project is found to be feasible, economical, and timely. He went on to say that the Pacific Grove small projects and storm water diversions from other entities are also potential water supply sources. MPWRA is looking into how storm water could be used to help recharge the Seaside Groundwater Basin, potentially through MRWPCA's groundwater replenishment project. This is of interest to the MPWRA Board. Currently it appears that the most cost-effective approach would be to add flows to MRWPCA's sanitary sewer collection system so that it would be available for groundwater replenishment. Handling the "surge" of storm water flows will be a challenge. MPWRA would like to see storm water diversion for recycling as a part of their portfolio of water supplies. He noted that the state of California is strongly encouraging storm water reuse.

Mr. Green asked about the status of the grower opposition that MRWPCA had received regarding use of recycled wastewater for Seaside groundwater replenishment, with the growers taking the position that the water was not available for that purpose. Mr. Cullem and Mr. Jaques responded that MRWPCA has indicated it is working on resolving these issues.

Mr. Riedl noted that there are regulatory and political issues that will need to be overcome, such as the connection and operation/maintenance fees that MRWPCA charges for the discharge of storm water to its system, and also NPDES permit requirements which prohibit storm water from being intentionally introduced into the sanitary sewer system.

Mr. Cullem noted that cost is a major concern for any of the water supply projects.

A motion was made by Mr. Riedl, seconded by Mr. Costa to approve the Technical Program Manager's recommendation that he participate in meetings of any working groups or other study related activities that may be set up by other entities regarding these matters, so he can keep the TAC up-to-date on them. The motion passed unanimously.

C. Update on Seaside Basin Salt and Nutrient Management Plan

Mr. Williams reported that the Salt and Nutrient Management Plan HydroMetrics is preparing for MPWMD has not yet been completed as originally expected, but anticipates it will be completed in February. He described the purpose and significance of these Plans, noting that they can lead to Basin Plan amendments. He gave a brief progress report on the work completed to date. He reported that more monitoring in the Seaside Groundwater Basin may be needed. Mr. Jaques asked who would be expected to perform the additional monitoring, if it is recommended by the Plan. Mr. Williams replied that a monitoring report has to be submitted to the State every three years, and that the responsible party to this will likely need to be determined and stated in the Plan

Ms. King reported that Mr. Hampson of MPWMD would like this matter to be left as "to be determined" in the Plan. However Mr. Williams said the State may not accept that. Ms. King said that only a small amount of additional monitoring is expected to be needed.

Mr. Jaques suggested that the Watermaster should leave to MPWMD the matter of assessing the responsible party issue, and that if MPWMD felt that the Watermaster should perform any of the additional water monitoring it would contact the Watermaster to make that request.

Mr. Hulbert asked if any new monitoring wells would be needed. Mr. Williams and Ms. King responded no, that just a little more monitoring would be needed, but no new monitoring wells are expected to be needed. Mr. Hulbert asked if there are other entities such as the U.S.G.S. who might do this work. Mr. Lear responded that the stakeholders have been identified under the Plan, and that stakeholder involvement will be undertaken by MPWMD and that those issues could be discussed at that time. He noted that many of the stakeholders are members of the Watermaster TAC.

Mr. Lear and Mr. Williams said that future grant funds would only be available to basins if there is a completed and accepted Salt and Nutrient Management Plan.

Mr. Williams briefly described some of the preliminary findings and recommendations of the Plan. A full presentation will be made at a near future Watermaster TAC meeting. Ms. King said that the Seaside Basin is one of a few basins, or the only Basin in California where groundwater quality is already showing measurable improvement. Mr. Riedl asked if Ms. King could provide examples of some of the water quality objectives from other basins, and she said that she would. She noted that water quality objectives are used in part to estimate the assimilative capacity of a basin.

3. Continued Discussion of Potential Sources of Water That Could be Used to Replenish the Seaside Basin and Help to Achieve Protective Water Levels

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

Mr. Riedl asked if Deepwater Desalination is now a viable project. Mr. Cullem responded that it is viable, but that the City of Salinas is the only party that appears to be showing interest in this project. If CAW's desalination plant is not built, then the MPRWA would probably look at the Deepwater Desalination as a more viable project.

Mr. Green asked Mr. Cullem how a storm water diversion project might be funded. Mr. Cullem responded that this is currently being evaluated. Ms. Hardgrave provided the attached handout providing information about the Pacific Grove storm water project. Pacific Grove is working with Monterey on this project to comply with their ASBS discharge requirements. A potential benefit of the project could be to supplement MRWPCA's flows for groundwater recharge. Diversion of the 85th-percentile storm would require substantial capacity increases in MRWPCA's pump stations to handle the peak flows. Current analysis indicates a diversion of approximately 150 acre feet per year of storm water to MRWPCA could be achieved, with the rest of the flow being treated for either ocean discharge or being provided to MRWPCA. A draft EIR is to be completed this month. It will be funded under a planning grant through the Integrated Regional Water Management Plan that is administered by MPWMD. There will then likely be a few years of on-hold status while determinations are made as to how to proceed. She reported that MRWPCA is currently looking into how their fees can be kept low in order to facilitate storm water reuse.

A motion was made by Mr. Green, seconded by Mr. Riedl to approve the recommendations of the Technical Program Manager as contained in today's agenda packet. The motion passed unanimously.

4. Continued Discussion of HydroMetrics Modeling of Laguna Seca Subarea

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

The numbered items on page 30 of the agenda packet were discussed. The following comments were made pertaining to these items, numbered to correspond to the numbering on page 30 of the agenda packet.

1. Wang Subdivision: Mr. Lear reported that water levels in the Wang subdivision wells were lower than Laguna Seca subarea water levels when the project was discussed many months ago, so the conclusion was that they would not affect water levels in the Laguna Seca subarea. However, he reported that subsequent survey work, performed by the proponents of the Wang project at the request of Monterey County, found that the Wang subdivision wells have water levels that are in fact about the same as those in the Laguna Seca subarea, not lower. He went on to say that the Chupines fault is documented, but there still appears to be hydraulic connection between the Wang wells and the Laguna Seca subarea. Mr. Williams noted that there are wells to the east and southeast of the Laguna Seca subarea (referred to in this discussion as the "Toro area") within approximately one mile of the boundary of the Laguna Seca subarea which pump significantly more water than the total amount of water that is currently being pumped from the Laguna Seca subarea.

Mr. Costa asked what caused the difference between the 240 acre foot per year now-projected Natural Safe Yield for the Laguna Seca subarea and the 608 acre feet per year Natural Safe Yield contained in the Decision. Mr. Williams responded that he did not have a clear answer to this, but did have some potential explanations based on information provided by MPWMD. Mr. Lear and Mr. Williams noted that an earlier Yates (2005) report had a Laguna Seca subarea Natural Safe Yield of approximately 400 acre feet per year.

2. Outside Basin Pumping Impacts: Mr. Costa commented that since outside basin pumping is apparently a contributing factor to the lowering of water levels in the Laguna Seca subarea, it would be appropriate to do further modeling to determine more information about this. Mr. Riedl and Mr. Green voiced their support of Mr. Costa's recommendation.

Mr. Green asked why the wells outside the Basin whose pumping is impacting water levels in the Laguna Seca subarea were not included within the original Basin boundary when the Decision was prepared. Mr. Williams said he thought that perhaps the Judge selected an older boundary map and apparently did not look at specific wells when establishing the boundary-line. Mr. Lear added that the Department of Water Resources acknowledges that some subbasins may not have accurate boundary maps assigned to them.

Mr. Williams recommended that in order to save money it would be better to determine all questions to be answered by further modeling so that the work can all be performed at one time rather than in a piecemeal manner.

Mr. Hulbert suggested that the modeling might identify other things that are currently not expected, and the boundary could keep changing based on that information. He questioned when the process should come to a conclusion.

Mr. Williams said that the Laguna Seca subarea has almost no impact on seawater intrusion in the coastal subareas, so therefore it could potentially have been left out of the Decision. Mr. Riedl asked if this would be reasonable. Mr. Williams responded that since the Laguna Seca subarea has been found to be in an overdrafted condition, it would not be reasonable at this point in time to ask the Court to remove it from the scope of the Decision.

3. and 5. Need to Answer Questions: Mr. Hulbert reported that CAW will serve all of its Laguna Seca subarea customers from its Main System and that CAW does not need any further modeling done to assist in determining how to serve its Laguna Seca subarea customers.

4. and 6. Determining When Users May Experience Material Injury: Mr. Williams reported that the affected wells, and when they will be impacted, are shown in Table 2 and in the various Figures contained in the modeling report. Mr. Jaques commented that no determination regarding impacts could be made for the "n/a" wells in Table 2.

There was discussion of what constitutes "material injury". Based on this discussion it was felt it would be desirable to further discuss this matter at a future meeting in order to clearly define what the term means and to reach consensus on how to use this information to help make decisions.

Mr. Williams posed the question of whether the Watermaster wants to stop all groundwater levels from declining or only prevent levels from declining to the extent that material injury would occur.

Mr. Franklin asked if the intent of the report was to define material injury or to establish criteria on how to determine how far water levels would fall.

Mr. Costa said it would be good to tabulate and present this data to the Board. Mr. Lear noted that the wells that will be most affected by the falling groundwater levels are those that CAW plans to discontinue pumping from in the Laguna Seca subarea.

Mr. Franklin asked Mr. Williams if declining water levels in the Toro area contribute to seawater intrusion. Mr. Williams responded that he did not know for sure, but suspected they probably did not. Mr. Williams went on to say that Toro area water levels are declining outside of the Seaside Groundwater Basin. In the modeling report the pumping figures for the Alternate Producers are all based on 2011 actual pumping rates after the year 2009, and on CAW discontinuing pumping from the Laguna Seca subarea in 2018.

There was consensus that at this time that it would be desirable to do additional modeling to estimate the impacts of outside basin pumping, but to hold off on making any other recommendations at this time, such as those contained on page 31 in the agenda packet. There was also consensus that it would be desirable to model reducing, rather than totally eliminating, pumping by the Alternate Producers to see what impact this would have.

The February TAC meeting agenda will include a discussion topic on material injury, and whether this should be applied only to the wells that would actually suffer this condition, or to all parts of the Basin regardless of whether or not there are wells in the affected area.

Mr. McIntosh asked Mr. Williams if there was a pumping rate at which water levels in the Laguna Seca area would not continue to fall. Mr. Williams responded that there was such a pumping rate, but that there was not enough information currently available to determine what that rate would be.

5. Schedule

Mr. Jaques reported that there were no unusual items to discuss under this agenda item, and there was no further discussion.

6. Other Business

There were no other business items discussed.

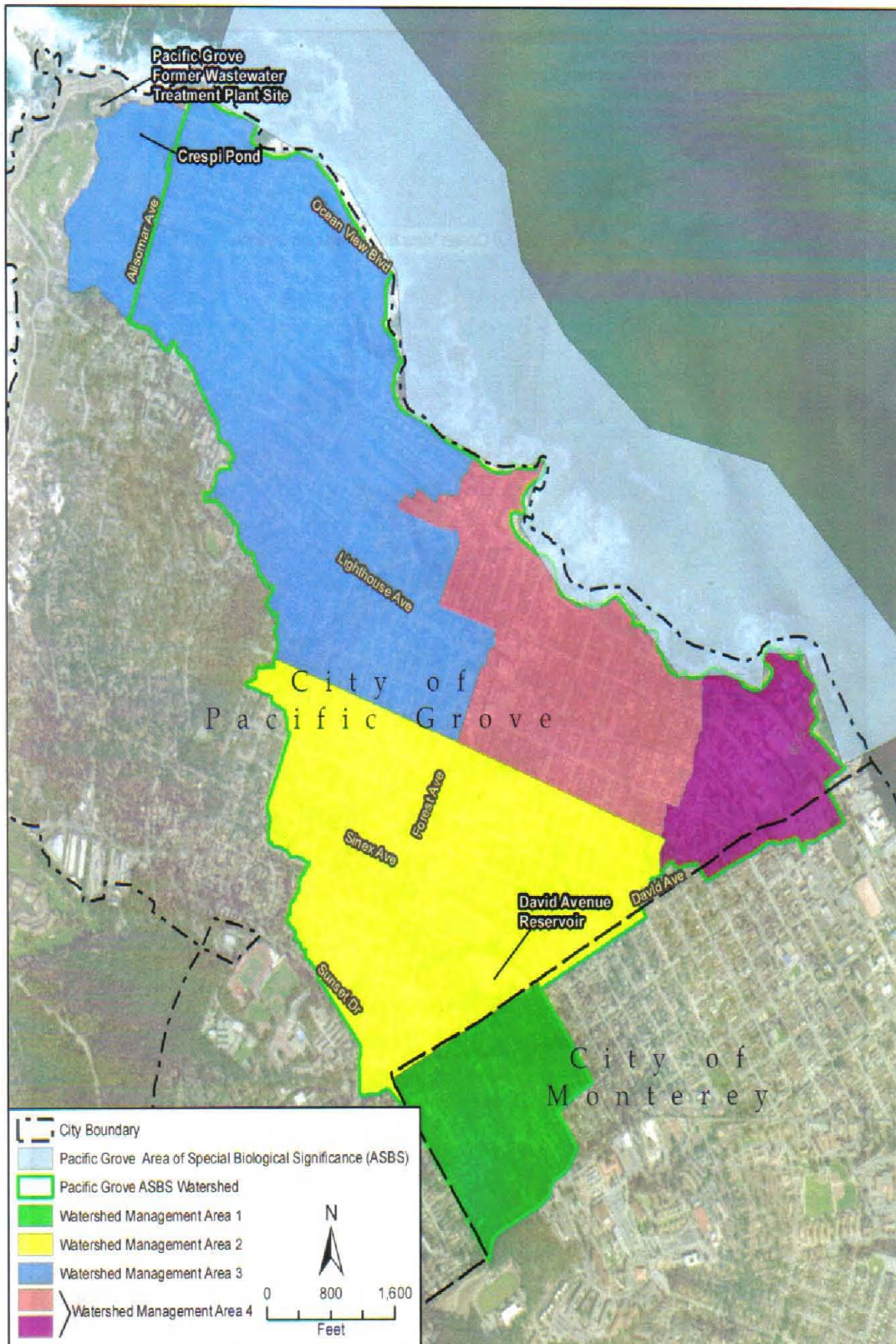
7. Set Next Meeting Date

The next regular meeting will be held on Wednesday February 12, 2014 at 1:30 p.m. at the MRWPCA Board Room.

The meeting adjourned at 3:56 p.m.



Proposed Stormwater System Improvements



Imagery provided by ESRI and its licensors © 2013.
 Additional data provided by Fall Creek Engineering
 and the City of Pacific Grove, 2013.

ASBS Watershed Management Areas

Figure 2-3

Table 4.8-1 summarizes the size of each watershed area (see Figure 2-3 in Section 2.0, Project Description), the proposed treatment facility, and a preliminary estimate of the respective peak discharge (for the 85th percentile, 1-year and 2-year events) conveyed within each area. When runoff exceeds the design event it is anticipated that discharges would continue to occur at the existing ocean outfalls.

Table 4.8-1 Stormwater Treatment Estimates

Watershed Management Area	Treatment	Area (acres)	85% Flow Estimate (GPM)	1 yr flow estimate (GPM)	2 yr flow estimate (GPM)
1	Point Pinos	625	1,782	7,739	13,080
2	MRWPCA	130	535	2,576	4,330
3	Point Pinos	75	17	264	496
4	MRWPCA	44	246	1,171	1,921

Source: FCE, July 2013.

The GPM values for each watershed management area are peak discharges that would be handled by the system conveyance components, including storm drain pipelines and pumping facilities and represent the peak quantities of water that would be received by the treatment facilities.

Water quality monitoring pursuant to the Central Coast ASBS Regional Monitoring Program is being implemented during the 2012-13 and 2013-14 storm seasons and includes all ASBS responsible parties on the Central Coast, covering an area from Big Sur in Monterey County to Point Reyes in Marin County. The results of the Central Coast ASBS Regional Monitoring will establish the "natural water quality" objectives to be met by the ASBS Special Protections. The receiving water samples will be monitored for Ocean Plan indicator bacteria, residual chlorine, copper, zinc, grease and oil, methylene blue active substances (MBAS), ammonia and nitrogen. Sediment samples will be analyzed for Ocean Plan Table 1 metals (for marine aquatic life beneficial use), acute toxicity (using Eohaustorius estuaries), PAHs and tributyltin. The stormwater treatment process target pollutants and reduction levels will be determined based upon findings from this water quality monitoring effort. All five project components contribute to the overall goal of treatment and reuse of stormwater instead of discharging untreated runoff to the ASBS.

Table 4.8-2 shows the change from existing to proposed condition for stormwater that would be discharged to the MRWPCA Fountain Avenue Pump Station. As indicated in Table 4.8-2, flows to the MRWPCA Fountain Pump Station would increase peak wet weather flows by 5,435 GPM during an 85 percent storm event, which would correspond to 0.83 million gallons per day (mgd). In addition, the average annual runoff from storms less than or equal to an 85 percent event is estimated at 148 acre-feet per year (AFY). Dry weather flows to the MRWPCA would decrease by 50 percent because the proposed Point Pinos Stormwater Treatment Facility would accept a portion of the dry weather flows that are currently diverted to the MRWPCA.

accelerated pace, water could be available the first quarter of 2017 (<http://www.casaweb.org/water-quality/mrwpcas-groundwater-replenishment-project>).



Drainage Basin #	Watershed Management Approach	Area (ac)	85% Peak Flow estimate (gpm)	85% Runoff Depth (in)	85% Runoff Volume (MGD)	Average Annual Runoff Volume Estimate (AFY)	Average Annual Runoff from storms less than or equal to 85% Event (AFY)	Dry Weather Flow Estimate (gpm)	Dry Weather Flow Estimate (Ap - Oct) (AFY)
40	To David Avenue Reservoir	87	404	0.09	0.21	56.74	48.23	1.13	0.91
24	To Pine Ave and Point Pinos Treatment Plant	64	2,482	0.23	0.40	48.30	41.05	0.82	0.67
25	To Pine Ave and Point Pinos Treatment Plant	79	2,751	0.23	0.49	60.13	51.11	1.02	0.82
39	To Pine Ave and Point Pinos Treatment Plant	113	3,820	0.20	0.61	88.69	75.39	1.46	1.18
45	To Pine Ave and Point Pinos Treatment Plant	21	1,014	0.23	0.13	15.85	13.47	0.27	0.22
46	To Pine Ave and Point Pinos Treatment Plant	4	36	0.11	0.01	2.48	2.11	0.05	0.04
	Subtotal to Pine Avenue	368	10,103	1.00	1.65	215.44	183.12	3.62	2.93
1	To Point Pinos Treatment Plant	78	-	-	-	29.60	25.16	1.01	0.81
10	To Point Pinos Treatment Plant	8	-	-	-	4.46	3.79	0.11	0.09
11	To Point Pinos Treatment Plant	47	54	0.03	0.04	30.66	26.06	0.61	0.49
12	To Point Pinos Treatment Plant	3	-	-	-	1.39	1.19	0.04	0.03
14	To Point Pinos Treatment Plant	6	-	-	-	1.74	1.48	0.07	0.06
15	To Point Pinos Treatment Plant	28	238	0.11	0.08	21.32	18.12	0.36	0.29
17	To Point Pinos Treatment Plant	2	1	-	-	1.22	1.04	0.03	0.02
19	To Point Pinos Treatment Plant	1	-	-	-	0.79	0.67	0.02	0.01
21	To Point Pinos Treatment Plant	2	2	0.02	0.00	1.45	1.23	0.03	0.02
23	To Point Pinos Treatment Plant	78	570	0.11	0.23	61.97	52.68	1.00	0.81
3	To Point Pinos Treatment Plant	5	4	0.03	0.00	3.30	2.80	0.06	0.05
5	To Point Pinos Treatment Plant	42	22	0.01	0.01	26.60	22.61	0.54	0.44
6	To Point Pinos Treatment Plant	25	4	-	-	13.63	11.58	0.33	0.26
8	To Point Pinos Treatment Plant	5	9	0.04	0.01	3.94	3.35	0.07	0.06
20	To Point Pinos Treatment Plant	0	-	-	-	0.18	0.15	0.00	0.00
13	To Point Pinos Treatment Plant	0	3	0.09	0.00	0.28	0.24	0.00	0.00
16	To Point Pinos Treatment Plant	1	1	0.02	0.00	0.91	0.77	0.02	0.01
18	To Point Pinos Treatment Plant	0	-	-	-	0.15	0.13	0.00	0.00
7	To Point Pinos Treatment Plant	20	36	0.05	0.03	14.95	12.71	0.25	0.20
	Subtotal to Point Pinos Treatment Plant (below Pine Avenue)	353	945	0.51	0.41	218.54	185.76	4.55	3.68
	Total to Point Pinos Treatment Plant	721	11,452	1.51	2.27	433.98	417.12	9.29	7.51
2	To Oceanview Boulevard - Outlet LID	1	1	0.02	0.00	0.39	0.33	0.01	0.01
9	To Oceanview Blvd - Outlet LID & Runoff to Sea Palm	11	18	0.04	0.01	7.95	6.76	0.14	0.11
4	To Oceanview Boulevard - Outlet LID	18	4	-	-	10.52	8.95	0.23	0.19
	Total to Local LID	29	23	0.06	0.01	18.86	16.03	0.38	0.31
26	To (E) Dry Weather Diversion System	2.91	3	0.03	0.00	1.98	1.69	0.04	0.03
28	To (E) Dry Weather Diversion System	4.00	2	0.01	0.00	2.50	2.12	0.05	0.04
30	To (E) Dry Weather Diversion System	15.21	18	0.03	0.01	11.57	9.84	0.20	0.16
32	To (E) Dry Weather Diversion System	7.69	18	0.06	0.01	6.37	5.41	0.10	0.08
34	To (E) Dry Weather Diversion System	1.53	2	0.02	0.00	1.17	0.99	0.02	0.02
35	To (E) Dry Weather Diversion System	3.13	31	0.11	0.01	2.75	2.33	0.04	0.03
36	To (E) Dry Weather Diversion System	1.84	2	0.03	0.00	1.43	1.22	0.02	0.02
38	To (E) Dry Weather Diversion System	40.18	826	0.15	0.16	33.42	28.40	0.52	0.42
42	To (E) Dry Weather Diversion System	10.64	166	0.13	0.04	8.45	7.19	0.14	0.11
44	To (E) Dry Weather Diversion System	26.11	857	0.17	0.12	21.25	18.06	0.34	0.27
48	To (E) Dry Weather Diversion System	13.20	593	0.20	0.07	10.33	8.78	0.17	0.14
50	To (E) Dry Weather Diversion System	1.40	90	0.23	0.01	1.06	0.90	0.02	0.01
52	To (E) Dry Weather Diversion System	1.89	90	0.20	0.01	1.52	1.29	0.02	0.02
22	To (E) Dry Weather Diversion System	5.90	0	-	-	2.58	2.19	0.08	0.06
27	To (E) Dry Weather Diversion System	0.24	0	-	-	0.14	0.12	0.00	0.00
31	To (E) Dry Weather Diversion System	0.09	0	-	-	0.04	0.03	0.00	0.00
33	To (E) Dry Weather Diversion System	0.16	0	-	-	0.10	0.08	0.00	0.00
37	To (E) Dry Weather Diversion System	2.49	1	0.01	0.00	1.65	1.40	0.03	0.03
41	To (E) Dry Weather Diversion System	5.98	4	0.01	0.00	4.14	3.52	0.08	0.06
43	To (E) Dry Weather Diversion System	1.03	0	-	-	0.49	0.42	0.01	0.01
47	To (E) Dry Weather Diversion System	0.92	0	-	-	0.42	0.35	0.01	0.01
49	To (E) Dry Weather Diversion System	0.10	2	0.05	0.00	0.06	0.05	0.00	0.00
51	To (E) Dry Weather Diversion System	0.11	4	0.13	0.00	0.07	0.06	0.00	0.00
29	To (E) Dry Weather Diversion System	2.89	0	-	-	0.33	0.28	0.04	0.03
	Subtotal to Existing Dry Weather Diversion System	150	2,710	1.57	0.46	113.81	96.74	1.93	1.56
54	To PHASE 3 Dry Weather Diversion System	7.56	144	0.13	0.03	6.07	5.16	0.10	0.08
56	To PHASE 3 Dry Weather Diversion System	26.44	1037	0.20	0.14	22.10	18.78	0.34	0.28
57	To PHASE 3 Dry Weather Diversion System	11.86	637	0.23	0.07	10.44	8.88	0.15	0.12
53	To PHASE 3 Dry Weather Diversion System	5.37	233	0.20	0.03	4.23	3.59	0.07	0.06
55	To PHASE 3 Dry Weather Diversion System	21.44	673	0.17	0.10	17.21	14.63	0.28	0.22
	Subtotal to Phase 3 Dry Weather Diversion System	73	2,724	0.93	0.37	60.04	51.03	0.94	0.76
	Total to MRWPCA	222	5,435	2.50	0.83	173.85	147.77	2.86	2.32
	Total to Manage	973	16,910	4.07	3.11	626.69	580.92	12.53	10.14

CITY OF PACIFIC GROVE LOCAL WATER & ASBS PROJECTS

	QUESTIONS	RESPONSE	
		PGLWP (Wastewater Recycling)	ASBS (Stormwater Recycling)
1	How easily the project could be implemented, taking into account:	There are no "political issues" that could effect implementation of either project.	
a.	Political issues	The proposed project would divert City wastewater prior to entering the regional collection/treatment system. The volume of wastewater proposed for recycling is approximately 0.6% of the influent to the RTP.	The proposed project would divert and treat an estimated 627 AFY of dry & wet weather storm water runoff, predominately from the City of PG. Dry weather flows would continue to be conveyed to the RTP for treatment and potential inclusion in the GWR. Wet weather flows would be treated prior to any discharge to the PGASBS or could be conveyed to the RTP for possible inclusion in the GWR.
b.	Project financing	The project is estimated to cost \$3.8 M to provide the first 125 AFY of demand to the City for the irrigation of the Golf Links, Cemetery and adjacent demands. The City is seeking a low-interest loan from the CWSRF Program. Expansion to serve all potential recycled water demands in the Facility Plan is estimated to be \$20 M.	Project financing is yet to be worked out for the project, however, it would be eligible for a low-interest loan from the CWSRF Program.
c.	Permitting	Currently underway with CEQA compliance and evaluations of their regulatory permitting requirements. Will likely require a Coastal Development Permit, that may represent the most challenging regulatory compliance issue.	Currently underway with CEQA compliance & evaluations of their regulatory permitting requirements. Will likely require a Coastal Development Permit, and approvals from the state Division of Dam Safety, sections 401 and 404 of the Clean water. Currently underway with CEQA compliance and evaluations of their regulatory permitting requirements. Will likely require a Coastal Development Permit may represent the most challenging regulatory compliance issue.
d.	Public acceptance	Thus far the public has received both projects with support.	
e.	Any other issues specific to the project		
2	The estimated amount of water that could potentially be provided by the project for use in direct replenishment of the Seaside Basin.	The available volume is 600 AFY available less the irrigation demand at the Golf Course & Cemetery (125 AFY) = 475 AFY	The estimated annual volume of wet weather flow = 580 AFY. Dry weather flows would be considered to remain diverted to the RTP for treatment.
3	Estimated implementation schedule for the project.	Operational by September 2015.	Implementation scheduling will depend upon the outcome of water quality monitoring and funding availability.
4	Estimated cost per acre-foot of water produced by the project.	Final cost estimates are still being developed.	
5	Potential for the project to receive grant or loan funding, including State funding assistance to local communities related to the State's Area of Special Biological Significance requirements.	CWSRF Funding is highly likely. Grants and other loan sources are under continual evaluation	

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

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

MEETING DATE:	February 12, 2014
AGENDA ITEM:	2.B
AGENDA TITLE:	Elect Chair and Vice Chair Positions
PREPARED BY:	Robert Jaques, Technical Program Manager
SUMMARY: Currently the positions of Chair and Vice Chair of the Watermaster TAC are filled by Eric Sabolsice and Rob Johnson, respectively. Each of these individuals has responsibilities and workloads that prevent them from regularly attending the TAC meetings. Consequently, there have been meetings at which neither of them could be present, leaving the TAC with no Chair or Vice Chair to conduct the meetings. Fortunately, other TAC members volunteered to temporarily take on the responsibility of conducting those meetings. In order to remedy this situation, I recommend that the Chair position be filled by Roger Hulbert of CAW, and the Vice Chair position be filled by Howard Franklin of MCWRA. These individuals have the same entity affiliations as the current Chair and Vice Chair, and both Mr. Sabolsice and Mr. Johnson are agreeable to making these changes. This is my recommendation. However, the TAC has the prerogative of selecting other of its members to fill these positions.	
ATTACHMENTS:	None
RECOMMENDED ACTION:	Take action to elect members to fill the positions of Chair and Vice Chair of the Technical Advisory Committee

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

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

MEETING DATE:	February 12, 2014
AGENDA ITEM:	2.C
AGENDA TITLE:	SWRCB Groundwater Concept Paper
PREPARED BY:	Robert Jaques, Technical Program Manager
SUMMARY: The State is in the process of preparing a "Groundwater Concept Paper." Its purpose is to serve as guide to the State in preparing groundwater protection actions, and to most effectively use State resource for groundwater management, throughout the State. Attached is a draft of the Concept Paper and an email with comments I submitted on behalf of the Watermaster when I received a discussion draft of it last Fall. This is for information only, to let the TAC know that the State is working on actions it may or will take, as well as things it will likely be devoting resources (potentially including funding) to, as it implements the elements contained in the Concept Paper.	
ATTACHMENTS:	SWRCB Notice of Public Workshop
RECOMMENDED ACTION:	None required – information only

State Water Resources Control Board

NOTICE OF PUBLIC WORKSHOP GROUNDWATER CONCEPT PAPER

Wednesday, January 22, 2014 – 9:00 a.m.
Joe Serna Jr. - Cal/EPA Headquarters Building
Coastal Hearing Room
1001 I Street, Second Floor
Sacramento, CA 95814

NOTICE IS HEREBY GIVEN that the State Water Resources Control Board (State Water Board) will hold a public workshop to consider public input on a discussion draft Groundwater Concept Paper at the time and location noted above. This will be an informational workshop only and no State Water Board action will be taken.

BACKGROUND

On October 8, 2013, the State Water Board released for public review a discussion draft groundwater concept paper. The draft concept paper is intended to serve as a starting point to identify and prioritize groundwater protection actions that the Water Boards will carry out over the next five years. The purpose is to ensure that the Water Boards effectively use their authorities and resources to address the State's most pressing groundwater challenges, and to complement and support groundwater management efforts occurring at the local level.

The concept paper proposes a framework for current groundwater protection efforts of the Water Boards and other entities, and suggests potential future actions that the Water Boards and others could pursue to promote effective groundwater management that supports beneficial uses over the long-term given the growing pressures of population growth, land use, demands on water supply, drought, and climate change impacts.

The State Water Board held stakeholder listening sessions during October, November, and December 2013 and solicited written comments on the draft concept paper. Written comments were due by December 18, 2013.

AVAILABILITY OF DOCUMENTS

The discussion draft groundwater concept paper, and the comments received by the written comment deadline, may be viewed and downloaded from the State Water Board's website at:
http://www.waterboards.ca.gov/water_issues/programs/groundwater/workplan.shtml.

WORKSHOP OVERVIEW

At this workshop, invited panelists will give presentations on fundamental groundwater issues, followed by public comments and discussion on the draft concept paper. The State Water Board is interested in receiving public input on the relevance of the draft concept paper's proposed framework, and existing and potential future groundwater management actions. In particular, the State Water

Board is interested in following up on the written comments received, including questions such as the following:

1. How should local and regional entities be held accountable for implementing effective groundwater planning and management, and what criteria should be used to determine if local management is sufficient?
2. What tools are needed for local and regional entities to develop and implement effective groundwater management, and what additional authorities, if any, are needed at the local and regional level?
3. Should State actions focus on unmanaged basins, or both managed and unmanaged basins?
4. What are the effective governance models that should be pursued, and what approaches could be taken to coordinate groundwater management among multiple jurisdictions that overly a single basin, or where no local or regional groundwater management entity exists?
5. How can the connection between surface water and groundwater be addressed in establishing thresholds, as well as in monitoring and governance?
6. What actions should the State Water Board carry out to best take advantage of the drinking water program reorganization?

To ensure a productive and efficient workshop, participants with common comments are encouraged to coordinate and provide oral comments as a group. **For those wishing to organize and present comments as a group, please contact Gail Linck by January 16, 2013 at (916) 341-5285 to ensure that adequate time is allotted.** So that all commenters have an opportunity to participate, presentations and questions may be time-limited.

PARKING AND ACCESSIBILITY

There is a parking garage across from the Joe Serna Jr. Cal/EPA Headquarters Building with entrances on 10th and 11th Streets between "I" and "J" Streets, and metered parking spaces are in the vicinity of the building. For directions, more parking information, and a map, please go to: <http://www.calepa.ca.gov/EPABldg/location.htm>.

All visitors to the Cal/EPA Building are required to sign in and receive a badge at the Visitor Services Center located just inside the main entrance, to the left. Valid picture identification may be required. Please allow up to 15 minutes for receiving clearance before proceeding to the 2nd floor.

The Cal/EPA Building is accessible to persons with disabilities. Individuals who require special accommodations are requested to contact Michele Villados, at (916) 341-5881, at least five working days prior to the meeting date. Persons with hearing or speech impairments may contact us by using the California Relay Service Telecommunications Device for the Deaf (TDD): TDD to voice (800) 735-2929; voice to TDD (800) 735-2922.

ADDITIONAL INFORMATION

Please direct questions about this notice to Gail Linck at (916) 341-5285 or gail.linck@waterboards.ca.gov, or to Eric Oppenheimer at (916) 445-5960 or eric.oppenheimer@waterboards.ca.gov.

January 13, 2014

Date



Jeanine Townsend
Clerk to the Board

Home ➤ Water Issues ➤ Programs ➤ Groundwater

State Water Boards Groundwater Workplan



Population growth and more intensive land use will place increased demands on the State's water supply. At the same time, surface water runoff is projected to decline due to the effects of climate change. These and other factors point to an increased reliance on groundwater. However, many of California's aquifers are already experiencing contamination and/or overdraft. These challenges do not lend themselves to a "one size fits all" solution, given the varying physical and institutional characteristics of California's groundwater basins.

The Water Boards are developing a workplan that aligns its current groundwater protection efforts, the ongoing actions of other entities with groundwater management responsibilities, and potential actions that the Water Boards and others could pursue. A goal of the workplan is to promote collaboration and cooperation among local, regional, and State agencies and other stakeholders to help promote more effective groundwater management that supports beneficial uses over the long-term.

Whether implemented at the local, regional, or State level, the Water Boards believe that an effective groundwater management program generally requires five key elements to be in place: thresholds, monitoring/assessment, governance/management, funding, and enforcement.

Milestones and Timeline

Release of draft concept paper – October 2013
Stakeholder Dialogues – October/November 2013
Discussion of stakeholder input with the State Water Board – January 2014



Subscribe online to our "[Groundwater Workplan](#)" email service and receive notifications and the latest updates.

Available Documents

[Discussion Draft Groundwater Workplan Concept Paper](#) - Comment deadline extended to Wednesday, December 18, 2013
[Comments Received on Discussion Draft](#)

Links to External Reports with Groundwater Management Recommendations

[Delta Stewardship Council - The Delta Plan: Ensuring a reliable water supply for California, a healthy Delta ecosystem, and a place of enduring value](#) (2013)
[Association of California Water Agencies \(ACWA\) - Sustainability from the ground up: A framework for groundwater management in California](#) (2011)
[Legislative Analyst's Office \(LAO\) - Liquid assets: Improving management of the State's groundwater resources](#) (2010)
[Legislative Analyst's Office \(LAO\) - Improving management of the State's groundwater resources](#) (2011)
[Public Policy Institute of California - Managing California's water](#) (2011)

Note: Paper not focused on groundwater, but includes recommendations for groundwater management

DISCUSSION DRAFT

Groundwater Workplan Concept Paper

The Water Boards are developing a workplan that aligns its current groundwater protection efforts, the ongoing actions of other entities with groundwater management responsibilities, and potential actions that the Water Boards and other entities could pursue. The objective is to ensure that the Water Boards address the groundwater challenges that have the greatest potential to impact beneficial uses, focus limited resources on the most important groundwater problems, and facilitate more efficient local and regional groundwater management and provide support and oversight, where needed.

This concept paper proposes a workplan framework under which the Water Boards' groundwater activities would be organized. Whether implemented at the local, regional, or State level, the Water Boards believe that an effective groundwater management program generally requires five key elements to be in place: thresholds, monitoring and assessment, governance, funding, and enforcement. The State Water Board is interested in your thoughts on the relevance of the proposed framework for groundwater management as well as its applicability to groundwater-related programs statewide. For each element of the proposed framework, this concept paper lists existing actions and suggests potential future actions that the Water Boards and others could take as a starting point for discussion. Many additional recommendations for action have been published in a variety of reports which can be found under reference materials in the website below.

The State Water Board is interested in meeting with various interests to continue the dialogue on this proposed framework, and the combination of existing and proposed actions, in the coming months. For more information please visit our website at:

http://www.waterboards.ca.gov/water_issues/programs/groundwater/workplan.shtml.

1 Managing California's Groundwater – Regional Leadership

Successful groundwater management requires prevention and cleanup of groundwater contamination, maximizing opportunities to recharge high-use basins, and ensuring that pumping occurs at sustainable levels over the long-term. **We envision a future where well-equipped local and regional groundwater management entities use monitoring information and thresholds to manage and maintain groundwater of sufficient quality at sustainable levels over the long-term; and where local and regional management efforts are backed-up by State support and oversight, where needed.** In some cases, management will also involve treatment of groundwater at the point of extraction or use for drinking water purposes, while measures to prevent further contamination are taken and long-term cleanup actions are implemented to address legacy pollution.

2 Implementing the Vision

The Water Boards currently implement a number of successful programs aimed at preventing and cleaning up groundwater pollution, monitoring quality, and encouraging recharge. Additionally, the State Water Board has broad constitutional authority to prevent the waste and unreasonable use of the State's water resources (including groundwater). While California lacks a comprehensive State

groundwater regulatory program, local and regional management of groundwater basins does exist in much of the State. The nature of groundwater and its uses vary widely by area, as does the extent of control. As a result, groundwater management has largely evolved on an as needed basis in a decentralized manner across the State. In spite of this, local and regional groundwater management efforts have produced impressive results in many areas of the State. Groundwater recharge, conjunctive use and cleanup projects have extended local water supplies, and storm water capture and recharge programs are growing around the State.

Effective groundwater management will ensure groundwater quality and quantity is maintained at sustainable levels that support beneficial uses of water over the long-term. Many of the most pressing challenges associated with groundwater quality can be broken down into three categories: (1) nitrate and other salts; (2) industrial chemicals; and (3) naturally-occurring chemicals. Nitrate and salt problems are generally associated with diffuse nonpoint pollution sources, such as agricultural drainage. Industrial pollutants typically originate from discrete point sources. Naturally-occurring chemicals are associated with geologic processes, and human activities often mobilize these pollutants into groundwater. Groundwater quality can also be impacted by pumping and declining water levels. In some areas, pumping may cause polluted groundwater or seawater to migrate or be drawn into areas that would otherwise not be impacted. The greatest challenge for groundwater quantity is overdraft leading to subsidence and the permanent loss of storage capacity. Managing groundwater levels (quantity) and preventing overdraft largely depends on maintaining a balance between the amount of pumping, natural depletion from a basin, and the amount of recharge. These challenges do not lend themselves to a “one size fits all” solution, given the varying physical and institutional characteristics of California’s groundwater basins. Therefore, an integrated approach to groundwater management is needed to ensure that appropriate action occurs at all levels of government.

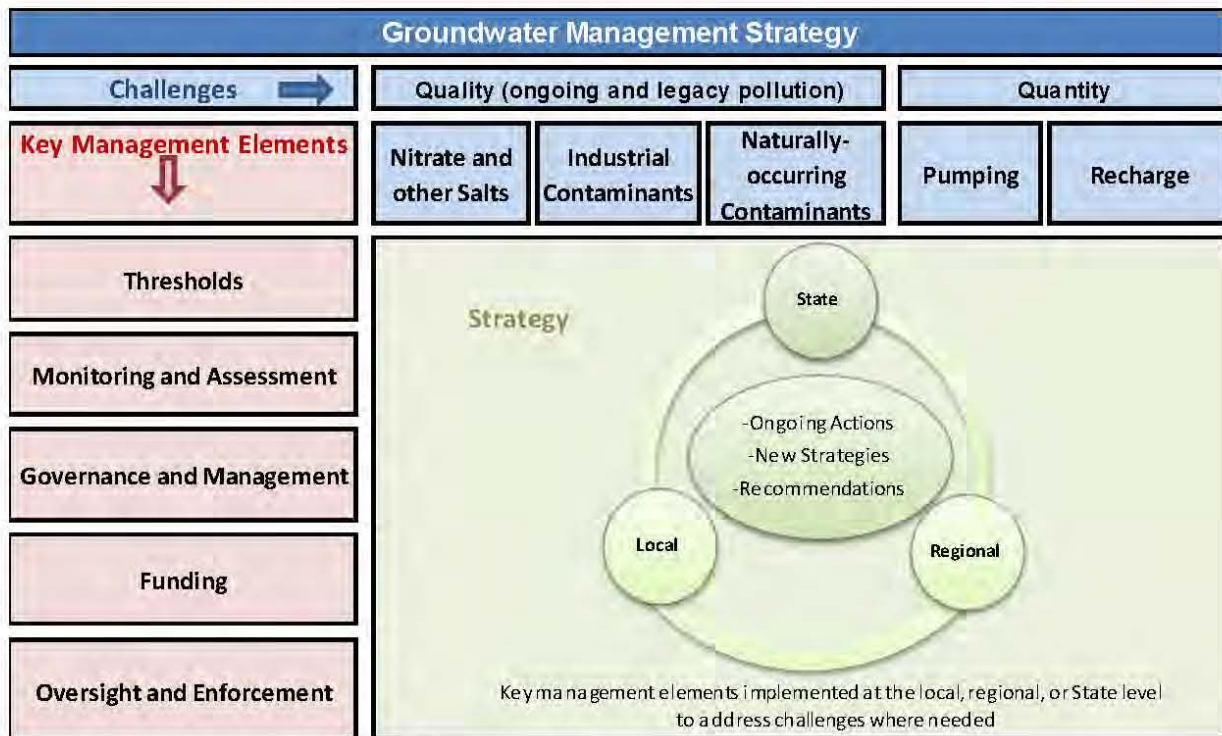
Whether implemented at the local, regional, or State level, effective groundwater management generally requires that the following key elements be in place:

1. **Sustainable thresholds** for water level drawdown and water quality for impacted, vulnerable, and high-use basins;
2. Water quality and water level **monitoring and assessment**, and data management systems, capable of determining if thresholds are being met and evaluating trends;
3. **Governance** structures with the **management** mechanisms needed to prevent impacts before they occur, clean up contamination where it has occurred, provide adequate treatment of contaminated drinking water sources, and ensure that meeting groundwater level and quality thresholds are managed over the long term;
4. **Funding** to support monitoring and governance/management actions; and
5. **Oversight and enforcement** in basins where ongoing management efforts are not protecting groundwater.

This approach to groundwater management is scalable by design because each key management element can be established and implemented at the local, regional, or State level, or through a combination thereof. The Water Boards will focus attention and assistance on high-use basins where thresholds are being exceeded.

*Nitrate Report Recommendation (http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/docs/nitrate_rpt.pdf)

The figure below portrays the application of this management framework to groundwater quality and quantity.



3 Management Elements and Potential Actions

For each of the five key management elements needed for effective groundwater management, this section lists current Water Board and other agency/entity groundwater protection actions. Actions that the Water Boards or other agencies/entities *could take* in the future to enhance current efforts are then provided as a starting point for discussion. The Water Boards are soliciting input on the types of actions needed to ensure viable and effective groundwater management solutions, particularly in areas of greatest need.

3.1 Sustainable Thresholds

Various agencies, including the Water Boards, establish protective levels, or thresholds, that apply to groundwater. These thresholds include State water quality standards, and local or regional basin management objectives (BMOs), that are used for managing and assessing groundwater quality and quantity to support designated beneficial uses and ensure a sustainable groundwater water supply. Thresholds are an important component of groundwater management because they establish quantifiable triggers that, when approached or exceeded, signal a threat or problem. Approaching or exceeding a threshold may trigger management actions needed to address identified threats or problems. *The State Water Board is soliciting comment on whether the current and proposed actions will result in thresholds for groundwater quality and elevation that support assessment of groundwater conditions, evaluation of groundwater quality and quantity trends, and informed management decisions.*

*Nitrate Report Recommendation (http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/docs/nitrate_rpt.pdf)

Existing THRESHOLDS	
Water Boards	- Water Quality Objectives in Basin Plans - Antidegradation Policy
Other State and Federal Agencies	- CDPH Maximum Contaminant Levels, Notification Levels, Response Levels, and Title 22 Water Recycling Criteria - OEHHA Public Health Goals - DWR Critical Overdraft
Regional and Local Entities	- Local Basin Management Objectives - Requirements for adjudicated basins (extraction and recharge measures)

3.1.1 Potential Water Board Actions

1. **Clarify how the State Water Board's Antidegradation Policy (Resolution No. 68-16) applies to groundwater (including effects related to quantity, such as recharge).**
2. **Incorporate into Basin Plans thresholds for salt and nutrients contained in Salt and Nutrient Management Plans.**
3. **Summarize approaches taken towards basin management objectives (BMOs) in existing local groundwater management plans for application in high-use basins where objectives do not exist.**

3.1.2 Potential Actions for Others

1. **CDPH should complete the rulemaking for groundwater recharge with recycled water (indirect potable reuse).**
2. **The Legislature should require local groundwater management entities to establish thresholds for sustainable groundwater management in their local groundwater management plans and to report their progress.**

3.2 Monitoring and Assessment

Groundwater monitoring and assessment evaluates current conditions, can be used to establish groundwater thresholds, and guides management decisions. Without sufficient monitoring, it is almost impossible to determine if groundwater problems exist or to forecast the potential for future problems that may warrant management actions. Many local, regional, and State agencies have statutory responsibility or authority to collect water quality and water use/level data and information; however, monitoring is inconsistent throughout the State, with significant regional variation in parameters monitored, monitoring frequency, and data availability. In spite of this diversity, there are excellent examples of groundwater monitoring programs now being implemented at the local, regional, and State levels. *The State Water Board is interested in understanding whether the existing and proposed actions will result in better integration and accessibility of existing groundwater quality and quantity data to support assessment of groundwater conditions, evaluation of groundwater quality and quantity trends, and informed management decisions.*

*Nitrate Report Recommendation (http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/docs/nitrate_rpt.pdf)

Existing MONITORING AND ASSESSMENT Activities	
Water Boards	- Groundwater Ambient Monitoring and Assessment (GAMA) Program - GAMA Priority (high-use) Basins Project (including mapped Priority Basins) - Hydrogeologically Vulnerable Area Mapping - AB 2222 Report to Legislature (Communities Relying on Contaminated Groundwater) - Central Coast Domestic Well Project - Central Valley Dairy and Irrigated Regulatory Lands Monitoring - Water Rights Groundwater Recordation Program (delegated to local agencies) - Define and identify nitrate high risk areas
Other State and Federal Agencies	- CDPH Drinking Water Program (monitoring of public supply wells, including consumer confidence reports prepared by public water suppliers) - DPR Ground Water Protection Program (pesticides sampling) - DWR California Statewide Groundwater Elevation Monitoring (CASGEM) Program - DWR basins in critical overdraft (Bulletin 118; 1980) - DWR Water Data Library (historical groundwater quality trend data, and CASGEM groundwater level data) - USGS National Water Information System (NWIS) (includes groundwater quality data collected under the GAMA Program) - NASA Central Valley Groundwater Elevation Study
Regional and Local Entities	- Groundwater recordation (Los Angeles, Riverside, San Bernardino, and Ventura counties) - Local agency monitoring for groundwater level as well as quality, and land subsidence in some regions

3.2.1 Potential Water Board Actions

1. Add a basin assessment module to GeoTracker GAMA that provides publicly-accessible information on groundwater quality and is capable of analyzing trends in high-use basins.
2. Work with the Department of Conservation's (DOC) Division of Oil, Gas, and Geothermal Resources (DOGGR) on monitoring and assessment requirements for hydraulic fracturing, pending the outcome of proposed legislation.
3. Require groundwater level data coming to the State Water Board to be submitted directly to CASGEM.
4. Require all groundwater quality data submitted pursuant to Water Board requirements to be in a format compatible with GeoTracker GAMA.*

3.2.2 Potential Actions for Others

1. DWR could create a searchable electronic database to submit well completion reports and associated data.
2. The Legislature could expand the State Water Board's Groundwater Recordation Program, which requires reporting of groundwater pumping, to basins subject to critical overdraft.

*Nitrate Report Recommendation (http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/docs/nitrate_rpt.pdf)

3. **Complete CASGEM Program implementation, including: (1) statewide prioritization of basins; (2) conducting groundwater elevation monitoring in areas where voluntary monitoring is not occurring; and (3) identifying basins subject to critical overdraft.**
4. **Update assessments and develop projections on the condition of California's groundwater basins, based on current groundwater management practices.**
5. **Develop estimates of storm water capture and groundwater recharge potential, and a tracking database to inform water resource planning and permitting decisions.**
6. The Legislature should enact legislation that establishes a framework of statutory authority for the Water Boards, in coordination with other State and local agencies, to improve the coordination and cost effectiveness of groundwater quality monitoring and assessment, enhance the integration of monitoring data across departments and agencies, and increase public accessibility to monitoring data and assessment information.*
7. The Legislature should require State and local agencies to notify groundwater users in nitrate high-risk areas and recommend that the well owners test their wells to evaluate drinking water quality. The Water Boards, California Department of Public Health (CDPH), and local public health agencies will coordinate in identifying private domestic wells and small, unregulated water systems in nitrate high-risk areas.*
8. The Legislature should require property owners with either a private domestic well or other unregulated groundwater system (2 to 14 service connections) to sample their well and disclose its water quality as part of a point of sale inspection before property title transfer or purchase.*

3.3 Governance and Management

In vulnerable and high-use basins, groundwater management is necessary to ensure that thresholds for water quality and quantity are not exceeded. In some situations, actions are needed to avert potential problems or to rectify existing problems. Pollution prevention, which can help alleviate future impacts to groundwater, is the most effective and affordable form of groundwater quality control; however, once contamination occurs, more costly cleanup actions may be needed. Managing groundwater levels (quantity) generally requires maintaining a balance between pumping, natural depletion, and recharge at the basin scale over the long-term. Such a balance can effectively be achieved through conjunctive use, demand management (e.g., water conservation, reduced pumping), or a combination of both. Various local, regional, and State agencies, including the Water Boards, have authority and responsibility for managing and regulating groundwater. The ongoing actions of these agencies have proven effective in many areas, but additional management action and controls may be needed to address current and potential future challenges associated with groundwater quality and quantity. *The State Water Board is interested in understanding whether the existing and potential actions in this section will result in the sustainable management of groundwater quality and quantity in high-use basins.*

Existing GOVERNANCE AND MANAGEMENT Activities	
Water Boards	• Expert Panel review of agricultural nitrate programs • Onsite Wastewater Treatment Systems (OWTS) Policy • Low-Threat Underground Storage Tank (UST) Case Closure Policy

*Nitrate Report Recommendation (http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/docs/nitrate_rpt.pdf)

	• Recycled Water Policy • Waste Discharge Requirements (WDR) Program • NPDES Storm Water Program (including LID requirements) • Recycled Water Permits • Irrigated Lands Regulatory Program (ILRP) • Confined Animal Facilities (CAF)/Concentrated Animal Feeding Operations (CAFO) Program • Land Disposal Program • Tank Tester Licensing Program • UST Program • Site Cleanup Program (SCP) • Department of Defense (DoD) Cleanup Program • Prohibitions • Water Rights Administration (subterranean streams and interconnected groundwater) • Aquifer Storage and Recovery (ASR) Permit • Evaluate WDRs to determine protectiveness of groundwater quality*
Other State and Federal Agencies	• DTSC Green Chemistry and Cleanup • DTSC/CalRecycle Solid Waste Landfill Program • DPR Pesticide Regulations • DOC Promulgation of Hydraulic Fracturing Regulations • USEPA Underground Injection Control Program • CDFA nitrogen mass balance taskforce*
Regional and Local Entities	• Local Oversight Program (UST, SCP) • Local and Regional Groundwater Management (ordinances, GWMPs, UWMPs, AWMPs, IRWMPs)

3.3.1 Potential Options for New Water Board Actions

1. **Expand the use of general orders to focus on high priority discharges to improve efficiency of regulation and better protect groundwater.**
2. **Prioritize cleanup cases based on threat and whether they are located in a hydrogeologically vulnerable area.**
3. **Focus regulatory activities to control discharges in hydrogeologically vulnerable areas that overlay high-use basins.**
4. **Work with DTSC to extend the cleanup oversight Memorandum of Agreement (MOA) between DTSC and the Water Boards for brownfields to include enforcement lead sites to align cleanup authorities with the type of contamination and route of exposure.**
5. **Incentivize permits to promote storm water infiltration and protect infiltrative capacity of hydrogeologically vulnerable areas.**
7. Continue to provide technical assistance for the CDFA's ongoing work with the University of California Cooperative Extension (UCCE) and other experts in establishing a nitrogen management training and certification program that recognizes the importance of water quality protection.*

*Nitrate Report Recommendation (http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/docs/nitrate_rpt.pdf)

3.3.2 Potential Recommendations to Others

1. **Assess legal obstacles and associated liability for groundwater recharge with sources that contain low level contaminants.**
2. **Assist DWR in conducting an evaluation of local groundwater management programs in high-use basins and identify where gaps in control exist that should be addressed with further action and develop guidelines for best practices in groundwater management.**
3. **Enact legislation that would allow for the establishment of Active Management Areas with specific requirements governing the management of groundwater including withdrawal, use, storage and monitoring/reporting.**
4. **Create a standardized set of authorities that districts with groundwater management responsibilities could draw upon to effectively and actively manage groundwater.**
5. The Legislature should enact legislation to establish a framework of statutory authorities for CDPH, regional organizations, and county agencies to have the regulatory responsibility to assess alternatives for providing safe drinking water and to develop, design, implement, operate, and manage these systems for small DACs impacted by nitrate.*

3.4 Funding

Successful groundwater management requires access to sufficient funding for development and implementation of groundwater management plans, monitoring (e.g., statewide programs such as GAMA and CASGEM), facilities (e.g., drinking water treatment systems, groundwater recharge facilities, storm water capture, etc.), ongoing operation and maintenance of infrastructure, pollution prevention and cleanup measures, as well as oversight or enforcement, by local and regional management agencies. In many cases, management entities have the authority to assess fees to cover the costs of local and regional management. However, the authority to assess fees is often contingent on voter approval at the local level in conformance with Proposition 218 and, therefore, approval can be difficult to achieve. In addition to local revenue sources, significant funding for conjunctive use projects, groundwater recharge facilities, groundwater treatment and monitoring, and groundwater basin management activities has been made available through various water bond measures and both State and federal funding. *Please refer to the existing and potential actions in commenting on whether adequate funding will be available to implement the suggested management framework (developing thresholds, conducting monitoring and assessment, managing and controlling groundwater quality and quantity, and oversight/enforcement).*

Existing FUNDING Activities	
Water Boards	• Clean Water State Revolving Fund (CWSRF) Program • Small Community Wastewater Grant Funding • Small Disadvantaged Community Wastewater Technical Assistance • Underground Storage Tank Cleanup Fund (USTCF) Program • UST/Orphan Site Cleanup Fund (OSCF) • Replacing/Repairing/Upgrading Underground Storage Tank (RUST)

*Nitrate Report Recommendation (http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/docs/nitrate_rpt.pdf)

	Program • Agricultural Drainage Loan Program (ADLP) • Agricultural Drainage Management Loan Program (ADMLP) • Nonpoint Source (NPS) Pollution Control Program • State Water Pollution Cleanup and Abatement Account (CAA) • Water Recycling Funding Program (WRFP) • Stormwater Grant Program • Seawater Intrusion Control Program • SRF and bond funding for storm water and groundwater recharge projects
Other State and Federal Agencies	• DWR Local Groundwater Assistance (LGA) Grant Program, Integrated Regional Water Management (IRWM) Grant Program, etc. • CDPH Safe Drinking Water SRF (for public water systems) • CDFA Fertilizer Research and Education Program (FREP) (funds studies on fertilizer use, plant nutrient efficiency, and nitrogen management) • DTSC Brownfields Loan Fund • USEPA Brownfields Grants Program • California Pollution Control Financing Authority (CPCFA) Brownfields Assessment and Redevelopment Program and California Recycle Underutilized Sites (CALReUSE) Program • USDA Rural Assistance Program for Drinking Water • CDFA mill fee collection for fertilizer research and education*
Regional and Local Entities	• General and Special District Fee Assessments

3.4.1 Potential Options for New Water Board Actions

None.

3.4.2 Potential Recommendations to Others

- 1. Establish a funding source that also addresses liability for cleanup of contaminated sites where responsible parties are unavailable, unable, or unwilling to pay for cleanup.**
- 2. Local and regional groundwater management agencies should assess fees, where needed, to cover costs of monitoring and managing groundwater.**
3. The Legislature should provide a stable, long-term funding source for provision of safe drinking water for small DACs.*
4. DWR should give preference in the Proposition 84 Integrated Regional Water Management (IRWM) Grant Program to proposals with IRWM Plans that include an evaluation of nitrate impacts, including the access of safe drinking water to small DACs, for areas that have been identified as nitrate high-risk areas.*
5. The Legislature should enact legislation that establishes a funding source for the State Water Board's Groundwater Ambient Monitoring and Assessment (GAMA) Program.*
6. Continue to increase access to safe drinking water funding sources for small DACs by streamlining funding applications, providing planning grants, and providing technical assistance.*

*Nitrate Report Recommendation (http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/docs/nitrate_rpt.pdf)

3.5 Oversight and Enforcement

Oversight and enforcement encourages dischargers and groundwater pumpers to operate in a manner consistent with relevant regulations, plans, policies, and permits. To address violations of management plan provisions or regulatory requirements, federal, State, and local agencies provide oversight of pollution cleanup, and take enforcement actions of varying types and levels of stringency. Local and regional groundwater management entities may also need to take additional oversight actions when monitoring data demonstrate that thresholds are or will likely be exceeded within their jurisdictions.

The State Water Board, along with the Department of Water Resources and the California Department of Fish and Wildlife, can exercise, in varying degrees, constitutional and statutory authorities to protect the public trust, prevent the waste and unreasonable use of the State's water resources, and initiate actions to protect those resources. In addition to the actions suggested below, the State Water Board is soliciting input on whether these authorities should be integrated into its workplan for groundwater.

Existing ENFORCEMENT AND OVERSIGHT Activities	
Water Boards	• Enforcement and cleanup of nitrate and industrial pollutants in high-use basins and in groundwater reliant areas • UST Fund Fraud, Waste, and Abuse Program • Waste Discharge Requirements enforcement • Underground Storage Tank (UST) Leak Prevention and Cleanup • Legacy Site Cleanups • Initiate adjudication to protect groundwater quality • Undertake proceedings to prevent waste and unreasonable use • Water Right Permit enforcement
Other State and Federal Agencies	• CDPH enforcement and oversight of public water systems • DTSC enforcement action for violations of hazardous waste requirements • DTSC site cleanups • USEPA enforcement for violations of federal Safe Drinking Water Act • Watermaster enforcement of adjudications
Regional and Local Entities	• CUPA enforcement activities of environmental and emergency management programs • Local agency enforcement of tank testing requirements, GWMPs, and groundwater monitoring, reporting, and pumping requirements

3.5.1 Potential Options for New Water Board Actions

1. **Target groundwater quality regulatory program enforcement on legacy sites in hydrogeologically vulnerable areas.**
2. **Evaluate and report on the effectiveness of enforcement of well design and destruction standards to eliminate conduits for contamination.**
3. **Establish an interagency task force to improve the integration of agency authorities that could be used to address groundwater overdraft.**
4. Use Porter-Cologne authority to order parties responsible for nitrate contamination to provide replacement water.*

3.5.2 Potential Recommendations to Others

None.

*Nitrate Report Recommendation (http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/docs/nitrate_rpt.pdf)

Bob Jaques

From: Bob Jaques [bobj83@comcast.net]
Sent: Monday, November 04, 2013 11:37 AM
To: eric.oppenhimer@waterboards.ca.gov
Cc: 'Bob Jaques'; Dewey Evans
Subject: Groundwater Work Plan Concept Paper
Eric,

In response to the SWRCB's request for comments/input on this document, I offer the following on behalf of the Seaside Basin Watermaster:

1. Paragraph 1 (Managing California's Groundwater - Regional Leadership): Until the Seaside Groundwater Basin in Monterey County was adjudicated in 2006, the Basin had no groundwater management entity to oversee or manage it. A means to designate a groundwater basin management entity for each basin within the State should be pursued to help avert adjudication situations such as the one that occurred in this Basin.

2. Paragraph 1 (Implementing the Vision): In the 2nd para there is discussion about the most pressing challenges regarding water quality. In our instance the pressing challenge was, and remains, water quantity. Over-pumping of the basin led to the adjudication. With falling groundwater levels, the risk of seawater intrusion and water quality degradation now exists. I feel equal effort should be made to address the issue of insufficient water quantity to meet demands, as well as the water quality issues.

In the 3rd para there are 5 numbered items. I agree wholeheartedly with item 3 pertaining to governance structures with management mechanisms being needed to prevent impacts before they occur. Had there been such a structure in place years ago, the Seaside Basin would most likely not have reached an overpumped condition.

3. Paragraph 3 (Management Elements and Potential Actions): I am not aware of any current thresholds that apply to the Seaside Basin that would have helped to avert overdrafting the basin. The DWR Critical Overdraft threshold listed in the table on page 4 is not something I am familiar with, but I don't think it applied to this Basin, otherwise DWR would have been involved in helping to avert overdrafting.

In subpara 3.1.2 I agree fully with item 2 pertaining to requiring local groundwater entities to establish thresholds for sustainable management of their basins.

In subpara 3.2 in the 2nd sentence there is discussion regarding the need for monitoring to be done to establish thresholds. I agree fully with this - monitoring of not only quality but also of safe yield vs. production levels and groundwater levels vs. adjacent seawater levels should be included in this monitoring to identify risk potential for seawater intrusion.

In subpara 3.2.1 I recommend that there be a designated public agency for each basin within the State, so that there will be a public agency managing each basin to protect it. Each such agency should be required to perform some level of monitoring to determine the "health" of their basin in order to take proactive steps if degradation is detected.

In subpara 3.2.2 I agree especially with items 2 and 3 pertaining to overdrafting of basins and the 3 steps listed for CASGEM Program implementation. I don't think item 5 is very useful - stormwater projects are very costly and difficult to implement. They involve considerable amounts of infrastructure and must comply with a lot of public health and water quality requirements before they can be allowed to recharge groundwater basins. I don't think item 6 pertaining to public access needing to be increased is a problem - I think the problem is the lack of a public agency having monitoring and managing the basin in what needs to be focused on.

In subpara 3.3.1, item 5 mentions "incentivizing permits to promote storm water infiltration". I did not understand how incentives might be part of the permitting process. It would be good to elaborate on that.

Under subpara 3.3.2 I think all of the 5 topics listed are good ones to pursue.

Undersubpara 3.4.2 I think a good recommendation would be to seek funds to enable local groundwater management agencies to acquire water to replenish overdrafted basins (adjudicated or not) in order to reestablish protective water levels would be a good one to pursue.

Thanks for the opportunity to submit these comments.

Bob Jaques
Technical Program Manager
Seaside Basin Watermaster
83 Via Encanto
Monterey, CA 93940
(831) 375-0517

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

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

MEETING DATE:	February 12, 2014
AGENDA ITEM:	3
AGENDA TITLE:	Discussion of New Survey Information on the Wang Subdivision Wells
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

At the January 8, 2014 TAC meeting Mr. Lear noted that the groundwater levels reported for the Wang subdivision wells were lower than water levels in the Laguna Seca subarea when the Wang subdivision was discussed by the TAC, and then the Board, in September and October, 2012. As a result of that, it was concluded that pumping from the Wang subdivision wells would not affect water levels in the Laguna Seca subarea. There was also discussion at that time that the Chupines fault (which approximates the southerly Decision-defined boundary of the Seaside Basin and the Laguna Seca subarea in this vicinity) appeared to provide some degree of hydrogeologic separation between the Wang wells and the Laguna Seca subarea. Mr. Lear, however, reported that subsequent survey work performed by the proponents of the Wang project found that the Wang subdivision wells have water levels that are in fact about the same as those in the Laguna Seca subarea, not lower, as previously reported.

Attached is the "Summary" section of the report prepared for the Wang subdivision titled "*Revised and Updated Project-Specific Hydrogeologic Report, Peter and Grace Wang 26-Lot Subdivision, (PLN #010422), Monterey County, California*" dated August 2, 2013. In this Report the statement is made that the Watermaster found that the Wang subdivision wells did not appear to be hydraulically connected to the Laguna Seca subarea of the Seaside Basin. The Report includes tables showing survey and calculated data regarding the elevations of the wells and the groundwater levels.

MPWMD was asked by the County to review and provide comments on this report. This is one of those comments, which pertains to the survey data and the calculated groundwater levels:

Page 18, third paragraph, fifth sentence. Sentence reads: "Regional water table maps suggest that water levels near the northern boundary of the fractured rock aquifer located beneath the edge of the project watershed and within the Laguna Seca Subarea are between 200 and 220 ft msl (Yates, et al, 2002)". It should be noted that water levels in the eastern portion of the Laguna Seca Subarea north of the Wang project were declining at an average rate of 1.5f/lyear when that report was prepared (Yates, et al, 2002, pg. iii), and have continued to decline since then. There are now more recent regional water-level elevation maps available that have been prepared for the Seaside Basin Watermaster. The most recent are Figures 26 through 29 of the "Water Year 2012 Seawater Intrusion Analysis Report" prepared by HydroMetrics (2012). These figures show spring and fall 2012 water-level elevations for the shallow and deep aquifer zones in the basin. The deep zone Map, which corresponds to the Santa Margarita aquifer, indicates water levels are between approximately 160 to 180 ft msl within the Laguna Seca Subarea near the northern edge of the project area. This is within the same range as the project primary and back-up wells' 2012 and 2013 water-level data cited in Table 3 (page 19), i.e. ranging from 161 to 173 ft msl. Accordingly, the

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AGENDA ITEM:

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available data do not support the contention (page 18, fourth paragraph) that a distinct difference in water-level elevations exists from the primary and back-up project wells to the adjacent area of the Laguna Seca Subarea north of the project that would indicate a groundwater flow direction from north to south. This mistaken interpretation of water-level differences between these two locations could stem from the incorrect water-level reference point elevation data that were utilized for these wells when the data were originally presented to the Watermaster TAC in 2012. The table below summarizes the differences between the inaccurate reference-point elevations that were presented to the TAC in 2012 vs. the 2013 surveyed elevation data that are included in Appendix C of this report.

Well	DBSA (9/5/2012) Table 1	Central Coast Surveyors (CCS) (4/17/2013) NAVDSS	Elevation Discrepancy between DBSA and CCS data (ft)
02-071	482	562.31	+80.31
07-11024	485	561.57	+76.57
03-01132	429	496.00	+67.00

There were two reasons for the TAC's September 2012 recommendation to the Board, and the Board's subsequent concurrence, that the Watermaster not object to the use of the Wang wells to supply water to the subdivision:

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

This first reason is not changed by the information provided in the attached Report. However, as the MPWMD comments indicate, based on this new survey data it appears more likely that these wells could draw water from the Laguna Seca subarea.

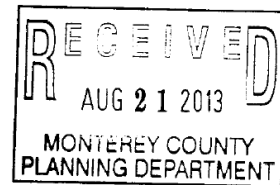
I recommend that this new survey information and its potential significance be provided to the Board, but that no recommendation be made by the TAC for action by the Board.

ATTACHMENTS:

Excerpt from "Revised and Updated Project-Specific Hydrogeologic Report, Peter and Grace Wang 26-Lot Subdivision, (PLN #010422), Monterey County, California"

**RECOMMENDED
ACTION:**

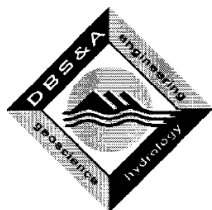
Provide this new survey information to the Board



**Revised and Updated Project-Specific
Hydrogeologic Report
Peter and Grace Wang 26-Lot Subdivision
(PLN #010422)
Monterey County, California**

**Prepared for Peter and Grace Wang
 Monterey County, California**

August 2, 2013



Daniel B. Stephens & Associates, Inc.

490 Grand Avenue, Suite 110 • Oakland, California 94610



Updated Project-Specific Hydrogeologic Report

1. Summary

The proposed Wang subdivision is located in an area south of the Chupines Fault. The Chupines Fault essentially delineates the southern boundary of the Laguna Seca Subarea of the Seaside Groundwater Basin. The Monterey Peninsula Water Management District defines the Fault as the southern boundary of the Shallow Aquifer. The actual southern boundary of the Laguna Seca Subarea defined by the Seaside Groundwater Basin Watermaster is parallel to the fault and is located approximately 1,200 feet north of the Chupines Fault. The three supply wells that are intended to serve as the primary and secondary sources of water for the proposed Wang subdivision are physically located in the project watershed and the associated fractured rock aquifer south of the Laguna Seca Subarea. The wells are located south of the Chupines Fault, which defines the northern edge of the fractured rock aquifer. The wells do not appear to be hydraulically connected to the Laguna Seca Subarea.

Rainfall each year normally results in 55 acre-feet (AF) of recharge into the fractured rock aquifer beneath the project watershed. This amount will support the proposed Wang subdivision net use of 12 acre-feet per year (AFY) in normal rainfall years. There is at least 200 AF of water in storage in the portion of the aquifer directly beneath the proposed Wang subdivision and a total aquifer storage of 494 AF that the proposed Wang subdivision can access from the upstream project watershed. Even using the lower figure of 200 AF with no aquifer recharge, groundwater storage is equivalent to 16 years of proposed Wang subdivision pumping. The State Water Board only requires the ability to meet a 3-year drought. The recharge and storage data noted above, including the acknowledgment by the Seaside Groundwater Basin Watermaster and Board that the wells for the proposed Wang subdivision do not appear to be hydraulically connected to the Seaside Groundwater Basin and Laguna Seca Subarea, will satisfy the 20-year water supply required for approval of the new subdivision and will meet the Monterey County definition of long term water supply.

According to the Seaside Groundwater Basin Watermaster, the proposed Wang subdivision Wells 02-071, 03-01132, and 07-11024 do not appear to be hydraulically connected to the



Laguna Seca Subarea. The Seaside Groundwater Basin Watermaster and Board stated on October 11, 2012 that Wells 02-071, 02-072, 03-01132, and 07-11024 are located outside of the Seaside Basin boundary as shown in the amended final decision entered in the lawsuit, California American Water v. City of Seaside et al., Monterey Superior Court (Case No. 66343) dated March 27, 2006.

The principal water bearing units in the project watershed and beneath the proposed Wang subdivision are the Santa Margarita Sandstone (Miocene) and pleistocene-pliocene continental deposits (including the Paso Robles Formation). The project watershed also includes the Monterey Formation, which is typically a less reliable source of groundwater supply but can often be the only source of groundwater in the highland areas adjacent to the southern boundary of the Laguna Seca Subarea, including the fractured rock aquifer underlying the proposed Wang subdivision.

The transmissivity (between 1,080 and 6,600 gallons per day per foot [gpd/ft]) estimated from four pumping tests are relatively small. The specific yield or storativity was estimated to range between 0.15 and 1.5 percent and is typical of consolidated low-yielding aquifers that are controlled by secondary (fractures and joints) and some primary (inter-granular pore spaces) porosity. This indicates that the direct and local impact from pumping the proposed Wang subdivision wells is limited to a radius of between 150 and 1,200 feet after pumping 24 hours, if no barrier boundary is encountered.

Based on the analysis of groundwater samples collected from Wells 02-071, 03-01132, and 07-11024, the total dissolved solids (TDS) concentration in the fractured rock aquifer is uniform and ranges from 816 to 880 milligrams per liter (mg/L), indicating that the overall water quality is within the definition (< 1,000 mg/L) of freshwater. TDS concentrations in the Laguna Seca Subarea range between 700 and 1,010 mg/L. The water samples that were collected during the pumping tests have elevated turbidity ranging from 0.93 to 13 nephelometric turbidity units (NTU). Elevated turbidity can result in elevated trace ion concentrations. For example, arsenic was detected in all of the wells, at concentrations ranging from 0.008 to 0.016 mg/L, approaching or exceeding the California primary maximum contaminant level of 0.010 mg/L. However, dissolved arsenic concentrations are expected to be smaller once the turbidity concentrations are reduced to zero with a properly designed and/or developed water supply



well. Total coliform bacteria were also detected in the groundwater sample collected from Well 03-01132 and is probably a result of the sampling protocol; Well 03-01132 should be re-developed, treated with a chlorine solution, and re-sampled after the well has been pumped to confirm the presence or absence of coliform bacteria. Re-development of the well will entail mobilizing a pump rig to the site, removing the pump; swabbing and bailing (or jetting) to remove residual drilling fluids; chlorinating to sterilize the well and pump; brief pumping test to remove drilling fluids and chlorine; and water quality testing. California Department of Health Services requires community water systems to treat water to remove coliform bacteria, when such bacteria are present.

Initially, on-site wastewater disposal (individual septic tanks) was proposed for the project and would have generated approximately 12.7 AFY of return flow to the project watershed. The project has been modified to convey wastewater to the Pasadera/Laguna Seca treatment facility. With this modified project plan there are no anticipated water quality impacts from, or accumulations of, nitrates at the proposed Wang subdivision.

All groundwater beneath the proposed Wang subdivision and the project watershed is derived from rainfall. The average rainfall is 19.42 inches per year. At least 55 AFY of rainfall is recharged to the underlying fractured rock aquifer. The net water demand for the proposed project (12 AFY) is available from groundwater recharge at the proposed Wang subdivision and upstream in the project watershed (approximately 446 AFY) during years of average precipitation. In addition, groundwater storage ranging from 200 AF (beneath the proposed Wang subdivision property) to 494 AF (beneath the project watershed) would provide surplus long-term supply.

Applicable mitigation measures include, but are not limited to (1) operating a groundwater treatment system (e.g., ion exchange and filtration) to address possible elevated concentrations of arsenic and the presence of coliform bacteria, (2) requiring water-conserving devices for all new development, and (3) xeriscaping and native vegetation landscaping. Additional possible mitigation measures include, but are not limited to (1) storm water detention ponds to promote deep percolation of water, (2) dry wells to collect hard-surface storm water runoff and enhance percolation into the ground, (3) fog harvesting, and (4) porous pavement.

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

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

MEETING DATE:	February 12, 2014
AGENDA ITEM:	4
AGENDA TITLE:	Continued Discussion on HydroMetrics Modeling of Laguna Seca Subarea
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

Subsequent to the last TAC meeting on January 8 I have spent considerable time talking with HydroMetrics, MPWMD, and others, and in reviewing various documents that pertain to groundwater matters in the Laguna Seca subarea. Based on this I have refined the list of topics that I believe the TAC should discuss and ultimately provide recommendations on to the Board, as follows:

1. Issue or Question: What is the definition of “Material Injury” and how should this be used in decision making by the Watermaster?

Discussion: The Decision uses the term “material injury” in several places. Specifically, in the Definitions section (Section A) the term “Material Injury” is defined in paragraph 16 to mean “...a substantial adverse physical impact to the Seaside Basin or any particular Producer(s), including but not limited to: seawater intrusion, land subsidence, excessive pump lifts, and water quality degradation. Pursuant to a request by any Producer, or on its own initiative, Watermaster shall determine whether a Material Injury has occurred, subject to review by the Court as provided for in Section III.N.” In paragraph 20 in the definition of “Operating Safe Yield” the Decision states that “The Operating Yield established here [in the Decision] will be maintained for three (3) years from the date of this Decision or until a determination is made by the Watermaster, concurred in by this Court, that continued pumping at this established Operating Yield will cause Material Injury to the Seaside Basin or to the Subareas, or will cause Material Injury to a Producer due to unreasonable pump lifts.” The term “unreasonable pump lifts” is not defined in the Decision. The Decision goes on to state in several places that if the Watermaster determines that material injury will occur, and depending on the perceived cause of such material injury, the Watermaster is to develop revised values for such parameters as Operating Yield and/or production of brackish water from the Sand City desalination plant. The term is also used in the Decision with regard to a Producer changing the location of its production facilities, which is only allowed if the change will not lead to material injury to another Producer (Section M.3.c).

In the context of the Laguna Seca subarea it appears that seawater intrusion, land subsidence, and water quality degradation are not currently of concern, so excessive pump lifts (and other consequences) resulting from falling groundwater levels should be the focus of determining whether material injury is occurring or is likely to occur. Excessive pump lifts could cause well owners to incur increased pumping costs, and/or costs to install new pumping equipment. One other consequence of falling groundwater levels, as pointed out by HydroMetrics, would be exposing portions of well screens that were previously continuously submerged. This can reportedly result in more rapid corrosion of the well screen material which would eventually cause well owners to incur repair costs that they would not otherwise incur.

Recommendation: Based on this information I recommend that the Watermaster consider material injury to occur in the Laguna Seca subarea when groundwater levels drop far enough such that (1) if a well-maintained and properly operating existing well pump, set at its current elevation, can no longer produce

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the amount of water that it previously did (up to the maximum amount allocated to that Producer by the Decision), (2) or if the existing well screen (if it is currently continuously submerged) becomes partially or totally exposed and therefore becomes vulnerable to accelerated corrosion.

2. Issue or Question: When will groundwater levels drop below existing well screens?

Discussion: This information is tabulated in the Well Table attached at the end of this Agenda Transmittal based on information contained in the HydroMetrics Technical Memo. As this Table indicates, of the wells for which all of the necessary information to complete the table was available, the only wells that appear to be in jeopardy of having the groundwater levels drop below either the top of the well screen or the well pump are either CAW wells that will be taken out of production when the Monterey Peninsula Water Supply Project (MPWSP) goes into operation, or are wells that are not in use. However, there are a number of wells for which sufficient information was not available to complete the Table (wells with "n/a" shown), so it was not possible to estimate when or if those wells would be impacted within the time period covered by the modeling (2041).

3. Issue or Question: Would reducing pumping by Alternative Producers appreciably extend the time period before which groundwater levels would drop below the tops of the wells screens?

Discussion: Additional modeling, which HydroMetrics could perform for approximately \$2,000, would be necessary to answer this question.

4. Issue or Question: Will any production wells experience Material Injury by 2041?

Discussion: Of the wells listed in the Well Table, it does not appear that any production wells for which sufficient data was available to complete the Well Table will experience Material Injury by 2041. This is because the only production wells that would be so impacted would be CAW's Bishop No. 3 and Ryan Ranch No. 7, both of which CAW plans to take out of production when the MPWSP goes into operation. Again, however, there are a number of wells for which sufficient data was not available to make this determination.

5. Issue or Question: Could the model run be extended further into the future to see when Alternative Producer wells would experience Material Injury due to falling groundwater levels?

Discussion: Yes, but this would be costly to do and would begin stretching the accuracy of the model's output. Alternatively, one could simply extrapolate trend lines from the existing model runs to provide a rough idea of when water levels would drop far enough to cause Material Injury to Alternative Producer wells. Charts with extrapolation trend lines for the four wells from the Technical Memo that had sufficient data to make this evaluation are attached at the end of this Agenda Transmittal. As these charts show, two of these wells appear to be in jeopardy of having either the tops of their screens or their well pumps fall below groundwater levels by the mid-2050s, while the other two do not appear to be in jeopardy of having this occur until well beyond the 2060s.

6. Issue or Question: Why have the Natural Safe Yield (NSY) figures for the Laguna Seca Subarea changed so much over the years?

Discussion: With regard to how the NSY for the Laguna Seca Subarea (LSSA) was determined in the Decision, Joe Oliver's recollection from the proceedings leading up to the Decision is that early in the Court proceedings (i.e., before the trial phase), the Judge asked for an accounting of claimed water rights by each of the parties. At that time, this is what Mr. Oliver recalls was the tally that was assembled for producers that were eventually allocated water rights as Alternative Production Allocation (APA)

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* * * AGENDA TRANSMITTAL FORM * * *

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producers in the LSSA:

Pasadera Country Club	251 AFY
Bishop/Laguna Seca Golf Resort	320 AFY
York School	32 AFY
Laguna Seca County Park	<u>5 AFY</u>
TOTAL	608 AFY

Mr. Oliver said it appeared to him that the judge took the initially assumed NSY of 3,000 AFY for the Basin as a whole, then assigned 608 AFY of this as the LSSA NSY, with the remainder of 2,392 AFY becoming the de facto NSY for the Coastal Subareas (even though the 2,392 AFY value does not show up in the Decision, it is what one gets when subtracting: $3,000 - 608 = 2,392$). Sometime after this initial tally of APA producers, lawyers representing Laguna Seca County Park came forward and pleaded that there had been a mistake in calculating the historical production (i.e., claimed water right) and it was correctly 41 AFY, not 5 AFY. Mr. Oliver thought that perhaps the Judge accepted this new number, which made the LSSA APA total to 644 AFY, but did not simultaneously adjust the LSSA NSY from 608 to 644 AFY. This could explain why there is a 36 AFY discrepancy in the Decision between the NSY and the allocation of water rights to the Alternative Producers in the LSSA. Mr. Williams commented that this would suggest that the 644 acre-feet/year NSY for the Laguna Seca area was not based on a water budget, but rather based on claimed water rights – whether the water was available or not. If correct, this would mean the NSY of 644 acre-feet per year was not based on the amount of water that could be sustainably pumped.

I contacted others who I thought might be able to provide further explanatory information on this matter, but none of them had any other information to provide.

7. Issue or Question: What benefit would there be to evaluating the impacts of reducing pumping from wells that are located outside of the Seaside Basin's Decision-established boundary?

Discussion: At the January 8, 2014 TAC meeting the TAC voted to recommend that the Board authorize further modeling to provide this information. HydroMetrics estimates this additional modeling would cost approximately \$5,000. However, since wells outside of the Basin's Decision-established boundary are not within the Watermaster's jurisdiction, and could therefore not be required or directed by the Watermaster to reduce their pumping, it is not clear how this information would be of any practical use to the Watermaster. It would potentially be useful if the Board decided to ask the Court to redefine the Basin boundary because modeling has now shown that pumping from outside the current boundary is affecting water levels inside the boundary. However, it might be better to perform this additional modeling only if the Board decides to seek Court direction to redefine the boundary of the Basin. Otherwise, it could involve the expenditure of money to obtain information that the Watermaster would be unable to use to take any action upon. Since the Board may raise these issues, clarification from the TAC on why it recommends performing this additional modeling at this time would be helpful.

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AGENDA ITEM:

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I recommend that the TAC provide the following information to the Board:

Technical Recommendations

There is currently approximately \$8,000 left unspent in HydroMetrics' contract to perform modeling of the LSSA. Use some or all of this unspent amount to conduct additional modeling to better determine:

1. Whether reducing or eliminating pumping by Alternative Producers in the LSSA would appreciably reduce the rate at which groundwater levels are falling in the LSSA.
2. The impact on groundwater levels in the LSSA of pumping from outside the eastern and southeastern boundaries of the LSSA.

Non-Technical Issues the Board May Wish to Consider

Should Producers in the LSSA be notified of the findings of HydroMetrics's modeling work at this time, or should the additional recommended modeling first be performed in order to provide a clearer understanding of the situation, and a decision then made regarding notifying Producers?

1. What additional information would the Board need in order to make a determination regarding whether or not Alternative Producers in the LSSA should be directed to reduce their pumping?
2. The findings from this modeling work indicate that the Seaside Basin's true hydrogeologic boundary of the LSSA area is further to the east and southeast than the boundary shown in the Decision. What additional information would the Board need in order to make a determination as to whether or not to request that the Court provide direction regarding reestablishing the boundaries of the Seaside Groundwater Basin in the LSSA to address the discrepancy.

ATTACHMENTS:

1. Well Table.
2. Extrapolation Charts
3. HydroMetrics Technical Memorandum on the Laguna Seca Safe Yield Analysis (same document that was included in the January 8, 2014 TAC agenda packet)

**RECOMMENDED
ACTION:**

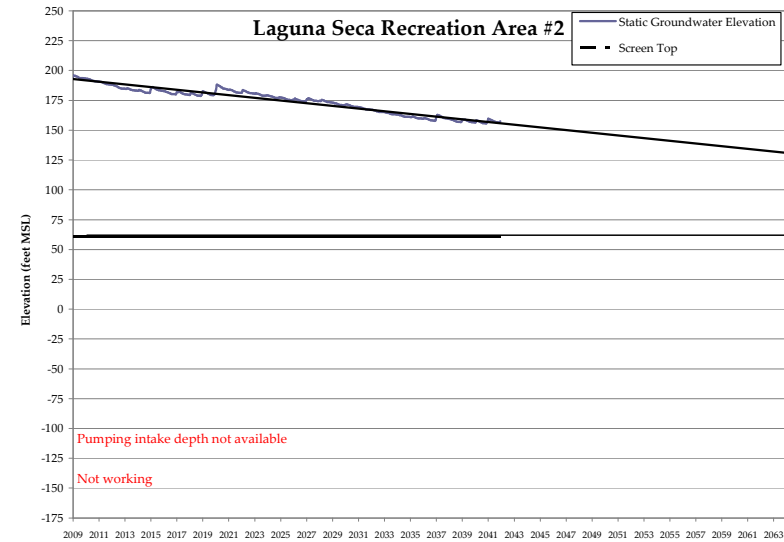
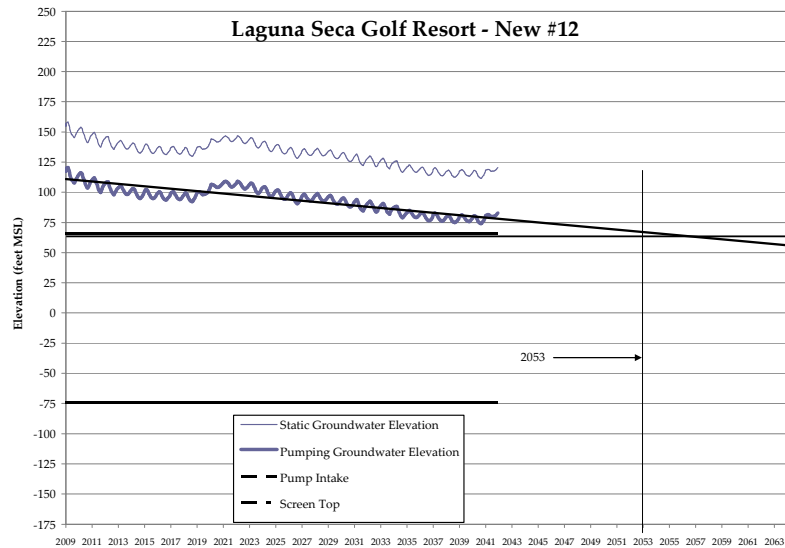
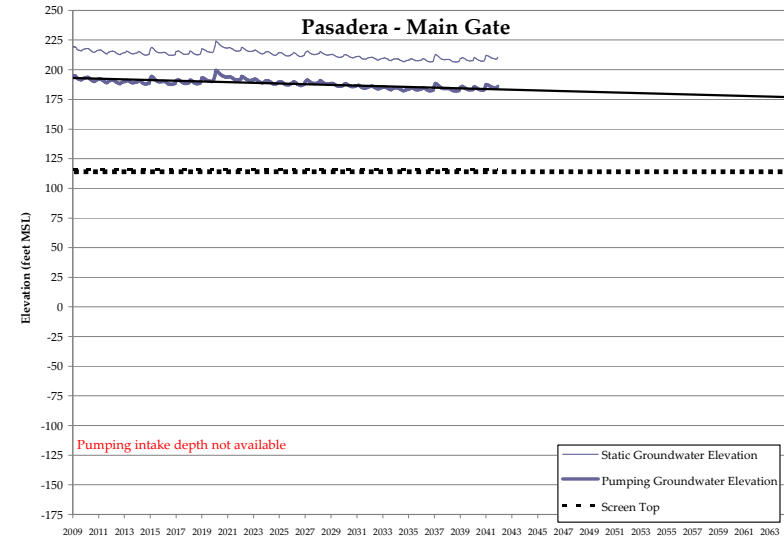
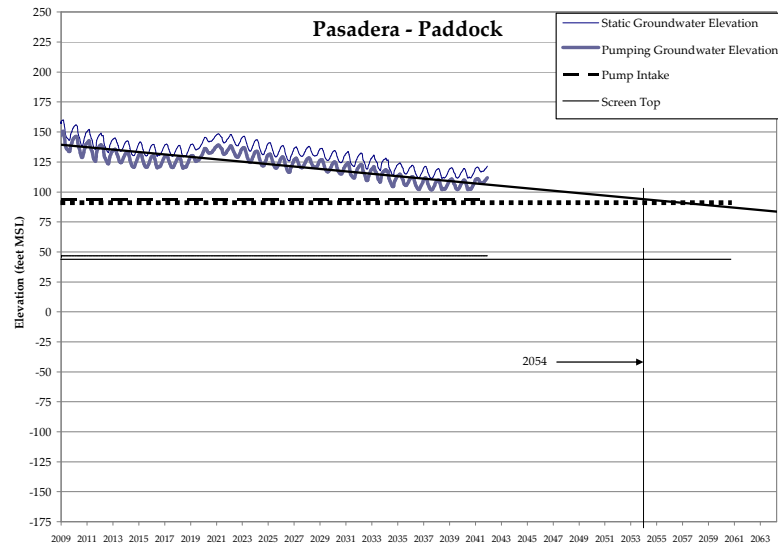
Provide direction on what recommendations should be made to the Watermaster Board as a result of the HydroMetrics' modeling report

Well Table

Well	Static Water Level				Pumping Water Level			
	Drops Below Screen Top	Projected Year this will Occur	Drops Below Pump Intake	Projected Year this will Occur	Drops Below Screen Top	Projected Year this will Occur	Drops Below Pump Intake	Projected Year this will Occur
Bay Ridge	N (CAW)	---	N (CAW)	---	N (CAW)	---	N (CAW)	---
Bishop #1	N (CAW)	---	N (CAW)	---	N (CAW)	---	N (CAW)	---
Bishop #3	N (CAW)	---	n/a (CAW)	Unk	Y (CAW)	2036	n/a (CAW)	Unk
Pasadera – Paddock	N	---	N	---	N	---	N	---
Pasadera – Main Gate	N	---	n/a	Unk	N	---	n/a	Unk
Ryan Ranch #7	N (CAW)	---	N (CAW)	---	Y (CAW)	Now (water level is already below top of screen)	N (CAW)	---
Ryan Ranch #8	N (CAW)	---	N (CAW)	---	n/a (CAW)	Unk	n/a (CAW)	Unk
Ryan Ranch #11	N (CAW)	---	N (CAW)	---	N (CAW)	---	N (CAW)	---
Laguna Seca Golf Resort New #12	N	---	N	---	N	---	N	---
Laguna Seca Golf Resort Racetrack	Y (NIU)	Now (water level is already below top of screen)	n/a (NIU)	Unk	n/a (NIU)	Unk	n/a (NIU)	Unk
Toro #3	n/a (NIU)	Unk	n/a (NIU)	Unk	n/a (NIU)	Unk	n/a (NIU)	Unk
Laguna Seca Recreation Area #1	n/a	Unk	n/a	Unk	n/a	Unk	n/a	Unk
Laguna Seca Recreation Area #2	N (NIU)	---	n/a (NIU)	Unk	n/a (NIU)	Unk	n/a (NIU)	Unk

Y = Yes N= No n/a = data was not available Unk = Unknown NIU = well is not in use
 CAW = well is a CAW well that will be taken out of production when the MPWSP is placed into operation

Extrapolation Charts



TECHNICAL MEMORANDUM

To: Mr. Bob Jaques
From: Stephen Hundt, Derrik Williams
Date: December 24, 2013
Subject: Results of Laguna Seca Safe Yield Analysis

Hydrometrics Water Resources Inc. (WRI) was tasked with determining impacts to the Laguna Seca subarea from potential pumping changes, and estimating the Natural Safe Yield and Operational Safe Yield of the subarea. This memorandum describes the results of each of the subtasks. These subtasks are:

- Subtask 1.1 – Estimate impacts if Cal-Am Discontinues Laguna Seca Pumping
- Subtask 1.2 – Estimate Laguna Seca subarea Natural Safe Yield
- Subtask 1.3 – Estimate Laguna Seca subarea Operational Safe Yield

ESTIMATE IMPACTS IF CAL-AM DISCONTINUES LAGUNA SECA PUMPING

Subtask 1.1 involved selecting and running a baseline scenario that includes Cal-Am's discontinuing Laguna Seca pumping. The baseline scenario chosen for this analysis is the 25 Year Replenishment Scenario run as part of the Replenishment Repayment Modeling project, completed by Hydrometrics WRI in 2013.

Results of the baseline scenario were analyzed against two criteria:

1. Does ceasing Cal-Am pumping in the Laguna Seca subarea allow groundwater elevations to stabilize?
2. Will groundwater elevations drop below either the pump intake or the top of the screen in existing wells?

Hydrographs of predicted groundwater elevations from the baseline scenario are presented in Figure 1 through Figure 13. These figures also include well construction information, including the top of the screen and the pump intake elevation where available.

Pumping groundwater level data were provided by Monterey Peninsula Water Management District (MPWMD) for many wells. The difference between measured static water groundwater levels and measured pumping groundwater levels was used to estimate pumping drawdown in each well. For wells where pumping drawdown estimates are available, the predicted pumping groundwater level is included as a dashed blue line on Figure 1 through Figure 13.

The table of available well data is included as Table A3 in Appendix A. This information was combined with the model results to track how the simulated static and pumping water levels change over time, and to check whether these are predicted to drop into the screened interval or below the pump intake. A short explanation of missing data is noted on each of the hydrograph figures.

Table 1 summarizes the results of the baseline simulation for each well; noting whether or not the static or pumping water levels are predicted to fall below the screen top or the pump intake. Several wells do not have all of the information necessary to make these predictions. Of those that have the necessary information, groundwater levels in two wells – Bishop 3, and Ryan Ranch #7 - are predicted to drop below the top of the screen. Only the Laguna Seca Resort Raceway well is predicted to see static water levels drop below the top of the screen. No wells with known pump intake elevations are predicted to have static or pumping water levels drop below the pump intake.

Table 1: Summarized Results for Select Wells

Well	Static Water Level		Pumping Water Level	
	Drops Below Screen Top	Drops Below Pump Intake	Drops Below Screen Top	Drops Below Pump Intake
Bay Ridge	N	N	N	N
Bishop #1	N	N	N	N
Bishop #3	N	n/a	Y	n/a
Pasadera – Paddock	N	N	N	N
Pasadera – Main Gate	N	n/a	N	n/a
Ryan Ranch #7	N	N	Y	N
Ryan Ranch #8	N	N	n/a	n/a
Ryan Ranch #11	N	N	N	N
Laguna Seca Golf Resort New #12	N	N	N	N
Laguna Seca Golf Resort Racetrack	Y	n/a	n/a	n/a
Toro #3	n/a	n/a	n/a	n/a
Laguna Seca Recreation Area #1	n/a	n/a	n/a	n/a
Laguna Seca Recreation Area #2	N	n/a	n/a	n/a

Y = yes, N = no, n/a = not available

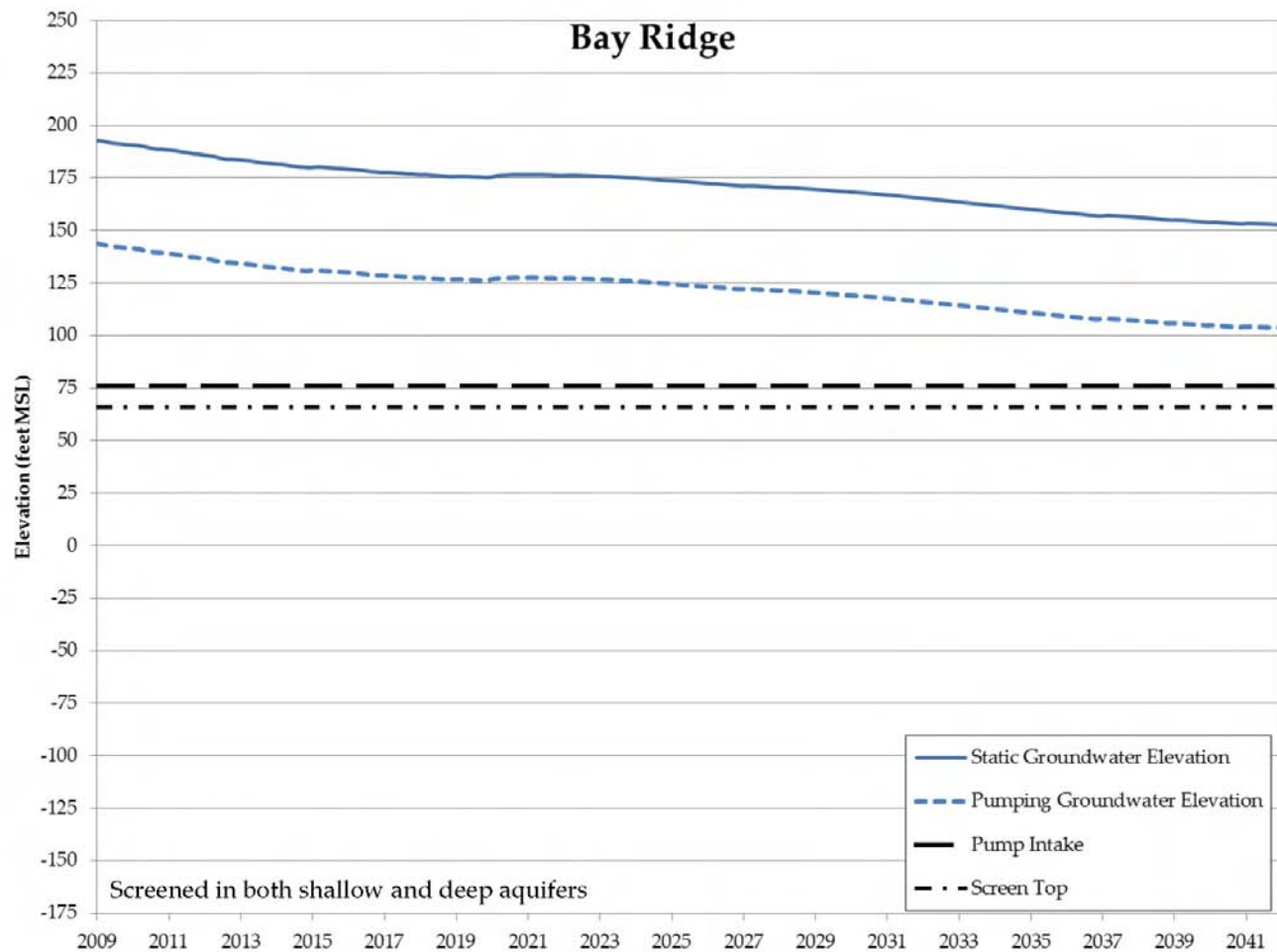


Figure 1: Bay Ridge Baseline Scenario Static and Pumping Hydrograph

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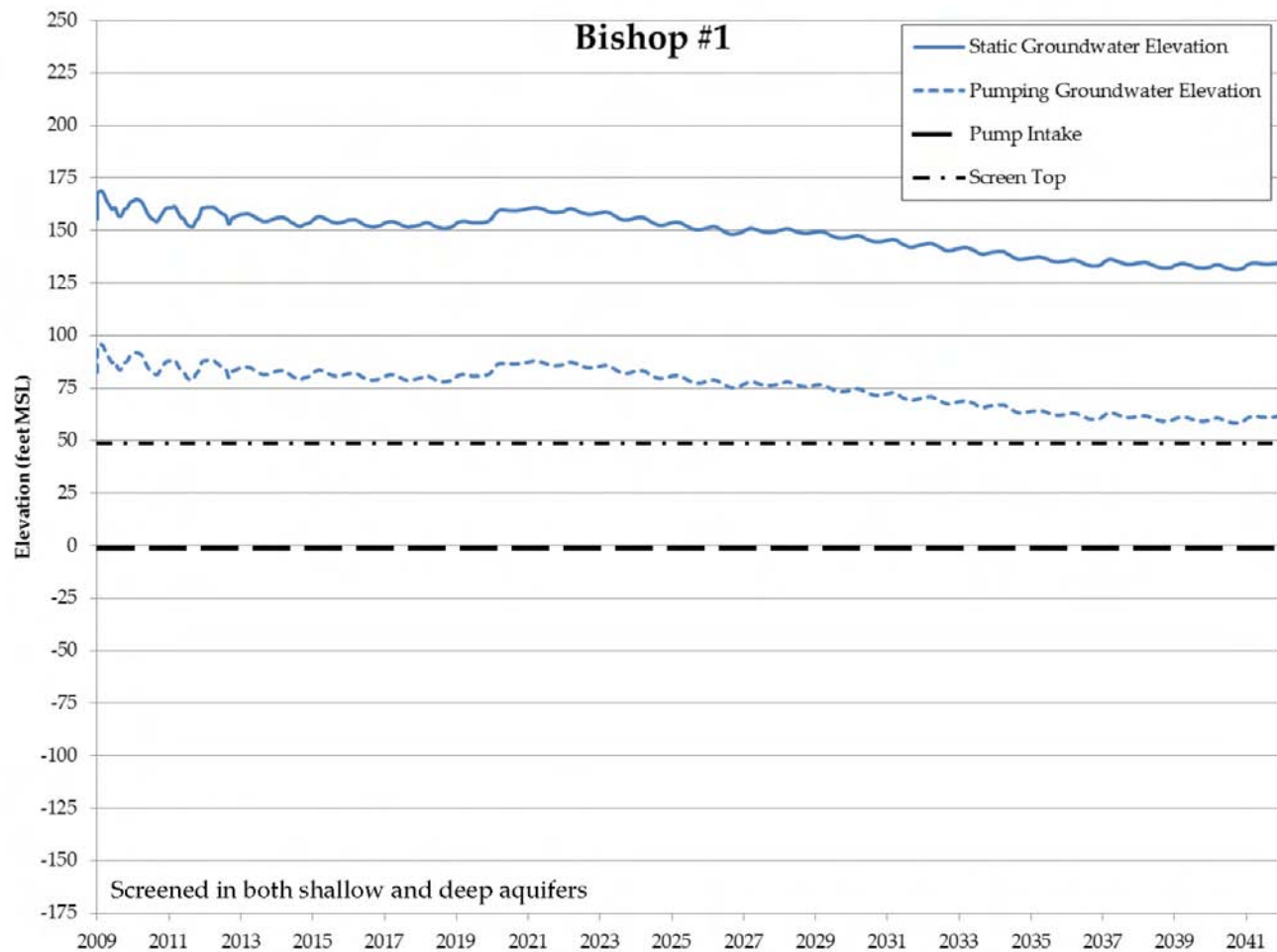


Figure 2: Bishop #1 Baseline Scenario Static and Pumping Hydrograph

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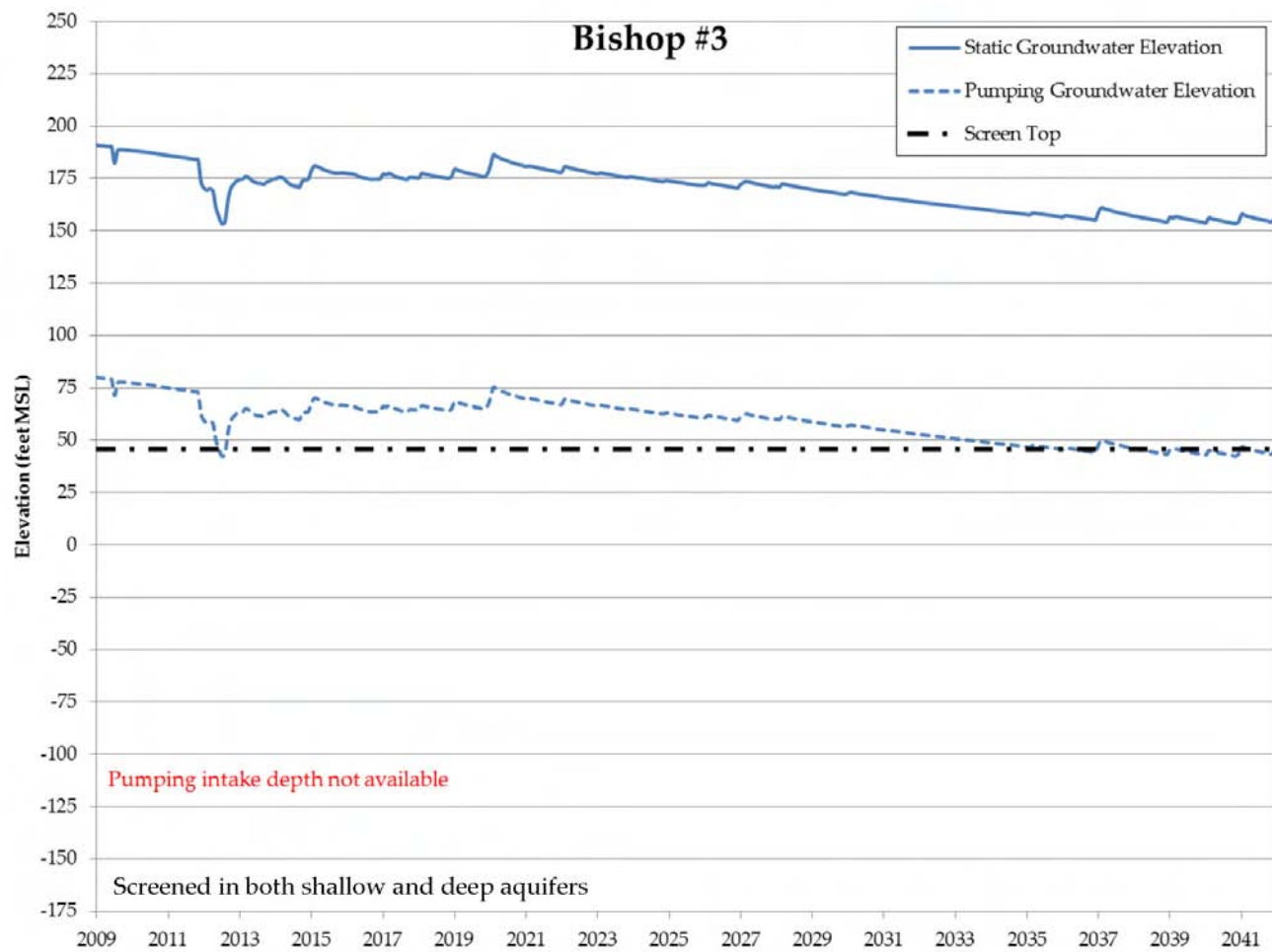


Figure 3: Bishop #3 Baseline Scenario Static and Pumping Hydrograph

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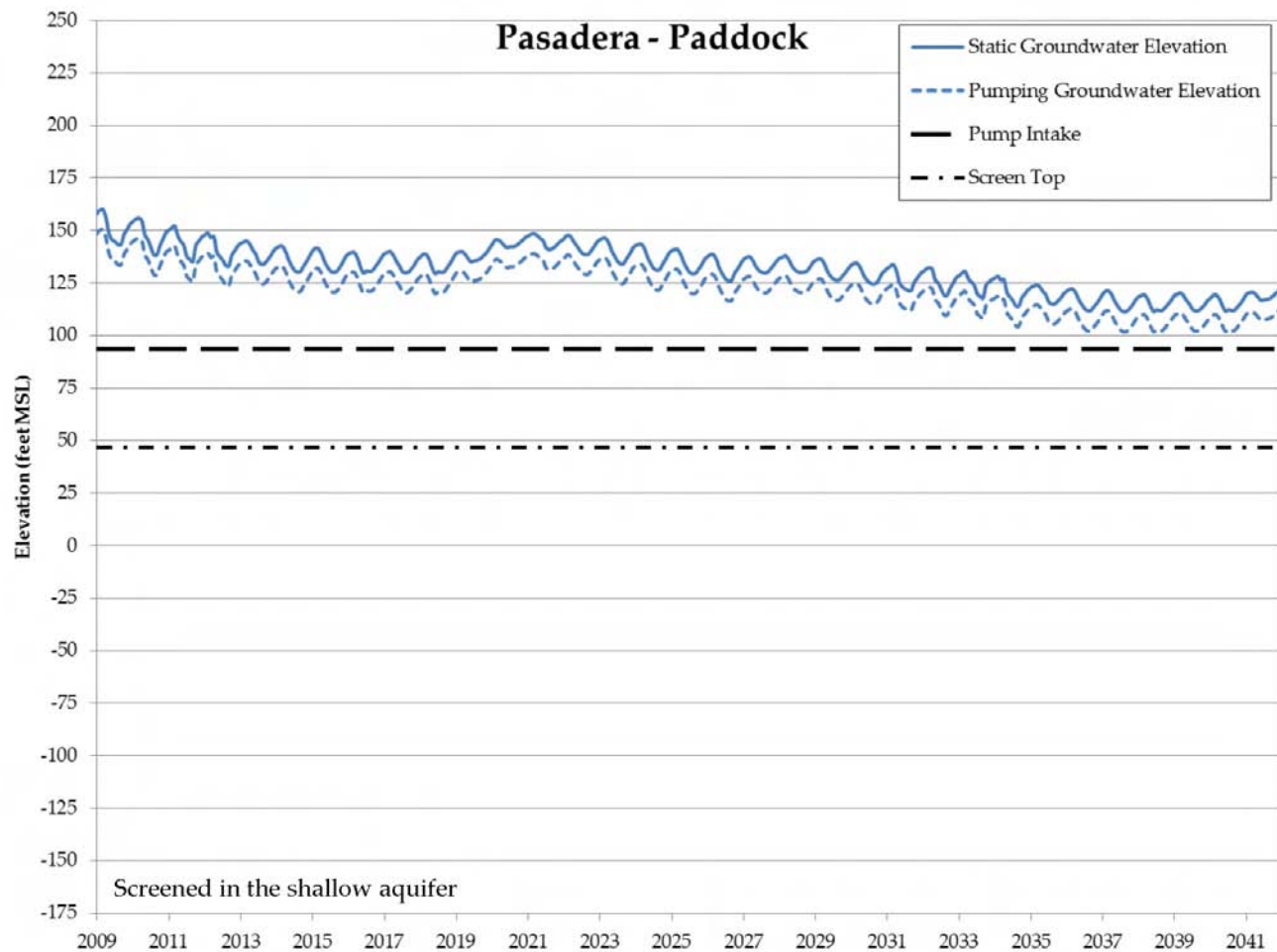


Figure 4: Pasadera Paddock Baseline Scenario Static and Pumping Hydrograph

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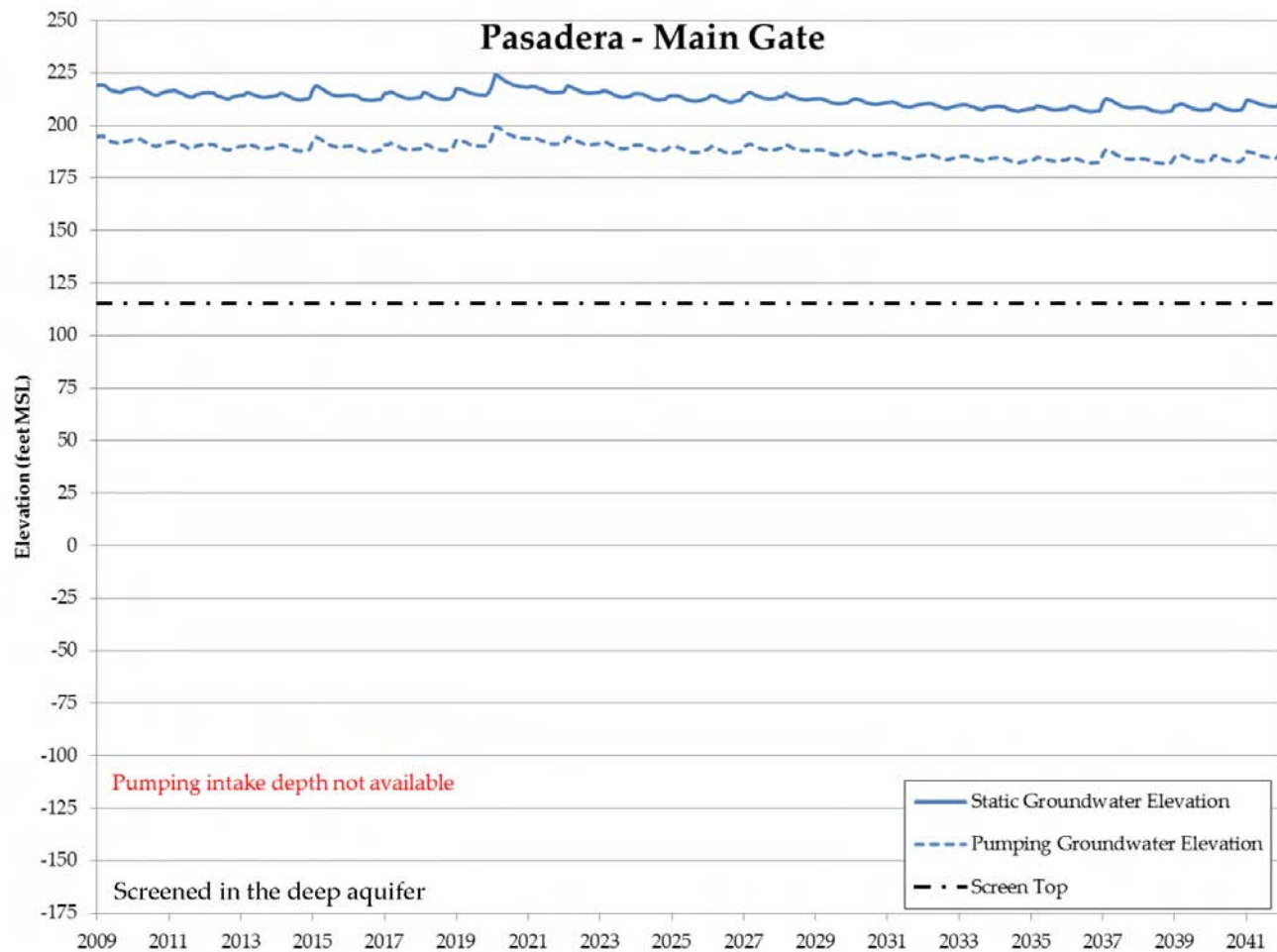


Figure 5: Pasadera Main Gate Baseline Scenario Static and Pumping Hydrograph

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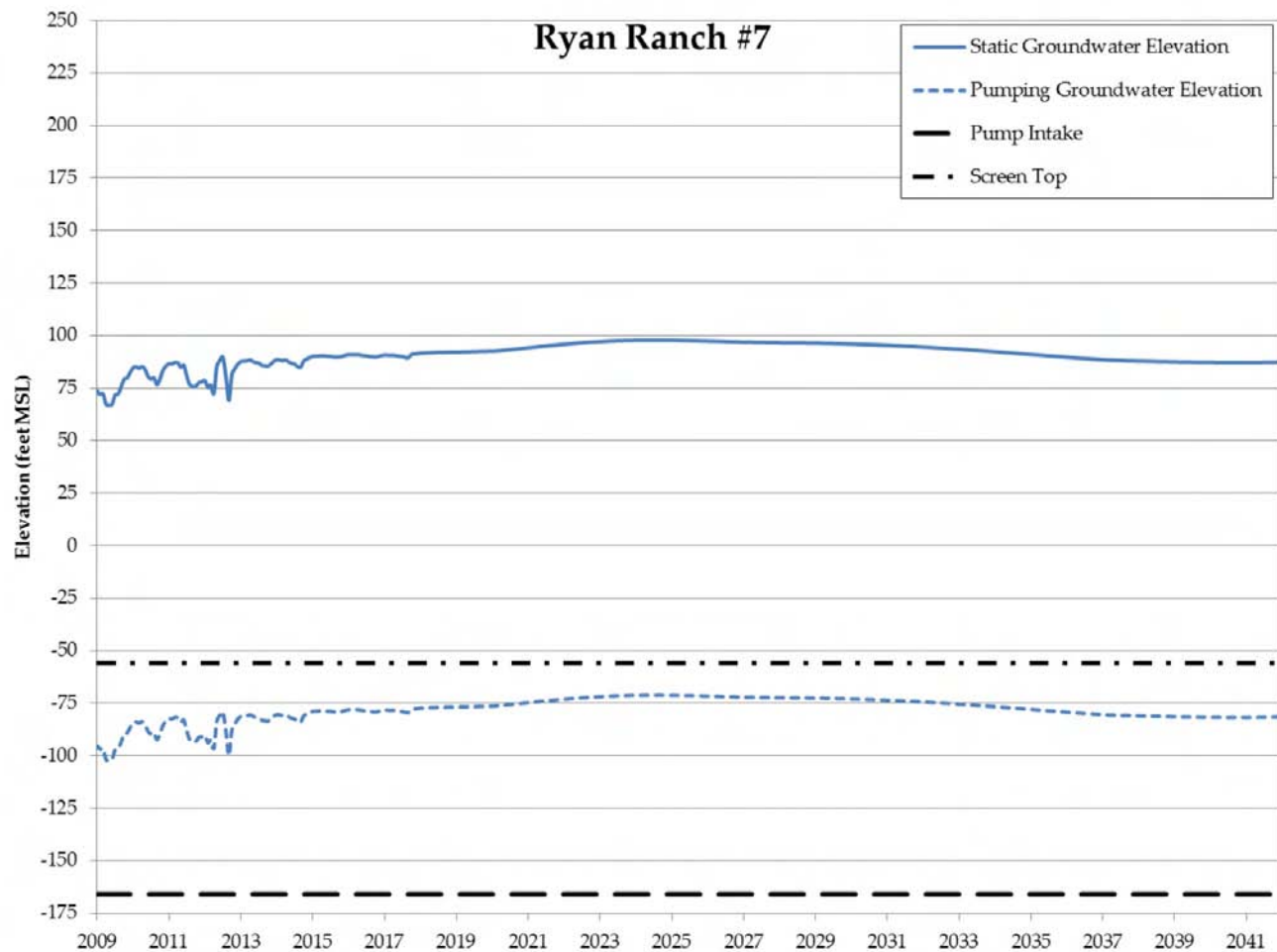


Figure 6: Ryan Ranch #7 Baseline Scenario Static and Pumping Hydrograph

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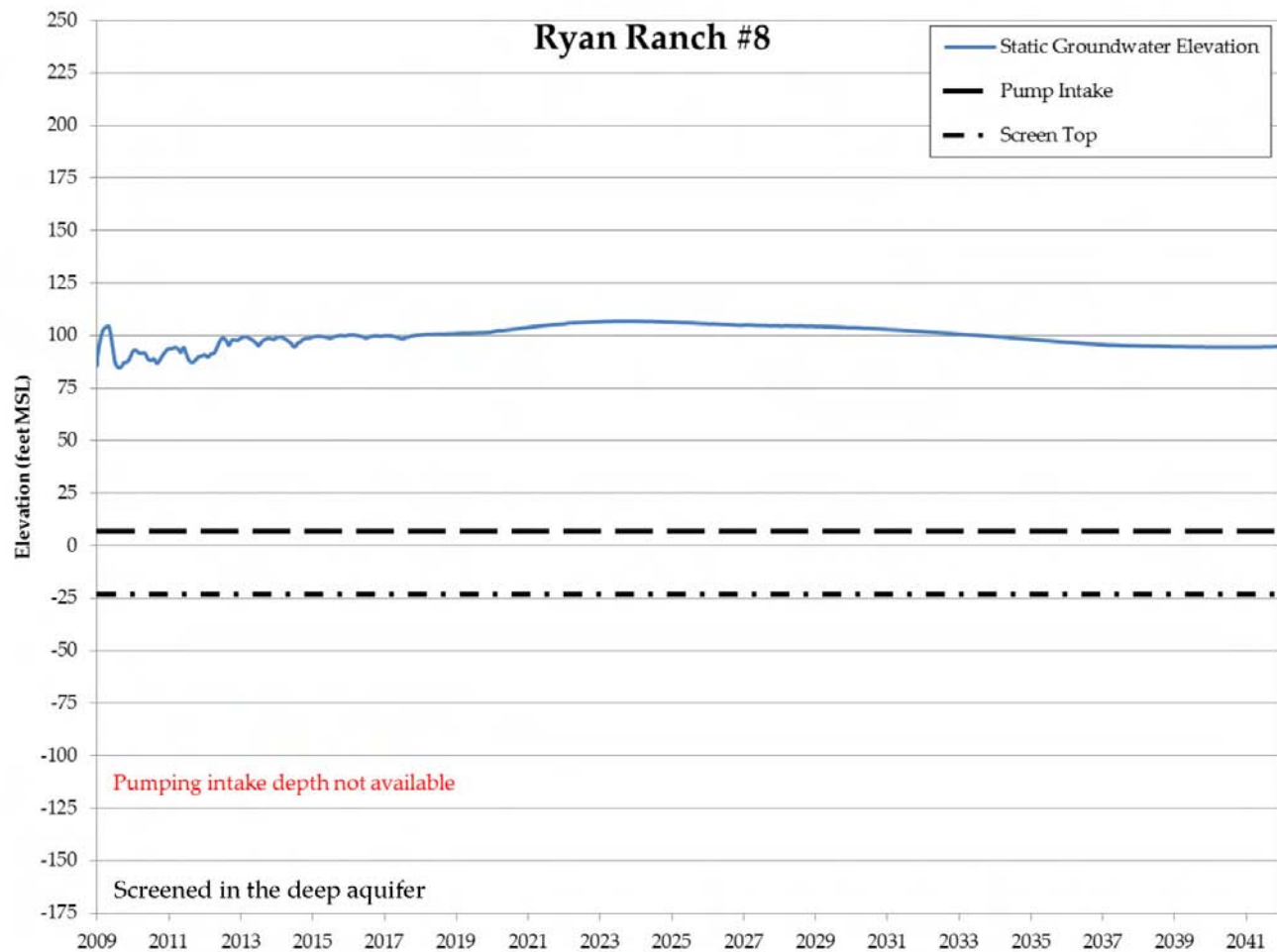


Figure 7: Ryan Ranch #8 Baseline Scenario Static and Pumping Hydrograph

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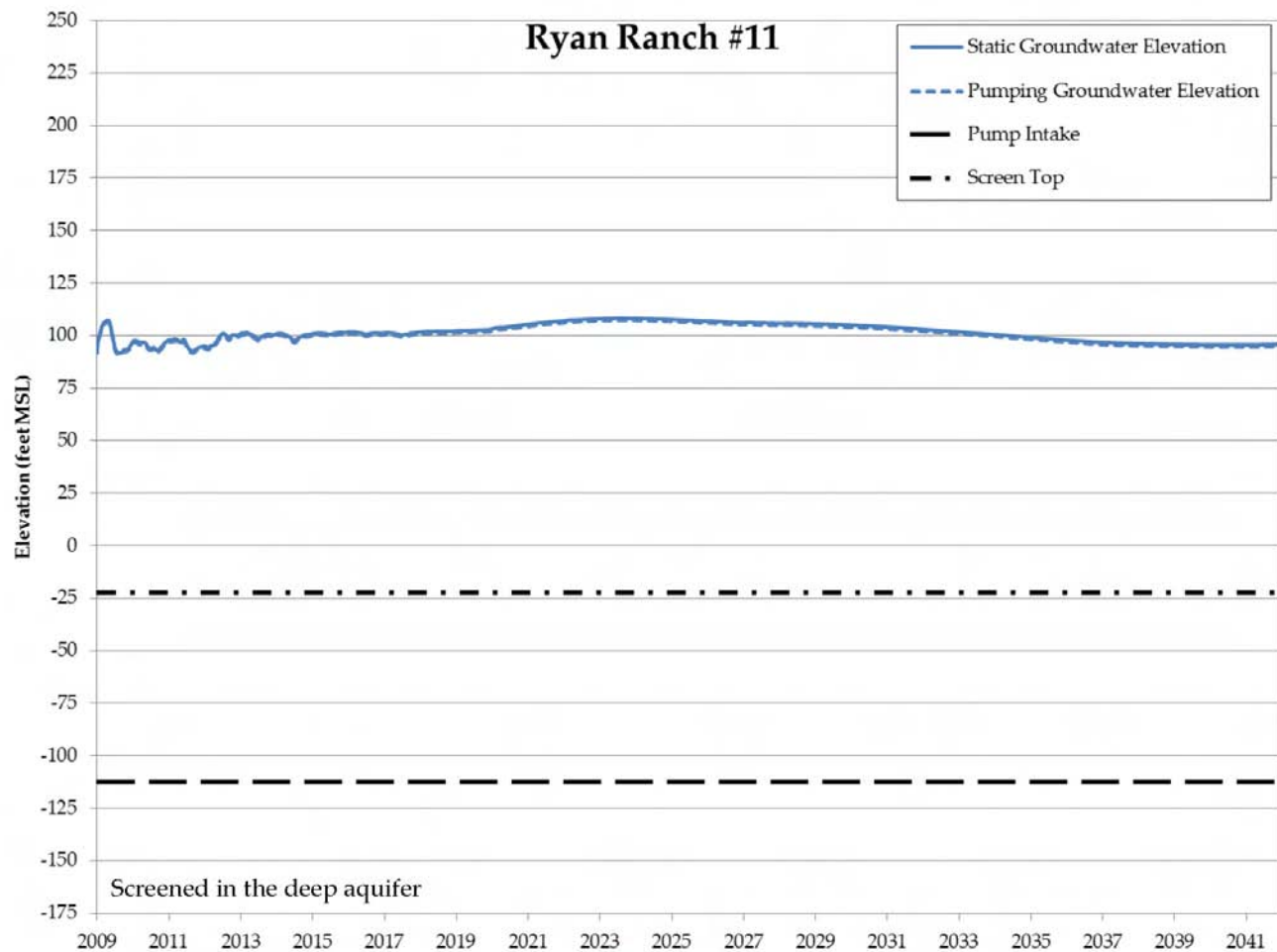


Figure 8: Ryan Ranch #8 Baseline Scenario Static and Pumping Hydrograph

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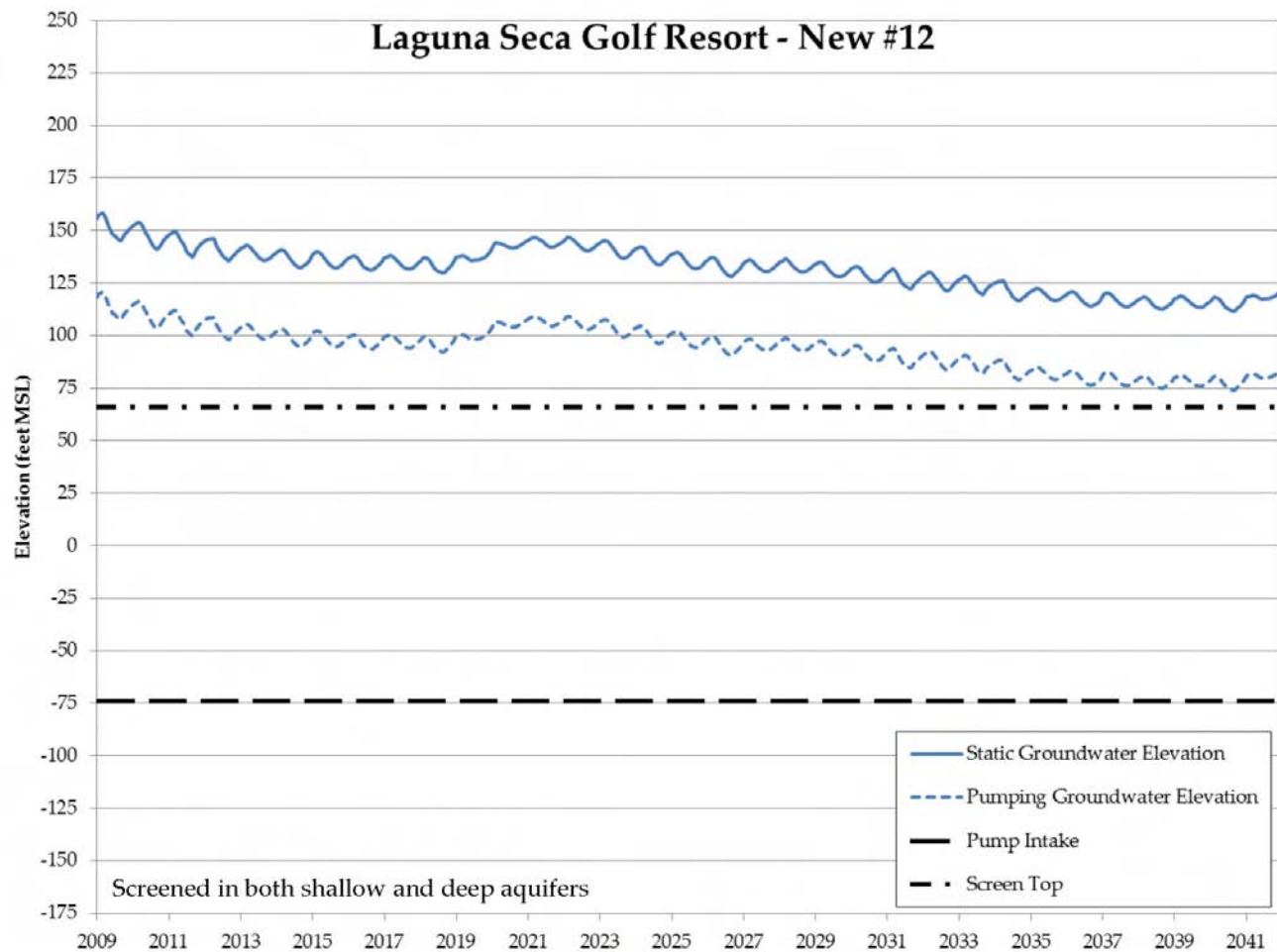


Figure 9: Laguna Seca Resort New 12 Baseline Scenario Static and Pumping Hydrograph

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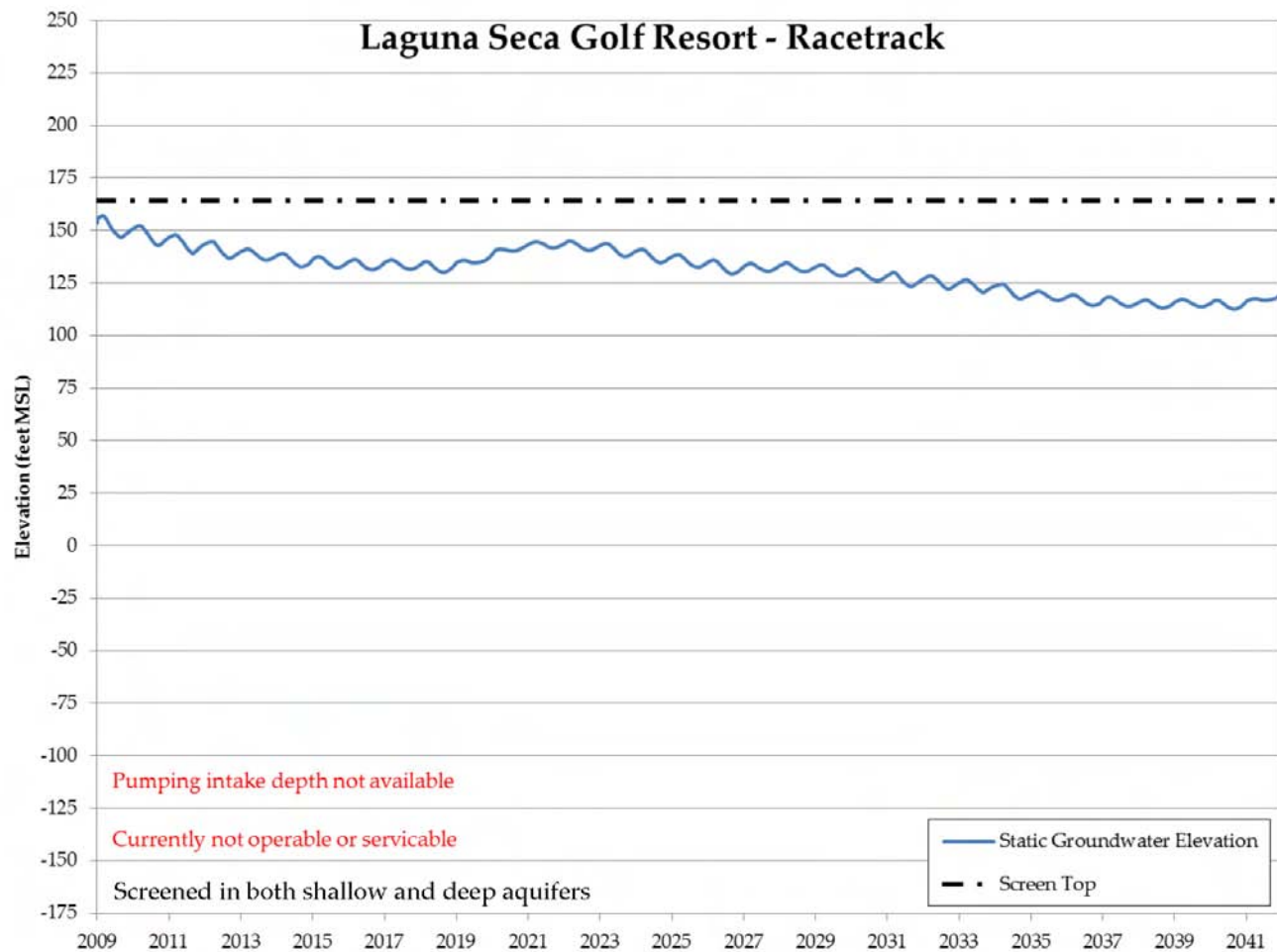


Figure 10: Laguna Seca Resort Racetrack Baseline Scenario Static and Pumping Hydrograph

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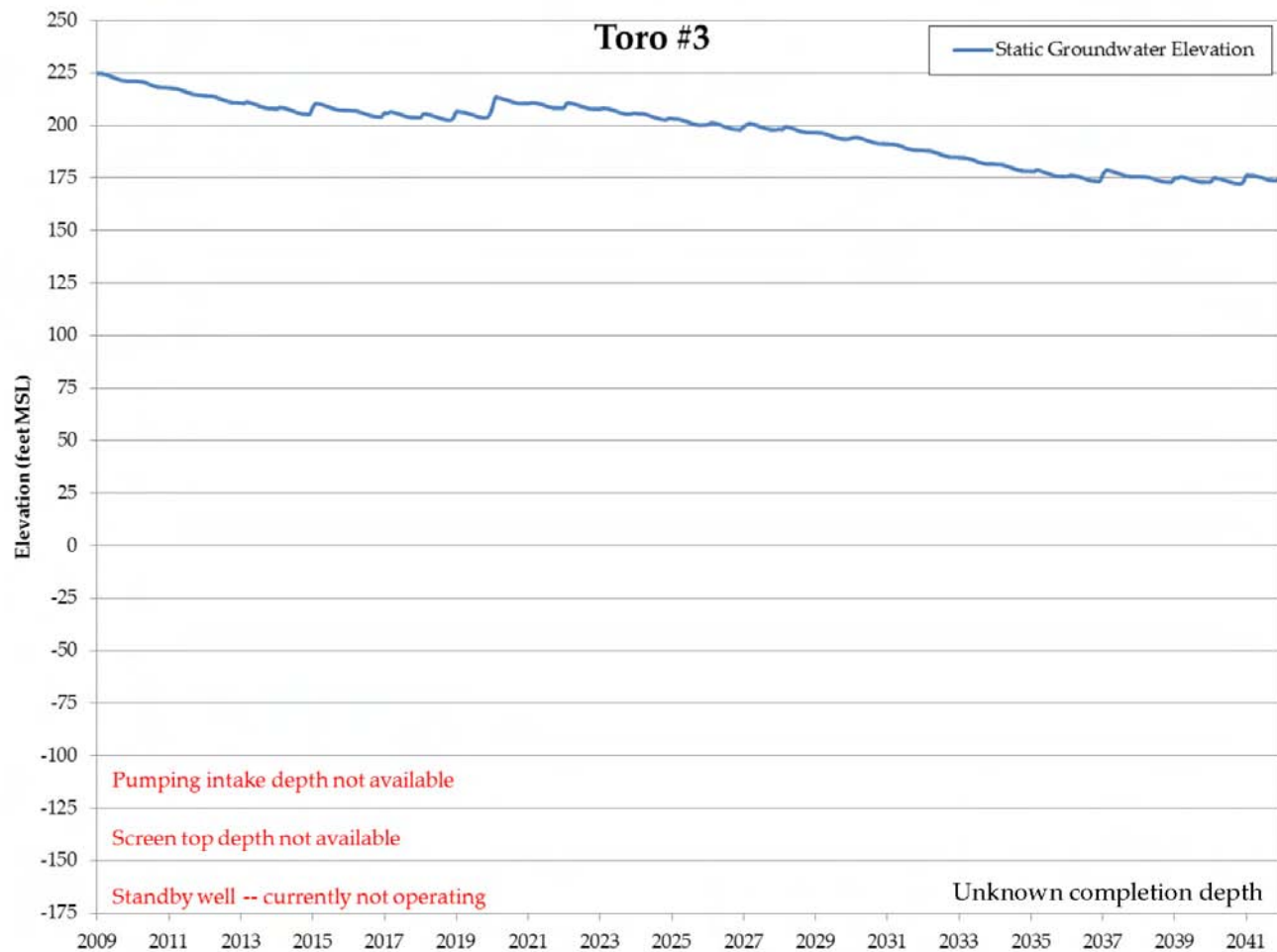


Figure 11: Toro #3 Baseline Scenario Static and Pumping Hydrograph

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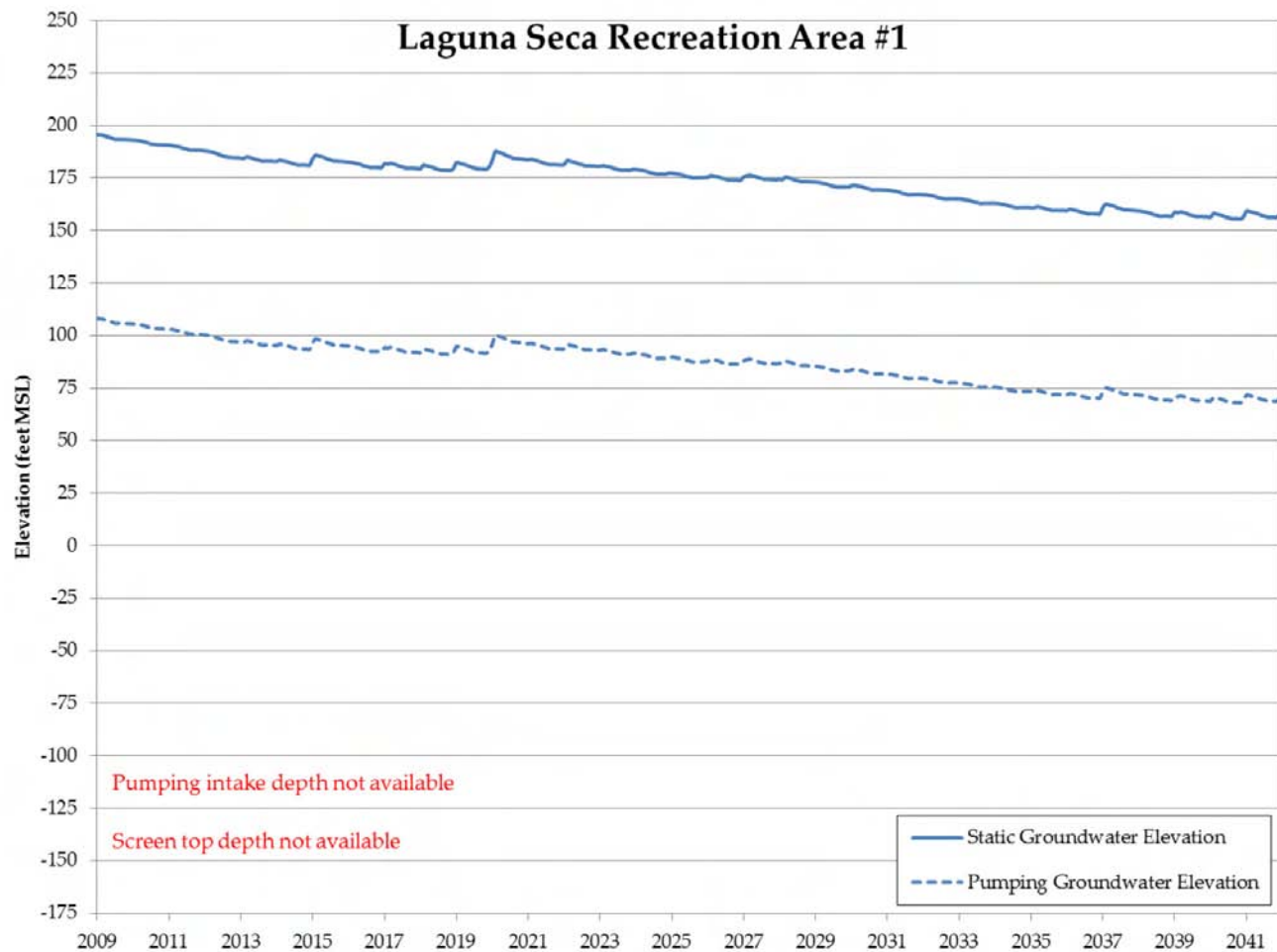


Figure 12: Laguna Seca Recreation Area #1 Baseline Scenario Static and Pumping Hydrograph

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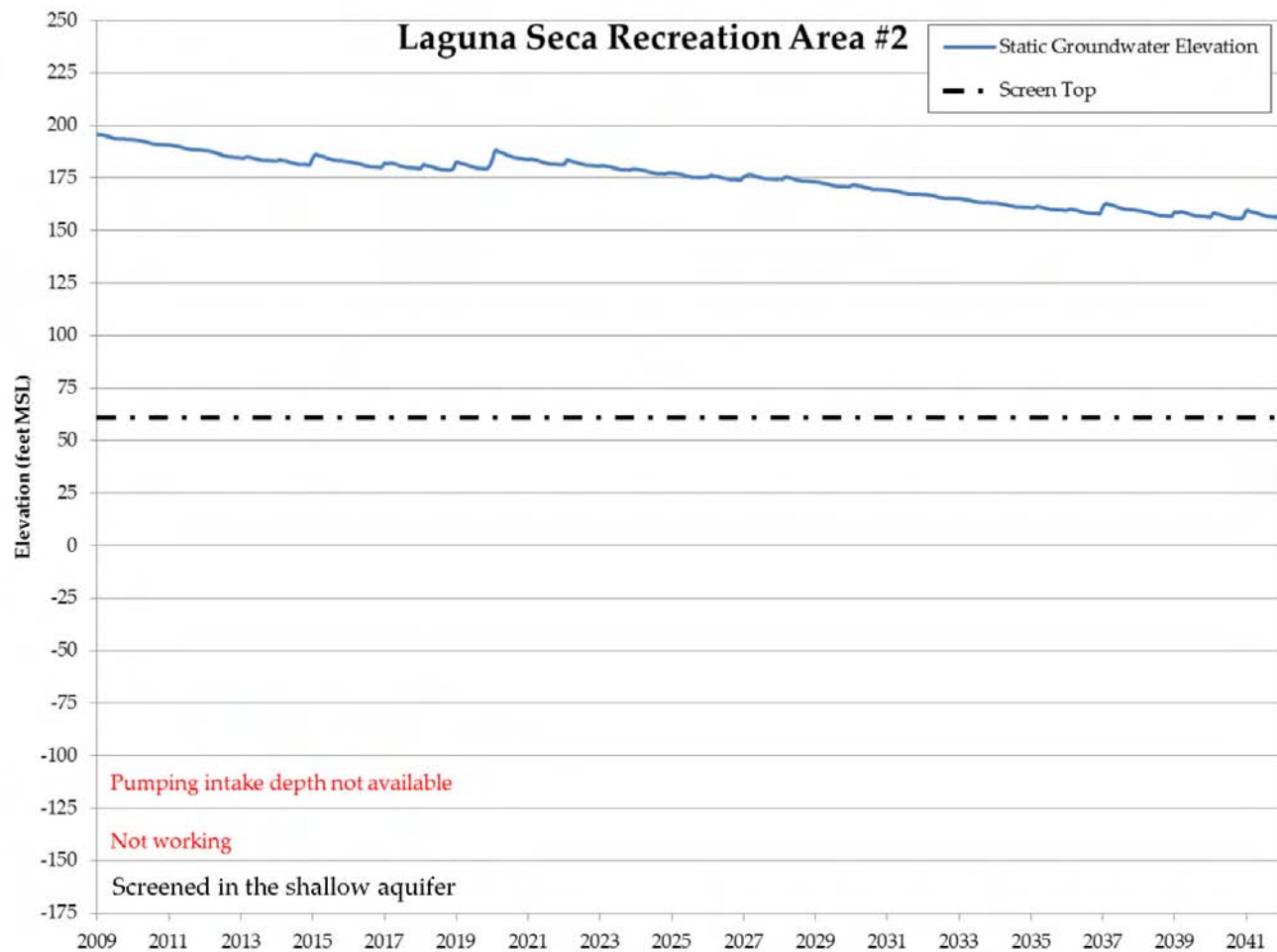


Figure 13: Laguna Seca Recreation Area #2 Baseline Scenario Static and Pumping Hydrograph

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ESTIMATE LAGUNA SUBAREA SECA NATURAL SAFE YIELD

The results obtained from the baseline scenario flow model simulation were used to calculate the natural safe yield. The natural safe yield is the amount of groundwater recharge and subsurface inflow that could be pumped while maintaining necessary streamflows and subsurface outflows to neighboring basins.

The only stream leaving the Laguna Seca subarea is the Arroyo del Rey. Groundwater elevations are currently below the bottom of the Arroyo del Rey, and therefore lowering groundwater elevations do not result in any additional loss of streamflow (MPWMD, personal communication). Therefore, changes to required streamflows were ignored when calculating the natural safe yield. The natural safe yield was calculated with the formula:

$$\begin{aligned} \text{Natural Safe Yield} = & \text{Aerial Recharge} + \text{Subsurface Inflow} \\ & - \text{Subsurface Outflow} \end{aligned}$$

The values used for aerial recharge and subsurface inflow were the average annual values simulated in the baseline scenario. Similarly, the required subsurface outflow is the average annual subsurface outflow simulated in the baseline scenario.

The simulated average annual aerial recharge in the Laguna Seca subarea simulated is 866 acre-feet per year. The simulated average annual subsurface inflow into the Laguna Seca subarea is 930 acre-feet per year. The simulated average annual subsurface outflow from the Laguna Seca subarea is 1,556 acre-feet per year. Applying these values to the formula above, the average annual natural safe yield is 240 acre-feet per year.

The results of the natural safe yield calculation for every water year and for an average year are shown on Figure 14. The chart shows the annual rates in acre-feet per water year for each of the components of the natural safe yield. Aerial recharge is shown in blue, the subsurface inflow in green, the subsurface outflow in red, and the resulting annual natural safe yield is shown in gray. In addition, the average annual natural safe yield of 240 acre-feet per year is shown as the dashed black line. The annual values for each component of the natural safe yield are tabulated in Table A1 in Appendix A. Additionally, the annual pumping and

changes in storage, which complete the water budget for the Laguna Seca subarea are tabulated with the natural safe yield in Table A2.

The Laguna Seca subarea is currently subject to the adjudication Decision natural safe yield value of 608 acre feet per year. There have been several studies that arrive at safe yield values for the Seaside Basin and Laguna Seca subarea (Yates 2002, CH2M Hill 2004), yet the methodology and data used to arrive at the adjudicated 608 acre feet per year is not stated in any of these reports. This value is two and a half times larger than the 240 acre feet per year natural safe yield that this study estimates. However, since the methodology used to develop the 608 acre feet per year figure is unknown, it was not possible to make a side-by-side comparison to determine the causes of the difference.

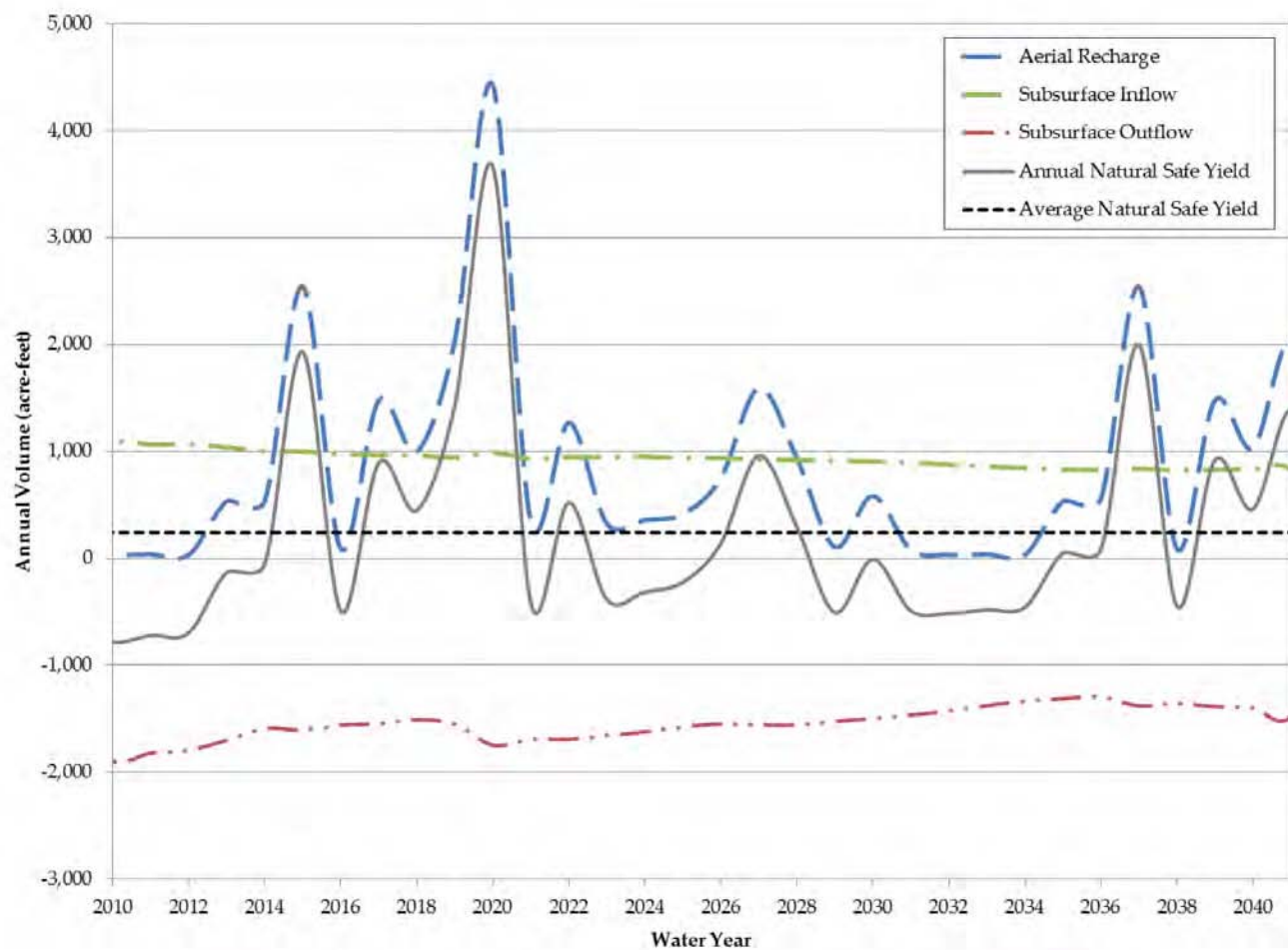


Figure 14: Annual Natural Safe Yield Components for the Baseline Scenario

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ESTIMATE LAGUNA SECA SUBAREA OPERATIONAL SAFE YIELD

The approach adopted in the natural safe calculation treats the entire basin as an isolated reservoir in which all inputs and outputs are distributed uniformly over its geographic area and throughout time. Ideally, pumping at the natural safe yield results in a stable water balance for the subarea. However, there is both spatial and temporal variability in the inputs and outputs of water to the subarea, and this prevents the natural safe yield from providing a stable water balance.

Initially, for this task, the operational safe yield for the Laguna Seca subarea was to be estimated based on a pumping rate that can be sustained by Standard and Alternative producers, and meets the criteria below. However, as the first and second criterion could not be met, the third criterion was not considered further.

- 1) Groundwater levels in existing wells stabilize, and do not persistently and continuously decline,
- 2) Pumping groundwater levels remain above the well pump intake and top of screen for each well, and
- 3) Existing subsurface outflows determined from the natural safe yield calculations are maintained.

The operational safe yield acknowledges constraints imposed by the locations of existing wells, as well as the spatial and temporal variability in recharge and discharge. The operational safe yield is therefore the amount of groundwater that can be pumped from existing wells without unwanted detrimental effects. The operational safe yield was estimated through iterative model runs.

The first criterion of maintaining stable groundwater levels in existing wells was evaluated by graphing simulated hydrographs from a number of wells throughout the basin. Hydrographs were produced for three simulations: 1) the baseline simulation, 2) a scenario in which pumping is reduced to the previously calculated natural safe yield of 240 acre-feet per year, and 3) for the most severe pumping reduction possible – dropping all Standard and Alternative producer pumping to zero. The hydrographs are shown on Figure 15 through Figure 17. As noted on the hydrographs, these wells are screened in both the Paso Robles (shallow) and Santa Margarita (deep) aquifers. The pumping rates for each of these scenarios are summarized in Table 2.

Table 2: Laguna Seca Subarea Average Annual Pumping Rates by Producer

	Average Annual Pumping (AF/year)		
	Baseline Scenario	Natural Safe Yield Scenario	No Standard or Alternative Pumping Scenario
Standard Producers	36	0	0
Alternative Producers	480	240*	0
Private Producers**	8	8	8
Standard + Alternative	516	240	0
All Producers	524	248	8

* Lowering the total annual production from Alternative Producers to this level would require reducing Alternative Producers to reduce their current levels of pumping by 240 acre-feet per year.

** Private producers are: Shoreline Community Church - Merrill Trust, SPCA, Stolich, and Wayland (formerly Fowler).

Figure 15 through Figure 17 show that groundwater levels do not stabilize at several wells, even under the most extreme pumping reductions. Figure 18 shows the locations of the wells, in addition to the locations of pumping wells in and near the Laguna Seca subarea that are active in the baseline scenario.

Hydrographs from the baseline scenario, in which Cal-Am pumping in the Laguna Seca subarea ceases in 2018, are plotted on Figure 15. Groundwater levels in wells FO-4 and Ryan Ranch #7 (RR-7) stabilize in this scenario. Groundwater levels in wells FO-6 Shallow, FO-6 Deep, Bishop1, and LS Driving Range (SCS-Deep) continue to decline in this scenario. The two wells with stable hydrographs are the two westernmost wells included on Figure 15.

Hydrographs from the second scenario, in which Laguna Seca subarea pumping is set to the estimated natural safe yield of 240 acre-feet per year, are plotted on Figure 16. Groundwater levels in the westernmost wells, FO-4 and RR-7, stabilize in this scenario. Groundwater levels in wells from the middle of the Laguna Seca subarea, Bishop1 and LS Driving Range (SCS-Deep), continue to decline, although at a slower rate than observed in the baseline scenario. Groundwater levels in the easternmost wells, FO-6 Shallow and FO-6 Deep continue to decline in this scenario at rates similar to, although slightly slower than, rates observed in the baseline scenario.

Hydrographs from the third scenario, in which all Standard producer and Alternative producer pumping from the Laguna Seca subarea is halted, are plotted on Figure 17. Groundwater levels in wells in the western and middle portions of the Laguna Seca subarea either stabilize or rise in this scenario. This includes groundwater levels in wells FO-4, RR-7, Bishop1 and LS Driving Range (SCS-Deep). Groundwater levels in the easternmost wells, FO-6 Shallow and FO-6 Deep continue to decline in this scenario, although the decline is slower than rates observed in the baseline scenario.

Hydrographs shown on Figure 15 through Figure 17 suggest that reducing pumping helps a number of wells to stabilize or recover; but a few wells on the eastern side of the basin continue to decline. The inability of some wells to achieve stable groundwater levels is apparently due to the amount of pumping from wells located outside of the Laguna Seca subarea, but near its eastern boundary. Figure 18 includes the locations of pumping wells located outside the eastern boundary of the Laguna Seca subarea. The Toro-1, Toro-2, and Toro-3 wells shown on Figure 18 are close to, but officially outside of the Laguna Seca subarea boundary. This finding suggests that either the original boundary in this portion of the Seaside Basin was incorrectly drawn, or the boundary has shifted to the east due to changes in pumping practices.

Figure 19 displays wells inside, and just outside the eastern boundary of, the Laguna Seca subarea under the baseline scenario. The wells just outside and east of the Laguna Seca subarea, which are listed in Table 3, pump roughly twice as much as all of the wells within the Laguna Seca subarea. A breakdown of the average annual pumping rates by well is shown in this table. Some of these production wells, such as Toro 1, 2 and 3 wells, lie extremely close to the subarea boundary and close to the easternmost monitoring well (FO-6). Well FO-6 is the well that shows the largest and most persistent groundwater level declines under all scenarios.

The pumping variability observed on Figure 19 results from the scenario's pumping assumptions. The baseline pumping scenario begins by replicating 3½ years of recorded rates. After this initial period, the pumping switches to estimated future pumping rates. Included in the estimated future pumping rates are wells with constant annual pumping rates and wells (primarily golf course irrigation wells) that have variable pumping rates that are tied to the hydrology

that is applied to the simulation period of the model. The golf course irrigation wells in this part of the basin drive the annual variability seen in Figure 19.

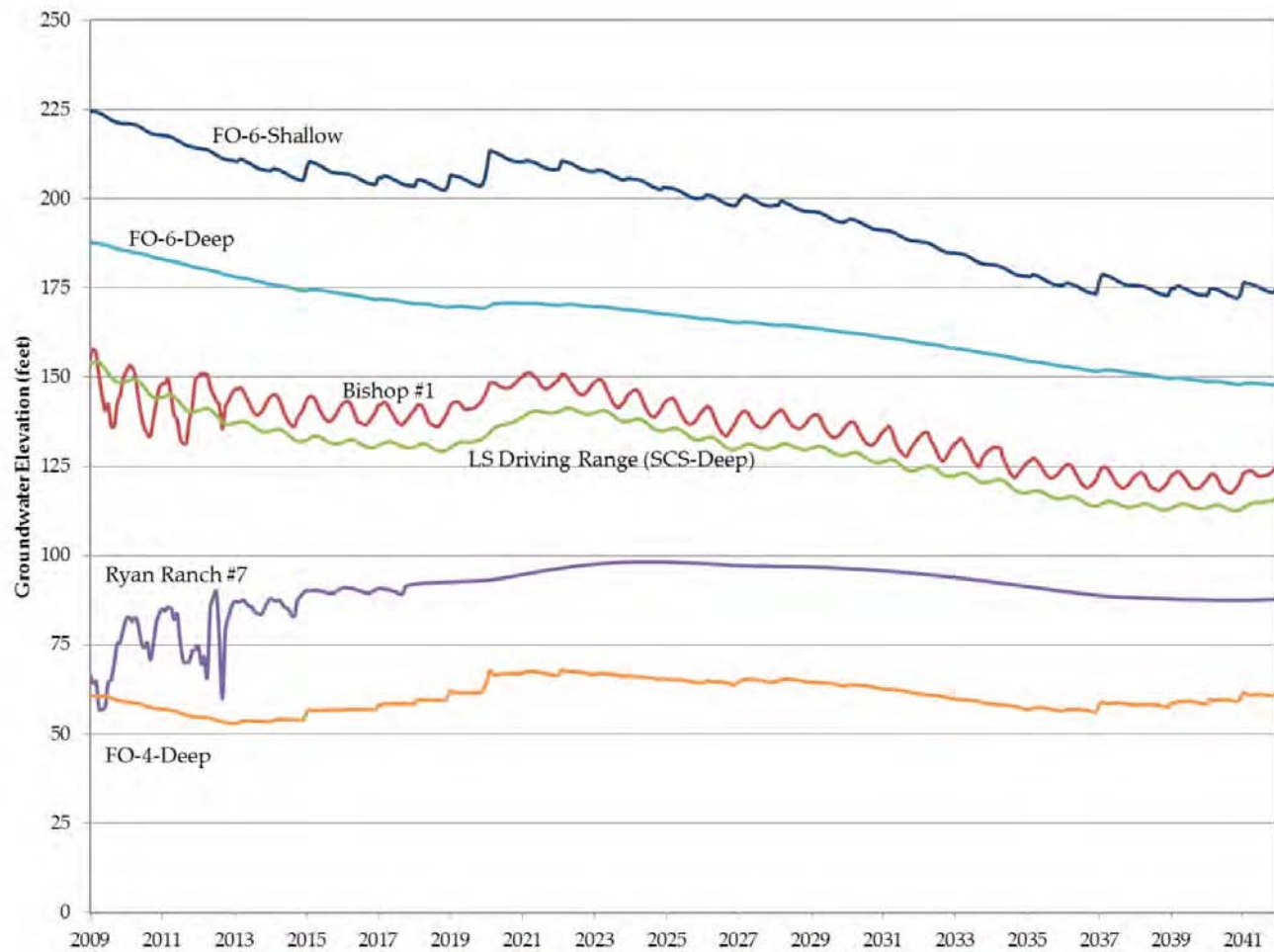


Figure 15: Hydrographs of Selected Wells Under the Baseline Scenario

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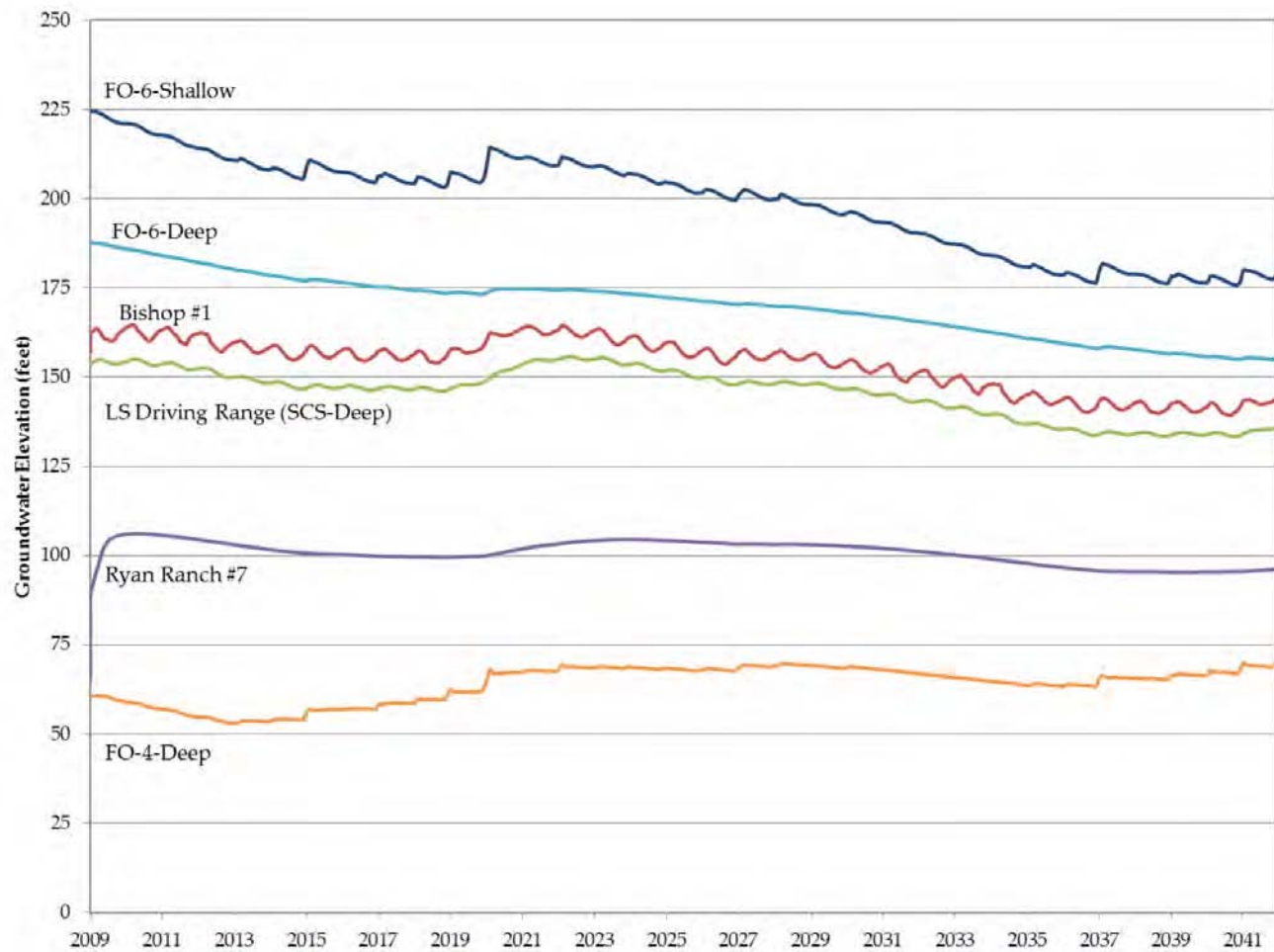


Figure 16: Hydrographs of Selected Wells Under the Natural Safe Yield Scenario

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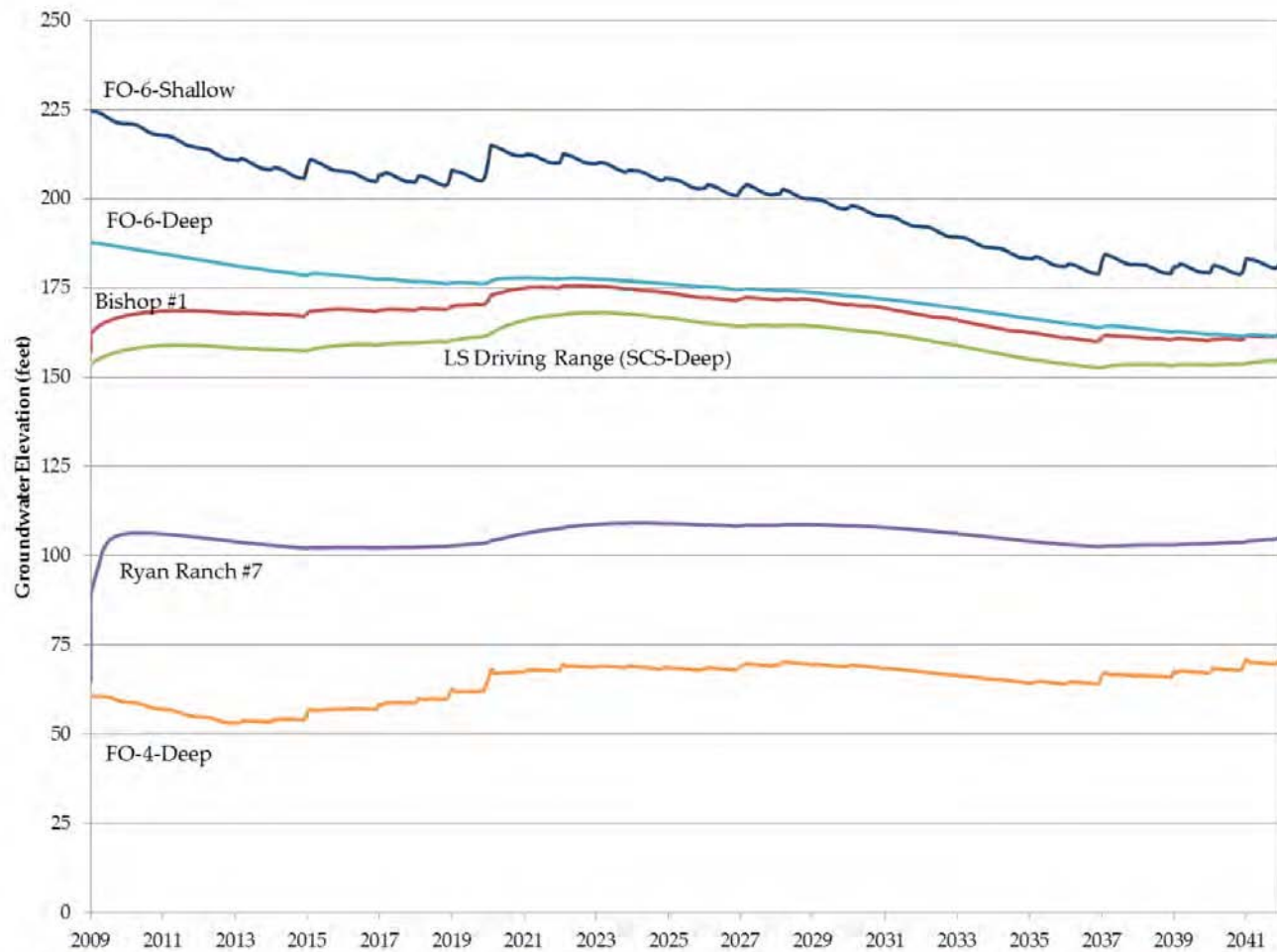


Figure 17: Hydrographs of Selected Wells under the No Standard or Alternative Producer Pumping Scenario

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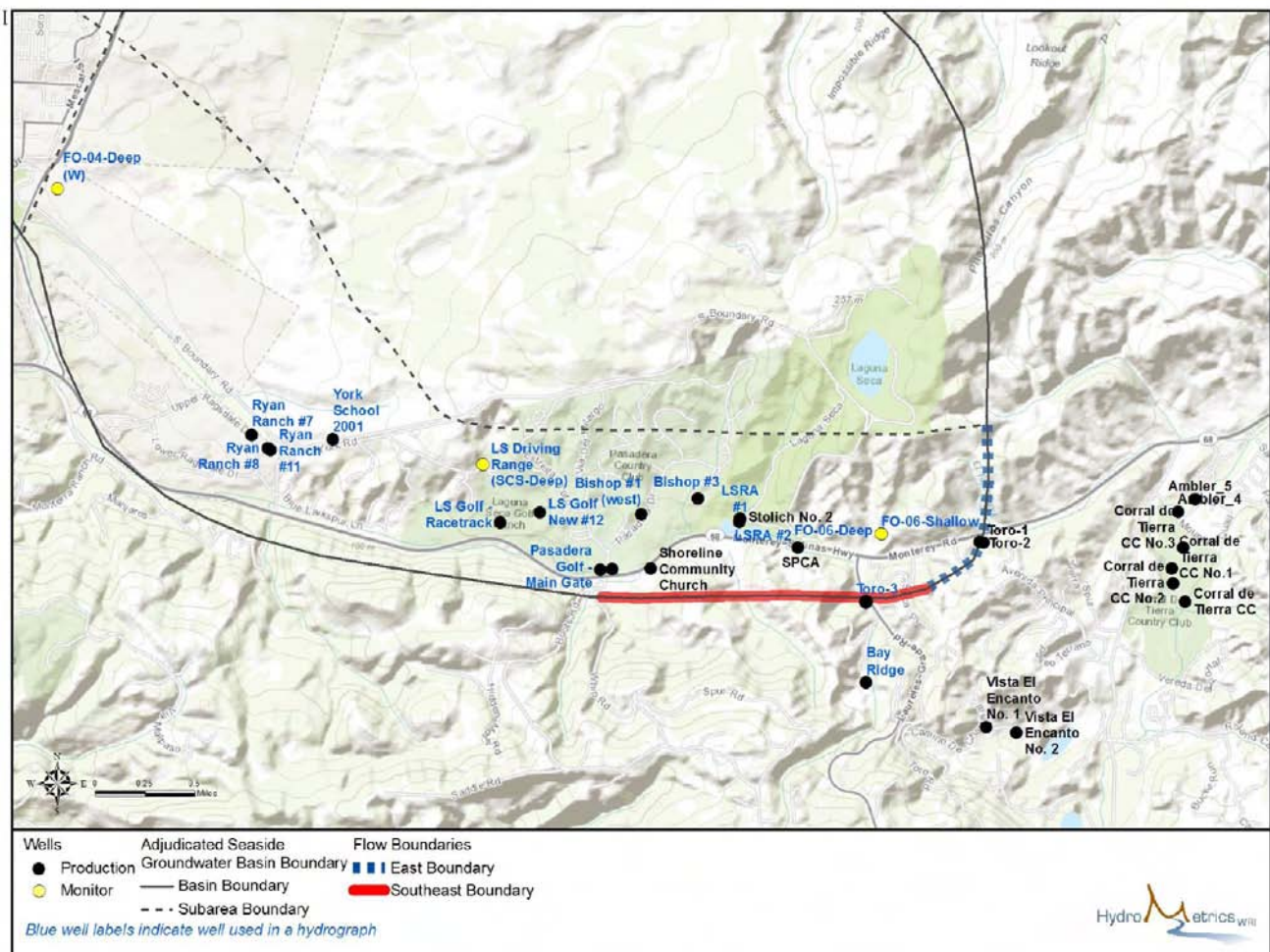


Figure 18: Locations of Laguna Seca Flow Boundaries, Wells with Plotted Hydrographs, and Active Pumping Wells

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Table 3: Baseline Scenario Pumping Rates Outside of the Laguna Seca Subarea, but Near its Eastern Boundary

Well	Average Annual Pumping (AF)
Ambler_4	2
Ambler_5	185
Bay_Ridge	24
Corral_de_Tierra_CC_No_1	64
Corral_de_Tierra_CC_No_2	64
Corral_de_Tierra_CC_No_3	64
Corral_de_Tierra_CC	64
Tierra_Meadows_No_1	105
Tierra_Meadows_No_2	105
Toro-1	128
Toro-2&3	101
Vista_El_Encanto_No_1	105
Vista_El_Encanto_No_2	105
All Eastern Boundary Wells	1,117
All Laguna Seca Wells	526

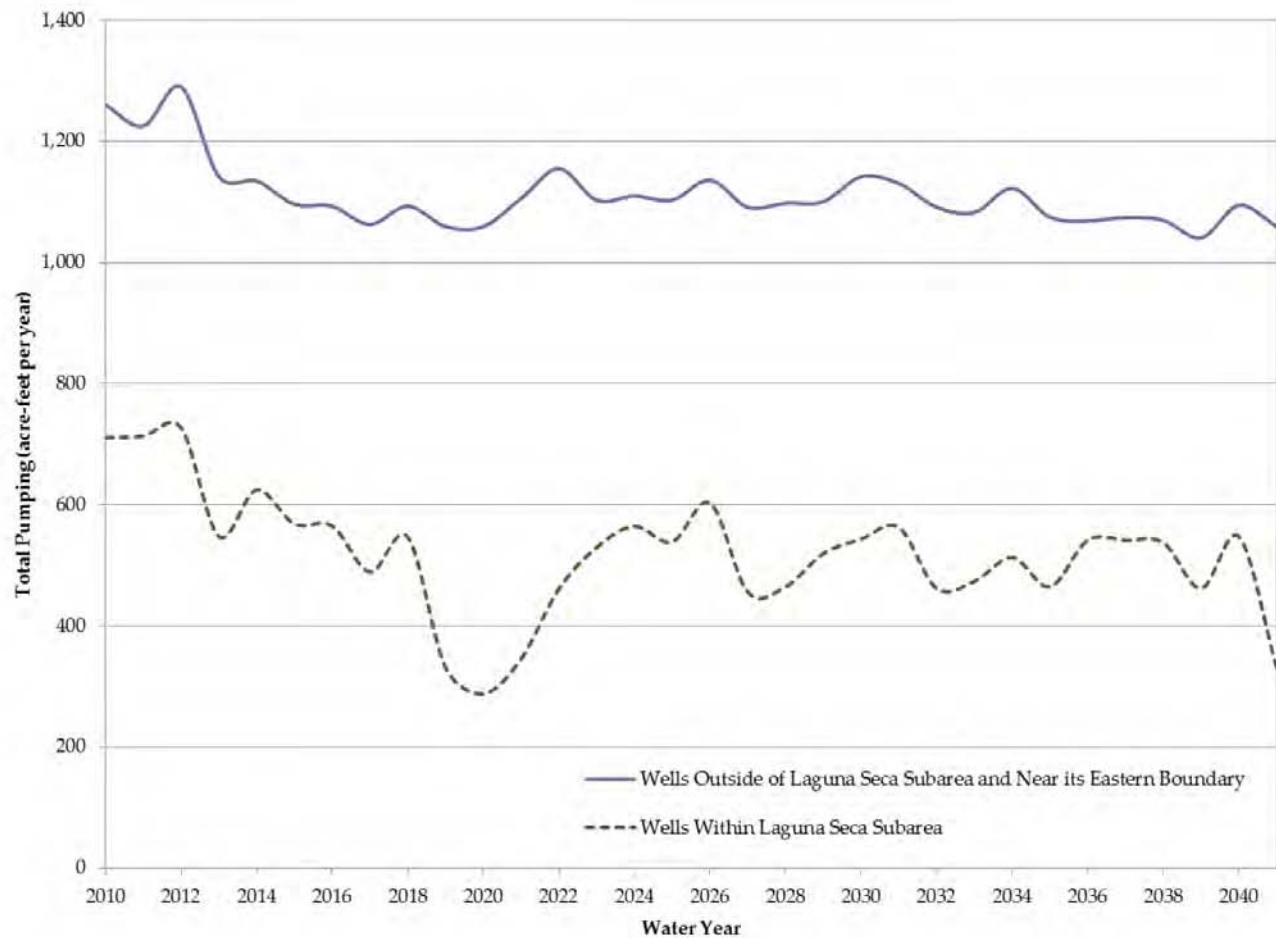


Figure 19: Baseline Scenario Pumping Rates within the Laguna Seca Subarea and Near its Eastern Boundary

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The amounts of groundwater flowing in and out of the Laguna Seca subarea are additional pieces of evidence that shed light on the dynamics of the aquifer system. Specifically, the relationship between boundary flows and pumping helps explain why the Laguna Seca subarea appears to be unable to achieve stable groundwater elevations.

To examine the flows that take place near the eastern boundary, the eastern boundary was divided into an eastern segment and a southeastern segment. The locations of these segments are shown on Figure 18. The total amount of groundwater that flows across each boundary segment during every year of the simulation period was then extracted from the model results.

The annual flows across the eastern and southeastern boundary are shown on Figure 20. On this figure the solid lines are boundary flows under the baseline scenario, and the dashed lines are boundary flows under the no Laguna Seca pumping scenario. Positive values indicate that flow is entering the Laguna Seca subarea from the adjacent basin and negative values indicate that flow is exiting the Laguna Seca subarea. Figure 20 shows that groundwater flows into the subarea across the southeastern boundary and that groundwater flows out of the subarea across the eastern boundary.

When both Standard and Alternative producer pumping is reduced to zero, groundwater levels in the Laguna Seca subarea are higher, so less groundwater flows into the subarea from the southeast, and more groundwater flows out of the subarea to the east. Figure 21 shows the annual differences in flows between the two scenarios for each boundary segment.

The changes observed on this figure are consistent with the observation that groundwater elevations in the Laguna Seca subarea, while not recovering entirely, are higher in the scenario with no Standard or Alternative producers pumping than in the baseline scenario. The flow out of the subarea along the eastern boundary, for example, is driven by the groundwater levels in the Laguna Seca subarea being higher than water levels to the east. As groundwater levels in the Laguna Seca subarea rise, the gradient from the Laguna Seca subarea to the east increases and drives more water out of the subarea.

Overall, this analysis highlights the difficulty that can arise when trying to manage only a subset of an aquifer system when that subset is fully integrated

with the system surrounding it. In the case of the Laguna Seca subarea, the surrounding system contains several wells that appear to have a direct influence on the conditions that exist within the subarea. This influence is beyond the control of the Watermaster and draws into question the ability of establishing an operational safe yield for the Laguna Seca subarea as defined in the memorandum.

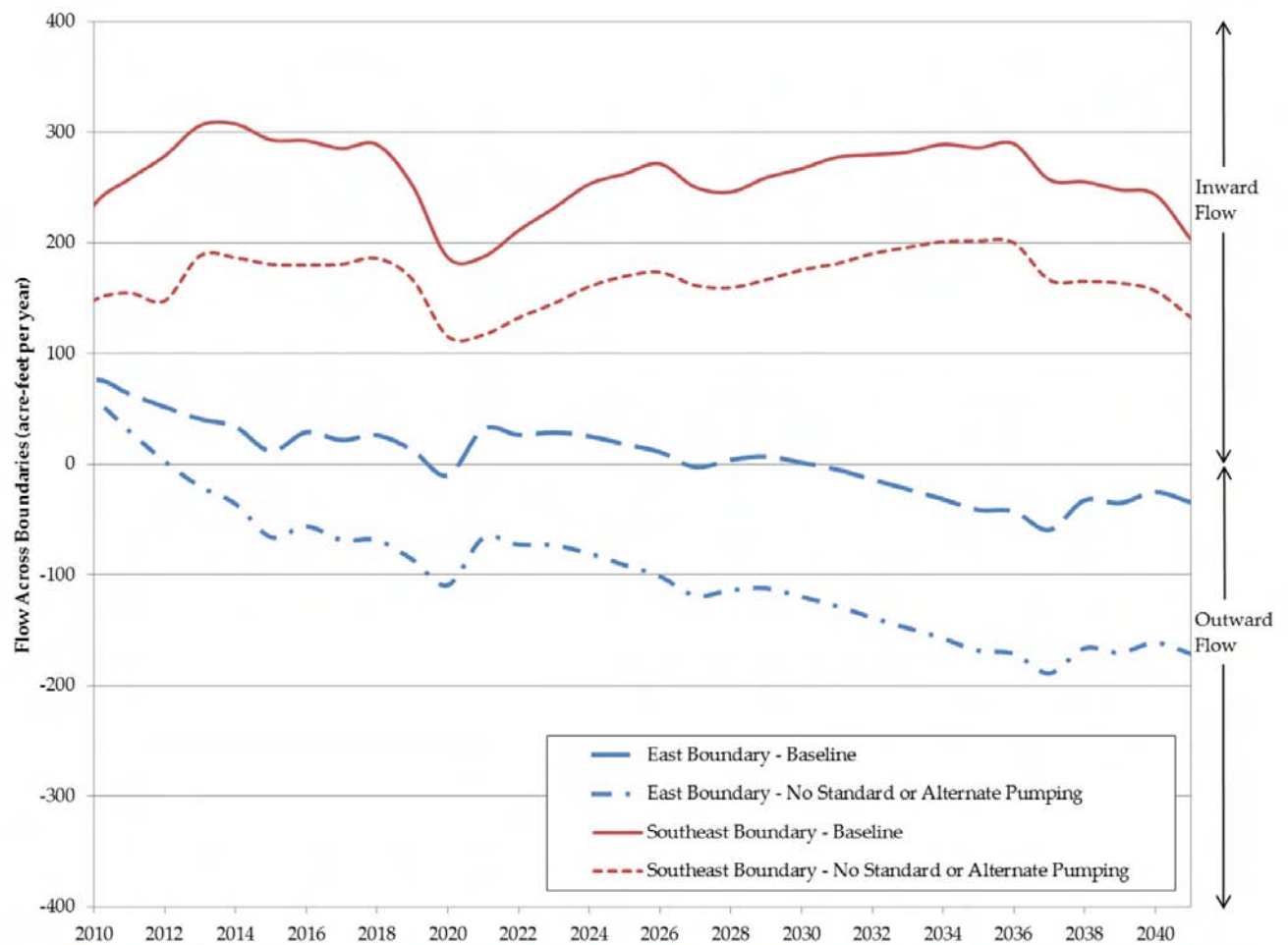


Figure 20: Flows Across the Laguna Seca East and Southeast Boundaries under the Baseline and No Standard or Alternative Producer Pumping Scenarios

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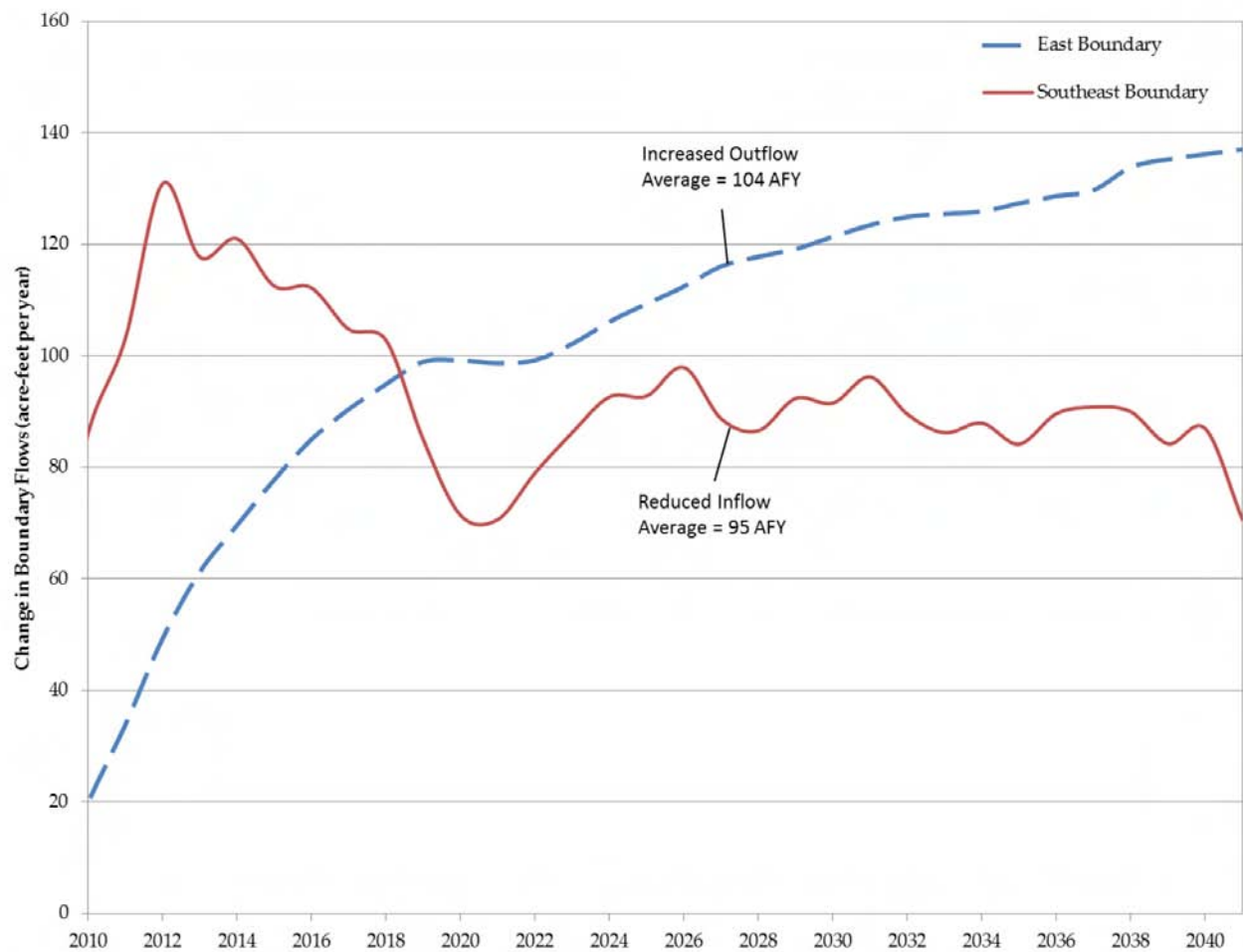


Figure 21: Changes in Flows Across the Laguna Seca's East and Southeast Boundaries that Result When Pumping is reduced from the Baseline to No Standard or Alternative Producer Pumping Scenario

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CONCLUSIONS

The Seaside Basin groundwater flow model predicts that if Cal-Am discontinues pumping from the Laguna Seca subarea, groundwater elevations in the subarea will continue to decline during the simulation period of 2009-2041. The eastern side of the subarea suffers the greatest and most persistent declines. Pumping groundwater elevations are predicted to fall below the top of the well screen prior to 2041 in wells Bishop #3, Ryan Ranch #7, and Laguna Seca Golf Resort – Racetrack.

An average annual natural safe yield of 240 acre feet per year was calculated for the Laguna Seca subarea. This is considerably lower than the adjudication Decision perennial safe yield of 608 acre feet per year. A scenario with the pumping in Laguna Seca reduced to the natural safe yield of 240 acre feet per year failed to achieve stable groundwater levels.

An attempt was made to estimate the operational safe yield for the subarea using the groundwater flow model. However, it was found that eliminating all pumping from the subarea does not completely halt the predicted decline in groundwater elevations in the easternmost wells: FO-6-Shallow and FO-6 Deep. Consequently, it was not possible to determine an operational safe yield. The presence of nearby pumping wells east of the subarea appears to influence groundwater elevations in the eastern portion of the Laguna Seca subarea.

The unsuccessful attempt to estimate the operational safe yield, and an analysis of flows along the Laguna Seca eastern boundary, suggest that wells outside of the Laguna Seca subarea are preventing the subarea from achieving stable groundwater elevations. This influence could be tested more thoroughly using the groundwater model as follows: Multiple scenarios could be run in which pumping from individual wells outside of the Laguna Seca subarea are either removed or their pumping reduced. The resulting changes to groundwater levels in the Laguna Seca subarea could then be compared to baseline conditions to infer the influence that each well has on the subarea.

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- CH2M Hill, 2004. *Hydrogeologic Assessment of the Seaside Groundwater Basin*. Prepared for Somach, Simmons, & Dunn and California-American Water Co. January, 2004.
- Yates, E.B., Feeney, M.B., Rosenberg, L.I., 2002. *Laguna Seca Subarea Phase III Hydrogeologic Update*. Prepared for Monterey Peninsula Water Management District. November, 2002.

APPENDIX A

Table A1: Baseline Scenario Annual Natural Safe Yield Components

Simulated Water Year	Aerial Recharge	Subsurface Inflow	Subsurface Outflow	Natural Safe Yield
	Acre-Feet per Year			
2009 (Jan-Sep)	70	841	-1,510	-598
2010	35	1,080	-1,896	-782
2011	37	1,064	-1,821	-720
2012	33	1,066	-1,795	-696
2013	532	1,038	-1,701	-131
2014	538	1,003	-1,592	-51
2015	2,540	997	-1,606	1,931
2016	92	974	-1,560	-494
2017	1,476	964	-1,546	894
2018	998	962	-1,509	450
2019	2,034	942	-1,549	1,427
2020	4,423	987	-1,747	3,663
2021	349	931	-1,693	-414
2022	1,269	947	-1,694	522
2023	325	946	-1,656	-385
2024	356	951	-1,623	-316
2025	415	937	-1,577	-225
2026	750	938	-1,549	138
2027	1,592	925	-1,559	958
2028	937	918	-1,558	296
2029	107	911	-1,524	-507
2030	583	906	-1,498	-9
2031	79	897	-1,466	-491
2032	34	878	-1,427	-515
2033	37	858	-1,377	-481
2034	33	845	-1,335	-457
2035	532	829	-1,312	48
2036	556	825	-1,296	85
2037	2,540	837	-1,379	1,997
2038	89	822	-1,358	-447
2039	1,476	828	-1,386	918
2040	1,030	832	-1,400	462
2041	2,034	824	-1,470	1,388
2042 (Oct-Dec)	642	197	-373	467
Average Year	866	930	-1,556	240

Table A2: Baseline Scenario Annual Pumping, Change in Storage, and Natural Safe Yield

Simulated Water Year	Well Pumping	Change in Storage	Natural Safe Yield
	Acre-Feet per Year		
2009 (Jan-Sep)	706	-1303	-598
2010	711	-1493	-782
2011	713	-1434	-720
2012	727	-1422	-696
2013	548	-679	-131
2014	624	-675	-51
2015	569	1362	1931
2016	565	-1059	-494
2017	489	405	894
2018	532	-81	450
2019	315	1113	1427
2020	272	3391	3663
2021	329	-743	-414
2022	445	77	522
2023	513	-898	-385
2024	548	-864	-316
2025	522	-748	-225
2026	587	-449	138
2027	440	518	958
2028	448	-152	296
2029	503	-1010	-507
2030	527	-537	-9
2031	546	-1037	-491
2032	446	-962	-515
2033	458	-940	-481
2034	497	-955	-457
2035	448	-401	48
2036	526	-442	85
2037	525	1473	1997
2038	521	-968	-447
2039	446	472	918
2040	531	-69	462
2041	315	1074	1388
2042 (Oct-Dec)	51	416	467
Average Year	513	-273	240

Table A2: Baseline Scenario Annual Pumping, Change in Storage, and Natural Safe Yield

Simulated Water Year	Well Pumping	Change in Storage	Natural Safe Yield
	Acre-Feet per Year		
2009 (Jan-Sep)	706	-1303	-598
2010	711	-1493	-782
2011	713	-1434	-720
2012	727	-1422	-696
2013	548	-679	-131
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2038	521	-968	-447
2039	446	472	918
2040	531	-69	462
2041	315	1074	1388
2042 (Oct-Dec)	51	416	467
Average Year	513	-273	240

Table A-1. Well Construction Information Provided by MPMWD

Producer Name	Well Name	WM No.	Township Range Section	DWR Log #	MCHD Permit #	WL Ref Elevation (ft MSL)	Well Depth (feet)	Depth of Screen Top (feet)	Depth of Screen Bottom (feet)	Pump Intake Depth (feet)	Static Water Level (SWL) (feet)	Date SWL (feet)	Pumping Water Level (PWL) (feet)	Date PWL	Pumping Rate (gpm)	Pumping Drawdown (PWL - SWL) (feet)
California American Water	Bishop #1	209	16S02E05Ea	NA	NA	398.81	500	350	490	400	265.00	8/29/13	338.00	8/27/13	282	73.00
California American Water	Bishop #3	262	16S02E05F1	NA	10-11766	420.58	697	375	685	NA	265.00	8/27/13	379.00	8/27/13	254	111.00
California American Water	Bay Ridge	226	16S02E09Cd	NA	94-0240	545.92	800	480	780	470	382.90	8/27/13	432.00	8/27/13	348	49.10
California American Water	Toro #3		16S02E04F01	NA	NA	NA	758	NA	NA	NA	204.00	9/26/13	Standby well -- currently not operated			NA
California American Water	Ryan Ranch #7	213	15S01E36Nb	082916	W-2089	294	480	350	470	460	244.00	9/20/13	415.00	9/20/13	65	169.00
California American Water	Ryan Ranch #8	216	16S01E01154	082948	W-2117	306.86	450	330	440	300	203.00	9/26/13	Standby well -- currently not operated			NA
California American Water	Ryan Ranch #11	215	16S01E01Cd	804064	03-01475	307.59	455	330	450	420	228.00	9/20/13	229.00	9/20/13	7	1.00
Pasadena Country Club	Main Gate	208	16S02E05Mg	e067374	07-11128	345.42	380	230	380	NA	201.33	3/1/13	225.75	10/1/13	NA	24.42
Pasadena Country Club	Paddock	204	16S02E05Mf	075035	NA	352.69	498	306	498	259	206.83	3/1/13	216.33	10/1/13	NA	9.50
Laguna Seca Golf Resort	New #12	203	16S02E06H	796328	03-01188	365.96	400	300	480	440	244.90	10/15/13	282.5	10/17/13	380	37.60
Laguna Seca Golf Resort	Racetrack	202	16S02E06G5b	115062	1V3885	NA	320	200	300	NA	Currently not operable or serviceable (T. Bryan, 10/17/13)					NA
York School	York #1	212	15S01E36Qa	768995	01-349	384.30	500	160	480	NA	254.44	10/1/13	286.3	7/2/13	NA	61.86
Laguna Seca Recreation Area	LSRA #1	197	16S02E05Ge	NA	NA	392.72	690	NA	NA	NA	200.82	10/15/13	288.4	10/16/13	190	67.58
Laguna Seca Recreation Area	LSRA #2	196	16S02E05Gf	788672	02-031	390.90	650	330	630	NA	180.30	10/15/13	Not working (M. Pierce, 10/16/13)			NA

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

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

MEETING DATE:	February 12, 2014
AGENDA ITEM:	5
AGENDA TITLE:	RFS No. 2014-03 to HydroMetrics to Update and Check Accuracy of Groundwater Model, and Perform Recalibration if Necessary
PREPARED BY:	Robert Jaques, Technical Program Manager
SUMMARY: Included in the approved 2014 M&MP Work Plan and Budget is a task for HydroMetrics to update the Watermaster's Seaside Groundwater Basin Model, and to then check it for accuracy by comparing predicted groundwater levels with actually-measured groundwater levels. If this comparison leads to the conclusion that the Model is not accurately predicting groundwater levels, the Model would be recalibrated until it is achieving satisfactory accuracy. Attached is RFS No. 2014-03 for HydroMetrics to perform this work. Please note that while the RFS covers the full range of services that might be needed if the Model is found to need recalibration, only the initial work to update it and check its accuracy will initially be authorized if the Board approves issuance of this RFS. The subsequent work, if needed, would have to be separately authorized in writing by the Watermaster before that work would be undertaken. As shown in the spreadsheet in Exhibit "A" to the RFS, the initial work (Task 1) is estimated to cost approximately \$12,815. The remainder of the work, if needed and if authorized by the Watermaster, would cost approximately \$21,060, and the total cost of performing all of the work would be \$33,875.	
ATTACHMENTS:	HydroMetrics RFS No. 2014-03
RECOMMENDED ACTION:	Recommend that the Board approve RFS No. 2014-03 in the amount of \$33,875

SEASIDE BASIN WATERMASTER
REQUEST FOR SERVICE

DATE: 3/5/2014

RFS NO. 2014-03

(To be filled in by WATERMASTER)

TO: Derrik Williams
HydroMetrics WRI
PROFESSIONAL

FROM: Robert Jaques
WATERMASTER

Services Needed and Purpose: Update the Watermaster's Seaside Basin groundwater model and check its accuracy. Only perform recalibration if necessary and if directed to do so by Watermaster. See Scope of Work in Attachment 1.

Completion Date: All work of this RFS shall be completed not later than September 1, 2014, and shall be performed in accordance with the time schedule described in Attachment 1.

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

Total Price Authorized by this RFS: \$ 33,875.00 (Cost is authorized only when evidenced by signature below.) (See Attachment 3 for Detailed Breakdown of Estimated Costs).

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

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

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

Agreed to by: _____ Date: _____.
PROFESSIONAL

ATTACHMENT 1

SCOPE OF WORK

The Watermaster's existing Seaside Basin Groundwater Model (the Model), described in the report titled "Groundwater Flow and Transport Model" dated October 1, 2007, was updated in 2009 in order to develop protective water levels, and to evaluate replenishment scenarios and develop answers to Basin management questions. Under this RFS No. 2014-03 the accuracy of the Model will be updated by incorporating recent pumping data, groundwater level data, rainfall data, and other data into the Model. The Model output will then be checked to see if the simulated groundwater levels match the measured groundwater levels. If they match well, no further work will be needed. If the simulated and measured groundwater levels are found to differ significantly, some Model recalibration will be needed.

The scope of work is described in detail in the attached Exhibit "A" and will consist of providing professional consulting services to WATERMASTER for the following three Tasks:

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

Task 2: Recalibrate the model. This Task will only be performed if recalibration is found to be necessary under Task 1. No work on this Task is to be performed unless and until written authorization to perform work is provided by WATERMASTER to PROFESSIONAL. WATERMASTER will notify PROFESSIONAL of its decision whether or not to proceed with work on Task 2 within six weeks of the date of receipt by WATERMASTER of the letter referred to in Subtask 1.3 of Exhibit "A."

Task 3: Prepare a report describing the work that was done under Task 2. This Task will only be performed if recalibration is performed under Task 2, and if so requested by WATERMASTER. No work on this Task is to be performed unless and until written authorization to perform work is provided by WATERMASTER to PROFESSIONAL. WATERMASTER will notify PROFESSIONAL of its decision whether or not to proceed with work on Task 3 at the same time it provides notification regarding the performance of work on Task 2.

The work is to be performed in accordance with the schedule described in Exhibit "A".

Compensation for the work will be in accordance with the detailed cost breakdown in the "Cost Estimate for Seaside Groundwater Basin Watermaster Groundwater Flow Model Update" in Exhibit "A".

Exhibit “A”



519 17th Street, Suite 500
Oakland, CA 94612

Mr. Robert S. Jaques, Technical Program Manager
Seaside Basin Watermaster
83 Via Encanto
Monterey, CA 93940

January 29, 2014

Subject: Scope and Cost Estimate to Update the Seaside Basin Groundwater
Flow Model

Dear Mr. Jaques:

HydroMetrics Water Resources Inc. is pleased to submit this scope and cost estimate for updating the Seaside groundwater flow model. This update is needed to incorporate all available data up through 2013 into the model. The sections below outline the main tasks to be taken.

Task 1. Update Groundwater Model through 2013

SUBTASK 1.1 COLLECT AND COMPILE DATA

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

Groundwater levels and production data will be requested from Monterey Peninsula Water Management District (MPWMD). Other pumpers, such as Cal Water Service and Marina Coast Water District, which do not fall under the Watermaster will be approached separately. Groundwater production for the

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golf courses outside the Seaside basin will be estimated based on assumptions made previously.

SUBTASK 1.2 INPUT NEW DATA TO GROUNDWATER MODEL

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

SUBTASK 1.3 COMPARE MEASURED AND SIMULATED GROUNDWATER LEVELS

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

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

Task 2. Model Recalibration

If the comparison of groundwater levels between measured and simulated from Subtask 1.3 indicates that there is a difference in groundwater levels in key wells, the model will require recalibration. This process involves varying relatively uncertain and sensitive parameters such as horizontal and vertical hydraulic conductivities, over a reasonable range of values. Calibration will be completed when simulated results match the measured data within an acceptable measure of accuracy, and when successive calibration attempts do not notably improve the calibration statistics.

This task includes time for one meeting in person to report to the TAC the outcome of the recalibration.

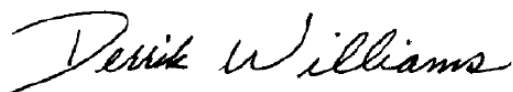
Task 3. Reporting

If Task 2 is authorized by the Watermaster, Task 3 may also be authorized. This task includes the preparation of a calibration report to document the calibration procedure and results.

The estimated cost for the work discussed is \$33,875, as shown on the attached table.

It is expected that Task 1 will take approximately six weeks provided the requested data from water agencies is received within a week of its request. Task 2 and 3 can also be completed within six weeks after Task 1 has been completed.

Sincerely,



Derrik Williams, President
HydroMetrics Water Resources Inc.



Georgina King, Project Manager
HydroMetrics Water Resources Inc.

**Cost Estimate for Seaside Groundwater Basin Watermaster
Groundwater Flow Model Update**

Tasks	HydroMetrics WRI Labor					Other Direct Costs	TOTALS
	Derrik Williams	Georgina King	Stephen Hundt	Labor Total			
	President	Senior Hydrogeologist	Staff Hydrogeologist				
Rates	\$215	\$185	\$115	Hours	(\$)	(\$)	(\$)
Task 1. Update Groundwater Model							
1.1 Collect and Compile Data	1	24	40	65	\$ 9,255	\$ -	\$ 9,255
1.2 Input New Data to Groundwater Model	1	0	16	17	\$ 2,055	\$ -	\$ 2,055
1.3 Compare Measured and Simulated Groundwater Levels	1	2	8	11	\$ 1,505	\$ -	\$ 1,505
Subtotal Task 1				93	\$ 12,815	\$ -	\$ 12,815
Task 2. Model Recalibration							
If required, Recalibrate Model	32	24	40	96	\$ 15,920	\$ 150	\$ 16,070
Subtotal Task 2				96	\$ 15,920	\$ 150	\$ 16,070
Task 3. Reporting							
If Task 2 is approved, prepare Report documenting recalibration (Provide as MS Word and PDF)	2	6	30	38	\$ 4,990	\$ -	\$ 4,990
Subtotal Task 3				38	\$ 4,990	\$ -	\$ 4,990
TOTAL				227	\$ 33,725	\$ 150	\$ 33,875

Notes

Other Direct Costs includes mileage, postage, office supplies

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**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

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

MEETING DATE:	February 12, 2014
AGENDA ITEM:	6
AGENDA TITLE:	Schedule
PREPARED BY:	Robert Jaques, Technical Program Manager
SUMMARY: As a regular part of each monthly TAC meeting, I will provide the TAC with an updated Schedule of the activities being performed by the Watermaster, its consultants, and the public entity, MPWMD, which is performing certain portions of the work. Attached is the most recent update of the Work Schedule for FY 2014.	
ATTACHMENTS:	Schedule of Work Activities for FY 2014
RECOMMENDED ACTION:	Provide Input to Technical Program Manager Regarding Any Corrections or Additions to these Schedules

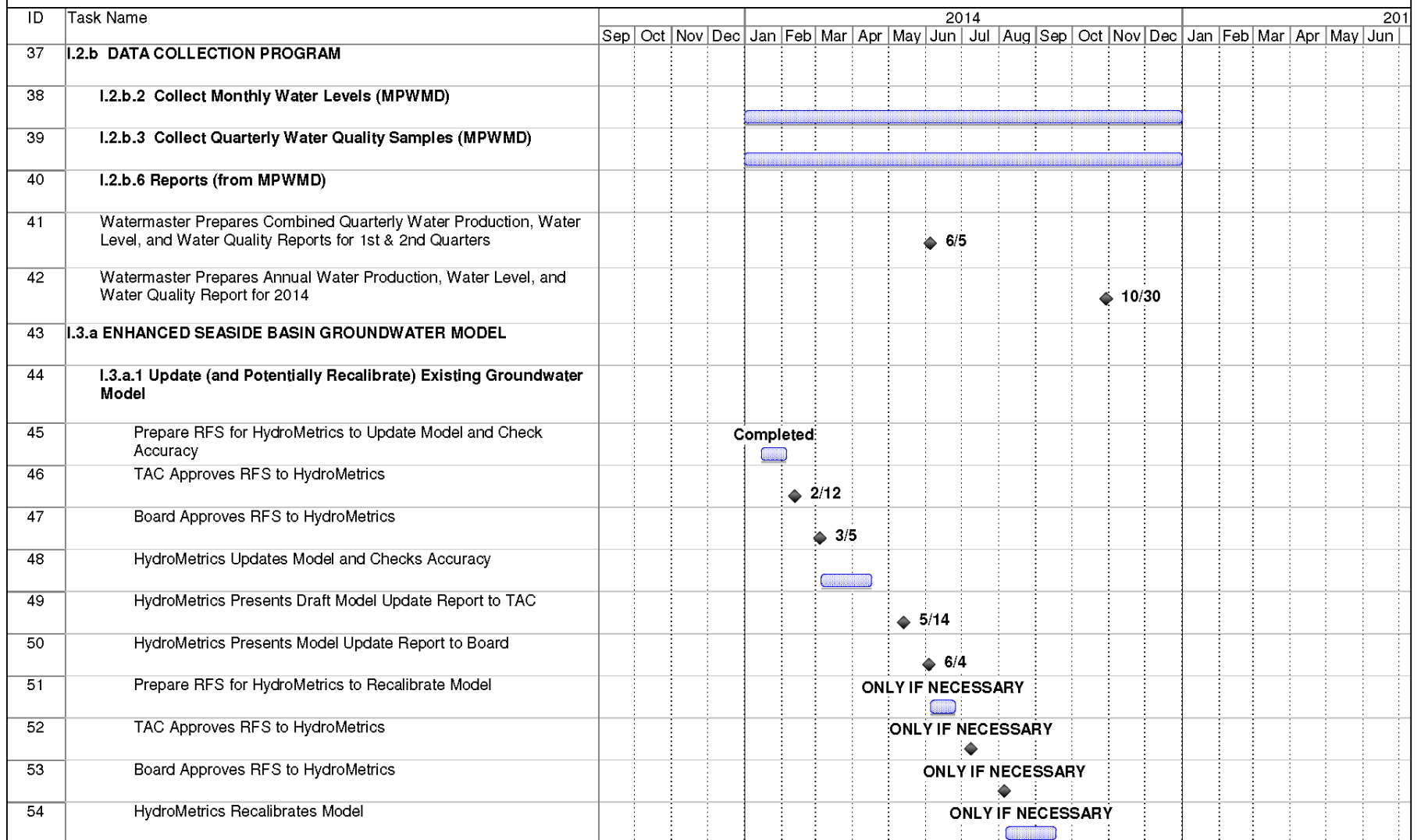
Seaside Basin Watermaster Monitoring and Management Program 2014 Work Schedule

ID	Task Name	2014												2015					
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	CRITICAL PROJECT MILESTONES ASSOCIATED WITH TAC, BOARD, AND/OR CONSULTANT WORK																		
2	2015 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 Annual Water Production, Water Level, and Water Quality Report for 2013 (Same as Task 42)																		
9	Replenishment Assessment Unit Costs for Water Year 2014																		
10	B&F Committee Develops Replenishment Assessment Unit Cost for 2014 Water Year																		
11	If Requested, TAC Provides Assistance to B&F Committee in Development of 2014 Water Year Replenishment Assessment Unit Cost																		
12	Board Adopts and Declares 2014 Water Year Replenishment Assessment Unit Cost																		
13	Replenishment Assessments for Water Year 2014																		
14	Watermaster Prepares Replenishment Assessments for Water Year 2014																		
15	Watermaster Board Approves Replenishment Assessments for Water Year 2014 (At November Meeting)																		
16	Watermaster Levies Replenishment Assessment for 2014																		
17	Monitoring & Management Program (M&MP) Budgets for 2015 and 2016																		

Seaside Basin Watermaster Monitoring and Management Program 2014 Work Schedule

ID	Task Name	2014												201					
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
18	Preliminary Discussion of Potential Scope of Work for 2015 M&MP												◆ 8/13						
19	Prepare Draft 2014 and 2015 M&MP O&M and Capital Budgets																		
20	TAC approves Draft 2015 and 2016 M&MP O&M and Capital Budgets																		
21	Board approves 2015 and 2016 M&MP O&M and Capital Budgets																		
22	2013 Annual Report (Note: Schedule Reflects Court Approval of Later Submittal Date for Annual Report)																		
23	Prepare Preliminary Draft 2014 Annual Report																		
24	TAC Provides Input on Draft 2014 Annual Report																		
25	Prepare Revised Draft 2014 Annual Report (Incorporating TAC Input)																		
26	Board Provides Input on Revised Draft 2014 Annual Report (At November Board Meeting)																		
27	Prepare Final 2014 Annual Report (Incorporating Board Input)																		
28	Watermaster Submits Final 2014 Annual Report to Judge																		
29	MANAGEMENT																		
30	M.1 PROGRAM ADMINISTRATION (All Work Performed by Watermaster Staff)																		
31	Prepare Initial Consultant Contracts for 2015																		
32	TAC Approval of Initial Consultant Contracts for 2015																		
33	Board Approval of Initial Consultant Contracts for 2015 (At November Board Meeting)																		
34	IMPLEMENTATION																		
35	I.2.a DATABASE MANAGEMENT																		
36	I.2.a.1 Conduct Ongoing Data Entry/Database Maintenance																		

Seaside Basin Watermaster Monitoring and Management Program 2014 Work Schedule



Seaside Basin Watermaster Monitoring and Management Program 2014 Work Schedule

ID	Task Name	2014												201									
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
55	HydroMetrics Presents Draft Model Recalibration Report to TAC																						
56	HydroMetrics Presents Model Recalibration Report to Board																						
57	I.3.c Refine and/or Update the BMAP																						
58	I.4.c Annual Seawater Intrusion Analysis Report (SIAR)																						
59	HydroMetrics Provides Draft SIAR to Watermaster																						
60	TAC Approves Annual Seawater Intrusion Analysis Report (SIAR)																						
61	Board Approves Annual Seawater Intrusion Analysis Report (SIAR)																						
62	I.4.d Complete Preparation of Seawater Intrusion Response Plan (SIRP)																						
63	I.4.e Refine and/or Update the SIRP																						

**SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE**

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

MEETING DATE:	February 12, 2014
AGENDA ITEM:	7
AGENDA TITLE:	Other Business
PREPARED BY:	Robert Jaques, Technical Program Manager
SUMMARY: The "Other Business" agenda item is intended to provide an opportunity for TAC members or others present at the meeting to discuss items not on the agenda that may be of interest to the TAC.	
ATTACHMENTS:	None
RECOMMENDED ACTION:	None required – information only