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SUPERIOR COURT OF CALIFORNIA
COUNTY OF MONTEREY

CALIFORNIA AMERICAN WATER,
Plaintiff,
vs.
CITY OF SEASIDE, et al.,
Defendants.

Case No.: M66343

NOTICE OF FILING OF ANNUAL REPORT

Assigned for All Purposes to the
Honorable Roger D. Randall (Ret.)

MONTEREY PENINSULA WATER
MANAGEMENT DISTRICT,

Intervenor,

MONTEREY COUNTY WATER
RESOURCES AGENCY,

Intervenor,

AND RELATED CROSS-ACTIONS.

TO ALL PARTIES AND TO THEIR RESPECTIVE COUNSEL OF RECORD:

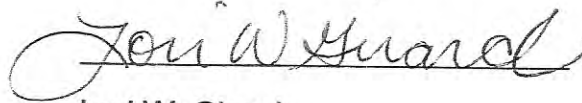
PLEASE TAKE NOTICE that California American Water, at the request and on behalf of the Seaside Groundwater Basin Watermaster ("Watermaster") Chief Executive Officer, hereby files the Seaside Basin Watermaster Annual Report – 2012 ("Report").
By Annual Report Review and Order dated January 7, 2011, and in response to a

1 request by the Watermaster, the Court ordered that future annual reports be filed by
2 December 15.

3 A copy of the main body of the Report will be served on each of the Parties by
4 California American Water along with a copy of this Notice. Hard copies of the ten (10)
5 attachments to the Report, consisting of approximately 159 pages, are available upon
6 request from the Watermaster Chief Executive Officer, and may be accessed
7 electronically on the Watermaster's website, <http://seasidebasinwatermaster.org>.

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9 Respectfully submitted,

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12 Dated: December 12, 2012



13 Lori W. Girard
14 Attorney for Plaintiff
15 California American Water
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SEASIDE BASIN WATERMASTER

ANNUAL REPORT – 2012

Integral to the Superior Court Decision (Decision) rendered by Judge Roger D. Randall on March 27, 2006 is the requirement to file an Annual Report. The ruling of the Court originally required that the Annual Report be prepared and filed with the Court and mailed to all the parties on or before the 15th day of November every year for the preceding Water Year. The Court's subsequent Annual Report Review and Order entered on January 7, 2011 revised the deadline for submittal of Annual Reports to December 15. This 2012 Annual Report is being filed on or before December 15, 2012, consistent with the provisions of the Decision, as amended by the Annual Report Review and Order. This Annual Report addresses the specific Watermaster functions set forth in Section III. L. 3. x. of the Decision. In addition this Annual Report includes a section pertaining to Water Quality Monitoring and Basin Management.

A. Groundwater Extractions

The schedule summarizing the Water Year 2012 (WY 2012) groundwater production from all the producers allocated a Production Allocation in the Seaside Groundwater Basin is provided in Attachment 1, "Seaside Groundwater Basin Watermaster, Reported Quarterly and Annual Water Production From the Seaside Groundwater Basin for all Producers Included in the Seaside Basin Adjudication During Water Year 2012." For the purposes of this Annual Report Water Year 2012 is defined as beginning October 1, 2011 and ending on September 30, 2012.

B. Groundwater Storage

Monterey Peninsula Water Management District (MPWMD), in cooperation with California American Water (CAW), operated the Seaside Basin Aquifer Storage and Recovery (ASR) program during WY 2012. During WY 2012, a total of 131.27 acre-feet (AF) of water was diverted by CAW from its Carmel River sources during periods of flow in excess of NOAA-Fisheries' bypass flow requirements, and transported through the existing CAW distribution system for injection and storage in the Seaside Basin at the MPWMD's Santa Margarita ASR site and CAW's Seaside Middle School ASR site. In WY 2012, rainfall in the area was about 65% of normal, but due to the rainfall distribution pattern throughout the season, Carmel River flow was only 29% of normal. Accordingly, the amount of water that was diverted for ASR purposes is considerably less than the amount that was diverted in WY 2011, because of the low rainfall and flow amounts, and also due to limitations on diversions associated with the SWRCB bypass flow requirements to maintain flows in the Carmel River. This is the only reported storage of non-native groundwater into the Seaside Basin in WY 2012.

Also during WY 2012, MPWMD and CAW initiated construction of the second ASR well at the Seaside Middle School ASR site. This is the fourth ASR well in the basin, and it is anticipated to be ready for permanent service in late 2013. In addition, utilization of new pipeline connections from the Seaside Middle School to the Santa

Margarita ASR facility began in WY 2012. Use of these pipeline connections will allow routine backflushing of the two Seaside Middle School site ASR wells to occur at the existing backflush basin at the Santa Margarita site on an interim basis until a permanent backflush basin can be installed for this purpose. The new ASR wells at the Seaside Middle School site will eventually provide over twice the existing capacity to inject and store excess Carmel River winter flows, and their completion satisfies orders and decisions recently issued by the State Water Resources Control Board and California Public Utilities Commission.

Based upon production reported for WY 2012, the following Standard Producers are entitled to Free and Not-Free Carryover Credits in accordance with the Decision, Section III. H. 5. for WY 2013:

<u>Producer</u>	<u>Free Carryover Credit (Acre-feet)</u>	<u>Not-Free Carryover Credit (Acre-feet)</u>
Granite Rock	89.21	69.97
DBO Development	180.17	136.41
CAW	0.00	0.00
City of Seaside Muni	0.00	0.00

C. Amount of Artificial Replenishment, if any, performed by Watermaster

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

The Watermaster has interpreted the above language to mean that the following Artificial Replenishment action was undertaken in WY 2012:

Watermaster indirectly engaged in In-lieu Replenishment of the Basin during Water Year 2012. Non-native water was made available to the Basin during Water Year 2012 and is foreseeable for Water Year 2013 under a Memorandum of Understanding and Agreement entered into by Watermaster with the City of Seaside for its golf course irrigation program creating in-lieu replenishment water. 298.2 acre-feet was in-lieu replenished to the Basin by the program in Water Year 2012.

D. Leases or sales of Production Allocation and Administrative Actions

No sale of Production Allocation and no actions pertaining to real property and/or water rights occurred during WY 2012.

At its October 3, 2012 meeting the Watermaster Board adopted revisions to its *Rules and Regulations*. These revisions pertained to the appointment of officers to committees in the third sentence in Section 3.3. The wording of that sentence was changed from “The Watermaster Board shall appoint the Chairperson of any such committee or subcommittee” to read “Committee or subcommittee members shall elect the Chairperson and any other officers of any such committee or subcommittee.”

During WY 2012 the Watermaster Board was comprised of the following Members and Alternates:

<u>MEMBER</u>	<u>ALTERNATE</u>	<u>REPRESENTING</u>
Director Paul Bruno	N/A	Coastal Subarea Landowner
Director Craig Anthony Director Eric Sabolsice	Eric Sabolsice Brian Bruce (effective January 2012)	California American Water
Director Bob Costa	N/A	Laguna Seca Subarea Landowner
Director Bob Brower	Judi Lehman	MPWMD
Mayor Dave Pendergrass	Steve Matarazzo	City of Sand City
Supervisor Dave Potter	Jane Parker	Monterey County (MCWRA)
Mayor Jerry Edelen	Kristin Clark	City of Del Rey Oaks
Mayor Chuck Della Sala	Libby Downey	City of Monterey
Mayor Felix Bachofner	Dennis Alexander	City of Seaside

E. Use of imported, reclaimed, or desalinated Water as a source of Water for Storage or as a water supply for lands overlying the Seaside Basin

The CAW/MPWMD ASR Program occurred in WY 2012 with 131.3 acre-feet of water injected into the Basin as Stored Water Credits and 1,224.3 acre-feet extracted.

In addition to the water imported from the Carmel Basin for the ASR program described in **Section B** above, during WY 2012 298.2 acre-feet of imported water was used to irrigate golf courses owned by the City of Seaside overlying the Seaside Basin, as discussed above in **Section C**. The terms and conditions under which this in-lieu replenishment water was used to generate a credit to be applied against the City of Seaside’s overproduction replenishment assessments is described in the “Memorandum of Understanding Between the Seaside Basin Watermaster and the City of Seaside”

which was contained in Attachment 3 to the Watermaster's 2010 Annual Report. This is the only imported, reclaimed or desalinated water used either directly or for storage in the groundwater basin that has been reported to the Watermaster during WY 2012.

As reported in Section E of the 2010 and 2011 Annual Reports, the MPWMD, City of Seaside, MCWD, and Watermaster developed an MOU to add an additional 68.8 acre-fee of in lieu replenishment to the City of Seaside's total in lieu replenishment for Water Year 2009/2010. This MOU was finalized and executed in early 2012, and a copy of the MOU is contained in Attachment 5. This will result in a revision to the Replenishment Account balance sheet for Water Year 2009/2010.

F. Violations of the Decision and any corrective actions taken

Section III. D. of the Decision enjoins all Producers from any Over-Production beyond the Operating Yield in any Water Year in which the Watermaster declares that Artificial Replenishment is not available or possible. Section III. L. 3. j. iii. requires that the Watermaster declare the unavailability of Artificial Replenishment in December of each year, so that the Producers are informed of the prohibition against pumping in excess of the Operating Yield

The Watermaster made a declaration regarding the availability of Artificial Replenishment for WY 2013 at its Board meeting of November 29, 2012. A copy of this declaration is contained in Attachment 2. In WY 2012 the Watermaster continued the 10% water production reduction that was implemented in WY 2010, as required under Section III.B.2 of the Decision. In WY 2012 the Watermaster implemented an additional 10% water production reduction, also as required under Section III.B.2 of the Decision.

Total pumping for WY 2012 did not exceed the Operating Yield (OY) for the Seaside Basin, but it did exceed the Natural Safe Yield (NSY) of the Basin.

CAW and the City of Seaside reported annual pumping quantities that exceeded their Standard Production NSY allocations by 597.51 and 56.39 acre-feet, respectively, and reported annual pumping quantities that exceeded their Operating Yield allocations by 222.97 and 2.43 acre-feet, respectively. The City of Seaside did not exceed its Alternative Production NSY. The Watermaster will assess CAW and the City of Seaside a Replenishment Assessment for these over productions, as further described in Section H, below.

G. Watermaster administrative costs

The total estimated Administrative costs through the end of Fiscal Year 2012 amounted to \$85,000 including a \$25,000 dedicated reserve. Costs include maintaining an office and paying a part time administrator and some part time staff to take and transcribe minutes of the Watermaster Board meetings during 2012. The "Fiscal Year 2012 Administrative Fund Report" is provided as Attachment 3.

H. Replenishment Assessments

A Replenishment Assessment of \$2,780 per acre-foot was established by the Watermaster Board at its October 7, 2009 meeting for use against WY 2010 pumping, and this same unit cost was used for WY 2012. At its meeting of October 3, 2012 the Watermaster Board determined that this same \$2,780 per acre-foot Replenishment Assessment unit cost should be used against WY 2013 pumping. The Agenda transmittal from that meeting discussing this determination is contained in Attachment 4.

Alternative and Standard Producers report their production amounts from the Basin to the Watermaster on a quarterly basis. Based upon the reported production for WY 2012, CAW's Replenishment Assessment for Overproduction in excess of its share of the Natural Safe Yield is \$1,661,089.98, and for Overproduction in excess of its share of the Operating Yield is \$619,853.40. The City of Seaside's Replenishment Assessment for its Municipal System for Overproduction in excess of its share of the Natural Safe Yield is \$156,751.85, and for overproduction in excess of its share of the Operating Yield is \$6,756.65. The City of Seaside did not exceed its Alternative Production Allocation for its Golf Course System production. A summary of the calculations for Replenishment Assessment for WY 2012 is contained in Attachment 5.

I. All components of the Watermaster budget

The Watermaster budget has four separate funds: Administrative Fund; Monitoring & Management–Operations; Monitoring and Management–Capital Fund and; Replenishment Fund. Copies of the Fiscal Year 2013 adopted budgets are contained in Attachment 6. The Chief Executive Officer provides monthly financial status reports to the Watermaster Board on all financial activities for each month with year-to-date totals.

J. Water Quality Monitoring and Basin Management

Water Quality Analytical Results

Groundwater quality data continued to be collected and analyzed on a quarterly basis during WY 2012 from the enhanced network of monitoring wells. As initiated in 2009, a new low-flow sampling method continued to be implemented to improve the efficiency of sample collection, and will continue to be employed during the upcoming year. Where feasible, water quality at selected locations may continue to be supplemented with continuous water-quality dataloggers to offset the reduction in sample collection frequency. No modifications to the quarterly data collection frequency at these wells are being proposed for WY 2013, but consideration will be given to reducing the sampling frequency from quarterly to semi-annually at selected monitor wells that continue to exhibit stable water-quality results. Any recommendations for future changes in sampling frequency will be included in the 2013 Annual Report.

In addition, quarterly geophysical (induction) logging continued to be performed at the four Watermaster Sentinel wells that were installed in 2007. The induction logging results have shown very little variations and trends have been steady since this monitoring began, indicating that the coastal water quality conditions are not changing at

this sample frequency. Therefore, beginning in WY 2010, as approved by the Court's Order dated February 19, 2010, the induction logging frequency was reduced to semi-annually at these wells. Water samples from these wells continue to be collected on an annual basis.

Beginning in WY 2012 water quality analyses were expanded to include barium and iodide ions. These expanded analyses will be continued in WY 2013 for the four Watermaster Sentinel wells (SBWM-1, SBWM-2, SBWM-3, and SBWM-4), and also for the 3 most coastal MPWMD monitoring wells (MSC, PCA, and FO-09).

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

All of the recommendations contained in the report in Attachment 7 are being actively pursued by the Watermaster. Funds to pursue these recommendations have been included in the adopted FY 2013 budgets contained in Attachment 6.

Management and Monitoring Program Work Plan

The Management and Monitoring Program (M&MP) 2013 Work Plan contained in Attachment 9 includes the types of basin management activities conducted in prior years as well as revisions recommended by the TAC when it reviewed the Draft M&MP 2013 Work Plan at its August 8, 2012 meeting, and the following revisions that resulted from subsequent discussions with MPWMD and HydroMetrics representatives:

- Installation of additional dataloggers on certain wells under Task I.2.b.2
- Completing well retrofits and providing ongoing maintenance funding for the sample collection equipment under Task I.2.b.3
- Incorporating into the Watermaster's Database data from wells that were newly identified by the work performed in 2012 under Task I.3.d (considered under item IX.A.1.b) above.)
- Compiling historical and current water quality data in the coastal area to provide more in-depth evaluation of conditions in the shallow Dune Sand/Aromas Sand aquifer in the vicinity of the Sand City Public Works well, where unique water quality conditions and variability have recently been observed as discussed at TAC meetings. This work is under Task I.4.b.

Basin Management Database

Pertinent groundwater resource data obtained from a number of sources has been consolidated into the Watermaster's database to allow more efficient organization and data retrieval. No modifications or enhancements to the database are planned in FY 2013.

Enhanced Monitoring Well Network

The Seaside Basin M&MP uses an Enhanced Monitoring Well Network to fill in data gaps in the previous monitoring well network used by the Monterey Peninsula Water Management District (MPWMD), and others, in order to improve the Basin management

capabilities of the Watermaster. The Enhanced Monitoring Well Network has been described in detail in previous Watermaster Annual Reports. It continues to be used to obtain additional data that is useful to the Watermaster in managing the Basin.

Basin Management Action Plan (BMAP)

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

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

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

Updating of the BMAP was planned for FY 2010, and again in FYs 2011 and 2012, but certain information (coming from other parties) that would be needed to perform that work was still not available. Therefore, updating the BMAP has been rescheduled for FY 2013, as described in the M&MP Work Plan contained in Attachment 9.

Seawater Intrusion Response Plan

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

The Final SIRP was approved by the Watermaster Board at its January 2009 meeting, and a summary of the Seawater Intrusion Contingency Actions from the SIRP were contained in Attachment 10 of the 2009 Annual Report. The complete document may be viewed and downloaded from the Watermaster's website at: <http://www.seasidebasinwatermaster.org/>.

Seawater Intrusion Analysis Report

The Watermaster retained HydroMetrics LLC to prepare the WY 2012 Seawater Intrusion Analysis Report (SIAR) required by the M&MP. The WY 2012 SIAR provides an analysis of data collected during this Water Year.

The WY 2012 SIAR states that depressed groundwater levels, continued pumping in excess of recharge and fresh water inflows, and ongoing seawater intrusion in the nearby Salinas Valley all suggest that seawater intrusion could occur in the Seaside Groundwater Basin. In spite of these factors, the SIAR reports that neither the Piper nor the Stiff Diagrams indicate the presence of seawater intrusion in the

existing monitoring wells. However, a trend toward increasing chloride concentration in a few of the near-coast monitoring wells, and decreasing sodium/chloride molar ratios in some of those wells warrants increasing the monitoring frequency in those wells.

As discussed in Attachment 7, a low-flow sampling technique was implemented in 2009, replacing the previously used air-lift sampling technique. The cause of these changes in water quality at these wells may be related to this change in the method samples are collected. This will be evaluated early in WY 2013, as noted in Attachment 7.

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

The Watermaster continues to analyze the data that is being gathered at the various monitoring sites in order to keep a close watch on the conditions within the Basin, as discussed under the "Enhanced Monitoring Well Network" heading above.

Groundwater Modeling

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

Modeling Scenarios

In FY 2010 one Scenario was modeled using the updated Groundwater Model. This was a scenario to evaluate the potential effects of additional pumping in the Laguna Seca Subarea. A full copy of the Technical Memorandum describing that work was contained in Attachment 14 of the Watermaster's 2010 Annual Report.

A second Scenario was planned for modeling in FY 2011, and again in FY 2012. This scenario was to model the effects of implementing the "Monterey Regional Water Supply Project –Phase 1" as that project is defined in the Final EIR for the Coastal Water Project. A key component of this project will be a Regional Desalination Plant. That scenario (Scenario 2) was described in Section J of the 2010 Annual Report.

However, because the data needed to perform modeling of Scenario 2 was still being developed by others during FYs 2011 and 2012, the Watermaster deferred proceeding with work on Scenario 2. The Scenario 2 modeling work has been included in the Monitoring and Management Program Scope of Work and Budget for FY 2013, so that this work can be performed if the more definitive data necessary to perform this work becomes available.

Protective Water Levels

In FY 2009 the Watermaster completed development of preliminary Protective Water Levels (PWLs) for each of the Basin's production aquifers at the locations of several coastal wells. There was discussion of performing refined analyses and/or to determine how the PWLs would be affected if less than 100% of the Basin was to be protected. Performing these refinements was included as a Task in the 2010, 2011, and 2012 M&MP Work Plans, and in their respective M&MP Budgets.

However, water supply information from the Monterey Peninsula Water Supply Project (previously called the Regional Water Supply Project) that would be needed to perform that work was still not available in 2012. There was consensus that there was no danger at this time in delaying refining the Protective Water Levels. Therefore, refining the PWLs has been rescheduled and budgeted for FY 2013, as described in the M&MP Work Plan contained in Attachment 9.

Aquifer Cross-Contamination Investigation

In 2012 MPWMD completed its evaluation of coastal wells for cross-aquifer contamination potential. This work consisted of the following tasks:

1. Field verifying selected older steel cased wells.
2. Inspecting well logs to assess proper seal placement to isolate aquifers.
3. Investigating the Santa Margarita – Purisima interface.
4. Investigating video logging of selected wells suspected to be conduits for cross-contamination.
5. Identifying abandoned wells that are screened in the Santa Margarita aquifer.

This work was undertaken because if seawater intrusion were to reach any of the coastal wells in any aquifer, and if a well was constructed without proper seals to prevent cross-aquifer communication, or if deterioration of the well had compromised these seals, it would be possible for the intrusion to flow from one aquifer to another. The potential sources of cross-contamination between the primary aquifers within the Seaside Groundwater basin (the confined Santa Margarita aquifer and the unconfined Paso Robles aquifer) include: (1) cross-screened wells (i.e., wells screened in both the Paso Robles and Santa Margarita/Purissima aquifers), (2) poorly-constructed wells (i.e., inadequate seals between aquifers), (3) cracked casing due to age and/or deterioration of construction materials, and (4) abandoned or improperly destroyed wells.

The work performed in this study included examining well records and performing field verifications to determine if any obvious problems existed in terms of well location, construction, maintenance, or abandonment which would pose a potential cross-aquifer contamination risk, if sea water intrusion were to reach the locations of these wells. For 261 wells, no problems related to maintenance or abandonment were evident from this work. However, 18 wells were identified to exist in the coastal zone and to be either completed in two aquifer zones or to have been drilled through the upper aquifer and completed in the deeper aquifer. These are potential conduits for seawater intrusion, as wells screened in two aquifers potentially provide a direct connection and wells completed in the deeper zone could contribute to cross-aquifer contamination through

improperly constructed or failed seals. The 18 identified wells are currently being used as production, backup production, or monitoring wells.

If seawater intrusion were to be detected in the locality of one or more of these wells at some future date, it will be necessary to perform focused evaluation to inspect the integrity of well materials and determine the effects of well completions on the movement of seawater between aquifers at specific wells on a case by case basis. Seawater intrusion has not been detected or reported in the locality of any of these wells. Therefore, no further investigative work is warranted at this time.

A complete copy of the MPWMD investigation is contained in Attachment 10.

Evaluation of Impacts of Temporary Suspension of 10% Pumping Reductions

In FY 2012 groundwater modeling was performed to help the Board decide whether or not to seek approval from the Court to temporarily suspend pumping reductions that are currently required under the Adjudication Decision. The rationale for making such a request to the Court is that to date no evidence of seawater intrusion, or even the imminent onset of seawater intrusion, has been detected in the Seaside Basin, whereas there exists a current condition in the Carmel River Basin which requires that water diversions be reduced. Temporarily suspending the 10% pumping reductions for the Standard Producers in the Seaside Basin for Water Years 2012 through 2017 would help to reduce the adverse impacts of water rationing and water conservation measures that may have to be imposed while CAW implements a project to reduce its Carmel River Basin diversions to comply with the State-imposed Cease and Desist Order. The Board determined that it would make this request to the Court through a separate filing in either late 2012 or early 2013.

K. Conclusions and Recommendations

The Seaside Basin Watermaster Board has worked diligently to meet all of the Court's established deadline dates. All of the Phase 1 Scope of Work activities, which are described in the "Implementation Plan for the Seaside Basin Monitoring and Management Program" dated March 7, 2007, have been completed. At the Watermaster Board meeting held on October 3, 2012 the Board adopted the budgets contained in Attachment 6, which support carrying out all elements of the "Seaside Groundwater Basin Management and Monitoring Program Anticipated 2013 Work Plan." That Work Plan describes the M&MP activities that will be conducted during Fiscal Year 2013. A copy of this Work Plan is contained in Attachment 9.

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

ATTACHMENT 1

GROUNDWATER EXTRACTIONS

Seaside Groundwater Basin Watermaster
Reported Quarterly and Annual Water Production From the Seaside Groundwater Basin
For All Producers Included in the Seaside Basin Adjudication – Water Year 2012
(All Values in Acre-Feet (AF))

	Type	Oct	Nov	Dec	Oct-Dec 11	Jan	Feb	Mar	Jan-Mar 12	Apr	May	Jun	Apr-Jun 12	Jul	Aug	Sep	Jul-Sep 12	Reported Total	Yield Allocation	from WY 2011	for WY 2012	Credit from WY 2011	
Coastal Subareas																							
CAW - Coastal Subareas	SPA	0.0	0.0	0.0	0.0	87.0	0.0	84.5	171.5	243.6	288.7	465.1	997.4	550.6	565.8	415.8	1,532.1	2,701.0	2,668.9	31.8	2,700.7	1,117.5	
City of Seaside (Municipal)	SPA	21.7	17.8	15.9	55.3	17.4	15.6	15.8	48.8	17.9	22.2	20.9	61.1	21.8	24.0	22.7	68.5	233.7	218.9	12.4	231.3		
Granite Rock Company	SPA	--	--	--	0.0	--	--	--	0.0	--	--	--	0.0	--	--	--	0.0	0.0	20.6	138.6	159.2		
DBO Development No. 27	SPA	--	--	--	0.0	--	--	--	0.0	--	--	--	0.0	--	--	--	0.0	0.0	37.4	279.2	316.6		
City of Seaside (Golf Courses)	APA	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	540.0		540.0		
Sand City	APA	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.2	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.3	0.9	9.0		9.0		
SHG (Security National Guaranty)	APA	--	--	--	0.0	--	--	--	0.0	--	--	--	0.0	--	--	--	0.0	0.0	149.0		149.0		
Calabrese (Cypress Pacific Inv.)	APA	--	--	--	0.0	--	--	--	0.0	--	--	--	0.0	--	--	--	0.0	0.0	140		140		
Mission Memorial (Alderwoods)	APA	3.0	1.1	2.4	6.4	1.5	1.3	1.4	4.2	1.0	3.3	2.3	6.6	3.7	2.8	3.2	9.7	27.0	31.0		31.0		
Coastal Subareas Totals					62.0				224.7				1,065.4				1,610.7	2,962.8	3,688.8	462.0	4,150.8	1,117.5	
Laguna Seca Subarea																							
CAW - Laguna Seca Subarea	SPA	33.7	25.1	26.8	85.6	26.9	25.4	23.7	76.0	25.0	33.6	35.2	93.7	38.0	38.7	38.0	114.6	369.9	147.2		147.2		
Ryan Ranch Unit		5.6	4.4	4.4	14.4	4.1	5.1	4.3	13.5	5.1	0.7	0.0	5.9	0.0	3.5	6.6	10.1	43.9					
Hidden Hills Unit		12.7	9.4	11.1	33.3	11.2	10.1	10.0	31.3	10.1	15.6	16.3	42.1	17.2	16.9	13.9	48.0	154.7					
Bishop Unit		15.4	11.3	11.3	38.0	11.6	10.2	9.4	31.2	9.7	17.2	18.8	45.8	20.7	18.3	17.4	56.5	171.4					
Passadera Country Club	APA	0.2	0.0	0.2	0.4	0.1	0.1	12.7	12.8	10.2	35.6	34.0	79.7	33.1	40.6	32.6	106.4	199.3	251.0		251.0		
Laguna Seca Golf Resort (Bishop)	APA	8.5	3.4	4.3	16.3	7.2	4.1	5.7	17.0	6.8	40.8	43.1	90.7	52.7	41.4	37.5	131.6	255.6	320.0		320.0		
York School	APA	1.7	0.5	2.2	4.4	0.7	1.6	0.6	2.9	0.6	2.1	1.8	4.5	2.6	1.7	2.5	6.8	18.7	32.0		32.0		
Laguna Seca County Park	APA	2.4	1.6	2.0	6.1	1.7	1.5	1.2	4.3	1.3	2.6	2.8	6.8	4.3	2.8	2.4	9.5	26.7	41.0		41.0		
Laguna Seca Subarea Totals					112.7				113.0				275.4				368.9	870.1	791.2	0.0	791.2	0.0	
Total Production by WM Producers					174.7				337.7				1,340.9				1,979.6	3,832.9	4,480.0	462.0	4,942.0	1,117.5	
Annual Production from APA Producers																		528.3					
Annual Production from SPA Producers																		3,304.6					
City of Seaside Golf Courses In-Lieu (MCWD source water)																							
MCWD delivery		21.5	15.8	9.3	46.6	16.6	17.7	20.8	55.1	27.2	60.5	57.6	145.2	24.3	16.6	10.3	51.2	298.2					
CAW / MPWMD ASR (Carmel River Basin source water)																							
(Injection)		0.0	0.0	0.0	0.0	0.0	0.0	(19.7)	(19.7)	(111.6)	0.0	0.0	(111.6)	0.0	0.0	0.0	0.0	0.0	(131.3)				
Recovery		410.9	355.2	310.5	1,076.5	40.9	0.0	0.0	40.9	0.0	0.0	0.0	0.0	0.0	0.0	106.9	106.9	1,224.3					
Net ASR		410.9	355.2	310.5	1,076.5	40.9	0.0	(19.7)	21.2	(111.6)	0.0	0.0	(111.6)	0.0	0.0	106.9	106.9	1,093.1					

Notes:

- The Water Year (WY) begins October 1 and ends September 30 of the following calendar year. For example, WY 2012 begins on October 1, 2011, and ends on September 30, 2012.
- "Type" refers to water right as described in Seaside Basin Adjudication decision as amended, signed February 9, 2007 (Monterey County Superior Court Case No. M66343).
- Values shown in the table are based on reports to the Watermaster as received by MPWMD by October 15, 2012.
- All values are rounded to the nearest tenth of an acre-foot. Where required, reported data were converted to acre-feet utilizing the relationships: 325,851 gallons = 43,500 cubic feet = 1 acre-foot.
- Any minor discrepancies in totals are attributable to rounding.
- APA = Alternative Producer Allocation; SPA = Standard Producer Allocation; CAW = California American Water.
- It should be noted that CAW/MPWMD ASR "Injection" and "Recovery" amounts are not expected to "balance" within each Water Year. This is due to the injection/recovery "rules" that are part of SWRCB water rights permits and/or separate agreements with state and federal resources agencies that are associated with the water rights permits.

ATTACHMENT 2

**WATERMASTER DECLARATION
OF
NON-AVAILABILITY
OF
ARTIFICIAL REPLENISHMENT WATER**

NOTICE TO ALL SEASIDE GROUNDWATER PRODUCERS:

Case No. M66343 Amended Decision Section III.B.2.

Commencing with the fourth Water Year, and triennially thereafter, the Operating Yield for both Subareas will be decreased by ten percent (10%) until Operating Yield is the equivalent of the Natural Safe Yield unless:

- a. The Watermaster has secured and is adding an equivalent amount of Non-Native water to the Basin on an annual basis; or*
- b. The Watermaster has secured reclaimed water in an equivalent amount and has contracted with one or more of the Producers to utilize said water in lieu of their Production Allocation, with the Producer agreeing to forego their right to claim a Stored Water Credit for such forbearance; or*
- c. Any combination of a and b above which results in the decrease in Production of Native Water required by this Decision; or*
- d. The Watermaster has determined that Groundwater levels within the Santa Margarita and Paso Robles aquifers are at sufficient levels to ensure a positive offshore gradient to prevent seawater intrusion.*

The Watermaster has determined that the conditions necessary to avoid the ten percent Operating Yield reduction have not been met as follows:

- 1. Watermaster has not secured water for adding an equivalent amount of Non-Native water to the Basin on an annual basis. The Watermaster and the City of Seaside have, however, entered into a Memorandum of Understanding for Seaside’s In-lieu Replenishment Program which may, in future water years, provide sufficient water to avoid an Operating Yield reduction.
- 2. The Watermaster has not secured reclaimed water in an equivalent amount.
- 3. The Watermaster has not secured Non-Native water or reclaimed water which results in the decrease in Production of Native Water required by the Decision.
- 4. The firm contracted by Watermaster for technical analyses continued to report in 2012 that Groundwater levels within the Santa Margarita and Paso Robles aquifers are not at sufficient levels to ensure a positive offshore gradient to prevent seawater intrusion, so the requirement for this item continues to not be met.

Section III.L.3.j.iii: Watermaster declares that for Water Year 2013 Artificial Replenishment Water is not available to offset Operating Yield Over-Production and producers are limited in production to the following quantities of water:

<u>Coastal Subarea Alternative Producers:</u>	
Seaside (Golf)	540.00 acre-feet
SNG	149.00 acre-feet
Cypress (Calabrese)	14.00 acre-feet
Mission Memorial (Alderwood)	31.00 acre-feet
Sand City	9.00 acre-feet

Laguna Seca Subarea Alternative Producers:

Pasadera	251.00 acre-feet
Bishop	320.00 acre-feet
York School	32.00 acre-feet
Laguna Seca County Park	41.00 acre-feet

Coastal Subarea Standard Producers:

California American Water.....	2,668.89 acre-feet*
Seaside (Municipal)	218.87 acre-feet**
Granite Rock	179.80 acre-feet***
D.B.O. Development 30	353.99 acre-feet****

Laguna Seca Subarea Standard Producers:

California American Water.....	147.20 acre-feet
--------------------------------	------------------

-
- * Total is the 2012 base allocation of 2,668.9 acre-feet. California American Water has a negative balance of 1,093.10 acre-feet of stored water credit in WY 2012 from extractions out of the Basin through the CAW/MPWMD ASR Program in 2012, formalized through a Storage Agreement.
 - ** Total is the 2012 base allocation of 218.87 acre-feet.
 - *** Total includes 89.24 acre-feet of “free” carryover and 69.94 acre-feet of “not-free” carryover credit from previous water years, plus the 2012 base allocation of 20.62 acre-feet.
 - **** Total includes 180.23 acre-feet of “free” carryover and 136.35 acre-feet of “not-free” carryover credit from previous water years, plus the 2012 base allocation of 37.41 acre-feet.

ATTACHMENT 3

WATERMASTER ADMINISTRATIVE COSTS

Seaside Groundwater Basin Watermaster
Budget vs. Actual Administrative Fund
 Fiscal Year (January 1 - December 31, 2012)
 Balance through September 30, 2012

	<u>2012 Adopted Budget</u>	<u>Contract Amount</u>	<u>Year to Date Revenue / Expenses</u>
Available Balances & Assessments			
Dedicated Reserve	25,000.00		25,000.00
FY (Rollover)	60,000.00		20,000.00
Admin Assessments	-		6,804.00
Available	<u>85,000.00</u>		<u>51,804.00</u>
Expenses			
Contract Staff	60,000.00	60,000.00	45,200.00
Legal Advisor	-	-	-
Total Expenses	<u>60,000.00</u>	<u>60,000.00</u>	<u>45,200.00</u>
Total Available	25,000.00		
Dedicated Reserve	<u>25,000.00</u>		
Net Available	<u><u>-</u></u>		

ATTACHMENT 4

**REPLENISHMENT ASSESSMENT UNIT COST
DETERMINATION FOR WATER YEAR 2013**

**SEASIDE GROUNDWATER BASIN
WATERMASTER**

TO: Board of Directors

FROM: Dewey D Evans, CEO

DATE: October 3, 2012

SUBJECT: Unit Cost for Water Year 2012/13 Over Production Replenishment Assessment Amount

RECOMMENDATION:

For the last three years the unit cost for over production replenishment assessment has remained at \$2,780 per acre foot. Due to the lack of more supportable data the recommendation is to continue using the same \$2,780 for the Water Year 2012/2013.

ATTACHMENT 5

**REPLENISHMENT ASSESSMENT
CALCULATIONS FOR WY 2012**

**SEASIDE GROUNDWATER BASIN WATERMASTER
2011 REPLENISHMENT ASSESSMENTS**

										ITEM XXX	
										11/28/2012	
CALCULATION OF REPLENISHMENT ASSESSMENTS WATER YEAR 2012											
Using the Basin-wide methodology approved by the Court on January 12, 2007, and as shown in detail on the spreadsheet contained in this attachment, Watermaster calculated the Water Year (WY) (October 1st through September 30th) 2012 Replenishment Assessments as follows:											
2012 Replenishment Assessment Unit Charge =							\$2,780.00				
2012 Natural Safe Yield (NSY) Available to Standard Producers =							2,471.70	AF (3,000 AF NSY - 528.3 Alternative Producers 2012 Production)			
	WY 2012 Production (AF)	% of NSY Available	Volume of NSY Available (AF)	NSY Overproduction (AF)	NSY Overproduction Assessment	Operating Yield Available (AF)	Operating Yield Overproduction (AF)	Operating Yield Overproduction Assessment	Total Assessment		
Standard Producers											
California American Water	3,070.90	91.05%	2,250.42	597.51	\$ 1,661,089.98	2,847.93	222.97	\$ 619,853.40	\$ 2,280,943.38		
Seaside (Municipal)	233.72	7.08%	174.91	56.39	156,751.85	231.29	2.43	6,756.65	163,508.50		
Granite Rock	-	0.67%	16.48	-	-	159.18	-	-	-		
D.B.O. Development No. 30	-	1.21%	29.90	-	-	316.58	-	-	-		
Total Production	3,304.63	100.00%	2,471.70	653.90	\$ 1,817,841.83	3,554.98	225.40	\$ 626,610.05	\$ 2,444,451.88		
	WY 2012 Production (AF)	% of NSY Available	Volume of NSY Available (AF)	NSY Overproduction (AF)	NSY Overproduction Assessment	Operating Yield Available (AF)	Operating Yield Overproduction (AF)	Operating Yield Overproduction Assessment	Total Assessment		
Alternative Producers											
City of Seaside (Golf Courses)	0.13	N/A	540.00	0.00	\$ -	540.00	0.00	\$ -	\$0		
City of Sand City	0.94	N/A	9.00	0.00	-	9.00	0.00	-	-		
Security National Guaranty	-	N/A	149.00	0.00	-	149.00	0.00	-	-		
Calabrese (Cypress Pacific Inv.)	-	N/A	14.00	0.00	-	14.00	0.00	-	-		
Mission Memorial (Alderwoods)	27.03	N/A	31.00	0.00	-	31.00	0.00	-	-		
Pasadera Country Club	199.29	N/A	251.00	0.00	-	251.00	0.00	-	-		
Laguna Seca Golf Resort (Bishop)	255.59	N/A	320.00	0.00	-	320.00	0.00	-	-		
York School	18.65	N/A	32.00	0.00	-	32.00	0.00	-	-		
Laguna Seca County Park	26.65	N/A	41.00	0.00	-	41.00	0.00	-	-		
Total Production	528.28	N/A	1,387.00	0.00	\$ -	1,387.00	0.00	\$ -	\$0		

WATERMASTER PRODUCER ALLOCATIONS WATER YEAR 2012 IN ACRE-FEET (AF) INCLUDING A 10% REDUCTION FOR 100% OF THIS WATER YEAR			
Initial Basin-Wide Operating Yield ⁽¹⁾	4480.00	Coastal Operating Yield ⁽¹⁾	3688.80
Natural Safe Yield (NSY) ⁽²⁾	3000.00	Laguna Seca Operating Yield ⁽¹⁾	791.20

ALTERNATIVE PRODUCER ALLOCATIONS			
Coastal Subarea ⁽³⁾	AF	Laguna Seca Subarea ⁽³⁾	AF
Seaside (Golf)	540.00	Pasadera	251.00
SNG	149.00	Bishop	320.00
Calabrese	14.00	York School	32.00
Mission Memorial (Alderwood)	31.00	Laguna Seca County Park	41.00
Sand City	9.00		
Total⁽⁴⁾	743.00	Total⁽⁴⁾	644.00

STANDARD PRODUCER ALLOCATIONS							
Coastal Operating Yield Available to Standard Producers (AF)			2945.80	Laguna Seca Operating Yield Available to Standard Producers (AF)			147.20
Coastal Subarea	Standard Producer Allocations		AF Available to This Producer	Laguna Seca Subarea	Standard Producer Allocations		AF Available to This Producer
	Base Water Right % ⁽⁴⁾	Weighted % ⁽⁵⁾			Base Water Right % ⁽⁴⁾	Weighted % ⁽⁵⁾	
California American Water (CAW)	77.55%	90.60%	2668.89	CAW	45.13%	100.00%	147.20
Seaside (Municipal)	6.36%	7.43%	218.87				
Granite Rock	0.60%	0.70%	20.62				
D.B.O. Development No. 30	1.09%	1.27%	37.41				
Total	85.60%	100.0%	2945.80	Total	45.13%	100.0%	147.20

Allocation of Available Operating Yield Among Standard Producers	Base Water Right Available to this Producer (AF)	% NSY to SPA (Base Water Right / Total Water Right)	NSY Available to Producers (AF) Current Water Year	Free Carryover Credits from Prior Water Year	Not-Free Carryover Credits from Prior Water Year	Water Rights Transferred / Sold	Total Producer NSY (AF) (NSY Available + Free Carryover Credits)	Total Authorized Production in Current Water Year (Base Water Right Plus All Carryover) ⁽⁶⁾	Actual AF Pumped by Producer in WY 2012	Free Carryover Credits to WY 2013	Not-Free Carryover Credits to WY 2013	Stored Water Credits to WY 2013
			WY 2012 APA Pumped 528.3 AF									
		NSY 3000 - 528.3 AF =	2471.7									
California American Water	2816.09	91.0%	2250.42	0.00	31.84	0.00	2250.42	2847.93	3070.90	0.00	0.00	(1093.10)
Seaside (Municipal)	218.87	7.1%	174.91	0.00	12.42	0.00	174.91	231.29	233.72	0.00	0.00	0.00
Granite Rock	20.62	0.7%	16.48	72.73	65.83	0.00	89.21	159.18	0.00	89.21	69.97	0.00
D.B.O. Development No. 30	37.41	1.2%	29.90	150.28	128.89	0.00	180.17	316.58	0.00	180.17	136.41	0.00
Total	3093.00	100.0%	2471.70	223.00	238.96	0.00	2694.70	3554.98	3304.63	269.38	206.38	(1093.10)

Footnotes:
(1) From page 17 of Exhibit A (Amended Decision) of Court Order filed February 9, 2007.
(2) From page 14 of Exhibit A (Amended Decision) of Court Order filed February 9, 2007.
(3) From page 21 of Exhibit A (Amended Decision) of Court Order filed February 9, 2007.
(4) From Table 1 on page 19 of Exhibit A (Amended Decision) of Court Order filed February 9, 2007.
(5) Calculated from the Base Water Right percentages in the adjacent column.
(6) Base Water Right plus Free and Not Free Carryover Credit = 2012 Production Allocation (see 2012 Declaration from November 30, 2011 Watermaster board meeting)

**MEMORANDUM OF UNDERSTANDING BETWEEN THE MONTEREY PENINSULA
WATER MANAGEMENT DISTRICT, THE MARINA COAST WATER DISTRICT,
THE CITY OF SEASIDE, AND THE SEASIDE BASIN WATERMASTER REGARDING
WATER USED FOR IRRIGATION OF GOLF COURSES**

This Memorandum of Understanding is entered into between the Monterey Peninsula Water Management District ("MPWMD"), the Marina Coast Water District ("MCWD"), the City of Seaside ("City") and the Seaside Basin Watermaster ("Watermaster") (individually "Party," collectively "Parties") with respect to the following:

RECITALS

1. The amended decision ("Decision") entered in the lawsuit, *California American Water v. City of Seaside et al.*, Monterey County Superior Court (Case No. M66343) governs the groundwater production within the Seaside Groundwater Basin ("Basin").
2. Under the Decision the City received an allocation of 540 acre feet ("AF") of Alternative Production Allocation in relation to the City-owned Blackhorse and Bayonet Golf Courses ("Golf Courses").
3. The Decision obligated the Watermaster to procure new sources of water for replenishment of the Basin to offset any cumulative over production.
4. The Decision provided that any party that exceeded its allocation of Natural Safe Yield and/or its allocation of Operating Yield was subject to a Replenishment Assessment for each acre foot of over production during each Water Year.
5. In April 2010, the City owed certain sums to the Watermaster for previously accrued Replenishment Assessments.
6. In an agreement between MCWD and the City executed effective April 1, 2010 (the "City-MCWD April 2010 Agreement") in consideration of the City's transfer to MCWD of certain land, MCWD agreed to supply water to the City to irrigate the City's two golf courses located on the former Fort Ord in lieu of the City producing Seaside Basin groundwater to irrigate the golf courses. MCWD agreed to supply 2,500 acre-feet of the water to the City in consideration of land to the City.
7. In April 2010, the City and the Watermaster entered into a Memorandum of Understanding to memorialize the terms of an in lieu replenishment program ("In Lieu Replenishment Program") in accordance with the City-MCWD April 2010 Agreement.

8. Separately, in March of 2008, the MPWMD, MCWD and the Monterey County Water Resources Agency ("MCWRA") entered into a Coordination Agreement for Aquifer Storage and Recover (ASR) Injection Testing (the "Coordination Agreement"). Pursuant to the agreement, MCWD loaned MPWMD water from MCWD's existing Salinas Groundwater Basin wells (i.e., imported water from a separate groundwater basin) to the MPWMD for aquifer storage and recovery testing done by the MPWMD at its Santa Margarita test well site. The total amount loaned for the testing was 68.8 AF, and the testing was done in January of 2009. The water used for testing was not produced from the Seaside Basin, but was produced from another groundwater basin.

9. MPWMD desires to facilitate the return of 68.8 AF of water loaned by MCWD to MPWMD.

10. Physical return of the 68.8 AF of loaned water is difficult because of infrastructure limitations.

11. However, a full and fair "return" of the 68.8 AF of loaned water can be made through credits assigned by Watermaster to the City with respect to the City's In Lieu Replenishment Program. This can occur by Watermaster treating 68.8 AF of groundwater produced by the City's Golf Course wells between October 2009 and April 2010 (before commencement of the In Lieu Replenishment Program) as imported water delivered by MCWD to the City (the 68.8 AF of loaned water is imported water stored in the Basin through the ASR injection), thereby increasing the City's in lieu replenishment credit under the In Lieu Replenishment Program by 68.8 AF and giving credit to MCWD against the 2,500 acre-feet of water to be provided to the City without cost to the City.

12. MCWD is willing to become a party to this Memorandum of Understanding as an accommodation to the City, MPWMD, and the Watermaster.

13. The Parties desire to effectuate this return of loaned water and crediting of in lieu replenishment credits, as set forth herein.

AGREEMENT

The Parties agree as follows:

1. Repayment and Assignment of Loaned Water. MCWD hereby assigns to the City MCWD's right under the Coordination Agreement to have MPWMD return the 68.8 AF of water loaned to MPWMD by MCWD for ASR injection and storage testing in January of 2009. The Watermaster will treat this assignment as delivery by MCWD to the City of 68.8 AF of water loaned to MPWMD by MCWD for ASR injection and storage testing in January 2009. The

Watermaster will treat this assignment as a delivery by MCWD to the City of 68.8 AF of imported water in accordance with the City-MCWD April 2010 Agreement for the City's Golf Course irrigation in Water Year 2010 as part of the In Lieu Replenishment Program.

2. Credit to City. This assignment shall increase the monetary credit to the City in an amount attributable to an additional 68.8 AF of in lieu replenishment in Water Year 2010 pursuant the accounting methods set forth in Section 3.2 of the MOU that the City and Watermaster entered into in April 2010.

3. Commensurate Reduction in Basin Pumping by City. The amount of native groundwater pumped by City under its Alternative Production Allocation in the first nine months of Water Year 2010 shall be deemed reduced by 68.8 AF -- from 100.6 AF to 31.8 AF.

4. Satisfaction of Water Loan. Pursuant to the provisions above, the Parties agree that MPWMD's obligation to return the water loaned to it by MCWD is hereby satisfied.

5. Credit to MCWD from City. The City shall credit MCWD 68.8 AF against MCWD's obligation under Section 3.2 of the City-MCWD April 2010 Agreement.

6. Approval of Watermaster Board. The approval of the Seaside Basin Watermaster Board shall be a condition precedent to this Memorandum of Understanding taking effect.

7. No Effect on Existing Water Rights. The Parties agree that no provision of this Memorandum of Understanding shall have any force or effect, directly or indirectly, on water rights of any nature held by a Party. No water right of any kind, including but not limited to prescriptive water rights, nor any claim thereto, shall arise or be created in favor of or against any Party or other person, directly or indirectly, nor shall any water right be lost as a result of this Memorandum of Understanding

8. Defense and Indemnity of MCWD. MPWMD will defend and indemnify MCWD against any and all liability, claims, damages, demands, costs and action arising from the approval, execution and performance of this Memorandum of Understanding. MPWMD shall reimburse MCWD's costs, including attorney fees, incurred in connection with the negotiation, review, approval and execution of this Memorandum of Understanding.

9. Remedies. This Agreement shall be specifically enforceable; damages are not an adequate remedy for a failure to perform pursuant to its terms and conditions.

10. Arbitration. In the case of any disagreement, difference, or controversy arising between any of the Parties with respect to any matter in relation to or arising out of or under this Memorandum of Understanding, whether as to the construction or operation thereof, or the respective rights and liabilities of the Parties, and all Parties cannot mutually agree as to the resolution thereof, then such disagreement, difference or controversy shall be determined by arbitration by and under the arbitration rules of JAMS or by such other arbitrator and under such

other rules as the Parties may agree, provided that the arbitrator shall be a former judge of the Superior Court or the Court of Appeal. Any arbitration hearing shall be noticed and open to the public. The submission to arbitration in accordance with the requirements of this section of any and all agreements, differences, or controversies that may arise hereunder is made a condition precedent to the institution of any action or appeal at law or in equity with respect to the controversy involved. The award by the arbitrators shall have the same force and effect and may be filed and entered, as a judgment of the Superior Court of the State of California, and shall be subject to appellate review upon the same terms and conditions as law permits for judgments of Superior Courts. A "Prevailing Party" shall be determined in the Arbitration, and the Prevailing Party shall be entitled to reasonable attorneys' fees and costs incurred, and accrued interest on any unpaid balance that may be due. Costs shall include the cost of any expert employed in the preparation or presentation of any evidence. All costs incurred and reasonable attorneys' fees shall be considered costs recoverable in that proceeding and be included in any award.

11. Litigation. In the event any of the Parties to this Memorandum of Understanding brings a judicial or arbitration proceeding to enforce or interpret any provision of its terms, then, and in that event, the Prevailing Party shall be entitled to recover reasonable attorneys' fees and related expenses and costs, including but not limited to court costs, expert witness fees and expenses, and accountant fees and expenses. Costs shall include the cost of any expert employed in the preparation or presentation of any evidence, whether or not any such witness or accountant shall be called to testify. Recovery of these fees and costs shall be as additional costs awarded to the Prevailing Party, and shall not require initiation of a separate legal proceeding.

12. Notices. Notices regarding this Memorandum of Understanding shall be given to the Parties at the following addresses:

**Monterey Peninsula Water
Management District**
Attn: General Manager
P. O. Box 85
Monterey, CA 93942

City of Seaside
Attn: City Manager
440 Harcourt Avenue
Seaside, CA 93955

Marina Coast Water District
Attn: General Manager
11 Reservation Road
Marina, CA 93933

Seaside Basin Watermaster
Attn: Chief Executive Officer
2600 Garden Road - Suite 228
Monterey, CA 93940

13. Entire Agreement. This document represents the entire Memorandum of Understanding between the Parties, and supersedes any prior written or oral negotiations and representations between the Parties with regard to the matters described herein.

14. Severability. If any provision, or any portion thereof, contained in this Memorandum of Understanding is held unconstitutional, invalid, unenforceable, or contrary to

public policy, the remainder of this Memorandum of Understanding, or portion thereof, shall be deemed severable, shall not be affected and shall remain in full force and effect.

15. Mutuality. This Memorandum of Understanding is the product of negotiation and preparation by and among the Parties. All sides have reviewed and have had the opportunity to revise this Memorandum of Understanding. The Parties waive the provisions of Section 1654 of the Civil Code of California and any other rule of construction to the effect that ambiguities are to be resolved against the drafting Party, and the Parties warrant and agree that the language of this Memorandum of Understanding shall neither be construed against or in favor of any Party.

16. Waiver. A Party's failure to insist on the strict performance of any provision of this Memorandum of Understanding or to exercise any right, power, or remedy upon a breach of this Memorandum of Understanding shall not constitute a waiver of any provision of this Memorandum of Understanding. Neither shall such action or inaction limit the Party's right to later enforce any provision or exercise any right to the fullest extent allowed under this Memorandum of Understanding. A waiver of any covenant, term or condition contained in this Memorandum of Understanding shall not be construed as a waiver of any subsequent breach of the same covenant, term or condition. The consent, authorization or approval by a Party of any act shall not be deemed to waive or render unnecessary the consent, authorization or approval of any subsequent similar act.

17. Amendment. This Memorandum of Understanding shall be amended or modified only by an instrument in writing duly approved and signed by each party hereto. Any waiver of any terms or conditions must be in writing and signed by the Parties.

18. Effective Date. This Memorandum of Understanding shall take effect on ____ day of _____, 2012, subject to the qualification described in paragraph 6 of this Memorandum of Understanding.

IN WITNESS WHEREOF the Parties hereto execute this Memorandum of Understanding pursuant to the terms set forth herein.

ATTACHMENT 6

WATERMASTER BUDGETS

**Seaside Groundwater Basin Watermaster
Fiscal Year 2013 Administrative Fund Budget**

**Seaside Groundwater Basin Watermaster
Administrative Fund
Proposed Budget
Administrative Fund**

	<u>2012 Adopted Budget</u>	<u>2012 Estimated</u>	<u>2013 Proposed Budget</u>
Assessment Income			
Reserve	\$ 25,000	\$ 25,000	\$ 15,000
FY Rollover	60,000	25,000	-
Administrative Fund	<u>-</u>	<u>-</u>	<u>70,000</u>
Totals	<u>85,000</u>	<u>50,000</u>	<u>85,000</u>
Proposed Budget			
Contractual Services - Administrativ	<u>60,000</u>	<u>60,000</u>	<u>60,000</u>
Total Expenses	<u>60,000</u>	<u>60,000</u>	<u>60,000</u>
Total Available	25,000	(10,000)	25,000
Less Reserve	<u>25,000</u>	<u>25,000</u>	<u>25,000</u>
Net Available	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>

**Seaside Groundwater Basin Watermaster
Fiscal Year 2013 Monitoring & Management Plan
Adopted Operations Budget**

Management and Monitoring Plan Operations Budget For Tasks to be Undertaken in 2013							
Task	Subtask	Sub-Subtask	Cost Description	CONSULTANTS & CONTRACTORS ⁽³⁾			Total
				MPWMD	Private Consultants	Contractors	
Labor							
			Technical Project Manager	\$0	\$60,000	\$0	\$60,000
M.1 Program Administration							
	M.1.a		Project Budget and Controls	\$0	\$0	\$0	\$0
	M.1.b		Assist with Board and TAC Agendas	\$0	\$0	\$0	\$0
	M.1.c & M.1.d		Preparation for and Attendance at Meetings ⁽⁸⁾	\$0	\$5,500	\$0	\$5,500
	M.1.e		Peer Review of Documents and Reports ⁽⁸⁾	\$0	\$3,100	\$0	\$3,100
	M.1.f		QA/QC	\$0	\$0	\$0	\$0

I.1 Initial Phase 1 Monitoring Well Construction (Task Completed in Phase 1)							
I.2 Production, Water Level and Quality Monitoring							
	I. 2. a.		Database Management				
		I. 2. a. 1.	Conduct Ongoing Data Entry/ Database Maintenance/Enhancement	\$9,324	\$2,400	\$0	\$11,724
		I. 2. a. 2.	Verify Accuracy of Production Well Meters	\$0	\$0	\$0	\$0
	I. 2. b.		Data Collection Program				
		I. 2. b. 1.	Site Representation and Selection ⁽⁷⁾	\$0	\$0	\$0	\$0
		I. 2. b. 2.	Collect Monthly Water Levels ⁽⁶⁾	\$7,076	\$0	\$0	\$7,076
		I. 2. b. 3.	Collect Quarterly Water Quality Samples ⁽¹⁾⁽⁵⁾⁽⁶⁾	\$33,238	\$0	\$15,500	\$48,738
		I. 2. b. 4.	Update Program Schedule and Standard Operating Procedures.	\$0	\$0	\$0	\$0
		I. 2. b. 5.	Monitor Well Construction ⁽⁷⁾	\$0	\$0	\$0	\$0
		I. 2. b. 6.	Reports	\$3,948	\$1,500	\$0	\$5,448

I.3 Basin Management							
	I. 3. a.		Enhanced Seaside Basin Groundwater Model	(Costs Shown in Subtasks Below)			
		I. 3. a. 1	Update the Existing Model	\$0	\$0	\$0	\$0
		I. 3. a. 2	Develop Protective Water Levels ⁽¹¹⁾	\$0	\$25,000	\$0	\$25,000
		I. 3. a. 3	Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions ⁽¹¹⁾	\$0	\$25,000	\$0	\$25,000
	I. 3. b.		Complete Preparation of Basin Management Action Plan	\$0	\$0	\$0	\$0
	I. 3. c.		Refine and/or Update the Basin Management Action Plan ⁽¹¹⁾	\$0	\$25,000	\$0	\$25,000
	I. 3. d		Evaluate Coastal Wells for Cross-Aquifer Contamination Potential	\$4,700	\$0	\$0	\$4,700

I.4 Seawater Intrusion Contingency Plan							
	I. 4. a.		Oversight of Seawater Intrusion Detection and Tracking	\$2,664	\$2,000	\$0	\$4,664
	I. 4. b.		Provide focused area hydrogeologic investigation for Sand City Public Works	\$7,520	\$0	\$0	\$7,520
	I. 4. c.		Annual Report- Seawater Intrusion Analysis	\$0	\$25,750	\$0	\$25,750
	I. 4. d.		Complete Preparation of Seawater Intrusion Response Plan ⁽²⁾	\$0	\$0	\$0	\$0
	I. 4. e.		Refine and/or Update the Seawater Intrusion Response Plan ^{(2) (9)}	\$0	\$0	\$0	\$0
	I. 4. f.		If Seawater Intrusion is Determined to be Occurring, Implement Contingency Response Plan ⁽²⁾	(No Costs are Included for This Task, as This Task Will Likely Not be Necessary During 2013. If it Does Become Necessary, Use of Contingency Funds or a Budget Modification Will Likely be Necessary)			
TOTALS CONSULTANTS & CONTRACTORS				\$68,470	\$175,250	\$15,500	
				SUBTOTAL not including Technical Program Manager =			\$199,220
				Contingency (not including Technical Program Manager) @ 20% ⁽⁴⁾ =			\$39,844
				Technical Program Manager =			\$60,000
				TOTAL=			\$299,064

Footnotes:

- (1) An outside contractor would be used to perform the induction logging, and potentially to also collect some water quality samples in conjunction with doing the induction logging. MPWMD is expected to perform portions of the work of this Subtask, and will be the party that subcontracts with the Contractor to perform the induction logging and sample collection work on certain of the wells.
- (2) The response plan would only be implemented in the event sea water intrusion is determined to be occurring.
- (3) Within the context of this document the term "Consultant" refers either to a Private Consultant providing professional engineering or other types of technical services, or to the Monterey Peninsula Water Management District (MPWMD). The term "Contractor" refers to a firm providing construction or field services such as well drilling, induction logging, or meter calibration.
- (4) Due to the uncertainties of the exact scopes of some of the Tasks listed above at the time of preparation of this Budget, e.g. Tasks I.3.a, I.3.c, and I.3.d, it is recommended that a 20% Contingency be included in the Budget.
- (5) Includes \$1,500 in well site retrofitting costs to make some of these wells available for use as monitoring wells, as well as \$500 to maintain equipment previously installed for this purpose. Also includes lab costs to analyze for barium and iodide ions in certain of these wells as was done in 2012.
- (6) Does not include costs for MPWMD to collect water level data or water quality samples from wells other than those that are part of the basic monitoring well network, i.e. for private well owners who have requested that the Watermaster obtain this data for them. Costs to obtain that data are to be reimbursed to the Watermaster by those well owners, so there should be no net cost to the Watermaster for that portion of the work under these Tasks.
- (7) No additional monitoring well is expected to be constructed in 2013.
- (8) For HydroMetrics to provide hydrogeologic consulting assistance to the Watermaster, beyond that associated with performing other Tasks, when requested to do so by the Technical Program Manager.
- (9) If work under this Task is found to be necessary, it will be funded through the Contingency line item in this Budget.
- (10) Does not include funds for Database enhancement, as it is assumed that all desired enhancements have already been made.
- (11) If necessary to reflect knowledge gained from modeling work or other data sources. Provides funds for work originally budgeted in prior years, but which has been rescheduled to 2013.

Seaside Groundwater Basin Watermaster
Monitoring & Management - Operations Fund
 Fiscal Year (January 1 - December 31, 2013)
 Proposed Budget

	2012 Adopted Budget	Estimated 2012 Revenue/Expenses	2013 Proposed Budget
Available Balances & Assessments			
Monitoring & Management - Ops Fund	\$ -	\$ -	\$ -
FY 2011 Rollover	337,954.00	751,900.00	583,900.00
Total Available	\$ 337,954.00	\$ 751,900.00	\$ 583,900.00
Appropriations & Expenses			
GENERAL			
Technical Project Manager	\$ 60,000.00	\$ 36,000.00	\$ 60,000.00
Contingency @ 20% (not including TPM)	39,584.00	-	39,844.00
Total General	\$ 99,584.00	\$ 36,000.00	\$ 99,844.00
CONSULTANTS (Hydrometrics)			
Program Administration	\$ 8,250.00	\$ 26,300.00	\$ 8,600.00
Production/Lv/Qlty Monitoring	3,450.00	-	3,900.00
Basin Management Action Plan	50,780.00	-	75,000.00
Seawater Intrusion Contingency Plan	27,800.00	22,000.00	27,750.00
Total Consultants	\$ 90,280.00	\$ 48,300.00	\$ 115,250.00
MPWMD			
Production/Lv/Qlty Monitoring	\$ 74,720.00	\$ 80,000.00	\$ 69,086.00
Basin Management	5,000.00	-	4,700.00
Seawater Intrusion	3,700.00	3,700.00	10,184.00
Direct Costs	-	-	-
Total MPWMD	\$ 83,420.00	\$ 83,700.00	\$ 83,970.00
Reserve	\$ 24,220.00	-	\$ -
Transfer Out to Capital Fund	-	-	-
Total Appropriations & Expenses	\$ 297,504.00	\$ 168,000.00	\$ 299,064.00
Total Available	40,450.00	583,900.00	284,836.00

**Seaside Groundwater Basin Watermaster
Fiscal Year 2013 Monitoring & Management Plan
Adopted Capital Fund Budget**

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

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

**Seaside Groundwater Basin Watermaster
Monitoring and Management - Capital Fund
Fiscal Year (January 1 - December 31, 2013)
Proposed Budget**

TEM IX.2.b).
9/5/2012

	2012 Adopted Budget	Estimated Revenue/ Expenditures	2013 Proposed Budget
Available Balances and Assessments:			
Monitoring & Management Fund - Capital	\$ -	\$ -	\$ -
FY 2007-2011 Rollover to 2012	5,499	13,519	13,519
Transfer in from Operations Fund	-	-	-
Subtotal	<u>5,499</u>	<u>13,519</u>	<u>13,519</u>
Appropriations & Expenses:			
Professional Services			
Project Management	-	-	-
Subtotal	<u>-</u>	<u>-</u>	<u>-</u>
Direct Costs			
Well Drilling -	-	-	-
Subtotal	<u>-</u>	<u>-</u>	<u>-</u>
Total Appropriations and Expenses	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Total Available	<u><u>\$ -</u></u>		
Capital Fund Assessments owed by City of Seaside			
FY 2009 (including 5% penalty)	16,538		
Total	<u>\$ 16,538</u>		

Seaside Groundwater Basin Watermaster Fiscal Year 2013 Adopted Replenishment Fund Budget

Seaside Groundwater Basin Watermaster											ITEM IX.A.2.b):
Replenishment Fund											10/3/2012
Water Year 2013 (October 1 - September 30) / Fiscal Year (January 1 - December 31, 2013)											
Proposed Budget											
Replenishment Fund	2006	2007	2008	2009	2010	2011	Estimated 2012	Estimated Totals Through WY 2012	Proposed Budget 2013	Projected Totals Through WY 2013	
Assessments:	WY 05/06	WY 06/07	WY 07/08	WY 08/09	WY 09/10	WY 10/11	WY 11/12		WY 12/13		
Unit Cost:	\$1,132	\$1,132	\$2,485	\$3,040	\$2,780	\$2,780	\$2,780		\$2,780		
Cal-Am Water Balance Forward	\$ -	\$ 1,641,004	\$ 4,206,475	\$ (2,900,435)	\$ (2,868,685)	\$ (3,850,964)	\$ (6,088,909)		\$ (2,769,589)		
Exceeding Natural Safe Yield Considering Alternative Producers	2,106,652	2,484,533	5,164,969	3,773,464	4,112,933	3,187,854	3,319,320	\$ 24,149,726	3,449,961	\$ 27,599,687	
Operating Yield Overproduction Replenishment	-	80,938	34,045	-	-	-	-	114,983	-	114,983	
Total California American	\$ 2,106,652	\$ 2,565,471	\$ 5,199,014	\$ 3,773,464	\$ 4,112,933	\$ 3,187,854	\$ 3,319,320	\$ 24,264,709	\$ 3,449,961	\$ 27,714,670	
CAW Credit Against Assessment	(465,648)		(12,305,924)	\$ (3,741,714)	(5,095,213)	(5,425,799)	-	(27,034,298)	-	(27,034,298)	
CAW Unpaid Balance	\$ 1,641,004	\$ 4,206,475	\$ (2,900,435)	\$ (2,868,685)	\$ (3,850,964)	\$ (6,088,909)	\$ (2,769,589)	\$ (2,769,589)	\$ 680,372	\$ 680,372	
City of Seaside Balance Forward	\$ -	\$ 230,671	\$ 413,454	\$ 1,106,116	\$ 1,737,569	\$ 988,414	\$ (13,109)		\$ (1,063,109)		
City of Seaside Municipal	332.0 AF	387.7 AF	294.3 AF	293.4 AF	282.9 AF	240.7 AF	247.6 AF				
Exceeding Natural Safe Yield Considering Alternative Producers	169,200	173,739	385,642	399,211	231,961	141,335	150,000	\$ 1,651,088	150,000	\$ 1,801,088	
Operating Yield Overproduction Replenishment	50,487	340	16,898	66,090	82,761	-	-	216,575	-	216,575	
Total Municipal	219,687	174,079	402,540	465,300	314,721	141,335	150,000	1,867,663	150,000	2,017,663	
City of Seaside - Golf Courses											
Exceeding Natural Safe Yield - Alternative Producer	-	-	131,705	69,701	-	-	-	201,406	-	201,406	
Operating Yield Overproduction Replenishment	-	-	131,705	69,701	-	-	-	201,406	-	201,406	
Total Golf Courses	-	-	263,410	139,402	-	-	-	402,812	-	402,812	
Total City of Seaside*	\$ 219,687	\$ 174,079	\$ 665,950	\$ 604,702	\$ 314,721	\$ 141,335	\$ 150,000	\$ 2,270,475	\$ 150,000	\$ 2,420,475	
City of Seaside Late Payment 5%	10,984	8,704	26,712	26,750	15,737			88,887		88,887	
In-lieu Credit Against Assessment	-	-	-	\$ -	(1,079,613)	(1,142,858)	(1,200,000)	(3,422,471)	(1,200,000)	(4,622,471)	
City of Seaside Unpaid Balance	\$ 230,671	\$ 413,454	\$ 1,106,116	\$ 1,737,569	\$ 988,414	\$ (13,109)	\$ (1,063,109)	\$ (1,063,109)	\$ (2,113,109)	\$ (2,113,109)	
Total Replenishment Fund Balance	\$ 1,871,675	\$ 4,619,929	\$ (1,794,319)	\$ (1,131,116)	\$ (2,862,551)	\$ (6,102,019)	\$ (3,832,699)	\$ (3,832,699)	\$ (1,432,738)	\$ (1,432,738)	
Replenishment Fund Balance Forward	-	\$ 1,871,675	\$ 4,619,929	\$ (1,794,319)	\$ (1,131,116)	\$ (2,862,551)	\$ (6,102,019)		\$ (2,632,699)		
Total Replenishment Assessments	2,337,323	2,748,254	5,891,676	4,404,917	4,443,391	3,329,189	3,469,320	26,624,070	3,599,961	30,224,031	
Total Paid and/or Credited	(465,648)	-	(12,305,924)	(3,741,714)	(6,174,826)	(6,568,657)	-	(29,256,769)	-	(29,256,769)	
Grand Total Fund Balance	\$ 1,871,675	\$ 4,619,929	\$ (1,794,319)	\$ (1,131,116)	\$ (2,862,551)	\$ (6,102,019)	\$ (2,632,699)	(2,632,699)	\$ 967,262	\$ 967,262	

ATTACHMENT 7

WATER QUALITY ANALYTICAL RESULTS



**MONTEREY PENINSULA
WATER MANAGEMENT DISTRICT**

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**SEASIDE BASIN WATERMASTER
MEMORANDUM 2012-03**

Date: November 8, 2012
To: Seaside Basin Watermaster
From: Jonathan Lear, PG, CHg, Senior Hydrogeologist
Joe Oliver, PG, CHg, Water Resources Division Manager
Tom Lindberg, Associate Hydrologist
Subject: Water Year 2012, Groundwater-Quality and Groundwater-Level Data
Collected for the Seaside Groundwater Basin Watermaster

SUMMARY

This memorandum transmits and summarizes groundwater-quality and groundwater-level data collected for the Seaside Groundwater Basin Watermaster Board (Watermaster) during Water Year (WY)¹ 2012. This report incorporates the data that were collected and reported for each quarter during the period from October 1, 2011 through September 30, 2012. This information is being provided to the Watermaster for information purposes, and is in compliance with the monitoring protocols described in the Watermaster's *Seaside Basin Monitoring and Management Program* (SBMMP, revision date September 5, 2006), which was prepared in response to the court decision filed March 27, 2006 (as amended by February 9, 2007 filing) in the Seaside Basin adjudication case. This document has been prepared by the Monterey Peninsula Water Management District (MPWMD) on behalf of the Watermaster.

This document is organized into the following four categories of data:

- Precipitation,
- Stream flow in Arroyo Del Rey,
- Water-quality data collected from MPWMD and other basin wells, and
- Static water levels collected from MPWMD and other Watermaster basin wells.

¹ The WY begins on October 1, and ends September 30 of the indicated year.

PRECIPITATION

A continuous-recording precipitation gage is located at the south eastern corner of the Southern Coastal Subarea of the Seaside Groundwater Basin (Basin). Data from the precipitation gage are posted to the www.weatherunderground.com website and are available real time as well as archival data sets. **Figure 1** shows the location of the weather station and the average annual rainfall totals for the Basin. **Figure 2** shows daily and cumulative rainfall recorded by the weather station for all four quarter of WY 2012. Average annual rainfall for the location of the weather station is 16 inches. As **Figure 2** illustrates, at the close of WY 2012, the weather station had logged 11.4 inches, which is approximately 70% of normal rainfall.

STREAMFLOW

There is a distinct lack of surface drainages in the Basin due to the high infiltration capacities of the dune sands which overlie the aquifers. The overlying soils have the capacity to infiltrate large storm events; therefore, water is not concentrated into channels. The Arroyo Del Rey drainage is the largest drainage in the Basin. The headwaters of the drainage are in the Laguna Seca Subarea, which flow into the Southern Coastal Subarea of the Basin and collect in Roberts Lake.

A continuous stream flow gage was operated by the USGS in Del Rey Park from 1966 to 1978. MPWMD re-occupied the site in 2002 and data collection is ongoing. The catchment area above the gage is 13.8 square miles. **Figure 3** contains the average daily flow record for the Arroyo Del Rey at Del Rey Oaks gaging station for WY 2012.

WATER-QUALITY DATA: MPWMD AND OTHER BASIN WELLS

MPWMD Coastal Monitor-Well Network

Under the current monitoring program conducted for the Watermaster, the MPWMD collects *quarterly* samples from six monitor wells at three locations that are closest to the coastline, and *annually* from six additional wells at three locations that are farther from the coastline. The well numbers, names and sampling schedule for the MPWMD coastal monitor wells currently being sampled for the Watermaster are listed below.

MPWMD Coastal Monitor Wells

<u>Well Number</u>	<u>Well Name</u>	<u>Sample Interval</u>
15S01E15N3	MSC-Shallow	quarterly
15S01E15N2	MSC-Deep	quarterly
15S01E15F1	PCA-W-Shallow	quarterly
15S01E15F2	PCA-W-Deep	quarterly
15S01E11Pa	FO-09-Shallow	quarterly
15S01E11Pb	FO-09-Deep	quarterly
15S01E15K5	PCA-E-Shallow	annually
15S01E15K4	PCA-E-Deep	annually
15S01E23Ca	Ord Terrace-Shallow	annually
15S01E23Cb	Ord Terrace-Deep	annually
15S01E12Fa	FO-10-Shallow	annually
15S01E12Fc	FO-10-Deep	annually

These sites are shown on **Figure 4** and completion data for these wells are shown in **Table 1**. At each site, a “shallow” and “deep” monitor well have been installed (either in separate boreholes or as multiple completions in a single borehole), generally corresponding to well completions within the two principal aquifer units that have been historically recognized in the Basin, the Paso Robles Formation (QTp and QTc for undifferentiated Continental Deposits) and Santa Margarita Sandstone (Tsm), respectively. More recently, it has been recognized that the Tsm deposits transition to the Purisima Formation (Tp) in the Northern Coastal Subarea of the Basin. The monitor wells are constructed of 2-inch PVC casing, with screens adjacent to the more permeable (i.e., based on lithologic and geophysical logging analyses) sand “packages” within each aquifer unit. The aquifer units are separated from each other in the wells by cement strata-isolation seals.

MPWMD Coastal Monitor Wells Water-Sample Collection

Water-sample collection from the MPWMD coastal monitor wells for WY 2012 was accomplished by the Low-Flow Method. As a means to investigate alternative water-quality sampling technologies, MPWMD staff completed a test of different “low-flow” sampling methodologies at Watermaster database Well No. 258 (MW-B-23-180) on June, 4, 2009. Motivation behind changing the sampling method included a desire to: (a) switch to a less invasive sampling method to prolong the life of the monitoring wells and (b) implement a less labor-intensive method that will be more cost effective to the Watermaster in the long run. Details of this sampling methodology are discussed below. It is intended that this methodology will be used to sample all MPWMD monitor wells in the future, unless site specific conditions preclude this.

- **Low-Flow Sampling Method**

Low-flow/low-volume purging method is sample collection using a pumping mechanism that produces low-flow rates [less than 1 liter per minute (lpm) or less than 0.26 gallon per minute (gpm)] that cause minimal drawdown of the static water table and usually employs a flow cell in which geochemical parameters are continuously monitored. These parameters may include dissolved oxygen content, oxidation-reduction potential (redox), conductivity, turbidity, and/or pH. The intent of this sampling protocol is to collect a representative sample from the monitored groundwater zone. A representative sample may be obtained when all the monitored chemical parameters have stabilized, thus quantitatively demonstrating that the sample being collected is in equilibrium with the groundwater system. The low-flow/low volume purging method (purging to parameter stability) tends to isolate the interval being sampled, which provides more accurate water-quality measurements and reduces the volume of purge water generated. This method has an advantage in that it can limit vertical mixing and volatilization of any volatile organic compounds (VOCs) in solution within the well casing or borehole, as compared to high-flow purging and sampling (e.g., air-lift sampling method).

Figure 5 illustrates the QED Environmental Systems, Inc. low-flow sampling equipment. The bladder pump is placed in the monitor well and powered by a fuel source of compressed gas. The peristaltic action of the pump lifts water from the well and initiates flow through the well screen at the location where the drop tube and intake assembly have been placed. An electric wire sounder is used to measure drawdown to insure minimal drawdown is caused by pumping the well. Water-quality parameters are monitored at the flow cell as the well is purged.

The low-flow/low-volume purging method of sample collection has been described in groundwater monitoring literature since the mid-1980s with a defined methodology being accepted by the U.S. EPA in 1995. These protocols are summarized below as adopted by MPWMD staff:

1. Flow rate

The flow rate used during purging must be low enough to avoid increasing the water turbidity. The following measures should be taken to determine the appropriate flow rate: (a) The flow rate shall be determined for each well, based on the hydraulic performance of the well; (b) The flow must be adjusted to obtain stabilization of the water level in the well as quickly as possible; (c) The maximum flow rate used should not exceed 1 liter per minute (0.26 gpm); (d) Once established, this rate should be reproduced with each subsequent sampling event; (e) If a significant change in initial water level occurs between events, it may be necessary to re-establish the optimum flow rate at each sampling event.

2. Measurement of water level and drawdown

Measurement of the water level in the well during purging is important when establishing the optimum flow rate for purging. The goal is to achieve a stabilized pumping water level as quickly as possible with minimal drawdown, to avoid stressing the formation and mobilizing solids, and to obtain stabilized indicator parameters in the shortest time possible.

3. Measurement of indicator parameters

Continuous monitoring of water-quality indicator parameters is used to determine when purging is completed and sampling should begin. Measurement of indicator parameters (dissolved oxygen content, redox potential, specific conductance, temperature and pH) is required. This is most easily performed using an in-line flow cell (closed) system attached directly to the pump discharge tubing. For turbidity measurement, a separate field nephelometer should be used.

If portable systems are used, they must be placed carefully into the well and lowered into the screen zone as slowly as possible. Placement of the portable pump can disturb the groundwater flow conditions resulting in non-equilibrium conditions. As a result, longer purge times and greater purge volumes may be necessary to achieve indicator parameter stabilization. In general, this may require that after installation, the portable pump should remain in place for a minimum of 1-2 hours to allow settling of solids and re-establishment of horizontal flow through the screen zone. If initial turbidity readings are excessive (>50 NTU), pumping should cease and the well should rest for another 1-2 hours before initiating pumping again. In wells set in very fine-grained formations, longer waiting periods may be required. Continuous water-level measurement devices are preferred, such as down-hole pressure transducers, but electronic water-level tapes can be used. The devices used must be capable of measuring to 0.01-foot precision.

4. Sample Collection

Water samples for laboratory analyses must be collected before water has passed through the flow-through cell (use a by-pass assembly or disconnect cell to obtain sample). VOC samples should be collected first and directly into pre-preserved sample containers. All sample containers are filled by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence. During purging and sampling, the tubing should remain filled with water so as to minimize possible changes in water chemistry upon contact with the atmosphere.

MPWMD Coastal Monitor Wells Water-Quality Results

Water chemistry analytical results for the samples collected during WY 2012 are provided in the table in **Appendix 1**. This table and other water-level data tables were prepared utilizing the “report” feature of the Watermaster Database.

In general, the WY 2012 chemical data from these monitor wells do not show significant changes relative to the results provided in WY 2011, and are not indicative of seawater intrusion into the basin at the locations and depths of the monitor well completions. A change in chemistry was observed in PCA West Deep and Sentinel Well 4. Chloride levels have increased in samples since 2009. This timing also corresponds with the switch over of sampling methods from the air-lift method to the low-flow method. It is recommended that PCA West Deep be sampled with the air-

lift method to determine if the change in chemistry is an artifact of switching sampling methods. Currently, these changes in chemistry do not indicate seawater intrusion, however, if these trends were to continue, they will warrant more focused analysis of future water-quality testing results. This is consistent with the conclusions drawn in the Water Year 2012 Seawater Intrusion Analysis Report (SIAR WY2012) prepared by Hydrometrics, LLC.

Other Basin Monitor and Producer Wells Water-Quality Results

Water chemistry analytical results for the samples collected from other Basin monitor wells and producer wells during WY 2012 are also provided in the table in **Appendix 1**. These include: (a) annual sample results from coastal and inland monitor wells that were added as part of the monitoring well network enhancement study that was conducted by MPWMD for the Watermaster in 2007; (b) annual sample results for the active Watermaster producer wells in the coastal subareas of the Basin that are required to collect these samples under the Watermaster's MMP; and (c) annual sample results for the four dedicated coastal Watermaster Sentinel wells that were installed in 2007.

WATER-LEVEL DATA: BASIN MONITOR AND PRODUCER WELLS

Basin monitor wells and basin producer active and inactive wells with water-level data collected during WY 2012 are provided in **Appendix 2**. The general locations of these wells are shown on **Figure 6**. The Watermaster has requested that producers collect and report "static", i.e., non-pumping, water-level measurements. The purpose for this is so these measurements will more closely approximate ambient groundwater-level conditions, and facilitate the plotting and analysis of well water-level hydrographs. Occasionally, water-level measurements have been collected and reported while the well was in operation. In some cases, this may be due to the fact that the well can not be taken offline to collect a static water-level measurement because of pumping demand requirements. These occurrences have been recorded in the comments section of **Appendix 2**. These water-level data were collected primarily with manual water-level sounding devices by producers or by the MPWMD on behalf of the Watermaster.

These water-level data have been entered into the Watermaster database. The table in **Appendix 2** was generated by obtaining a data dump from the Watermaster database and using the report feature in MS Access. The new table format for this WY 2012 report includes additional information relative to each well and its monitoring schedule. This format will be used as a template to improve the web-based reporting feature of the database. Because this feature is still under development, future water-level tables may differ slightly from the one included in this report.

It should be noted that the table in **Appendix 2** includes the "reference-point elevations" that were surveyed in 2008 for each well, as part of work conducted for the Watermaster. The reference point elevations were established at the water-level data collection point at each wellhead. The reference point elevations are tied to the North American Vertical Datum of 1988 (NAVD88). The

measurements in NAVD88 datum have been adjusted for the Watermaster's use by subtracting 2.97 feet to conform to local Mean Sea Level (MSL) reference, based on data provided by the surveyor. The "depth to water" measurement at each well is subtracted from the reference-point elevation to obtain the "water elevation" relative to MSL, as shown in the column to the right of the "depth to water" column of the table.

Water-level hydrographs for the MPWMD monitor wells located in the Northern Coastal Subarea and the Watermaster Sentinel wells are included in **Appendix 3**. The long-term hydrograph figures for the MPWMD monitor wells were generated to provide historical static water-level data for the wells with longer data records in the Seaside Groundwater Basin. The Sentinel well hydrographs are included to comply with monthly water-level reporting requirements.

Appendix 4 contains graphs of the continuous water-level records collected from the Sentinel Wells for WY 2012.

CONCLUSIONS

- Sand City Corporation Yard, PCA West Deep, and Sentinel Well 4 have shown slight increases in chloride levels from samples collected in WY 2011. With the exception of these wells, chemical data from WY 2012 for the MPWMD dedicated coastal monitor wells do not show significant changes in chemistry relative to previous samplings, and are not indicative of seawater intrusion into the basin at the locations and depths of these monitor wells. This conclusion continues to be supported by work completed this year for the Watermaster as documented in the WY 2012 Seawater Intrusion Analysis Report prepared by HydroMetrics, LLC.
- Based on the long-term water-level hydrographs for coastal monitor wells presented in **Appendix 3**, the trend of declining groundwater levels is continuing in the deeper Santa Margarita aquifer monitor wells, whereas groundwater levels have generally stabilized, and in a few cases displayed an overall increase in the shallower Paso Robles aquifer. The seasonal high water level peaks in the Santa Margarita monitoring wells for WY 2012 seen in these plates are lower than water levels from WY 2011. This difference is likely due to a dry winter and the injection of 131 acre-feet (AF), as compared to 1,117 AF in WY 2011 into the Santa Margarita aquifer by the MPWMD and Cal-Am at the Aquifer Storage and Recovery sites in Seaside.

RECOMMENDATIONS

- The increase in chloride levels observed in PCA West Deep begins in 2009, which is also the timing of a change from air-lift style sampling to the low-flow sampling method. Because of this timing, it is recommended PCA West Deep be sampled with the air-lift method to test if the changes in chemistry are related to the change in sampling method or if there are truly changes in chemistry occurring. Results from these samples will be presented in the 1st and 2nd quarter report for WY 2013.
- Groundwater quality samples should be obtained from the Camp Huffman well during the fourth quarter of WY 2013 to continue to establish a water-quality baseline for these monitor wells.
- MPWMD staff should continue to investigate whether it would be feasible to deploy a continuous water-quality monitoring data logger in a coastal monitoring well as a trial method for collecting this type of data using this technology.
- Reporting of water levels and quality should continue to be conducted semi-annually. Quarterly water-quality reporting is problematic due to the time required to process and analyze water-quality samples.
- Consideration should continue to be given to revising the boundary of the Seaside Groundwater Basin based on the more recent understanding of the basin boundaries than the depiction that is currently used by the Watermaster.
- MPWMD should identify two candidate sites for installation of continuous water level loggers in the shallow and deep zones of the aquifer system in the Laguna Seca Sub Area. This recommendation is consistent with the water level monitoring requirements set forth in the Monitoring and Management Plan. Costs for this are included in the 2013 budget.

Table 1. Summary of Well Completions, MPWMD Coastal Seaside Basin Watermaster Well.

SUMMARY OF MPWMD COASTAL SEASIDE BASIN GROUNDWATER QUALITY MONITOR WELLS													
Site	Well Name	Location Description	Well Number	Date Drilled	DWR Drillers Log	Hole Depth (feet)	Well Depth (feet)	Screened Interval (feet)	Strata Seal (feet)	Casing Type	Geologic Unit	E-Log	Elevation (feet AMSL)
MSC		former MSC mine north of Playa Ave. and west of Hwy. 1											
	MSC-Shallow	approx. 10' S of north property line	15S/1E-15N3	5/25/1990	338413	720	695	490 - - 680	95 - 275	2" pvc	QTp	- - -	80.1
	MSC-Deep	approx. 7' E of MSC-Shallow	15S/1E-15N2	5/25/1990	338425	920	865	810 - 850	725 - 775	2" pvc	Tsm	yes	80.29
PCA WEST		former PCA mine W of Hwy. 1											
	PCA-WShallow	approx. 200' SE of ocean bluff	15S/1E-15F1	3/28/1990	338400	600	585	525 - 575	120 - 150	2" pvc	QTp	- - -	64.22
	PCA-WDeep	approx. 50' E of PCA-WShallow	15S/1E-15F2	3/90	338401	900	885	825 - 875	760 - 790	2" pvc	Tsm	yes	65.18
PCA EAST		vacant lot NE of Seaside High baseball field											
	PCA-E Shallow	approx. 300' E Monterey Rd, 50" N fence	15S/1E-15K5	4/16/1990	338402	863	410	350 - 400	110 - 150	2" pvc	QTp	- - -	68.51
	PCA-E Deep	(same borehole as shallow well)	15S/1E-15K4	4/16/1990	338402	863	710	650 - 700	580 - 620	2" pvc	Tsm	yes	68.54
ORD TERRACE		Ord Terrace School property south of Ord Grove Ave.											
	OT-Shallow	1700 block Ord Grove Ave.	15S/1E-23Ca	8/5/1999	- - -	530	340	280 - 330	0 - 260	2" pvc	upper Tsm	- - -	228.65
	OT-Deep	(same borehole as shallow well)	15S/1E-23Cb	8/5/1999	- - -	530	450	390 - 440	350 - 377	2" pvc	lower Tsm	yes	228.63
MPWMD # FO-09		E of Hwy.1, SE of Okinawa Rd.											
	# 9-Shallow	50' east of utility service rd.	15S/1E-11Pa	8/16/1994	- - -	1,110	660	610 - 650	500 - 540	2" pvc	QTp (?)	- - -	118.89
	# 9-Deep	(same borehole as shallow well)	15S/1E-11Pb	8/16/1994	- - -	1,110	840	790 - 830	700 - 765	2" pvc	Tsm (?)	yes	118.85
MPWMD # FO-10		south of Light Fighter Drive, behind Barker Theater Building											
	# 10-Shallow	20' north of access road curb	15S/1E-12Fa	9/3/1996	- - -	1,500	650	620 - 640	480 - 500	2" pvc	QTp	- - -	200.85
	# 10-Deep	(same borehole as shallow well)	15S/1E-12Fc	9/3/1996	- - -	1,500	1,420	1380 - 1410	1280 - 1300	2" pvc	Tsm (?)	yes	201.03

- NOTES:
1. Official State well numbers end with a numeral; unofficial MPWMD well numbers end with a small case letter.
 2. Geologic Unit refers to the unit adjacent to the screened interval: QTp = Paso Robles Formation; Tsm = Santa Margarita Sandstone.
 3. Elevation refers to the water level reference point elevation surveyed by Central Coast Surveyors. For additional information, see "Documentation of 2008 Well Elevation Surveys", MPWMD Seaside Basin Watermaster Memorandum 2008-05.
 4. Well completion data at site MSC are documented in "Installation of Monitoring Well Cluster, Monterey Sand Company", Staal, Gardner & Dunne, Inc. (SGD), July 1990.
 5. Well completion data at sites PCA West and PCA East are documented in "Hydrogeologic Investigation, PCA Well Aquifer Test", SGD, July 1990.
 6. Well completion data at site MPWMD FO-09 are documented in "Summary of 1994 Fort Ord Monitor Well Installations", MPWMD Technical Memorandum 94-07.
 7. Well completion data at site MPWMD FO-10 are documented in "Summary of 1996 Seaside Basin Monitor Well Installations", MPWMD Technical Memorandum 97-04.
 8. Two dashes (i.e., "- -") indicate multiple screened intervals.
 9. Three dashes (i.e., "- - -") indicate not applicable or not available.



Monterey Peninsula Water Management District

Legend

Annual Rainfall (inches)

- 15
- 17
- 19

Seaside Groundwater Basin

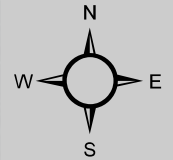
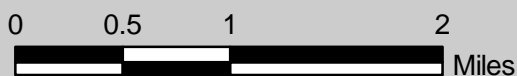
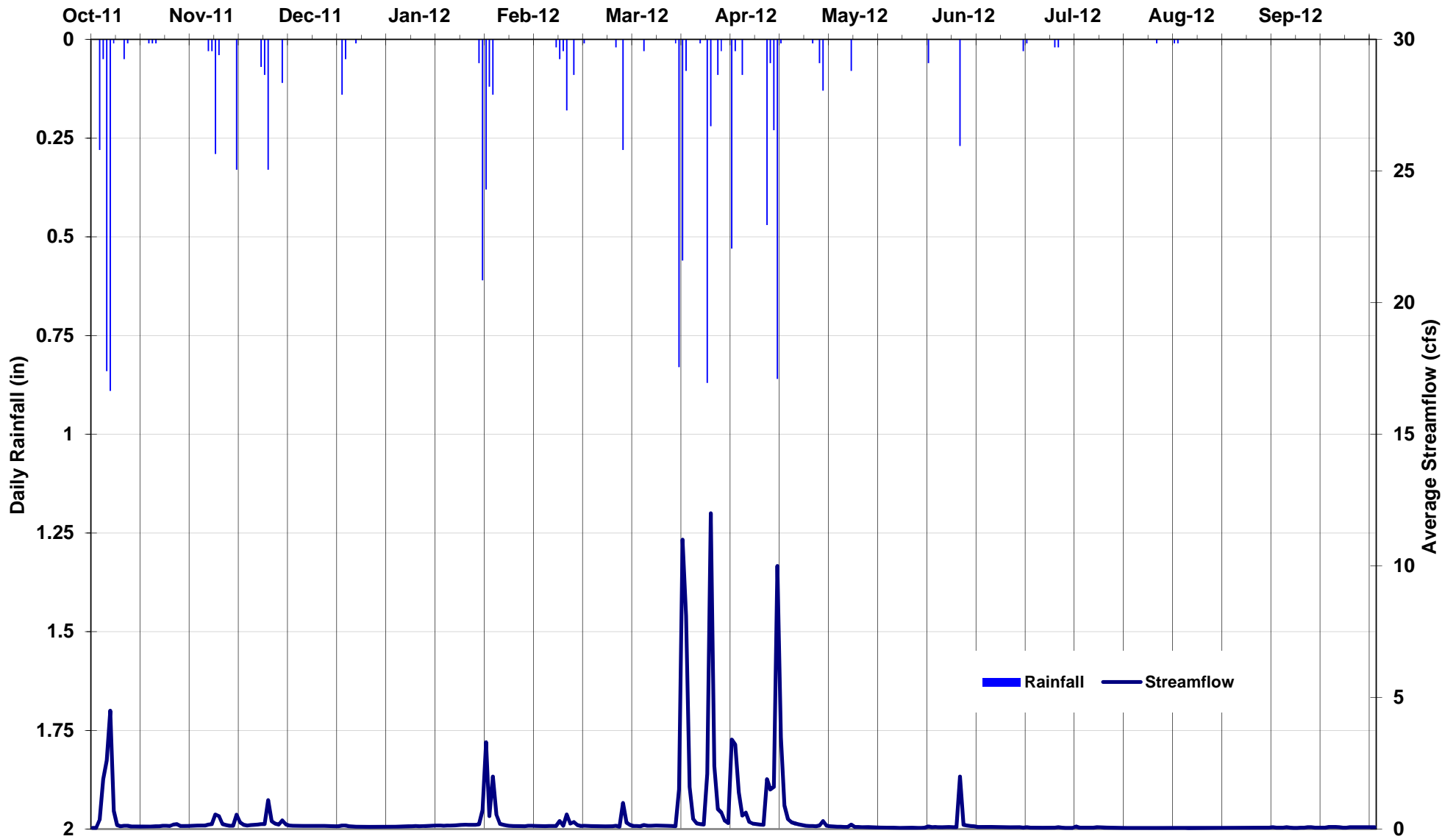


Figure 1. Location of Weather Station KMRY and Average Annual Rainfall for the Seaside Groundwater Basin, Seaside, CA





**Monterey Peninsula
Water Management District**

Figure 3. Daily Rainfall at Weather Station KMRY and Average Daily Flow at Arroyo Del Rey at Del Rey Oaks Stream Gage for Water Year 2012 , Seaside, California

Monterey Peninsula Water Management District

Legend



Monitor Well

Data Type and Frequency

- Water Level - Monthly
- Water Level - Monthly, Water Quality - Annual
- Water Level - Monthly, Water Quality - Quarterly
- Water Level - Quarterly
- Seaside Groundwater Basin

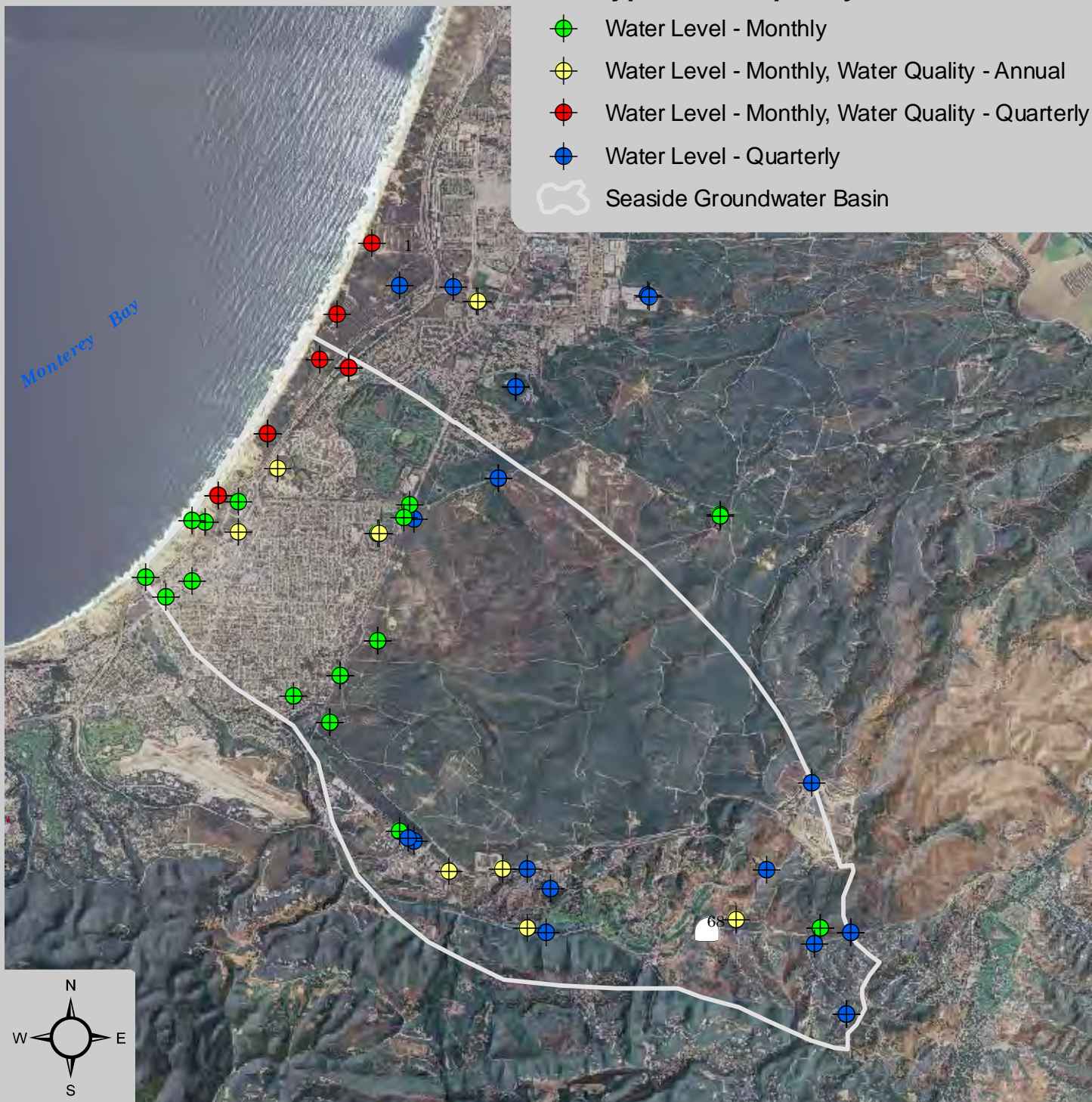
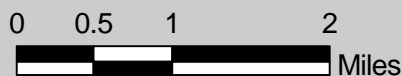


Figure 4. Seaside Groundwater Basin Watermaster Monitoring Well Network, Seaside, CA



Datasources: Rainfall Totals - Monterey County
Photobase - AMBAG 2005

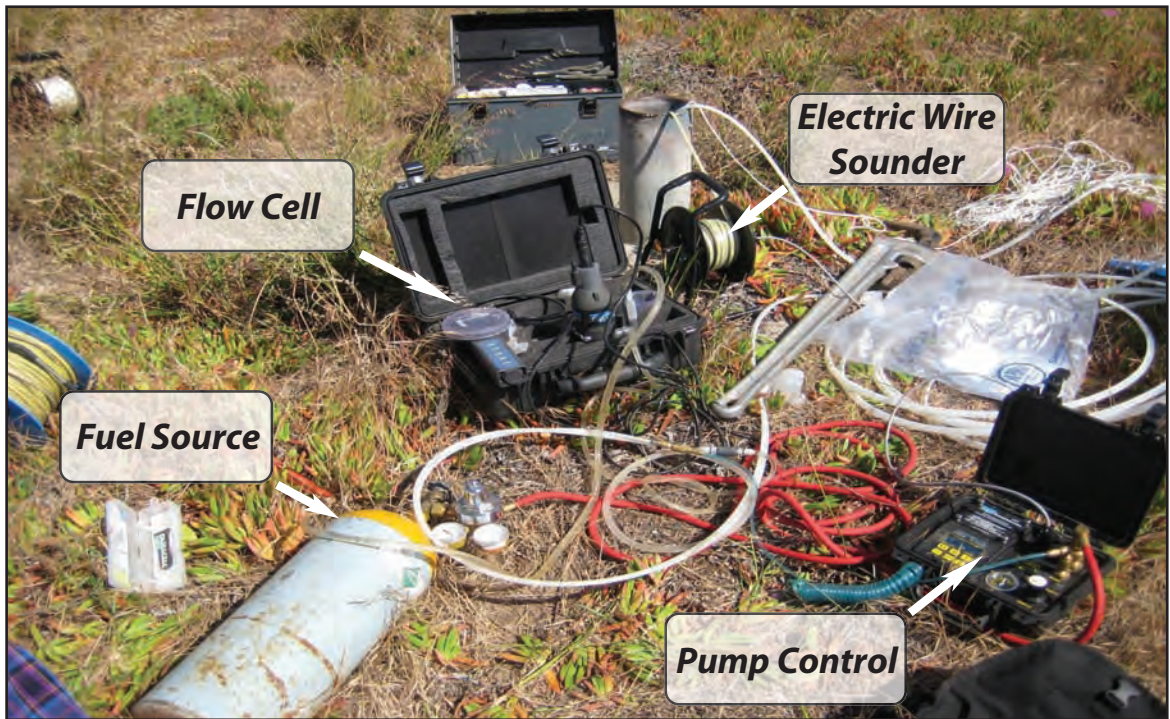
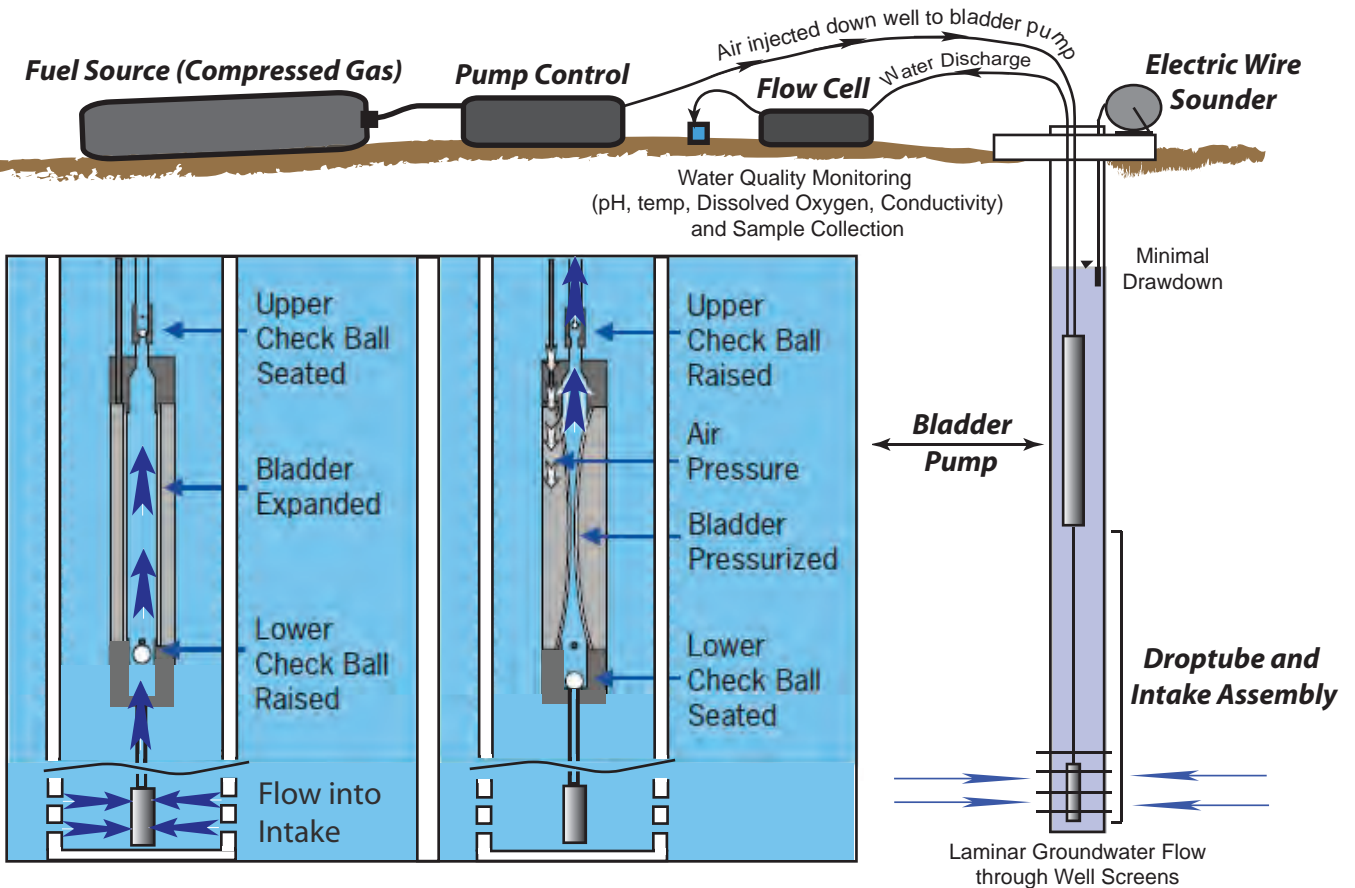


Figure • : Low Flow Groundwater Sampling System Presented in Cartoon and Photograph





Monterey Peninsula Water Management District

Legend

Watermaster Well

Category

- Monitor
- Producer
- Seaside Groundwater Basin

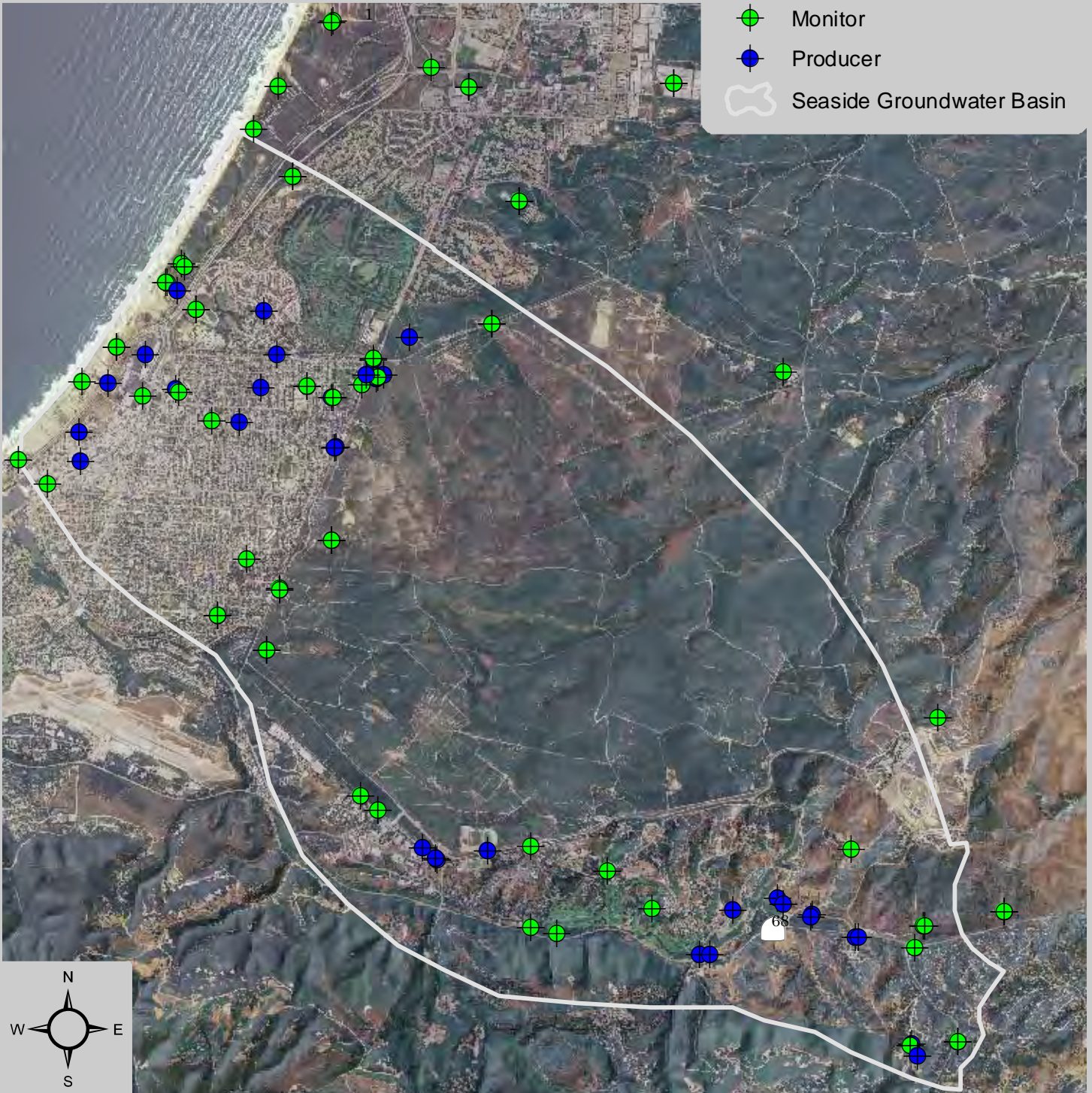
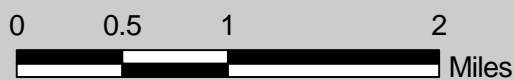


Figure 6. Seaside Groundwater Basin Watermaster Wells by Category, Seaside, CA



Appendix 1

Seaside Basin Groundwater Quality Monitoring Results for Water Year 2012

Summary Water Quality Report - All Data

<0.1 = Not detected above detection limit of 0.1 mg/L --- = No analysis performed all values in mg/L unless otherwise noted

Well:101 MSC-Shallow

Well No. 101 MSC-Shallow

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
09/26/2012	19	32	5	2.6		12	0.1	41	<1	<0.010	<0.010	<0.1	<0.05	<0.01	6.7	190	300
06/18/2012	19	34	5	2.8	83	14	0.1	42	<1	<0.010	<0.010	<0.1	<0.05	<0.1	6.7	197	312
03/29/2012	17	34	5	2.4	---	12	0.10	42	<1	<0.010	<0.010	<0.10	<0.05	<0.10	6.6	208	306
10/19/2011	19	32	5	2.8		12	0.10	46	<1	0.019	<0.010	<0.05	<0.05	0.06	6.0	205	309

Well No. 102 MSC-Deep

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
09/26/2012	81	105	13	4.4		21	0.2	143	<1	0.520	0.173	<0.1	0.1	0.22	6.8	603	1018
06/18/2012	83	115	16	4.7	342	25	0.19	136	<1	0.860	0.167	<0.1	0.11	0.2	6.6	588	1037
03/29/2012	79	110	16	4.6		29	0.20	150	<1	0.815	0.145	<0.10	0.11	0.26	6.7	623	1046
10/19/2011	79	113	16	4.6		38	0.26	154	<1	0.455	0.116	<0.05	0.11	0.24	6.6	605	1046

Well No. 103 PCA-W Shallow

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
09/26/2012	20	32	6	2.1		8	<0.01	42	<1	0.528	<0.010	<0.1	<0.05	<0.01	6.6	228	325
06/18/2012	20	36	6	2.3	106	8	0.1	42	1	0.493	0.011	<0.1	<0.05	<0.1	6.6	217	340
03/29/2012	20	37	5	2.3	---	8	0.10	43	1	0.247	<0.010	<0.010	<0.05	<0.10	6.9	223	338
10/19/2011	20	34	5	2.3		9	0.07	48	1	0.388	<0.010	<0.05	<0.05	0.06	6.9	215	326

Well No. 104 PCA-W Deep

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
09/26/2012	86	111	19	4.9		37	0.24	182	<1	0.015	0.140	<0.1	0.12	0.35	7.3	677	1126

<0.1 = Not detected above detection limit of 0.1 mg/L

--- = No analysis performed

all values in mg/L unless otherwise noted

Well: 104 PCA-W Deep

Date	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
06/18/2012	87	115	20	5.1	312	35	0.23	171	<1	0.041	0.153	<0.1	0.13	0.29	7.2	651	1131
03/29/2012	85	114	20	5.0		36	0.24	175	<1	0.054	0.150	<0.10	0.13	0.35	7.3	654	1119
10/19/2011	82	116	19	5.1		37	0.23	181	<1	<0.010	0.158	0.16	0.12	0.32	7.3	630	1085

Well No. 105 PCA-E Shallow

Date	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/17/2012	18	41	5	2.3		12	0.1	52	2	<0.010	<0.010	<0.1	<0.05	<0.1	7.2	192	309

Well No. 106 PCA-E Deep

Date	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
06/19/2012	42	80	8	3.5		28	0.27	76	<1	<0.010	0.036	<0.1	0.09	0.11	7.7	403	613
03/26/2012	53	84	10	3.8		31	0.29	104	<1	0.045	0.104	<0.10	0.09	<0.10	7.4	437	754

Well No. 109 Ord Terrace-Shallow

Date	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/16/2012	56	72	12	3.6		31	0.1	94	5	0.010	<0.010	<0.1	0.07	0.24	7.5	457	750

Well No. 111 FO-09-Shallow

Date	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
09/26/2012	26	51	3	3.4		12	<0.01	50	1	0.129	<0.010	<0.1	0.07	0.1	5.8	268	390
06/18/2012	32	34	5	3.5	106	11	<0.1	58	1	0.386	<0.010	<0.1	0.07	0.1	6.2	251	398
03/29/2012	35	32	4	3.3		10	0.10	52	1	0.051	<0.010	<0.10	0.05	<0.01	6.2	266	389
10/19/2011	49	32	4	3.3		11	<0.10	54	1	0.013	<0.010	<0.05	<0.05	0.06	6.2	288	433

<0.1 = Not detected above detection limit of 0.1 mg/L

--- = No analysis performed

all values in mg/L unless otherwise noted

Well:112 FO-09-Deep

Well No. 112 FO-09-Deep

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
09/26/2012	34	49	4	3.2		13	0.1	67	<1	0.034	<0.010	<0.1	<0.05	<0.01	6.3	260	428
06/18/2012	36	32	4	3.3	115	12	<0.1	49	1	0.420	<0.010	<0.1	0.05	<0.1	5.7	251	387
03/29/2012	26	53	4	3.4		11	0.10	65	<1	0.120	0.011	<0.10	0.07	<0.01	6.7	268	428
10/19/2011	26	53	4	3.5		12	<0.10	70	<1	0.125	0.010	<0.05	0.07	0.11	6.6	255	425

Well No. 113 FO-10-Shallow

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/16/2012	12	35	2	2.1		8	<0.1	41	<1	2.707	0.073	<0.1	<0.05	0.26	7.8	157	260

Well No. 114 FO-10-Deep

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/16/2012	16	36	2	2		14	0.1	42	1	0.282	0.018	<0.1	<0.05	0.32	8.2	197	280

Well No. 141 LS Driving Range

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
06/19/2012	41	154	26	5.2		51	0.1	250	1	0.537	<0.010	0.3	0.09	0.46	6.6	697	1150

Well No. 151 Military

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/30/2012																	
07/16/2012												<0.25				272	423
07/11/2012	67	69.5		5		128.6	<0.10	114.1	5.43		0.309			0.32			

<0.1 = Not detected above detection limit of 0.1 mg/L --- = No analysis performed all values in mg/L unless otherwise noted

Well:151 Military

Well No. 153 Ord Grove #2

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/31/2012																	
07/23/2012	68											<0.25				538	904
07/11/2012	61	85.9		<5	61.4	0.17	129.4	6.59		0.17			0.45				
11/17/2011	67	99.2	19	<5	57.5		130.3	7	<0.01		<0.77	0.135			504	1017	

Well No. 156 Mission Memorial

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/11/2012	44	61	11	3.1		52	0.15	74	8	<0.010		0.1	<0.05	0.2	7.3	360	604

Well No. 159 Luzern #2

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/31/2012																	
07/19/2012	64	96.5		<5	81.4	0.24	132.7	19.48		0.017		<0.25		0.46		590	999

Well No. 162 Playa #3

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/30/2012																	
07/16/2012												<0.25				540	878
07/11/2012	56	90.1		<5	94.6	0.12	124.4	26.15		0.014			0.47				

<0.1 = Not detected above detection limit of 0.1 mg/L --- = No analysis performed all values in mg/L unless otherwise noted

Well: 165 Sand City Corp Yard

Well No. 165 Sand City Corp Yard

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/11/2012	40	273	8	5.2		147	3.53	283	31	<0.010	0.023	<0.1	1.11	1.04	7.5	855	1492
04/03/2012	38	251	10	5.3		152	3.54	291	30	<0.010	0.019	<0.10	1.08	0.68	7.3	897	1532
12/01/2011	33	314	6	4.8		165	3.70	326	28	<0.010	0.029	<0.05	1.39	0.67	7.6	906	1604

Well No. 169 Paralta

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/31/2012																	
07/19/2012												<0.25				580	918
07/11/2012	66	83.0		<5		64.5	0.29	109.1	0.94		0.017			0.39			
11/17/2011	49	72.6	13	<5		43		86.7	3.5	<0.01		<0.77	0.067			352	722

Well No. 173 Seaside Muni #4

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
10/02/2012	15	46	4.8	1.5		9	0.10	85	4			0.04	257	0.14	7.4	250	381

Well No. 177 Plumas #4

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/30/2012																	
07/16/2012	48	130.9		<5		83.0	0.17	203.4	10.30		<0.010	<0.25		0.68		658	1121

Well No. 186 Darwin

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)

<0.1 = Not detected above detection limit of 0.1 mg/L --- = No analysis performed all values in mg/L unless otherwise noted

Well:186 Darwin

07/30/2012																					
07/16/2012																			<0.25	500	798
07/11/2012	19	47.8		<5		32.7	<0.10	64.1	26.13		0.328										0.21

Well No. 187 Seaside Golf - Reservoir

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
10/02/2012	22	49	7.5	1.8		20	0.12	91	6				0.245	0.12	7.0	290	460

Well No. 196 LSRA #2

	Major Cations				Major Anions					Minor Ions					Physical			
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)	
09/13/2012	21	105	13	2.3		---	17	0.26	173	<1	26	0.178	<0.03	0.335	0.52	6.5	480	819

Well No. 197 LSRA #1

	Major Cations				Major Anions					Minor Ions					Physical			
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)	
09/13/2012	17	96	11	2.1		---	18	0.27	130	5	<0.01	0.024	<0.03	0.257	0.37	6.5	400	---
07/10/2012	20	100	11	2.6			18	0.24	126	3	0.038	0.008	0.98	0.1	0.42	6.8	388	655

Well No. 203 LS Golf New #12

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/10/2012	148	140	33	5.6		202	0.6	249	<1	0.438	0.049	<0.1	0.12	0.87	7	962	1574

Well No. 204 Pasadera Golf - Paddock

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)

<0.1 = Not detected above detection limit of 0.1 mg/L --- = No analysis performed all values in mg/L unless otherwise noted

Well:231 Del Monte Test

07/16/2012 20 43.9 <5 14.1 0.16 56.6 1.15 0.045 <0.25 0.19 246 406

Well No. 245.1 Sentinel MW#1 (1,140 feet)

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/30/2012	10	74	1	3.1	77	22	0.18	67	<1	0.153	<0.010	<0.1	0.11	<0.1	8.6	258	415

Well No. 245.2 Sentinel MW#1 (1,390 feet)

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/30/2012	10	70	2.9	3.2	91	23	0.19	60	<1	4.049	0.053	<0.1	0.1	0.11	8.6	245	408

Well No. 246.1 Sentinel MW#2 (1,000 feet)

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/30/2012	16	70	1	3.1	100	20	0.17	64	<1	0.226	<0.010	<0.1	0.08	0.13	8.4	262	430

Well No. 246.2 Sentinel MW#2 (1,470 feet)

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/30/2012	16	67	1	3	112	17	0.14	62	<1	25.146	0.234	<0.1	0.09	0.13	8.4	265	427

Well No. 247.1 Sentinel MW#3 (870 feet)

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/30/2012	17	62	2	3.7	98	16	0.09	60	1	5.893	0.065	<0.1	0.08	<0.1	7.8	270	403

<0.1 = Not detected above detection limit of 0.1 mg/L --- = No analysis performed all values in mg/L unless otherwise noted

Well:247.2 Sentinel MW#3 (1,275 feet)

Well No. 247.2 Sentinel MW#3 (1,275 feet)

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/30/2012	17	62	2	3.7	100	16	0.2	62	<1	0.949	0.020	<0.1	0.09	0.12	8	270	414

Well No. 248.1 Sentinel MW#4 (715 feet)

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/30/2012	50	103	8	9.4	220	35	0.2	130	<1	7.494	0.070	<0.1	0.11	0.27	7.9	490	845
01/12/2012	57	106	10	7.0		37	0.13	122	<1			<0.05	0.12	0.21	7.6	511	822

Well No. 248.2 Sentinel MW#4 (900 feet)

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/30/2012	75	190	19	8.6	359	38	0.22	261	<1	4.202	0.176	0.91	0.34	0.63	7.5	838	1471
01/13/2012	73	195	18	9.4		40	0.13	251	<1			1.63	0.30	0.45	7.6	788	1418

Well No. 258 MW-B-23-180

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca ⁺	Na ⁺	Mg ⁺	K ⁺	HCO ₃ ⁻	SO ₄ ⁻	F ⁻	Cl ⁻	NO ₃ ⁻	Fe ²⁺	Mn ²⁺	HPO ₄ ⁻	B	Br ⁻	pH	TDS	EC (us/cm)
07/17/2012	51	110	30	4.6		64	<0.1	135	37	0.547	0.080	<0.1	0.06	0.37	7.2	570	959

Appendix 2

Seaside Basin Groundwater Level Monitoring Results for Water Year 2012

Water Level Data: WY 2012 as reported to the Seaside Watermaster

Northern Coastal Monitor

Watermaster Well No: 101 MSC-Shallow

Watermaster Well No: 101 MSC-Shallow

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
QTc

Northern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/28/2011	74.97	80.1	5.13	
11/09/2011	76.7	80.1	3.40	
12/02/2011	76.15	80.1	3.95	
01/05/2012	77.77	80.1	2.33	
01/31/2012	75.70	80.1	4.40	
03/01/2012	75.59	80.1	4.51	
03/29/2012	75.52	80.1	4.58	
05/02/2012	74.95	80.1	5.15	
05/29/2012	75.88	80.1	4.22	
06/26/2012	75.79	80.1	4.31	
08/01/2012	75.72	80.1	4.38	
08/29/2012	76.1	80.1	4.00	
09/26/2012	76.31	80.1	3.79	

Watermaster Well No: 102 MSC-Deep

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
TsmNorthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/28/2011	98.32	80.29	-18.03	
11/09/2011	100.61	80.29	-20.32	
12/02/2011	99.00	80.29	-18.71	
01/05/2012	99.80	80.29	-19.51	
01/31/2012	97.45	80.29	-17.16	
03/01/2012	96.21	80.29	-15.92	
03/29/2012	95.30	80.29	-15.01	
05/02/2012	92.02	80.29	-11.73	
05/29/2012	95.12	80.29	-14.83	
06/26/2012	97.48	80.29	-17.19	
08/01/2012	99.11	80.29	-18.82	
08/29/2012	101.21	80.29	-20.92	
09/26/2012	102.03	80.29	-21.74	

Watermaster Well No: 103 PCA-W Shallow

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
QTcNorthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/19/2011	59.31	64.22	4.91	

03/29/2012	58.83	64.22	5.39
09/26/2012	59.69	64.22	4.53

Watermaster Well No: 104 PCA-W Deep

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
TsmNorthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/19/2011	87.2	65.18	-22.02	
03/29/2012	82.1	65.18	-16.92	
09/29/2012	90.55	68.18	-22.37	

Watermaster Well No: 105 PCA-E Shallow

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
QTcNorthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/28/2011	63.01	68.51	5.50	
11/08/2011	63.04	68.51	5.47	
12/02/2011	65.64	68.51	2.87	
01/04/2012	65.56	68.51	2.95	
01/31/2012	65.24	68.51	3.27	
02/29/2012	62.06	68.51	6.45	
04/05/2012	68.18	68.51	0.33	
05/01/2012	62.02	68.51	6.49	

05/29/2012	62.88	68.51	5.63
06/27/2012	62.3	68.51	6.21
07/31/2012	62.62	68.51	5.89
08/29/2012	62.79	68.51	5.72
10/03/2012	62.92	68.51	5.59

Watermaster Well No: 106 PCA-E Deep

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
TsmNorthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/28/2011	93	68.54	-24.46	
11/08/2011	92.02	68.54	-23.48	
12/02/2011	91.23	68.54	-22.69	
01/04/2012	91.02	68.54	-22.48	
01/31/2012	88.02	68.54	-19.48	
02/29/2012	86.32	68.54	-17.78	

Watermaster Well No: 107 Ord Grove Test

Owner: California American Water

Well Type: Monitor

Aquifer Unit:
QTc/TsmNorthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/28/2011	349	294	-55.00	production well is on
11/09/2011	329.78	294.00	-35.78	

12/02/2011	349.39	294.00	-55.39	production well on
01/04/2012	349.48	294.00	-55.48	production well on
01/31/2012	327.80	294.00	-33.80	
02/29/2012	323.28	294.00	-29.28	
05/12/2012	344.22	294.00	-50.22	production well on
05/30/2012	345.22	294.00	-51.22	production well on
06/27/2012	346.92	294.00	-52.92	
07/31/2012	349.75	294.00	-55.75	
08/29/2012	350.56	294.00	-56.56	
10/02/2012	351.2	294.00	-57.20	

Watermaster Well No: 108 Paralta Test

Owner: MPWMD

Well Type: Monitor

Responsible Party: MPWMD

Aquifer Unit:
QTc/TsmNorthern Coastal
Monitor

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	347.52	330.72	-16.80	Production well is on
11/08/2011	336.98	330.72	-6.26	
12/01/2011	342.27	330.72	-11.55	production well on
01/04/2012	340.35	330.72	-9.63	production well on
01/31/2012	333.43	330.72	-2.71	
02/29/2012	332.13	330.72	-1.41	
05/02/2012	331.52	330.72	-0.80	

06/26/2012	335.75	330.72	-5.03
07/31/2012	344.5	330.72	-13.78
08/29/2012	345.18	330.72	-14.46

Watermaster Well No: 109 Ord Terrace-Shallow

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
Tsm (upper)Northern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/28/2011	268.42	228.65	-39.77	
11/09/2011	266.50	228.65	-37.85	
12/02/2011	268.15	228.65	-39.50	
01/04/2012	268.21	228.65	-39.56	
01/31/2012	261.63	228.65	-32.98	
02/29/2012	257.30	228.65	-28.65	
05/01/2012	261.58	228.65	-32.93	
06/27/2012	266.07	228.65	-37.42	
07/31/2012	268.93	228.65	-40.28	
08/29/2012	270.46	228.65	-41.81	
10/02/2012	272.12	228.65	-43.47	

Watermaster Well No: 111 FO-09-Shallow

Owner: MPWMD

Well Type: Monitor

Responsible Party: MPWMD

Aquifer Unit:
QTc/TpNorthern Coastal
Monitor

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	111.72	118.89	7.17	
10/19/2011	111.68	118.89	7.21	
12/01/2011	111.59	118.89	7.30	
01/04/2012	111.37	118.89	7.52	
01/31/2012	111.23	118.89	7.66	
02/29/2012	111.09	118.89	7.80	
03/19/2012	110.90	118.89	7.99	
05/01/2012	110.72	118.89	8.17	
05/29/2012	111.50	118.89	7.39	
06/26/2012	110.93	118.89	7.96	
07/31/2012	111.44	118.89	7.45	
08/29/2012	111.62	118.89	7.27	
09/26/2012	111.89	118.89	7.00	

Watermaster Well No: 112 FO-09-Deep

Owner: MPWMD

Well Type: Monitor

Responsible Party: MPWMD

Aquifer Unit:
TsmNorthern Coastal
Monitor

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	142.51	118.85	-23.66	

10/19/2011	141.99	118.85	-23.14
01/04/2012	140.88	118.85	-22.03
01/31/2012	137.9	118.85	-19.05
02/29/2012	136.5	118.85	-17.65
03/29/2012	135.10	118.85	-16.25
05/01/2012	134.12	118.85	-15.27
05/29/2012	135.11	118.85	-16.26
06/26/2012	139.1	118.85	-20.25
07/31/2012	142.88	118.85	-24.03
08/29/2012	144.19	118.85	-25.34
09/26/2012	144.87	118.85	-26.02

Watermaster Well No: 113 FO-10-Shallow

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
QTcNorthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	204.66	200.85	-3.81	
11/09/2011	204.59	200.85	-3.74	
12/01/2011	204.10	200.85	-3.25	
01/04/2012	204.21	200.85	-3.36	
02/01/2012	203.99	200.85	-3.14	
03/01/2012	204.10	200.85	-3.25	

04/06/2012	203.81	200.85	-2.96
05/31/2012	204.11	200.85	-3.26
06/27/2012	205.56	200.85	-4.71
07/31/2012	205.7	200.85	-4.85
08/29/2012	206.4	200.85	-5.55
10/03/2012	206.53	200.85	-5.68

Watermaster Well No: 114 FO-10-Deep

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
TpNorthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	204.74	201.03	-3.71	
11/09/2011	204.81	201.03	-3.78	
12/01/2011	204.24	201.03	-3.21	
01/04/2012	204.33	201.03	-3.30	
02/01/2012	203.97	201.03	-2.94	
03/01/2012	203.65	201.03	-2.62	
04/06/2012	203.14	201.03	-2.11	
05/31/2012	203.56	201.03	-2.53	
06/27/2012	204.97	201.03	-3.94	
07/31/2012	205.12	201.03	-4.09	
08/29/2012	206.15	201.03	-5.12	

10/03/2012	206.64	201.03	-5.61
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Watermaster Well No: 154 MMP monitor

Owner: Mission Memorial Park

Well Type: Monitor

Aquifer Unit:
QTcNorthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/28/2011	347.6	315.42	-32.18	
11/09/2011	347.6	315.42	-32.18	
12/02/2011	355.64	315.42	-40.22	production well on
01/04/2012	347.3	315.42	-31.88	production well on
01/31/2012	339.81	315.42	-24.39	
02/29/2012	336.34	315.42	-20.92	
04/06/2012	332.55	315.42	-17.13	
05/04/2012	334.45	315.42	-19.03	production well on
05/31/2012	335.99	315.42	-20.57	
06/27/2012	339.51	315.42	-24.09	production well on
07/31/2012	342.7	315.42	-27.28	
08/29/2012	351.88	315.42	-36.46	
10/03/2012	355.59	315.42	-40.17	

Watermaster Well No: 163 Playa #4

Owner: California American Water

Well Type: Monitor

Aquifer Unit:
QTc/TsmNorthern Coastal
Monitor

Responsible Party: CAW

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	65	52.53	-12.47	
10/27/2011	64.2	52.53	-11.67	
11/23/2011	64	52.53	-11.47	
12/15/2011	64	52.53	-11.47	
01/26/2012	64	52.53	-11.47	
02/23/2012	63.0	52.53	-10.47	
03/29/2012	62.0	52.53	-9.47	
04/26/2012	63.0	52.53	-10.47	
05/30/2012	62.5	52.53	-9.97	
06/28/2012	64	52.53	-11.47	
07/26/2012	64.6	52.53	-12.07	
08/30/2012	64.9	52.53	-12.37	
09/27/2012	64.9	52.53	-12.37	

Watermaster Well No: 231 Del Monte Test

Owner: California American Water

Well Type: Monitor

Aquifer Unit:
QTcNorthern Coastal
Monitor

Responsible Party: CAW

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	30	32.62	2.62	

01/26/2012				Not Visited
02/23/2012	36.3	32.62	-3.68	
03/29/2012	29.4	32.62	3.22	
04/26/2012	29.5	32.62	3.12	
05/30/2012	29.5	32.62	3.12	
06/28/2012	29	32.62	3.62	
07/26/2012	29.5	32.62	3.12	
08/30/2012	29.2	32.62	3.42	
09/27/2012	30.4	32.62	2.22	

Watermaster Well No: 243 Luxton

Owner: California American Water

Well Type: Monitor

Aquifer Unit:
QTcNorthern Coastal
Monitor

Responsible Party: CAW

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	96	89.12	-6.88	
10/27/2011	96.5	89.12	-7.38	
11/23/2011	96	89.12	-6.88	
12/15/2011	96.1	89.12	-6.98	
01/26/2012	97.7	89.12	-8.58	
02/23/2012	98.8	89.12	-9.68	
03/29/2012	94.8	89.12	-5.68	
04/26/2012	95	89.12	-5.88	

05/30/2012	97	89.12	-7.88
06/28/2012	97	89.12	-7.88
07/26/2012	96.1	89.12	-6.98
08/30/2012	96.4	89.12	-7.28
09/27/2012	98.6	89.12	-9.48

Watermaster Well No: 251 CDM MW-1

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
Qod/QarNorthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	89.90	93.53	3.63	
11/09/2011	89.80	93.53	3.73	
12/01/2011	89.67	93.53	3.86	
01/09/2012	89.34	93.53	4.19	
02/02/2012	89.20	93.53	4.33	
03/01/2012	89.27	93.53	4.26	
04/06/2012	89.20	93.53	4.33	
05/02/2012	89.28	93.53	4.25	
05/31/2012	89.40	93.53	4.13	
06/27/2012	89.8	93.53	3.73	
07/30/2012	90.09	93.53	3.44	
08/30/2012	89.51	93.53	4.02	

10/02/2012	89.62	93.53	3.91
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Watermaster Well No: 252 CDM MW-2

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
Qod/QarNorthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/28/2011	60.02	68.83	8.81	
11/09/2011	59.98	68.83	8.85	
12/01/2011	59.95	68.83	8.88	
01/09/2012	59.63	68.83	9.20	
02/02/2012	59.48	68.83	9.35	
03/01/2012	59.37	68.83	9.46	
04/06/2012	59.20	68.83	9.63	
05/02/2012	59.38	68.83	9.45	
05/31/2012	59.30	68.83	9.53	
06/27/2012	60.52	68.83	8.31	
07/30/2012	60.58	68.83	8.25	
08/30/2012	60.8	68.83	8.03	
10/02/2012	59.88	68.83	8.95	

Watermaster Well No: 254 MW-B-22-180

Owner: U.S.A. Fort Ord

Well Type: Monitor

Aquifer Unit:
Qod/QarNorthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/28/2011	156.93	168.1	11.17	
11/09/2011	156.09	168.1	12.01	
12/01/2011	153.96	168.1	14.14	
01/09/2012	156.87	168.1	11.23	
02/02/2012	157.02	168.1	11.08	
03/01/2012	156.91	168.1	11.19	
04/06/2012	156.80	168.1	11.30	
05/02/2012	156.69	168.1	11.41	
05/31/2012	156.80	168.1	11.30	
06/27/2012	157.01	168.1	11.09	
07/31/2012	157.11	168.1	10.99	
10/03/2012	157.00	168.1	11.10	

Watermaster Well No: 258 MW-B-23-180

Owner: U.S.A. Fort Ord

Well Type: Monitor

Aquifer Unit:
Qod/QarNorthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/28/2011	110.37	113.52	3.15	
11/09/2011	110.10	113.52	3.42	

12/01/2011	110.02	113.52	3.50
01/09/2012	109.98	113.52	3.54
02/02/2012	109.61	113.52	3.91
03/01/2012	109.56	113.52	3.96
04/06/2012	109.44	113.52	4.08
05/02/2012	109.52	113.52	4.00
05/31/2012	109.64	113.52	3.88
06/27/2012	109.78	113.52	3.74
07/30/2012	110.08	113.52	3.44
08/30/2012	110.17	113.52	3.35
10/02/2012	110.08	113.52	3.44

Watermaster Well No: 151 Military

Owner: California American Water

Well Type: Producer

Aquifer Unit:
QTcNorthern Coastal
Producer

Responsible Party: CAW

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	175	135.8	-39.20	
09/27/2012	169.5	135.8	-33.70	

Watermaster Well No: 152 Target Well

Owner: DBO Development

Well Type: Producer

Aquifer Unit:
QTc/TsmNorthern Coastal
Producer

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
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09/28/2011	61.54	44.42	-17.12
11/08/2011	61.4	44.42	-16.98
12/01/2011	61.49	44.42	-17.07
01/05/2012	61.55	44.42	-17.13
01/31/2012	61.50	44.42	-17.08
03/01/2012	61.42	44.42	-17.00
04/06/2012	61.36	44.42	-16.94
05/01/2012	61.40	44.42	-16.98
05/31/2012	61.65	44.42	-17.23
06/26/2012	59.7	44.42	
08/01/2012	59.75	44.42	-15.33
08/30/2012	59.88	44.42	-15.46
10/03/2012	59.92	44.42	-15.50

Watermaster Well No: 153 Ord Grove #2

Owner: California American Water

Well Type: Producer

Responsible Party: CAW

Aquifer Unit:
QTc/Tsm

Northern Coastal
Producer

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	387	292.39	-94.61	
10/27/2011	388	292.39	-95.61	Well on
11/23/2011	388	292.39	-95.61	Well On
12/15/2011	387	292.39	-94.61	Wellon

01/26/2012	329.0	292.39	-36.61	
02/23/2012	323.6	292.39	-31.21	
03/29/2012	360.6	292.39	-68.21	Well On
04/26/2012	355	292.39	-62.61	Well on
05/30/2012	357.0	292.39	-64.61	Well On
06/28/2012	360	292.39	-67.61	
07/26/2012	386.6	292.39	-94.21	
08/30/2012	387.4	292.39	-95.01	
09/27/2012	389.5	292.39	-97.11	

Watermaster Well No: 159 Luzern #2

Owner: California American Water

Well Type: Producer

Aquifer Unit:
QTc/TsmNorthern Coastal
Producer

Responsible Party: CAW

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	192	159.99	-32.01	
10/27/2011	188.5	159.99	-28.51	
11/23/2011	189	159.99	-29.01	
12/15/2011	187.4	159.99	-27.41	
01/26/2012	187.2	159.99	-27.21	
02/23/2012	181.7	159.99	-21.71	
03/29/2012	195.2	159.99	-35.21	Well running
04/26/2012	182.0	159.99	-22.01	

05/30/2012	205.0	159.99	-45.01	well running
06/28/2012	209.0	159.99	-49.01	well running
07/26/2012	210.4	159.99	-50.41	well running
08/30/2012	214.12	159.99	-54.13	well running
09/27/2012	216.12	159.99	-56.13	well running

Watermaster Well No: 162 Playa #3

Owner: California American Water

Well Type: Producer

Responsible Party: CAW

Aquifer Unit:
QTcNorthern Coastal
Producer

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	163	56.02	-106.98	Well Running
10/27/2011	162	56.02	-105.98	well running
11/23/2011	56	56.02	0.02	
12/15/2011	55.7	56.02	0.32	
01/26/2012	52.2	56.02	3.82	
02/23/2012	51.6	56.02	4.42	
03/29/2012	149.0	56.02	-92.98	Well Running
04/26/2012	160.0	56.02	-103.98	Well Running
05/30/2012	162.5	56.02	-106.48	Well Running
06/28/2012	163	56.02	-106.98	
07/26/2012	174	56.02	-117.98	
08/30/2012	170.6	56.02	-114.58	

09/27/2012 162.1 56.02 -106.08

Watermaster Well No: 169 Paralta

Owner: California American Water

Well Type: Producer

Responsible Party: CAW

Aquifer Unit:
QTc/Tsm

Northern Coastal
Producer

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/27/2011	375	324.49	-50.51	
11/23/2011	377.2	324.49	-52.71	well on
11/27/2011	375	324.49	-50.51	well on
12/15/2011	377	324.49	-52.51	well on
01/26/2012	327.7	324.49	-3.21	
02/23/2012	346.7	324.49	-22.21	
03/29/2012	336.9	324.49	-12.41	
04/26/2012	345.0	324.49	-20.51	
05/30/2012	346	324.49	-21.51	
06/28/2012	355	324.49	-30.51	
07/26/2012	343.5	324.49	-19.01	
08/30/2012	343.2	324.49	-18.71	
09/27/2012	346	324.49	-21.51	

Watermaster Well No: 171 PCA Production

Owner: Security National Guaranty Inc

Well Type: Producer

Aquifer Unit:

Northern Coastal

QTc

Producer

Responsible Party: Craig Evans

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/25/2011	66.3	72.63	6.33	
10/25/2011	65.58	72.63	7.05	
11/26/2011	65.33	72.63	7.30	
12/21/2011	65.1	72.63	7.53	
01/23/2012	65.5	72.63	7.13	
02/25/2012	65.3	72.63	7.33	
03/24/2012	64.5	72.63	8.13	
04/25/2012	64.8	72.63	7.83	
05/26/2012	65.5	72.63	7.13	
06/21/2012	65.33	72.63	7.30	
07/25/2012	65.5	72.63	7.13	
08/24/2012	65	72.63	7.63	
09/25/2012	65.5	72.63	7.13	

Watermaster Well No: 173 Seaside Muni #4

Owner: City of Seaside

Well Type: Producer

Aquifer Unit:

Northern Coastal

QTc, Tsm

Producer

Responsible Party: City of Seaside

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/03/2011	345	312.12	-32.88	

11/02/2011	346	312.12	-33.88
12/12/2011	346	312.12	-33.88
01/05/2012	346	312.12	-33.88
02/07/2012	343.2	312.12	-31.08
03/05/2012	341.9	312.12	-29.78
04/03/2012	342.9	312.12	-30.78
05/02/2012	343.9	312.12	-31.78
06/05/2012	343.9	312.12	-31.78
07/03/2012	345	312.12	-32.88
08/02/2012	345.9	312.12	-33.78
09/06/2012	346.8	312.12	-34.68
10/03/2012	347.3	312.12	-35.18

Watermaster Well No: 174 Seaside Muni #3

Owner: City of Seaside

Well Type: Producer

Aquifer Unit:
QTc, TsmNorthern Coastal
Producer

Responsible Party: City of Seaside

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/03/2011	275	307.19	32.19	
11/02/2011	275	307.19	32.19	
12/12/2011	274	307.19	33.19	
01/05/2012	274	307.19	33.19	
02/07/2012	272.05	307.19	35.14	

03/05/2012	272.35	307.19	34.84
04/03/2012	271.94	307.19	35.25
05/02/2012	272.03	307.19	35.16
06/05/2012	272.75	307.19	34.44
07/03/2012	272.52	307.19	34.67
08/02/2012	272.7	307.19	34.49
09/06/2012	272.35	307.19	34.84
10/03/2012	272.4	307.19	34.79

Watermaster Well No: 186 Darwin

Owner: California American Water

Well Type: Producer

Aquifer Unit:
QTcNorthern Coastal
Producer

Responsible Party: CAW

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	116	134.05	18.05	
07/26/2012	118	134.05	16.05	
08/30/2012	118.5	134.05	15.55	
09/27/2012	115	134.05	19.05	

Watermaster Well No: 187 Seaside Golf - Reservoir

Owner: City of Seaside

Well Type: Producer

Aquifer Unit:
Tp, TsmNorthern Coastal
Producer

Responsible Party: Coty of Seaside

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
02/07/2012	394.34	417.44	23.10	

03/05/2012	394.25	417.44	23.19
04/03/2012	394.1	417.44	23.34
05/02/2012	393.98	417.44	23.46
06/05/2012	393.85	417.44	23.59
07/03/2012	393.57	417.44	23.87
08/02/2012	393.45	417.44	23.99
09/06/2012	393.39	417.44	24.05
10/03/2012	393.68	417.44	23.76

Watermaster Well No: 189 Seaside Golf - Coe

Owner: City of Seaside

Well Type: Producer

Aquifer Unit:
QTcNorthern Coastal
Producer

Responsible Party: City of Seaside

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
11/02/2011	101	115.15	14.15	
12/12/2011	102	115.15	13.15	
01/05/2012	102	115.15	13.15	
02/07/2012	101.02	115.15	14.13	
03/05/2012	101.98	115.15	13.17	
04/03/2012	100.87	115.15	14.28	
05/02/2012	100.78	115.15	14.37	
06/05/2012	100.79	115.15	14.36	
07/03/2012	100.76	115.15	14.39	

08/02/2012	100.85	115.15	14.30
09/06/2012	100.99	115.15	14.16
10/03/2012	101.5	115.15	13.65

Watermaster Well No: 115 FO-01-Shallow

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
QTcNorthern Inland
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	202.23	362.61	160.38	
01/11/2012	202.26	362.61	160.35	
04/09/2012	202.52	362.61	160.09	
08/02/2012	202.45	362.61	160.16	

Watermaster Well No: 116 FO-01-Deep

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
TmNorthern Inland
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	339.39	362.57	23.18	
01/11/2012	339.58	362.57	22.99	
04/09/2012	339.52	362.57	23.05	
08/02/2012	339.92	362.57	22.65	

Watermaster Well No: 118 FO-07-Shallow

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:

Northern Inland

QTc

Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	453.8	470.19	16.39	
11/08/2011	453.98	470.19	16.21	
01/04/2012	453.88	470.19	16.31	
01/31/2012	453.63	470.19	16.56	
02/29/2012	453.60	470.19	16.59	
04/05/2012	453.42	470.19	16.77	
05/01/2012	453.2	470.19	16.99	
05/29/2012	453.30	470.19	16.89	
06/26/2012	453.21	470.19	16.98	
07/31/2012	453.27	470.19	16.92	
08/29/2012	453.5	470.19	16.69	
10/01/2012	453.62	470.19	16.57	

Watermaster Well No: 119 FO-07-Deep

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:

Northern Inland

Tsm

Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	493.87	470.15	-23.72	
11/08/2011	492.52	470.15	-22.37	

12/02/2011	492.72	470.15	-22.57
01/04/2012	492.44	470.15	-22.29
01/31/2012	489.61	470.15	-19.46
02/29/2012	488.44	470.15	-18.29
04/05/2012	487.52	470.15	-17.37
05/01/2012	486.5	470.15	-16.35
05/29/2012	487.50	470.15	-17.35
06/26/2012	491.22	470.15	-21.07
07/31/2012	494.37	470.15	-24.22
08/29/2012	495.54	470.15	-25.39
10/01/2012	496.45	470.15	-26.30

Watermaster Well No: 120 FO-08-Shallow

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
QTcNorthern Inland
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	373.38	378.04	4.66	
11/08/2011	373.38	378.04	4.66	
12/01/2011	373.07	378.04	4.97	
01/05/2012	373.35	378.04	4.69	
01/31/2012	373.97	378.04	4.07	
03/01/2012	372.90	378.04	5.14	

04/05/2012	372.58	378.04	5.46
05/01/2012	372.38	378.04	5.66
05/31/2012	372.47	378.04	5.57
06/26/2012	372.71	378.04	5.33
07/31/2012	373.2	378.04	4.84
08/29/2012	373.42	378.04	4.62
10/01/2012	373.63	378.04	4.41

Watermaster Well No: 121 FO-08-Deep

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
TsmNorthern Inland
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	399.65	378.1	-21.55	
11/08/2011	399.65	378.1	-21.55	
12/01/2011	399.20	378.1	-21.10	
01/05/2012	399.29	378.1	-21.19	
01/31/2012	397.42	378.1	-19.32	
03/01/2012	395.61	378.1	-17.51	
04/05/2012	394.62	378.1	-16.52	
05/01/2012	393.72	378.1	-15.62	
05/31/2012	394.15	378.1	-16.05	
06/26/2012	398.07	378.1	-19.97	

07/31/2012	401.09	378.1	-22.99
08/29/2012	402.15	378.1	-24.05
10/01/2012	403.28	378.1	-25.18

Watermaster Well No: 122 FO-11-Shallow

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
QTcNorthern Inland
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	344.6	332.93	-11.67	
11/09/2011	344.58	332.93	-11.65	
12/01/2011	344.52	332.93	-11.59	
01/04/2012	344.61	332.93	-11.68	
02/01/2012	344.49	332.93	-11.56	
03/01/2012	344.53	332.93	-11.60	
04/06/2012	344.33	332.93	-11.40	
05/31/2012	344.51	332.93	-11.58	
06/27/2012	344.7	332.93	-11.77	
07/31/2012	344.72	332.93	-11.79	
08/29/2012	345.33	332.93	-12.40	
10/03/2012	345.52	332.93	-12.59	

Watermaster Well No: 123 FO-11-Deep

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:

Northern Inland

Tp

Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/28/2011	331.45	332.96	1.51	
11/09/2011	331.55	332.96	1.41	
12/01/2011	331.39	332.96	1.57	
01/04/2012	331.48	332.96	1.48	
02/01/2012	331.15	332.96	1.81	
03/01/2012	330.66	332.96	2.30	
04/06/2012	330.15	332.96	2.81	
05/31/2012	330.55	332.96	2.41	
06/26/2012	331.68	332.96	1.28	
07/31/2012	331.77	332.96	1.19	
08/29/2012	332.51	332.96	0.45	
10/03/2012	332.69	332.96	0.27	

Watermaster Well No: 124 Plumas Test 1990

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:

Southern Coastal

Tsm

Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	107.8	157.83	50.03	production well on

11/08/2011	106.9	157.83	50.93	
12/01/2011	106.4	157.83	51.43	
01/09/2012	106.00	157.83	51.83	
02/01/2012	105.48	157.83	52.35	
03/01/2012	105.1	157.83	52.73	
04/06/2012	105.05	157.83	52.78	
05/01/2012	104.97	157.83	52.86	production well on
05/30/2012	107.05	157.83	50.78	production well on
06/27/2012	107.54	157.83	50.29	
07/31/2012	107.38	157.83	50.45	
08/29/2012	107.3	157.83	50.53	
10/03/2012	107.68	157.83	50.15	

Watermaster Well No: 125 K-Mart

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
Qod/QarSouthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/28/2011	22.82	30.65	7.83	
11/08/2011	22.97	30.65	7.68	
12/01/2011	22.88	30.65	7.77	
01/05/2012	24.24	30.65	6.41	
01/31/2012	23.11	30.65	7.54	

02/29/2012	23.23	30.65	7.42
04/05/2012	22.70	30.65	7.95
05/01/2012	23.06	30.65	7.59
05/29/2012	23.35	30.65	7.30
08/01/2012	23.57	30.65	7.08
08/29/2012	23.49	30.65	7.16
10/03/2012	23.59	30.65	7.06

Watermaster Well No: 238 CDM MW-4

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
QodSouthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	14.67	18.69	4.02	
11/08/2011	14.17	18.69	4.52	
01/05/2012	14.70	18.69	3.99	
01/31/2012	14.84	18.69	3.85	
03/01/2012	14.71	18.69	3.98	
04/06/2012	14.43	18.69	4.26	
05/01/2012	14.72	18.69	3.97	
05/31/2012	15.33	18.69	3.36	
06/26/2012	15.41	18.69	3.28	
08/01/2012	15.29	18.69	3.40	

08/30/2012	15.4	18.69	3.29
10/03/2012	15.49	18.69	3.20

Watermaster Well No: 239 CDM MW-3

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
QodSouthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	31.42	33.81	2.39	
11/08/2011	31.08	33.81	2.73	
12/01/2011	31.31	33.81	2.50	
01/05/2012	31.4	33.81	2.41	
01/31/2012	31.69	33.81	2.12	
03/01/2012	31.6	33.81	2.21	
04/06/2012	31.44	33.81	2.37	
05/01/2012	31.8	33.81	2.01	
05/31/2012	32.6	33.81	1.21	
06/17/2012	33.25	33.81	0.56	
08/01/2012	33.16	33.81	0.65	
08/30/2012	33.33	33.81	0.48	
10/03/2012	33.43	33.19	-0.24	

Watermaster Well No: 240 MW-BW-08-A

Owner: U.S.A. Fort Ord

Well Type: Monitor

Aquifer Unit:
Qod/QarSouthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	58.48	205.18	146.70	
11/09/2011	58.49	205.18	146.69	
12/01/2011	58.42	205.18	146.76	
01/09/2012	58.60	205.18	146.58	
02/01/2012	58.72	205.18	146.46	
03/01/2012	58.64	205.18	146.54	
04/06/2012	58.51	205.18	146.67	
05/01/2012	58.6	205.18	146.58	
05/30/2012	60.10	205.18	145.08	
06/27/2012	58.73	205.18	146.45	
07/31/2012	58.90	205.18	146.28	
08/29/2012	58.84	205.18	146.34	
10/03/2012	58.89	205.18	146.29	

Watermaster Well No: 241 MW-BW-09-180

Owner: U.S.A. Fort Ord

Well Type: Monitor

Aquifer Unit:
QTcSouthern Coastal
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	206.77	206.22	-0.55	

11/09/2011	206.98	206.22	-0.76
12/01/2011	206.80	206.22	-0.58
01/09/2012	207.28	206.22	-1.06
02/01/2012	207.01	206.22	-0.79
03/01/2012	206.90	206.22	-0.68
04/06/2012	206.76	206.22	-0.54
05/01/2012	207.02	206.22	-0.80
05/30/2012	207.92	206.22	-1.70
06/27/2012	207.21	206.22	-0.99
07/31/2012	207.35	206.22	-1.13
08/29/2012	207.69	206.22	-1.47
10/03/2012	207.79	206.22	-1.57

Watermaster Well No: 244 Hilby MGT

Owner: California American Water

Well Type: Monitor

Aquifer Unit:
QTcSouthern Coastal
Monitor

Responsible Party: CAW

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	245	248.04	3.04	
10/27/2011	244	248.04	4.04	
11/23/2011	244	248.04	4.04	
12/15/2011	243.9	248.04	4.14	
01/26/2012	244.2	248.04	3.84	

02/23/2012	246.1	248.04	1.94
03/29/2012	246.0	248.04	2.04
04/26/2012	246.0	248.04	2.04
05/30/2012	246.0	248.04	2.04
06/28/2012	246	248.04	2.04
07/26/2012	246	248.04	2.04
08/25/2012	246	248.04	2.04
09/27/2012	246	248.04	2.04

Watermaster Well No: 150 Cypress Pacific

Owner: King Venture

Well Type: Producer

Aquifer Unit:
QTcSouthern Coastal
Producer

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/28/2011	46.88	50.23	3.35	
11/08/2011	46.7	50.23	3.53	
12/01/2011	46.81	50.23	3.42	
01/05/2012	46.61	50.23	3.62	
01/31/2012	46.93	50.23	3.30	
03/01/2012	46.89	50.23	3.34	
04/06/2012	46.42	50.23	3.81	
05/01/2012	46.56	50.23	3.67	
05/31/2012	47.3	50.23	2.93	

06/26/2012	47.01	50.23	3.22
08/01/2012	47.04	50.23	3.19
08/30/2012	47.2	50.23	3.03
10/03/2012	47.3	50.23	2.93

Watermaster Well No: 165 Sand City Corp Yard

Owner: City of Sand City

Well Type: Producer

Responsible Party: MPWMD

Aquifer Unit:
Qod/Qar/QTc

Southern Coastal
Producer

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/28/2011	41.77	47.25	5.48	
11/08/2011	41.7	47.25	5.55	
12/01/2011	41.15	47.25	6.10	
01/05/2012	41.69	47.25	5.56	
01/31/2012	42.16	47.25	5.09	
03/01/2012	41.8	47.25	5.45	
04/06/2012	41.27	47.25	5.98	
05/01/2012	41.53	47.25	5.72	
05/30/2012	41.27	47.25	5.98	EC 770 mg/L
06/26/2012	42.29	47.25	4.96	1540 mg/l
08/01/2012	42.7	47.25	4.55	1010 mg/l
08/30/2012	42.38	47.25	4.87	1720 mg/l
10/03/2012	42.4	47.25	4.85	1840 mg/l

Watermaster Well No: 167 Design Ctr.

Owner: City of Sand City

Well Type: Producer

Responsible Party: MPWMD

Aquifer Unit:
Qod/Qar/QTcSouthern Coastal
Producer

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/28/2011	13.03	21.31	8.28	
11/08/2011	13.05	21.31	8.26	
12/01/2011	13.1	21.31	8.21	
01/05/2012	13.57	21.31	7.74	
01/31/2012	13.8	21.31	7.51	
03/01/2012	13.75	21.31	7.56	
04/06/2012	13.44	21.31	7.87	
05/01/2012	13.41	21.31	7.90	
05/30/2012	13.45	21.31	7.86	
06/26/2012	13.69	21.31	7.62	
08/01/2012	13.76	21.31	7.55	
10/03/2012	13.8	21.31	7.51	

Watermaster Well No: 177 Plumas #4

Owner: California American Water

Well Type: Producer

Responsible Party: CAW

Aquifer Unit:
TsmSouthern Coastal
Producer

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	237	161.48	-75.52	Well Running
10/27/2011	115.5	161.48	45.98	

11/23/2011	114	161.48	47.48	
12/15/2011	113.2	161.48	48.28	
01/26/2012	113.8	161.48	47.68	
02/23/2012	109.9	161.48	51.58	
03/29/2012	109.0	161.48	52.48	
04/26/2012	109	161.48	52.48	Well Running
05/30/2012	246.0	161.48	-84.52	Well Runnung
06/28/2012	246	161.48	-84.52	
07/26/2012	245.2	161.48	-83.72	
08/30/2012	249.8	161.48	-88.32	
09/27/2012	249	161.48	-87.52	

Watermaster Well No: 127 FO-03-Deep

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
Tsm

Southern Inland
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	637.33	774.74	137.41	
01/11/2012	637.31	774.74	137.43	
04/09/2012	637.45	774.74	137.29	
08/01/2012	637.3	774.74	137.44	

Watermaster Well No: 129 FO-04-Shallow (E)

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:

Southern Inland

QTc

Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/13/2011	112.52	168.23	55.71	
01/12/2012	110.78	168.23	57.45	
04/09/2012	109.62	168.23	58.61	
08/02/2012	112.85	168.23	55.38	

Watermaster Well No: 130 FO-04-Deep (W)

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:

Southern Inland

Tsm

Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	113.37	167.44	54.07	
01/12/2012	111.99	167.44	55.45	
04/09/2012	110.90	167.44	56.54	
08/02/2012	112.93	167.44	54.51	

Watermaster Well No: 131 FO-05-Shallow

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:

Southern Inland

QTc

Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	244.67	478.97	234.30	
01/01/2012	242.03	478.97	236.94	

04/09/2012	242.12	478.97	236.85
08/01/2012	242.5	478.97	236.47

Watermaster Well No: 132 FO-05-Deep

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
TsmSouthern Inland
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	313.58	479.29	165.71	
01/11/2012	310.91	479.29	168.38	
04/09/2012	309.42	479.29	169.87	
08/01/2012	312.69	479.29	166.60	

Watermaster Well No: 133 FO-06-Shallow

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:
QTcSouthern Inland
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	233.9	470.13	236.23	
01/11/2012	232.37	470.13	237.76	
04/09/2012	231.49	470.13	238.64	
08/01/2012	232.11	470.13	238.02	

Watermaster Well No: 134 FO-06-Deep

Owner: MPWMD

Well Type: Monitor

Aquifer Unit:

Southern Inland

Tsm

Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	333.1	470.63	137.53	
01/11/2012	230.69	470.63	239.94	
04/09/2012	231.49	470.63	239.14	
08/01/2012	232.4	470.63	238.23	

Watermaster Well No: 135 Justin Court

Owner: California American Water

Well Type: Monitor

Aquifer Unit:

Southern Inland

QTc

Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	142.69	240.28	97.59	
01/11/2012	142.63	240.28	97.65	
04/09/2012	142.60	240.28	97.68	
08/01/2012	142.82	240.28	97.46	

Watermaster Well No: 136 LS Pistol Range

Owner: County of Monterey

Well Type: Monitor

Aquifer Unit:

Southern Inland

Tsm

Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	283.93	514.39	230.46	
01/11/2012	283.29	514.39	231.10	

04/09/2012	283.36	514.39	231.03
08/01/2012	284.01	514.39	230.38

Watermaster Well No: 137 York Rd-West

Owner: County of Monterey

Well Type: Monitor

Aquifer Unit:
TsmSouthern Inland
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	313.67	490.28	176.61	
01/11/2012	314.98	490.28	175.30	
04/09/2012	314.22	490.28	176.06	
08/01/2012	314.69	490.28	175.59	

Watermaster Well No: 138 Seca Place

Owner: County of Monterey

Well Type: Monitor

Aquifer Unit:
TsmSouthern Inland
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	260.31	427.58	167.27	
04/09/2012	256.01	427.58	171.57	
08/01/2012	264.11	427.58	163.47	

Watermaster Well No: 139 Robley Shallow (North)

Owner: County of Monterey

Well Type: Monitor

Aquifer Unit:
QTcSouthern Inland
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
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10/10/2011	311.72	566.54	254.82
01/11/2012	314.82	566.54	251.72
04/09/2012	316.12	566.54	250.42
08/01/2012	316.78	566.54	249.76

Watermaster Well No: 140 Robley Deep (South)

Owner: County of Monterey

Well Type: Monitor

Aquifer Unit:
TsmSouthern Inland
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	386	566.44	180.44	
01/11/2012	385.13	566.44	181.31	
04/09/2012	382.98	566.44	183.46	
08/01/2012	390.89	566.44	175.55	

Watermaster Well No: 141 LS Driving Range

Owner: County of Monterey

Well Type: Monitor

Aquifer Unit:
QTcSouthern Inland
Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	338.6	488.34	149.74	
01/11/2012	337.82	488.34	150.52	
04/09/2012	336.92	488.34	151.42	
06/19/2012	337.32	488.34	151.02	
08/01/2012	338.04	488.34	150.30	

Watermaster Well No: 142 LS No. 1 Subdivision

Owner: Laguna Seca Resorts

Well Type: Monitor

Aquifer Unit:

Southern Inland

Tsm

Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	129.01	277.13	148.12	
01/11/2012	129.4	277.13	147.73	
04/09/2012	128.88	277.13	148.25	
08/01/2012	129.88	277.13	147.25	

Watermaster Well No: 143 Blue Larkspur-East End

Owner: Laguna Seca Resorts

Well Type: Monitor

Aquifer Unit:

Southern Inland

Tsm

Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	105.7	253.29	147.59	
01/11/2012	105.76	253.29	147.53	
04/09/2012	105.70	253.29	147.59	
08/01/2012	106.5	253.29	146.79	

Watermaster Well No: 242 Granite Construction

Owner: California American Water

Well Type: Monitor

Aquifer Unit:

Southern Inland

Tsm

Monitor

Responsible Party: MPWMD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
10/10/2011	134.44	226.43	91.99	
01/11/2012	134.51	226.43	91.92	

04/09/2012	134.48	226.43	91.95
08/01/2012	134.55	226.43	91.88

Watermaster Well No: 196 LSRA #2

Owner: Monterey County Parks Department

Well Type: Producer

Aquifer Unit:
QTcSouthern Inland
Producer

Responsible Party: MCPD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
11/05/2011	174	390.9	216.90	
12/05/2011	175	390.9	215.90	
01/05/2012	176	390.9	214.90	
02/07/2012	196	390.9	194.90	
03/06/2012	178	390.9	212.90	
04/06/2012	178	390.9	212.90	
05/05/2012	179	390.9	211.90	
06/06/2012	180	390.9	210.90	
07/09/2012	179	390.9	211.90	
08/07/2012	180	390.9	210.90	
09/05/2012	194	390.9	196.90	

Watermaster Well No: 197 LSRA #1

Owner: Monterey County Parks Department

Well Type: Producer

Aquifer Unit:
QTcSouthern Inland
Producer

Responsible Party: MCPD

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
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11/06/2011	188	392.72	204.72
12/07/2011	190	392.72	202.72
01/05/2012	190	392.72	202.72
02/06/2012	221	392.72	171.72
03/06/2012	192	392.72	200.72
04/07/2012	188	392.72	204.72
05/05/2012	189	392.72	203.72
06/06/2012	197	392.72	195.72
07/09/2012	197	392.72	195.72
08/07/2012	197	392.72	195.72
09/06/2012	209	392.72	183.72

Watermaster Well No: 209 Bishop #1 (west)

Owner: California American Water

Well Type: Producer

Aquifer Unit:
QTc/Tsm

Southern Inland
Producer

Responsible Party: CAW

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	306	398.81	92.81	Well Running
10/27/2011	298	398.81	100.81	
11/23/2011	299	398.81	99.81	
12/15/2011	255	398.81	143.81	
01/26/2012	250.9	398.81	147.91	
02/23/2012	246.2	398.81	152.61	

03/29/2012	249.8	398.81	149.01
04/26/2012	250.9	398.81	147.91
05/30/2012	256	398.81	142.81
06/28/2012	258.4	398.81	140.41
07/26/2012	259	398.81	139.81
08/30/2012	261	398.81	137.81
09/27/2012	262	398.81	136.81

Watermaster Well No: 212 York School 2001

Owner: York School

Well Type: Producer

Responsible Party: MPWMD

Aquifer Unit:
QTc/Tsm

Southern Inland
Producer

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	244.69	384.3	139.61	
11/09/2011	239.05	384.3	145.25	
12/01/2011	222.30	384.3	162.00	
01/05/2012	223.13	384.3	161.17	
02/01/2012	220.47	384.3	163.83	
02/29/2012	222.79	384.3	161.51	
04/06/2012	221.49	384.3	162.81	
05/01/2012	229.55	384.3	154.75	
05/30/2012	222.88	384.3	161.42	
06/27/2012	225.65	384.3	158.65	

07/31/2012	290.5	384.3	93.80
08/29/2012	280.65	384.3	103.65
10/03/2012	290.61	384.3	93.69

Watermaster Well No: 213 Ryan Ranch #7

Owner: California American Water

Well Type: Producer

Aquifer Unit:
Tsm

Southern Inland
Producer

Responsible Party: CAW

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	404	294	-110.00	Well Running
10/27/2011	260	294	34.00	
11/23/2011	216	294	78.00	
12/12/2011	255	294	39.00	
01/26/2012	332.4	294	-38.40	
02/23/2012	344.5	294	-50.50	
03/29/2012	224.2	294	69.80	
04/26/2012	215.2	294	78.80	
05/30/2012	170	294	124.00	
06/28/2012	210	294	84.00	
07/26/2012	164.8	294	129.20	
08/30/2012	215	294	79.00	
09/27/2012	265	294	29.00	

Watermaster Well No: 215 Ryan Ranch #11

Owner: California American Water

Well Type: Producer

Aquifer Unit:
TsmSouthern Inland
Producer

Responsible Party: CAW

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	401	307.59	-93.41	Well Running
10/27/2011	236	307.59	71.59	
11/23/2011	205	307.59	102.59	
12/12/2011		307.59		
04/26/2012	200.1	307.59	107.49	
05/30/2012	186	307.59	121.59	
06/28/2012	185.4	307.59	122.19	
07/26/2012	182	307.59	125.59	
08/30/2012	216	307.59	91.59	
09/27/2012	268	307.59	39.59	

Watermaster Well No: 216 Ryan Ranch #8

Owner: California American Water

Well Type: Producer

Aquifer Unit:
TsmSouthern Inland
Producer

Responsible Party: CAW

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	257	306.86	49.86	
10/27/2011	237	306.86	69.86	
11/23/2011	206	306.86	100.86	
12/15/2011	230	306.86	76.86	

01/26/2012	236.4	306.86	70.46
02/23/2012	229	306.86	77.86
03/29/2012	207.3	306.86	99.56
04/26/2012	202.1	306.86	104.76
05/30/2012	185	306.86	121.86
06/28/2012	183.9	306.86	122.96
07/26/2012	180.5	306.86	126.36
08/30/2012	214	306.86	92.86
09/27/2012	217	306.86	89.86

Watermaster Well No: 226 Bay Ridge

Owner: California American Water

Well Type: Producer

Aquifer Unit:
QTc/TsmSouthern Inland
Producer

Responsible Party: CAW

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
09/29/2011	326	545.92	219.92	
10/27/2011	325	545.92	220.92	
11/23/2011	326	545.92	219.92	
12/15/2011	326	545.92	219.92	
01/26/2012	328.6	545.92	217.32	
02/23/2012	330	545.92	215.92	
03/29/2012		545.92		blocked
04/26/2012		545.92		blocked

05/30/2012	374	545.92	171.92	
06/28/2012		545.92		blocked
07/26/2012		545.92		blocked
08/30/2012		545.92		blocked
09/27/2012	340	545.92	205.92	

Watermaster Well No: 262 Bishop #3

Owner: CAW

Well Type: Producer

Aquifer Unit:

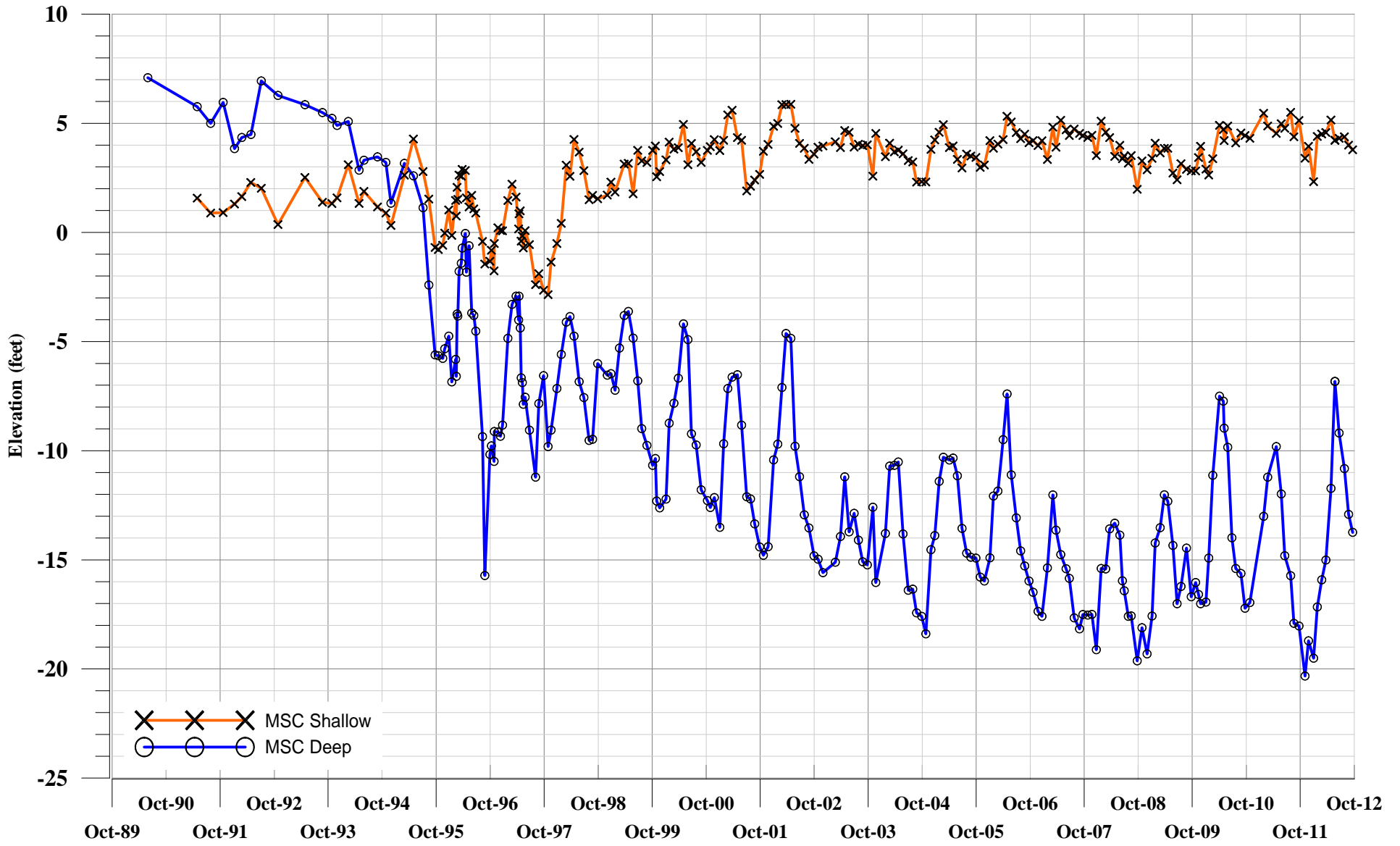
Southern Inland
Producer

Responsible Party:

Date Measured	Depth To Water	Ref Point	Water Elevation	Comments
01/26/2012	384.3	420.58	36.28	
02/23/2012	254.8	420.58	165.78	
03/19/2012	250.5	420.58	170.08	
04/16/2012	250	420.58	170.58	
05/30/2012	352.2	420.58	68.38	
06/28/2012	354.8	420.58	65.78	
07/26/2012	362	420.58	58.58	
08/30/2012	359	420.58	61.58	
09/27/2012	358	420.58	62.58	

Appendix 3

Selected Hydrographs



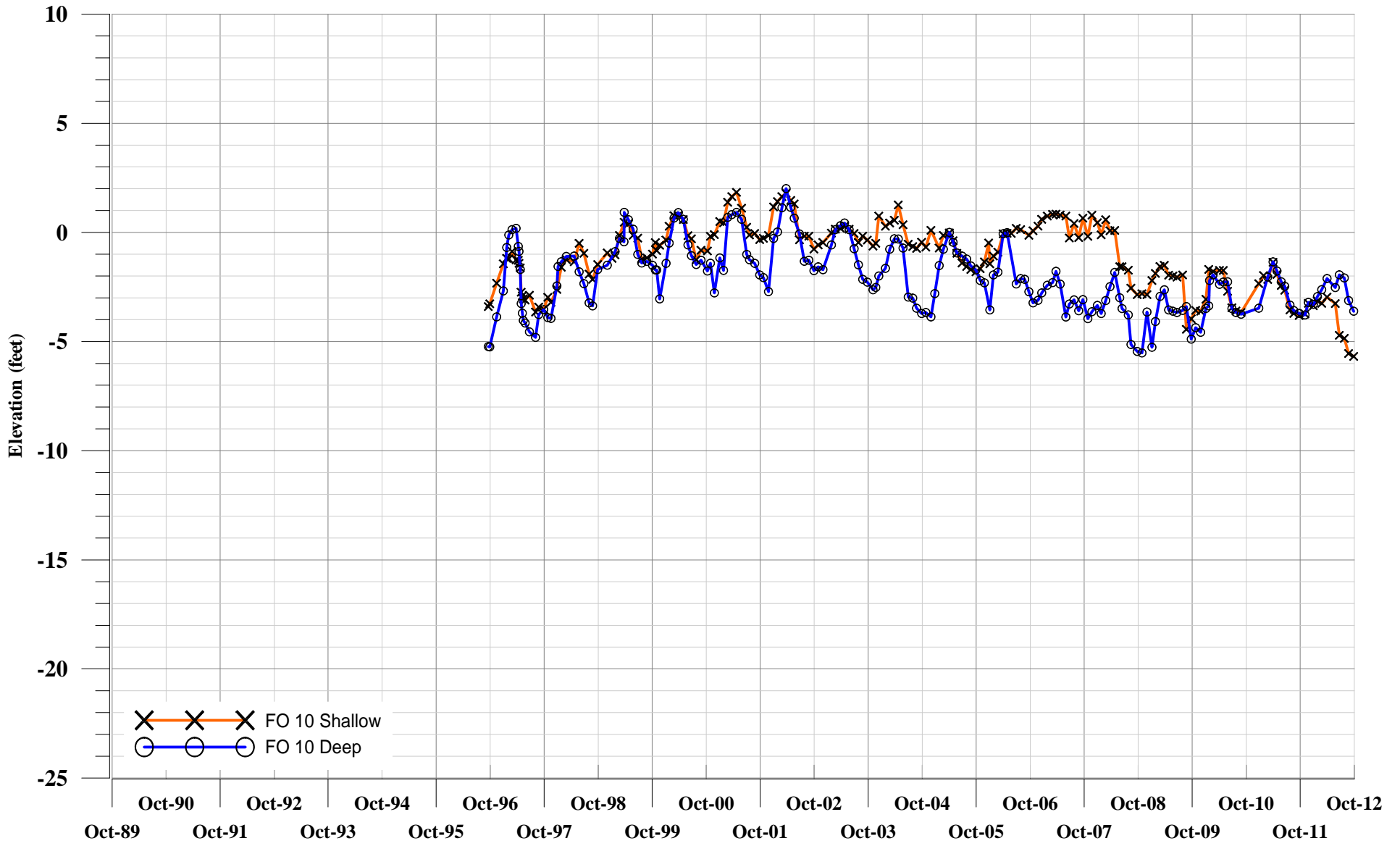
**Monterey Peninsula
Water Management District**

MSC-Shallow (15S/1E-15N3)

Screened from 490-680 in the Paso Robles Formation (QTp)
Wellhead Elevation 80.1 MSL
DWR Driller Log No. 338413

MSC-Deep (15S/1E-15N2)

Screened from 810-850 in the Santa Margarita Formation (Tsm)
Wellhead Elevation 80.29 MSL
DWR Driller Log No. 338425
Datasource: MPWMD



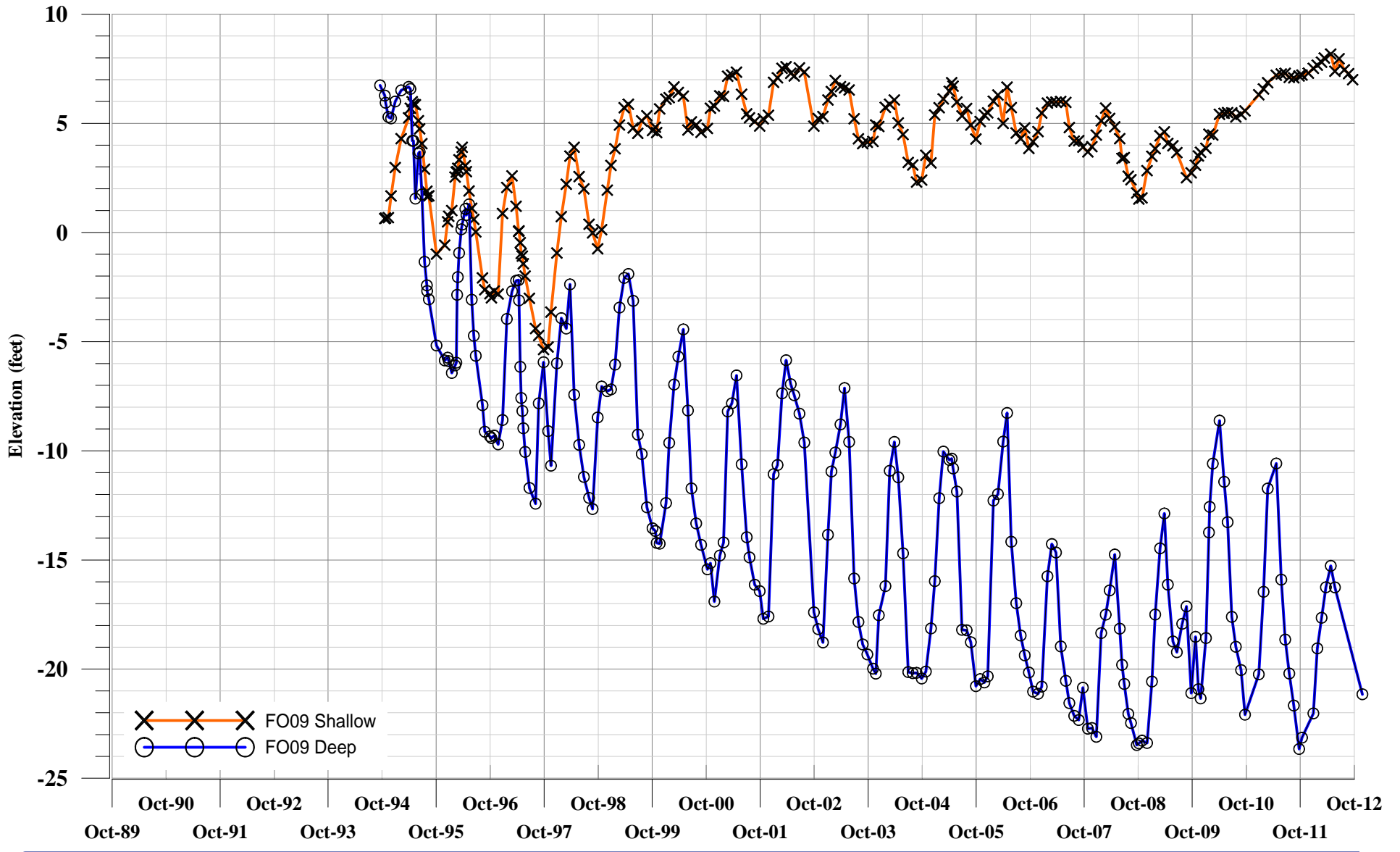
**Monterey Peninsula
Water Management District**

FO-10 (Shallow) (15S/1E-11Fa)

Screened from 480-500 in the Paso Robles (QTp)
Wellhead Elevation 200.85 MSL
DWR Driller Log No. N/A
Datatype: MPWMD

FO-10 (Deep) (15S/1E-15Fc)

Screened from 790-830 in the Santa Margarita Formation (Tsm)
Wellhead Elevation 201.03 MSL
DWR Driller Log No. N/A
Datatype: MPWMD



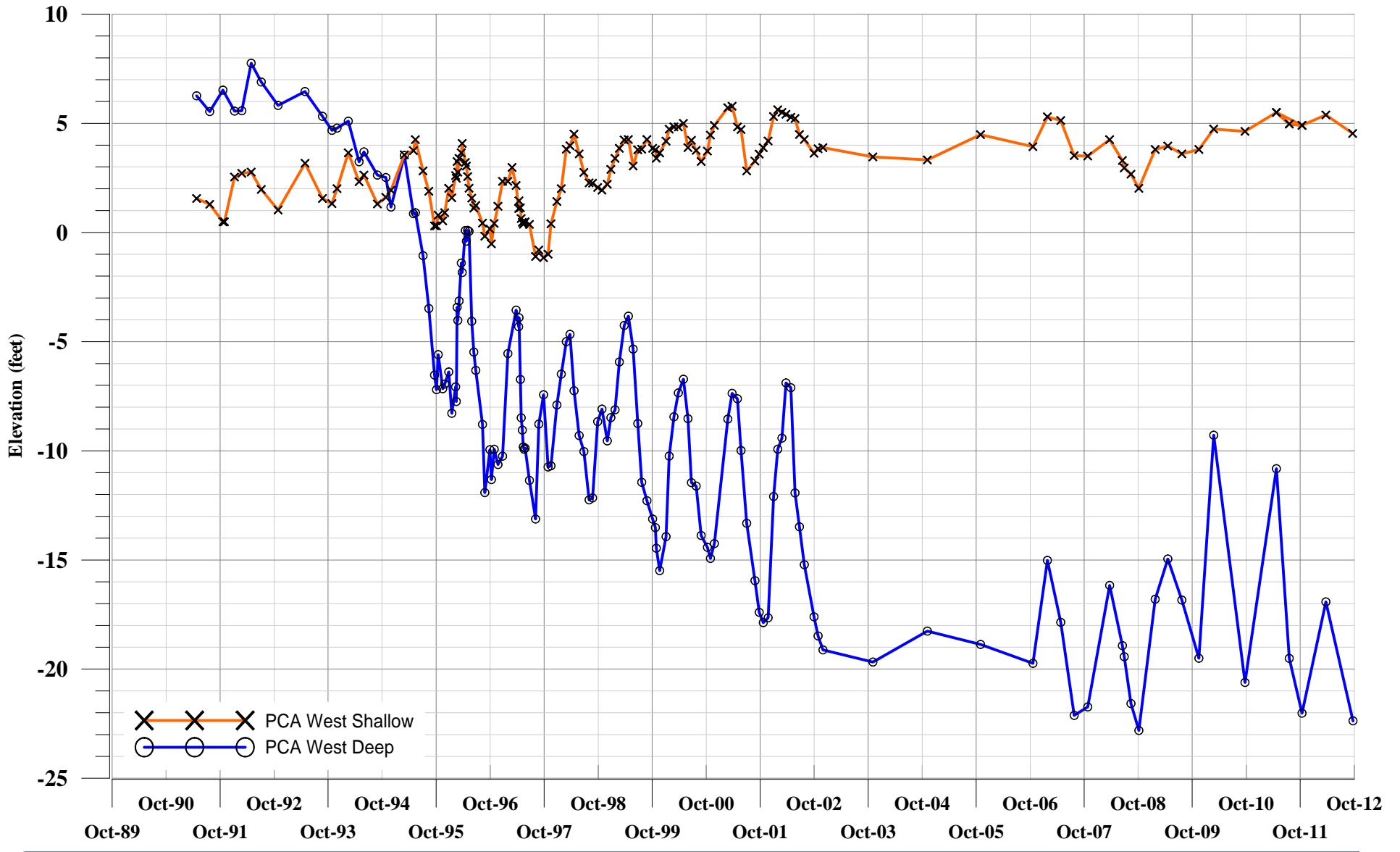
**Monterey Peninsula
Water Management District**

FO-09 (shallow) (15S/1E-11Pa)

Screened from 610-650 in the Paso Robles (QTp)
Wellhead Elevation 118.89 MSL
DWR Driller Log No. N/A
Datasource: MPWMD

FO-09 (Deep) (15S/1E-15Pb)

Screened from 790-830 in the Santa Margarita Formation (Tsm)
Wellhead Elevation 188.85 MSL
DWR Driller Log No. N/A
Datasource: MPWMD



**Monterey Peninsula
Water Management District**

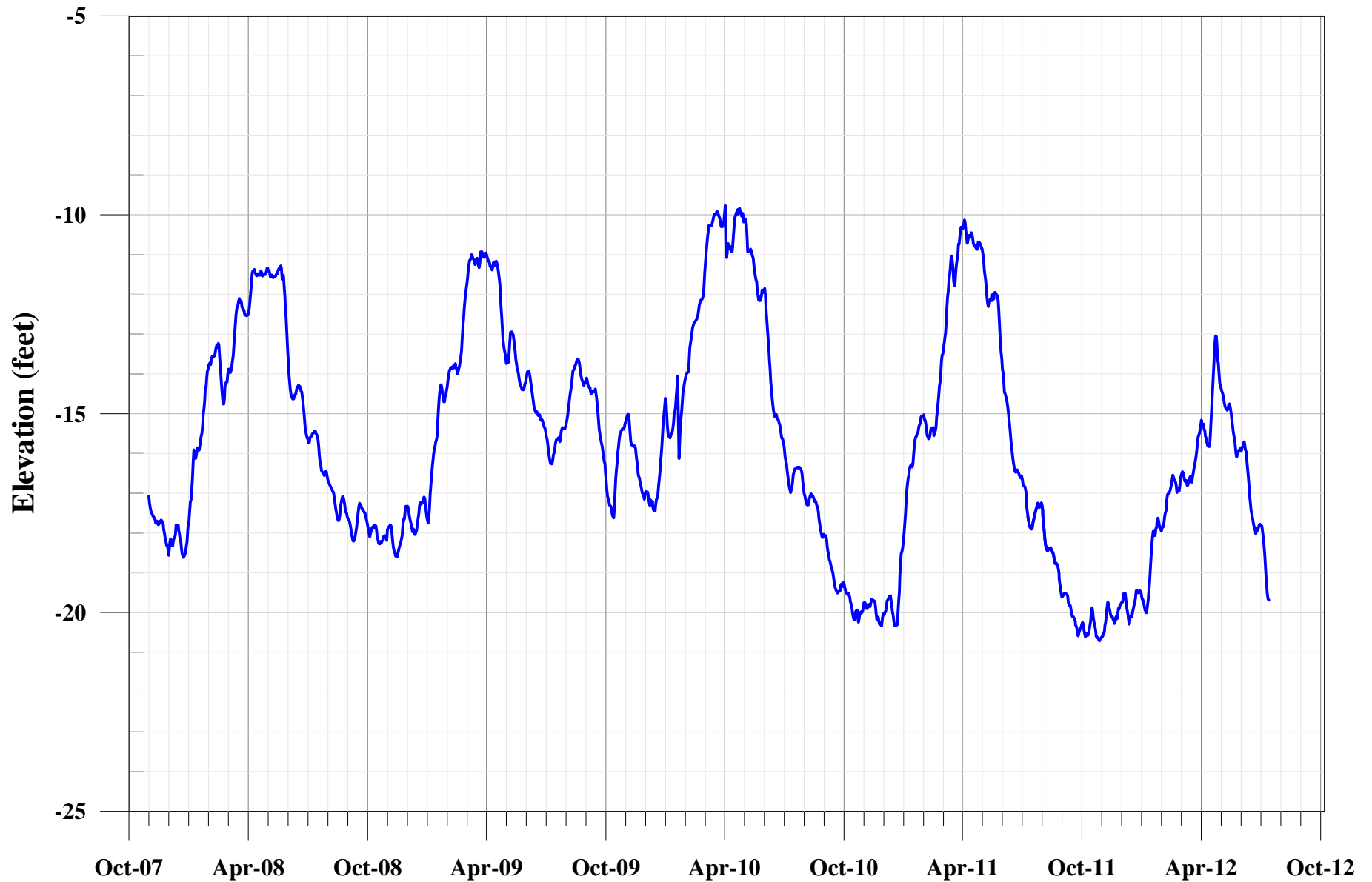
PCA West (Deep) (15S/1E-15F2)
 Screened from 825-875 in the Santa Margarita Sandstone (Tsm)
 Wellhead Elevation 65.18 MSL
 DWR Driller Log No. 338401
 Datasource: MPWMD

PCA West (Shallow) (15S/1E-15F1)
 Screened from 525-575 in the Paso Robles Formation (QTp)
 Wellhead Elevation 64.22 MSL
 DWR Driller Log No. 338400
 Datasource: MPWMD

Appendix 4

Watermaster Sentinel Well Hydrographs

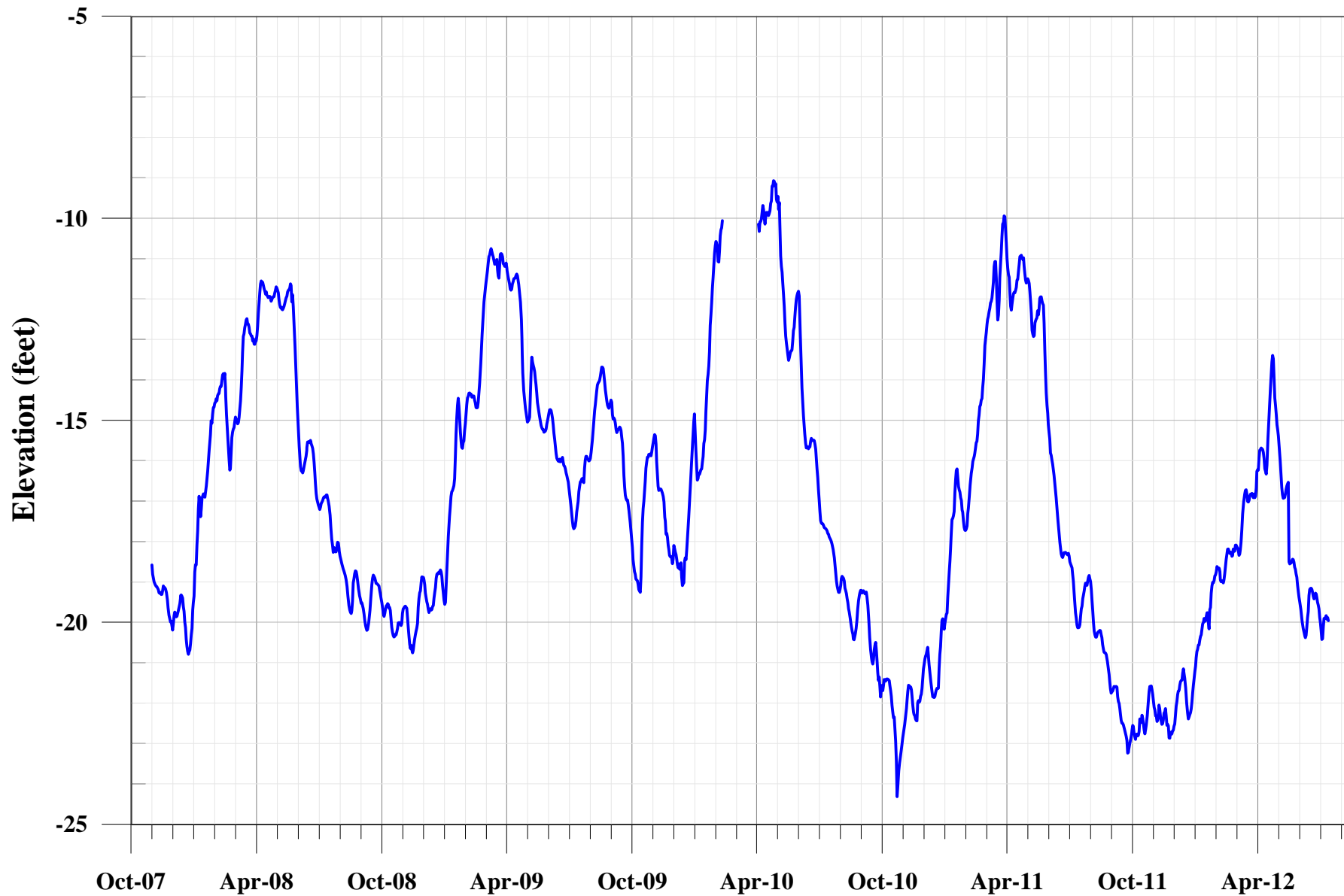
Water Year 2012



**Monterey Peninsula
Water Management District**

Sentenial Well No. 1 Hydrograph

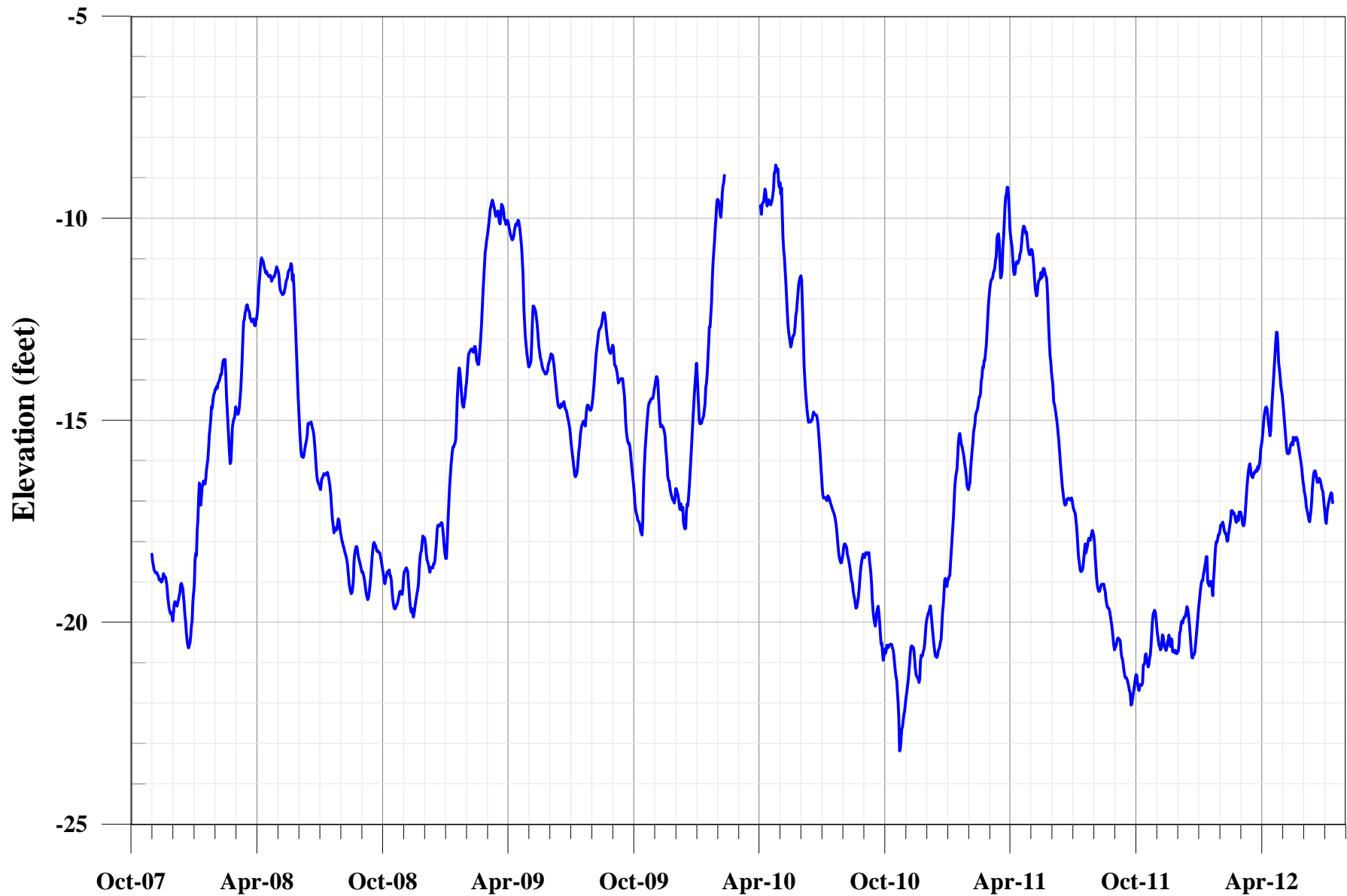
Continuous water level on reported by tidal days



**Monterey Peninsula
Water Management District**

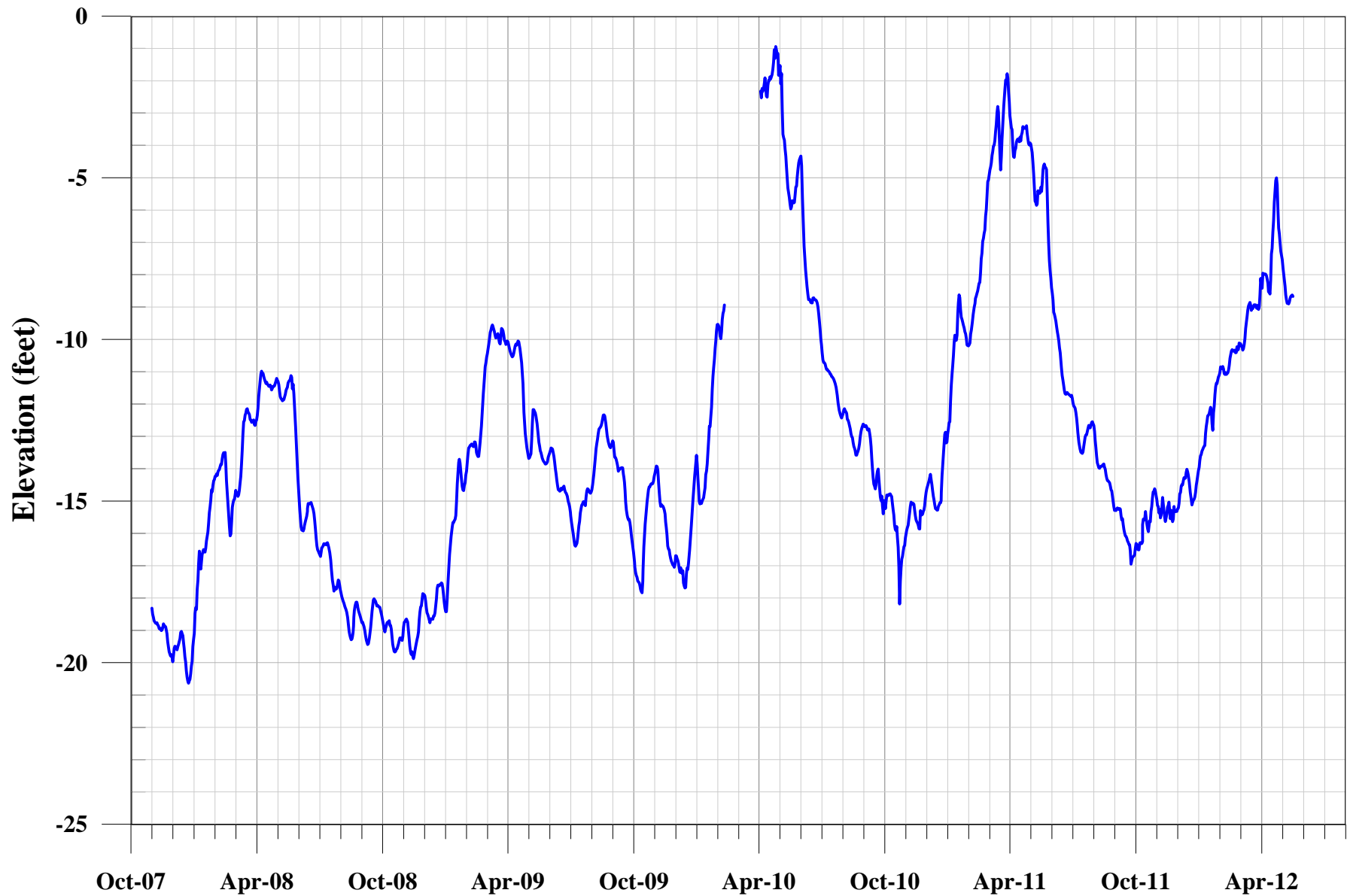
Sentenial Well No. 2 Hydrograph

Continuous water level on reported by tidal days



**Monterey Peninsula
Water Management District**

Sentinel Well No. 3 Hydrograph
Continuous water level record reported by tidal days



**Monterey Peninsula
Water Management District**

Sentinel Well No. 4 Hydrograph

Continuous water level record reported by tidal days

ATTACHMENT 8

**EXECUTIVE SUMMARY
FROM THE
WY 2012 SEAWATER INTRUSION ANALYSIS REPORT**

Executive Summary

This annual report addresses the potential for, and extent of, seawater intrusion in the Seaside Groundwater Basin. Continued pumping in excess of recharge and fresh water inflows, pumping depressions near the coast, and ongoing seawater intrusion in the nearby Salinas Valley all suggest that seawater intrusion could occur in the Seaside Groundwater Basin. No seawater intrusion is currently observed in existing monitoring and production wells, as demonstrated by the different tools and analyses that are used to investigate for evidence of seawater intrusion. However, there are two monitoring wells (PCA-West Deep and sentinel well SBWM-4) that need to be watched carefully over the next water year as explained in the third bullet below.

- Piper diagrams for groundwater samples collected from depth-discreet monitoring wells during Water Year 2012 show no changes in water chemistry towards seawater.
- No groundwater samples analyzed with Stiff diagrams are indicative of incipient seawater intrusion.
- Wells with increasing chloride concentrations over the past year are: PCA-West Deep, sentinel well SBWM-4 shallow, and SBWM-4 deep. The September 2012 chloride concentration in the PCA-West Deep well is only 4 mg/L below the chloride threshold value of 186 mg/L established in the Seawater Intrusion Response Plan (SIRP) for this well (HydroMetrics WRI, 2009c). The sentinel wells do not have chloride threshold values, however, the deep sample from well SBWM-4 is above the secondary MCL of 250 mg/L. The increasing trend seen in the shallow and deep samples from well SBWM-4 start at the same time as the PCA-West Deep well's increasing trend. Well SBWM-4 should be sampled quarterly at the same time as the PCA-West Deep well so that results can be correlated. No other increases from the current monitoring frequency are warranted. Quarterly data from PCA-West Deep and SBWM-4 need to be evaluated each quarter after results are received from the laboratory.
- The PCA-West Deep well and sentinel well SBWM-4 are the only wells with decreasing sodium/chloride ratios. If these trends continue and drop below 0.86, it could indicate seawater intrusion.
- Maps of chloride concentrations for the shallow aquifer do not show chlorides increasing towards the coast. The deep aquifer maps show that higher chloride concentrations are limited to coastal monitoring wells PCA-West Deep and sentinel well SBWM-4.
- Although production wells have a different water quality than the monitoring wells, this is probably as a result of them being screened across both shallow and deep zones. The production well water qualities are not indicative of seawater intrusion.
- Induction logging data at the coastal Sentinel wells do not indicate changes indicative of seawater intrusion.

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

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

1. Analyze Data from PCA-West Deep Quarterly

Increasing chloride concentrations, decreasing sodium/chloride molar ratio, and chloride concentrations approaching the chloride threshold justify increasing how often data from well PCA-West Deep is evaluated. In the past, access issues due windblown sands from the nearby dunes have prevented sampling in the first quarter of the water year.

However, every effort must be made to collect a sample in the first quarter of WY 2013 to confirm the observed trends. Additionally, due to a change in sampling method from airlifting to micropurging in 2009, it would be prudent to collect samples using both methods to verify whether the change in water quality is an artifact of the sampling method. After each quarterly sampling event at this well, the data must be analyzed and documented.

2. Initiate Quarterly Water Quality Sampling and Analysis for Sentinel Well SBWM-4

Because nearby monitoring well PCA-West Deep has an increasing chloride trend with decreasing sodium/chloride molar ratio which matches the trends observed in SBWM-4, sampling at SBWM-4 needs to increase its sampling frequency from semi-annual to quarterly so that a direct comparison can be made with the quarterly samples collected at PCA-West Deep.

3. Evaluate Water Quality at Sand City Public Works Corp Yard Well

Due to the evolving water type being observed in the Piper diagram, the source of the irregular water quality at this well needs to be evaluated. The Piper and Stiff diagrams, and sodium/chloride molar ratio suggest that the source of high chloride is not seawater, however, this needs to be confirmed with further investigation into historical water quality of the area around the well.

4. Watermaster to Request Complete Sample Analysis for Production Wells

When Watermaster makes its annual request to producers for water quality data, the request will state that full results from one sample are to be reported. This ensures that the anions and cations balance and that anion/cation analyses can be carried out for this report.

5. Continue to Analyze and Report on Water Quality Annually

Seawater intrusion is a threat, and data must be analyzed regularly to identify incipient intrusion. Maps, graphs, and analyses similar to what are found in this report should continue to be developed every year.

6. Refine Preliminary Protective Groundwater Elevations

Once the water supply parameters of the Coastal Water Project are better defined, we recommend that the preliminary protective groundwater elevations be refined using final calibrated aquifer properties from the Seaside Basin groundwater flow model. It is expected that the protective elevations will decrease by a few feet, which will make them more practical to meet.

ATTACHMENT 9

**SEASIDE GROUNDWATER BASIN
MANAGEMENT AND MONITORING PROGRAM
ANTICIPATED 2013 WORK PLAN**

Seaside Groundwater Basin Management and Monitoring Program FY 2013 Work Plan

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

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

M.1 Program Administration

M. 1. a Project Budget and Controls (\$0)	Consultants will provide monthly or bimonthly invoices to the Watermaster for work performed under their contracts with the Watermaster. Consultants will perform maintenance of their internal budgets and schedules, and management of their subconsultants. The Watermaster will perform management of its Consultants.
M. 1. b Assist with Board and TAC Agendas (\$0)	Watermaster staff will prepare Board and TAC meeting agenda materials. No assistance from Consultants is expected to be necessary to accomplish this Task.
M. 1. c. & M. 1. d Preparation for and Attendance at Meetings (\$5,500)	<p>The Consultants' work will require internal meetings and possibly meetings with outside governmental agencies and the public. For meetings with outside agencies, other Consultants, or any other parties which are necessary for the conduct of the work of their contracts, the Consultants will set up the meetings and prepare agendas and meeting minutes to facilitate the meetings. These may include planning and review meetings with Watermaster staff. The costs for these meetings will be included in their contracts, under the specific Tasks and/or subtasks to which the meetings relate. The only meeting costs that will be incurred under Tasks M.1.c and M.1.d will be:</p> <ul style="list-style-type: none"> • Those associated with attendance at TAC meetings (either in person or by teleconference connection), including providing written monthly progress reports to the Watermaster for inclusion in the agenda packets for the TAC meetings, when requested by the Watermaster to do so. These progress reports will typically include project progress that has been made, problem identification and resolution, and planned upcoming work. and • From time-to-time when Watermaster staff asks Consultants to make special presentations to the Watermaster Board and/or the TAC, and which are not included in the Consultant's contracts for other tasks. <p>Appropriate Consultant representatives will attend TAC meetings when requested to do so by Watermaster Staff (either in person or by teleconference connection), but will not be asked to prepare agendas or meeting minutes. As necessary, Consultants may provide oral updates to their progress reports (prepared under Task M.1.d) at the TAC meetings.</p>
M. 1. e Peer Review of Documents and Reports (\$3,100)	When requested by the Watermaster staff, Consultants may be asked to assist the TAC and the Watermaster staff with peer reviews of documents and reports prepared by various other Watermaster Consultants and/or entities.
M. 1. f QA/QC (\$0)	A Consultant (MPWMD) will provide general QA/QC support over the Seaside Basin Monitoring and Management Program.

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

I. 2. a. Database Management

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

I. 2. b. Data Collection Program

- | | |
|---|---|
| I. 2. b. 1
Site Representation and Selection. (\$0) | The monitoring well network review that was started in 2008 has been completed, and sites have been identified where future monitoring well(s) could be installed, if it is deemed necessary to do so in order to fill in data gaps. No further work of this type is anticipated in 2013. |
| I. 2. b. 2
Collect Monthly Manual Water Levels. (\$7,076) | Each of the monitoring wells will be visited on a monthly basis. Water levels will be determined by either taking manual water levels using an electric sounder, or by dataloggers. Pursuant to the Management and Monitoring Program approved by the Court in 2006, in 2013 wells at 2 additional sites in the Laguna Seca Subarea will be equipped with dataloggers taking measurements in two aquifers at each site. The cost included in this Task for equipping these additional wells is \$2,400. Also included in the cost for this Task is the purchase of one replacement datalogger @ \$500. |
| I. 2. b. 3
Collect Quarterly Water Quality Samples.
(\$48,738) | Water quality data will be collected quarterly from certain of the monitoring wells. In 2012 water quality analyses were expanded to include barium and iodide ions, to determine the potential benefit of performing these additional analyses. These two parameters have been useful in analyzing seawater intrusion potential in other vulnerable coastal groundwater basins, and are briefly mentioned in the Watermaster's annual Seawater Intrusion Analysis Reports. These parameters were added to the annual water quality sampling list for the four Watermaster Sentinel wells (SBWM-1, SBWM-2, SBWM-3, and SBWM-4), and also for the 3 most coastal MPWMD monitoring wells (MSC, PCA, and FO-09). Barium and iodide analyses will continue being performed in 2013. |

Water quality data may come from water quality samples that are taken from these wells and submitted to a State Certified analytic laboratory for general mineral and physical suite of analyses, or the data may come from induction logging of these wells and/or other data gathering techniques. The Consultant selected to perform this work will make this judgment based on consideration of costs and other factors.

Under this Task in 2013 retrofitting will be completed on the wells that are sampled on an annual basis to use the new low-flow purge approach for getting water quality samples. The wells that are sampled quarterly have previously been retrofitted, and all except two of the wells that are sampled annually have been retrofitted. These two wells are FO-9 (Shallow) and FO-9 (Deep). The cost included in this Task to retrofit these two wells in 2013 is \$1,500.

	This sampling equipment sits in the water column and may periodically need to be replaced or repaired. \$500 is included in the cost of this Task for performing ongoing maintenance and/or replacement of the sample collection equipment.
I. 2. b. 4 Update Program Schedule and Standard Operating Procedures. (\$0)	All recommendations from prior reviews of the data collection program have been implemented. No additional work of this type is anticipated in 2013.
I. 2. b. 5. Monitor Well Construction (\$0)	An additional monitoring well was installed in 2009. No further work of this type is anticipated in 2013.
I. 2. b.6 Reports (\$5,448)	The groundwater level and quality monitoring will be conducted on a monthly, quarterly, and annual basis, as described in the Consultant's Scope of Work. Reports summarizing data collected and analyzed will be submitted to the Watermaster on a schedule to be established during the year, and will consist of: <ul style="list-style-type: none"> • One combined report summarizing the water production data and summarizing and analyzing the water quality and water level data from the 1st & 2nd Quarters of the Water Year. • One annual report summarizing the water production data and summarizing and analyzing the water quality and water level data from the 3rd & 4th Quarters of the Water Year, and containing tables consolidating the data from the quarterly reports and a narrative summarization of the findings, conclusions, and recommendations from the quarterly reports. This annual report may include, as attachments, each of the quarterly reports.
<i>I. 3 Basin Management</i>	
I. 3. a. Enhanced Seaside Basin Groundwater Model (Costs listed in subtasks below)	The Watermaster and its consultants use a Groundwater Model for basin management purposes.
I.3.a.1 Update the Existing Model (\$0)	The existing Model, described in the report titled "Groundwater Flow and Transport Model" dated October 1, 2007, was updated in 2009 in order to develop protective water levels, and to evaluate replenishment scenarios and develop answers to Basin management questions (Tasks I.3.a.2 and I.3.a.3). No further work of this type is anticipated in 2013.
I. 3. a. 2 Develop Protective Water Levels (\$25,000)	A series of cross-sectional models was created in 2009 in order to develop protective water levels for selected production wells, as well as for the Basin as a whole. This work is discussed in Hydrometrics' "Seaside Groundwater Basin Protective Water Elevations Technical Memorandum." In subsequent years further work was scheduled and budgeted to be done to refine these protective water levels to find the most cost-effective approach to provide the desired degree of protection. However, not all of the information needed to perform the refinements was available in those years, so this Task has been rescheduled to occur in 2013.

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

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

ATTACHMENT 10

AQUIFER CROSS-CONTAMINATION INVESTIGATION



**MONTEREY PENINSULA
WATER MANAGEMENT DISTRICT**

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**SEASIDE BASIN WATERMASTER
MEMORANDUM 2012-02**

Date: August 8, 2012
To: Seaside Basin Watermaster
From: Jonathan Lear, PG, CHg, Senior Hydrogeologist
Subject: Summary of Seaside Groundwater Basin Cross-Aquifer Contamination Wells Investigation Process and Conclusions

Purpose and Scope

The Monterey Peninsula Water Management District (MPWMD) was retained to evaluate Seaside Groundwater Basin wells for contamination potential between two primary aquifers: the confined Santa Margarita aquifer and unconfined Paso Robles aquifer. MPWMD's evaluation was also to include evaluation of data to assess the potential for contamination due to inadequate well seals. This analysis compiled well log data from multiple sources into a single database, thus facilitating the ability to identify wells that may pose contamination risks based on screened intervals, age, construction material, and current status (e.g., abandoned).

The Seaside Groundwater Basin is subdivided into four distinct subareas: Northern Coastal, Southern Coastal, Northern Inland, and Laguna Seca (Southern Inland). Although the scope of work pertained only to analysis of wells within the Coastal subareas, efficiency in the data work flow allowed inclusion of Inland subareas at no additional cost to the Seaside Watermaster. This technical memorandum summarizes the procedures employed in the analysis; well statistics including the number and type of wells in the Seaside Basin; assessment of wells regarding potential for surface and/or cross-aquifer contamination; and recommendations regarding potential additional evaluation of specified wells to further enhance this assessment.

Potential Sources of Contamination

The primary sources of cross-contamination between the primary aquifers within the Seaside Groundwater basin include: (1) cross-screened wells (i.e., wells screened in both the Paso Robles and Santa Margarita/Purissima aquifers), (2) poorly-constructed wells (i.e., inadequate seals between aquifers), (3) cracked casing due to age and/or deterioration of construction materials, and (4) abandoned or improperly destroyed wells.

General Stratigraphy and Hydrostratigraphy

The Seaside Groundwater Basin consists of a sedimentary sequence of water-bearing materials that overlie a base of relatively impermeable Miocene age and older crystalline rocks of the Monterey Formation. Even though the Monterey Formation is capable of yielding poor-quality water to wells in many locations, the shales of the Monterey Formation are considered non water-bearing for the purposes of this analysis.

Conformably overlying the Monterey Formation is the Santa Margarita Sandstone, which is commonly referred to as the Santa Margarita aquifer or deep aquifer. This aquifer consists primarily of marine-derived sedimentary sandstone.

The Purissima Formation interfingers with the Santa Margarita Sandstone in the northern portion of the Basin. The location of the transition is poorly understood due to a paucity of wells in the northern part of the project area where this transition may occur. The Purissima Formation is similar to the Santa Margarita Sandstone in that it is a marine deposit consisting of poorly indurated gravels, sands, silts, and silty clay.

The geologic unit unconformably overlying the Purissima Formation and Santa Margarita Sandstone is a Tertiary and Quaternary continental deposit referred to as the Paso Robles or shallow aquifer. This unit consists of a mixture of continentally-derived gravel, sand, silt, and clay sedimentary deposits. The Paso Robles Aquifer is unconfined and overlain by surficial Aromas Sand, which is only saturated along the coastline.

Analysis Performed

Comprehensive Microsoft Access and ArcGIS databases were constructed using data from the following 4 sources: (1) Seaside Watermaster database (SBWM), (2) MPWMD well database, (3) Department of Water Resources (DWR) database, and (4) Fort Ord environmental cleanup database.

The current Seaside Watermaster database (SBWM) well log files were compared with logs available from the other three sources in order to identify records in common and those that should be added into the Watermaster database.

A new database was constructed and populated with available lithology, DWR well number, TIFF (digital record) number, and well construction details including age of well, well type, drilling method, casing materials, estimated capacity, water level, and location data for wells located in each subarea of the basin. Numerous log files contained only a subset of these data.

Locations were determined using a combination of the following sources in order of accuracy: aerial photos (orthorectified) where well locations had been previously field-verified, geographic coordinates, location sketches, log descriptions, APN parcel numbers, TRS (Township – Range – Section) subsections, and TRS sections.

A digital elevation model of the basin was constructed containing well locations, well type, lithology, total depth, and screened intervals based on the compilation from the four available data sources. Seaside Basin groundwater model files were acquired, and model layers containing matrix physical properties and structural geology were incorporated into the digital elevation model.

Cross contamination potential was evaluated based on the digital elevation model and hydrostratigraphy used in the groundwater model.

Wells identified as having a cross-contamination risk were field verified as to their current condition.

Results: Well locations, status, ages, and casing materials

In total, 91 additional well records (an increase of 47%) were identified as part of this investigation and merged with 132 wells from the Seaside Watermaster database and 56 from the MPWMD database, resulting in a total of 279 identified wells records (Table 1). The vast majority of the newly identified wells records (92%) site the potential wells within the Northern and Southern Coastal subareas of the Seaside Basin.

Well locations were sited on maps using a combination of orthorectified aerial photos, coordinates, location sketches, log descriptions, APN parcel numbers, TRS subsections, and TRS sections (Table 2). Uncertainty in location increases from $\pm 3'$ for orthorectified and field-verified wells to $\pm 3,000'$ for those having only TRS descriptions noting their locations. Roughly 62% of the identified wells are located to a degree of $\pm 50'$, 28% are located to a degree of $\pm 100'$, and the remaining 10% are located to a degree of $\pm 600 - 3,000'$.

The current status of identified well records within the basin was categorized as destroyed, abandoned, active, inactive, or unknown (Table 3) across a suite of well use types (industrial, irrigation, domestic, etc.). The status of over 52% of the identified well records within the basin are unknown. Roughly 18% of the well records are categorized as active, 10 % are inactive, 15 % are destroyed, and 5% are abandoned. Well status by subarea is shown in Table 4 panels A-E.

Reported well ages (binned by decade) and casing construction materials (PVC, steel, none, and unknown) are shown in Table 5 and Figure 1. The reported ages of 33% of the wells are unknown. The reported casing material of roughly 56% of the wells are unknown, but wells completed prior to 1970 are likely to be cased with steel and are highlighted in Table 5. Steel casings (susceptible to deterioration over time) line 19% of the wells whereas PVC casings line the remaining 25%. Two wells were not cased. Table 6 displays casing construction materials as a function of data source and basin subarea. Table 7 includes the status of the identified wells by subarea. Figure 2 shows locations of all identified well records during this effort.

There are 176 identified wells in the coastal subareas of the basin. Lithological analysis suggests that roughly 60% (104 wells) are screened in multiple aquifers (Table 8 and Figure 3). Of these cross-screened wells, 66 are screened in two aquifers and 38 are screened in three aquifers. Twenty six of these cross-screened wells are over 40 years old and have steel casing materials which are susceptible to deterioration (Figure 4).

Out of the cross-screened wells and wells identified that may be susceptible to deterioration, 59 wells were scheduled for field investigation (Figure 5). Over August 2011, District staff performed site investigations into the status of these wells. Out of the 59 wells identified for field inspection, 18 are cross-screened over multiple aquifers or penetrate through one aquifer and are screened in a deeper aquifer (Figure 6), 33 were destroyed, and 8 were not locatable.

Tables 8, 9, and 10 were compiled as a product of this investigation and are included in the memo to provide the comprehensive work product.

Conclusions

The work performed in this study examined well records and performed field verification to determine if any obvious problems existed in terms of well location, construction, maintenance, or abandonment which would pose a potential cross-aquifer contamination risk if sea water intrusion were to reach the locations of these wells. For 261 wells, no problems related to maintenance or abandonment were evident from this work. However, 18 wells were identified to exist in the coastal zone and to be either completed in two aquifer zones or to have been drilled through the upper aquifer and completed in the deeper aquifer. These wells are potential conduits for seawater intrusion, as wells screened in two aquifers potentially provide a direct connection and wells completed in the deeper zone could contribute to cross-aquifer contamination through improperly constructed or failed seals. The 18 identified wells are currently being used as production, backup production, or monitoring wells and therefore should not immediately be destroyed. If seawater intrusion were to be detected in the locality of one or more of these wells at some future date, it will be necessary to perform focused evaluation to inspect the integrity of well materials and determine the effects of well completions on the movement of seawater between aquifers at specific wells on a case by case basis. Seawater intrusion has not been detected or reported in the locality of any of these wells. Therefore, no further investigative work is warranted at this time.

Recommendations

- During the course of this investigation, several follow up tasks were identified if deemed appropriate, these include;
 1. Verify that seals are correctly installed and structurally sound in multi-completed wells and deep wells.
 2. Video log older deep wells for structural integrity.
 3. Refine model stratigraphy and interface location between the Santa Margarita Sandstone and Purisima Formation.
 4. Add newly located wells to the Seaside Watermaster Database.

It is recommended that items 1 through 3 be tabled at this time as field investigations into well status did not yield potential to obtain and process these types of data. District staff recommends destroyed well records, including lithology, be migrated from the database associated with this

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investigation to the Watermaster Master Database so that an inclusive set of well records exist in one location.

Figure 1

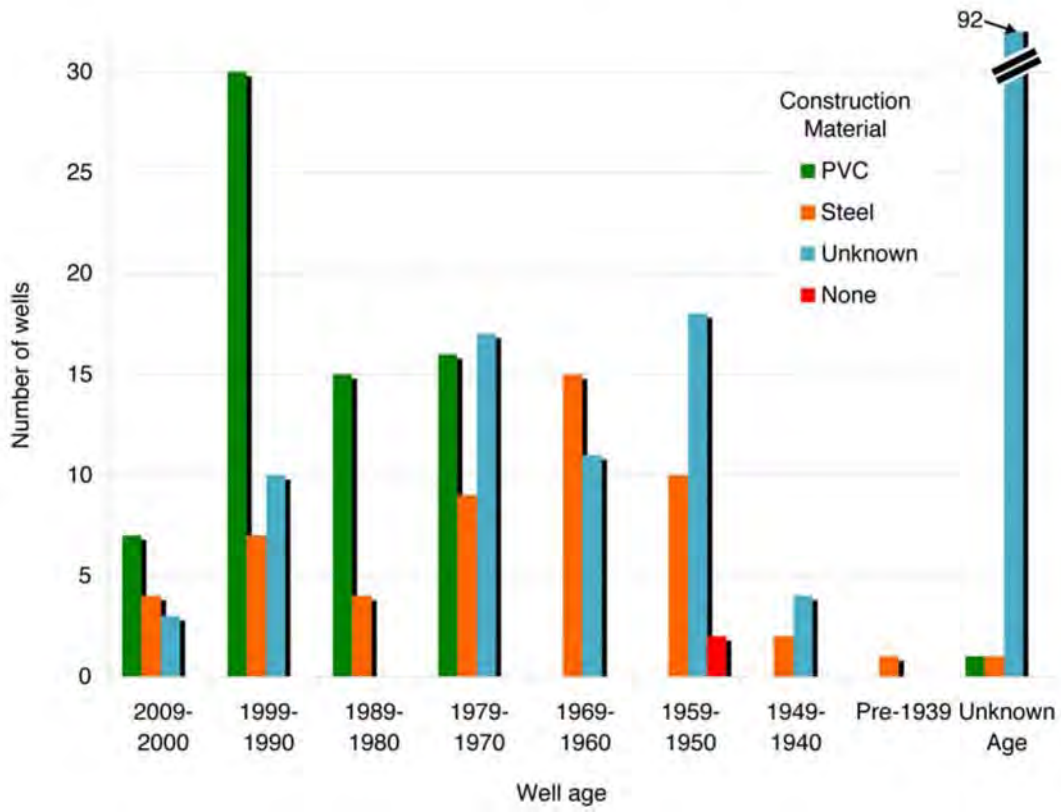
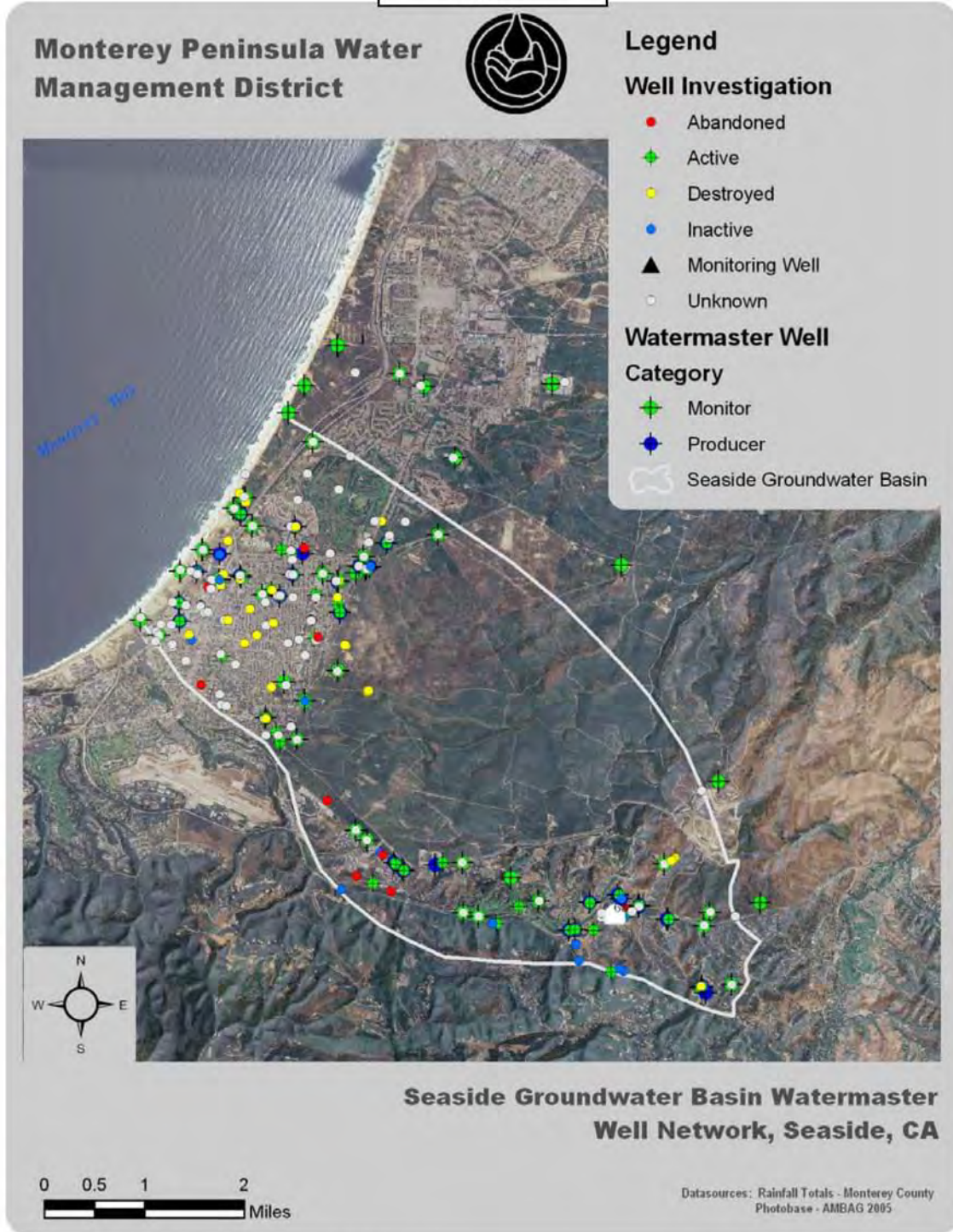


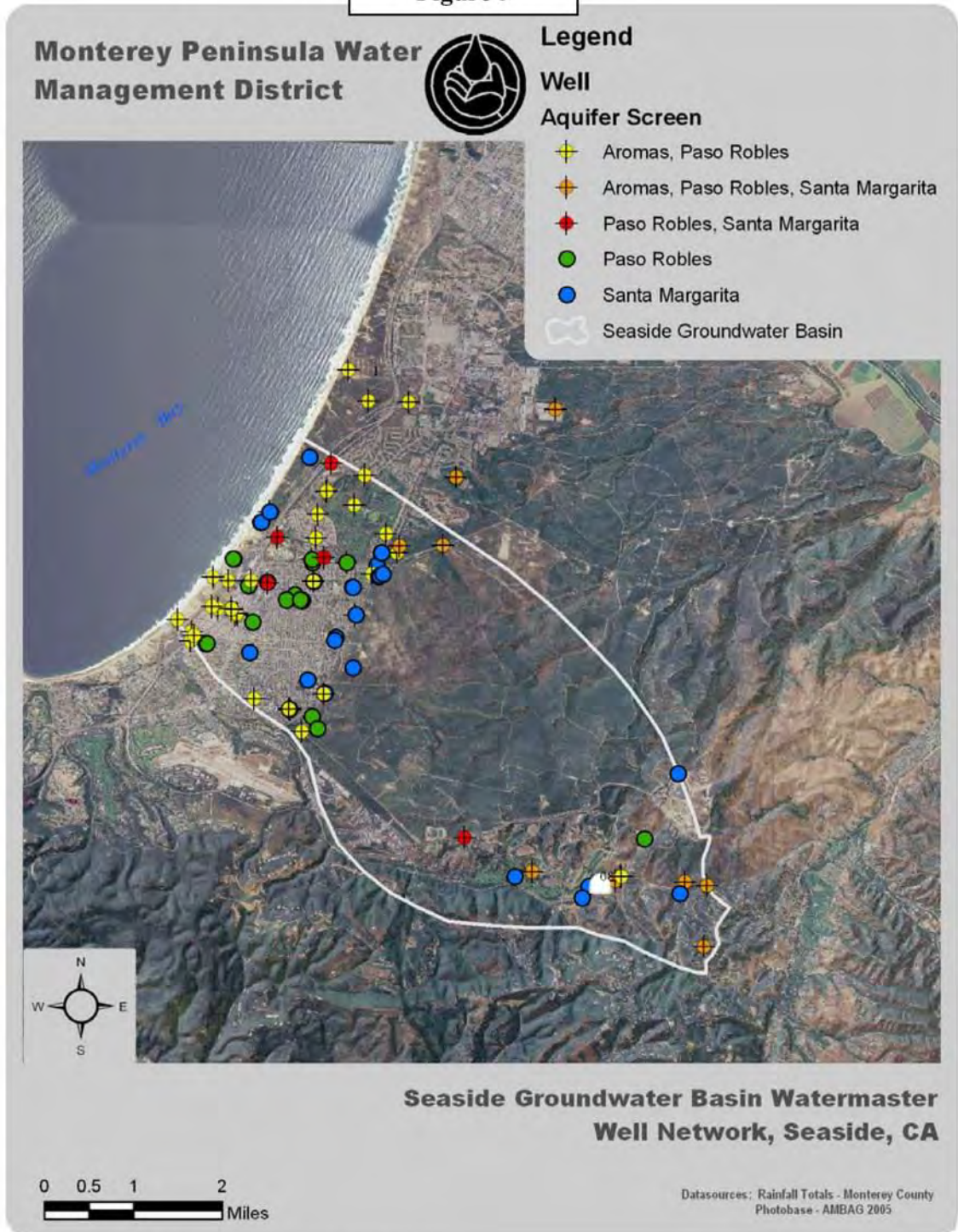
Figure 2



U:\jearl\Watermaster\1stand2ndquarter\2010\Watermaster Wells Monitor.mxd

Locations are approximate based on MPVMD files.

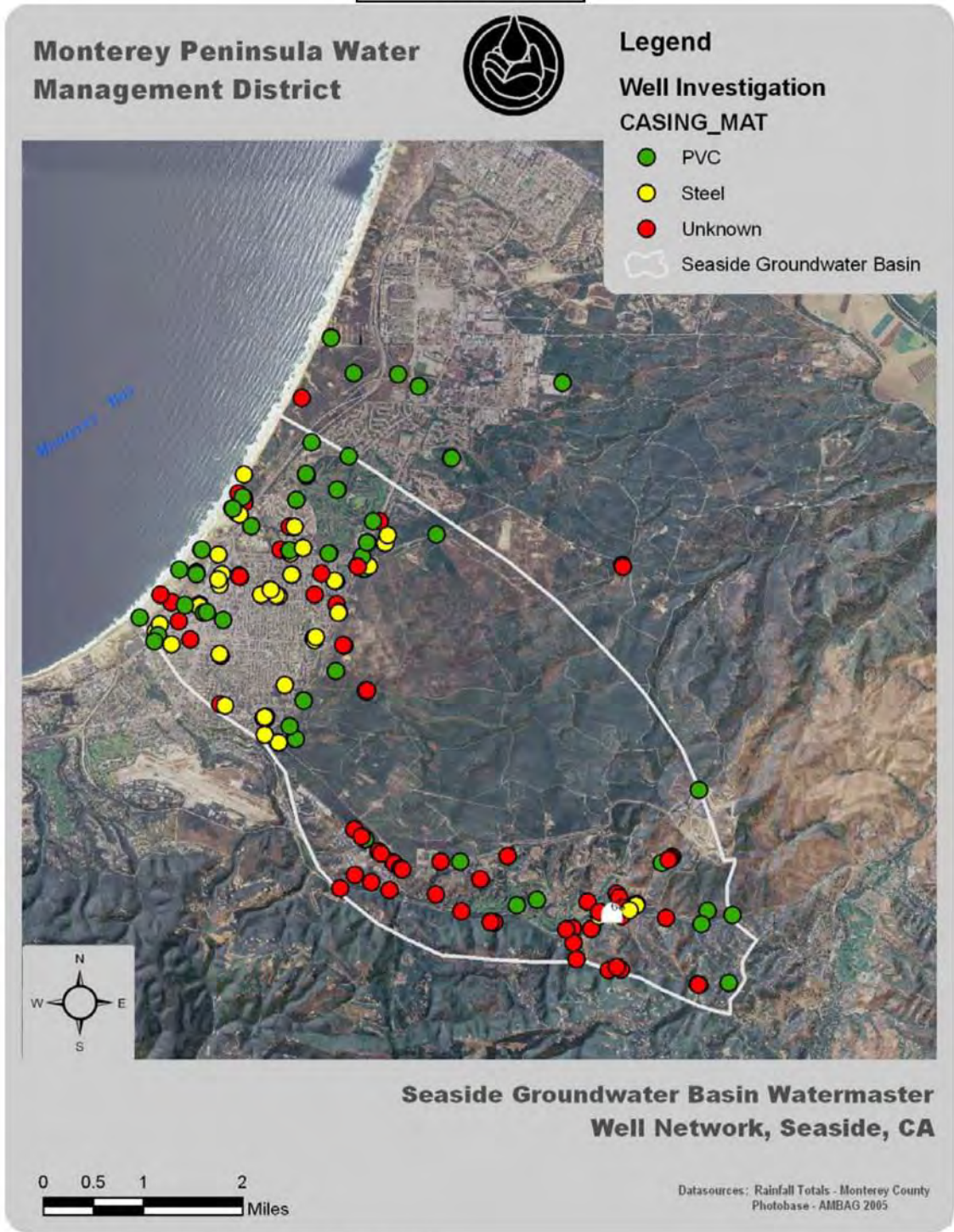
Figure 3



U:\jearl\Watermaster1stand2ndquarterwy2010\Watermaster Wells Monitor.mxd

Locations are approximate based on MPWMD files.

Figure 4



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Locations are approximate based on MPWMD files.

Figure 5



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Locations are approximate based on MPVMD files.

Figure 6



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Locations are approximate based on MPVMD files.

		Seaside Basin Subarea Well Count					
		N. Coastal	S. Coastal	N. Inland	Laguna Seca	Outside Boundary	Total
Data Source	SBWM	43	22	10	42	15	132
	MPWMD	24	4	5	23	0	56
	WMI*	41	43	3	3	1	91
	Total	108	69	18	68	16	279

* This investigation. Data sources: DWR, MPWMD, Fort Ord database.

Table 1. Number of wells identified within the Seaside Basin from various sources. Ninety-one additional wells were identified as part of this investigation.

		Location Method						
		Ortho-rectified	Coord's	Loc. Sketch & Log description	Log description	APN Parcel	TRS Subsection	TRS
Data Source	Uncertainty **	± 3'	± 10-15'	± 50'	± 50-100'	± 50-100'	± 600'	± 3,000'
	SBWM	80	6	12	20	3	11	
	MPWMD	25			1	1	1	
	WMI*	30	10	10	48	5	4	12
	Subtotal	135	16	22	69	9	16	12
	Total	279						

* This Investigation. Data sources: DWR, MPWMD, Fort Ord database.

** Uncertainty in location (ft), based on location method. Distances may be significantly greater in rural areas.

Table 2. Number of wells identified and their corresponding location method from various sources. Shaded region highlights poorly-located wells.

Well Use and Status: Seaside Basin						
Well Use	Status					Total #
	DST	ABD	ACT	IA	UNK	
Dest/Abd	7				1	8
Domestic			2		4	6
Industrial	1		2	1	3	7
Irrigation			3		5	8
Monitoring				4	47	51
Municipal	1		4	2	9	16
Other	2			2	1	5
Public			2		2	4
Recharge			1	1	1	3
Test	6	3			27	36
Cathodic					4	4
Unknown	26	9	35	18	43	131
Total	43	12	49	28	147	279

Table 3. Well use and status. Status nomenclature is as follows: DST = destroyed, ABD = abandoned, ACT = active, IA = inactive, UNK = status unknown. Well use is derived from well logs.

Panel A: Northern Coastal						
Well Use	Status					Total #
	DST	ABD	ACT	IA	UNK	
Dst/Abd	3					3
Domestic			1			1
Industrial			2	1	1	4
Irrigation						0
Monitoring				1	14	15
Municipal	1		3	2	6	12
Other	1			1	1	3
Public			1			1
Recharge			1			1
Test	3	1			18	22
Catholic						0
Unknown	14	1	11	1	19	46
Total:	22	2	19	6	59	108

Panel B: Northern Inland						
Well Use	Status					Total #
	DST	ABD	ACT	IA	UNK	
Dst/Abd						0
Domestic						0
Industrial						0
Irrigation			1			1
Monitoring					5	5
Municipal						0
Other						0
Public						0
Recharge				1		1
Test					2	2
Catholic						0
Unknown	8				1	9
Total	8	0	1	1	8	18

Panel C: Southern Coastal						
Well Use	Status					Total #
	DST	ABD	ACT	IA	UNK	
Dst/Abd	4					4
Domestic			1		4	5
Industrial	1				2	3
Irrigation			1		3	4
Monitoring				3	9	12
Municipal			1		3	4
Other	1					1
Public					1	1
Recharge					1	1
Test	3	1			7	11
Catholic					4	4
Unknown	3		6	1	9	19
Total	12	1	9	4	43	69

Panel D: Laguna Seca						
Well Use	Status					Total #
	DST	ABD	ACT	IA	UNK	
Dst/Abd					1	1
Domestic						0
Industrial						0
Irrigation			1		2	3
Monitoring					10	10
Municipal						0
Other				1		1
Public			1		1	2
Recharge						0
Test		1				1
Catholic						0
Unknown	1	8	18	16	7	50
Total	1	9	20	17	21	68

Panel E: Outside Boundaries						
Well Use	Status					Total #
	DST	ABD	ACT	IA	UNK	
Dst/Abd						0
Domestic						0
Industrial						0
Irrigation						0
Monitoring					9	9
Municipal						0
Other						0
Public						0
Recharge						0
Test						0
Catholic						0
Unknown					7	7
Total	0	0	0	0	16	16

Table 4. Well use and status for Seaside Basin Subareas (panels A-E). Status nomenclature is as follows: DST = destroyed, ABD = abandoned, ACT = active, IA = inactive, UNK = status unknown. Well use is derived from well logs.

		Casing Material			
		Unknown	None	PVC	Steel
Well Age	2009-2000	3	0	7	4
	1999-1990	10	0	30	7
	1989-1980	0	0	15	4
	1979-1970	17	0	16	9
	1969-1960	11	0	0	15
	1959-1950	18	2	0	10
	1949-1940	4	0	0	2
	Pre-1939	0	0	0	1
	Unknown Age	92	0	1	1
	sub total:	155	2	69	53
total		279			

Table 5. Number of wells grouped by age (10-year bins) showing casing construction material. Shaded region highlights wells with unknown casing materials that are likely to be steel.

		Seaside Basin Subarea Well Construction Material																Total
		N. Coastal			S. Coastal			N. Inland			Laguna Seca			OOB				
		PVC	Steel	Unk	PVC	Steel	Unk	None	PVC	Steel	Unkn	PVC	Steel	Unk	PVC	Steel	Unk	
Data Source	SBWM	13	20	10	8	5	9		5	2	3	12	3	27	11		4	132
	MPWMD	1	3	1		1	1						1	20				28
	WMI*	10	5	45	7	12	24	2		1	7	1		4	1			119
	Subtotal	24	28	56	15	18	34	2	5	3	10	13	4	51	12	0	4	279
Total		108			69			18			68			16				

* This Investigation. Data sources: DWR, MPWMD, Fort Ord database.

Table 6. Number of wells within Seaside Basin Subareas showing datasource and casing construction material. Unk = unknown material. Shaded area highlights two uncased wells – one is abandoned and the status of the other is unknown.

		Casing Material															Total:					
		PVC					Steel					Unknown						None				
Well Status:		ACT	IA	ABD	DST	UNK	ACT	IA	ABD	DST	UNK	ACT	IA	ABD	DST	UNK		ACT	IA	ABD	DST	UNK
Well Age	2009-2000		1			6	2	1			1				1	2						14
	1999-1990		2			28	4				3				1		8	1				47
	1989-1980		2			13		2			2											19
	1979-1970		1			15		2			7			1	9	7						42
	1969-1960						3			2	10	1		1	4	5		1			1	28
	1959-1950						4	1		2	3				1	17						28
	1949-1940								1		1					2						6
	Pre-1939									1												1
	Unknown Age					1					1	30	18	9	14	21						94
	sub total:		2	4	0	0	63	13	6	1	5	28	34	18	11	37	55	0	0	1	0	1
total				69					53					155					2			

Table 7. Number of wells grouped by well age (10-year bins), casing material, and well status. Shaded region highlights wells with unknown casing materials that are likely to be steel.

NAME	Log #	Aquifers Well is Screened in	Steel > 40 yrs old
Bougainville	27	Aromas, Paso Robles	no
CalAm 1961-B	101376	Aromas, Paso Robles	yes
Castaldo	13	Aromas, Paso Robles	yes
CDM MW-1	14	Aromas, Paso Robles	no
CDM MW-2	38	Aromas, Paso Robles	no
CDM MW-3	52	Aromas, Paso Robles	no
CDM MW-4	45	Aromas, Paso Robles	no
Chas Brown	81221	Aromas, Paso Robles	no
City of Sand City Corp. Yard	490449	Aromas, Paso Robles	no
City of Seaside #4	742178	Paso Robles, Santa Margarita	no
Coe Ave.	107527	Aromas, Paso Robles	yes
County Parks No. 1	498010	Aromas, Paso Robles, Santa Margarita	no
Cypress Pacific	748975	Aromas, Paso Robles	no
FO Boring GD-1	26	Aromas, Paso Robles	no
FO Boring GS-1	24	Aromas, Paso Robles	no
FO Boring GS-2	25	Aromas, Paso Robles	no
FO Boring GS-3	19	Aromas, Paso Robles	no
FO Boring GS-4	36	Aromas, Paso Robles	no
FO Boring GS-5	32	Aromas, Paso Robles	no
FO Boring GS-6	28	Aromas, Paso Robles	no
FO Boring GS-7	23	Aromas, Paso Robles	no
FO Test Hole B	31	Aromas, Paso Robles, Santa Margarita	yes
FO-05	107	Aromas, Paso Robles, Santa Margarita	no
FO-08	106	Aromas, Paso Robles, Santa Margarita	no
FO-11	105	Aromas, Paso Robles, Santa Margarita	no
FO6	101	Aromas, Paso Robles, Santa Margarita	no
FORT ORD #7	103	Aromas, Paso Robles, Santa Margarita	no
FORT ORD #9	104	Paso Robles, Santa Margarita	no
Granite Const. Co -1	121102	Aromas, Paso Robles	yes
Granite Const. Co -2	121103	Aromas, Paso Robles	yes
Granite Const. Co -3	121104	Aromas, Paso Robles	yes
Granite Const. Co -4	72030	Aromas, Paso Robles, Santa Margarita	no
KMART	46	Aromas, Paso Robles	no
Love Motors MW-1	480855	Aromas, Paso Robles	no
Love Motors MW-2	480856	Aromas, Paso Robles	no
Love Motors MW-3	480857	Aromas, Paso Robles	no
LS Old #12	461400	Aromas, Paso Robles, Santa Margarita	no
Luzern Replacement	419426	Aromas, Paso Robles	yes
MCPD No. 2	788672	Aromas, Paso Robles	no
Monte No.4	3	Aromas, Paso Robles	no
MPWMD Plumas-1	232078	Aromas, Paso Robles	no
MW-B-22-180	20	Aromas, Paso Robles	no
MW-B-23-180	16	Aromas, Paso Robles	no
MW-BW-08-A	76	Aromas, Paso Robles	no
n/a - Granite Rock	29387	Aromas, Paso Robles	no
Ord Village No. 2	35	Paso Robles, Santa Margarita	yes
PCA_EAST_MULT	338402	Paso Robles, Santa Margarita	no

Table 8. Cross-screened wells.

NAME	Log #	Aquifers Well is Screened in	Steel > 40 yrs old
Playa4	290011	Paso Robles, Santa Margarita	no
Plumas #2	10	Aromas, Paso Robles	yes
Plumas 4	442710	Aromas, Paso Robles	no
Plumas Production	43635	Aromas, Paso Robles	yes
PRT1W	520448	Aromas, Paso Robles	no
Reservoir	701787	Aromas, Paso Robles	no
Righello	360768	Aromas, Paso Robles	no
ROBLEY	111	Aromas, Paso Robles, Santa Margarita	no
Water Pollution Control Plant	114994	Aromas, Paso Robles	yes
Wells Fargo	411362	Aromas, Paso Robles	no
YORK_WEST	112	Paso Robles, Santa Margarita	no

Table 8. (Continued)

Well Name	Location Method	Well Age	Casing Material	Well Use	Status	Subarea	Data Source
Ranches	TRS Centroid	13	PVC	Monitoring	unk	SC	WMI
Chas Brown	TRS Centroid	37	Steel	Domestic	unk	SC	WMI
Central Post Test - B	TRS Centroid	46	unk	Test Well	unk	NI	WMI
Ca. Water&Phone-4	TRS Centroid	53	unk	Test Well	unk	NC	WMI
Ca. Water&Phone-5	TRS Centroid	53	unk	Test Well	unk	NC	WMI
Ca. Water&Phone-6	TRS Centroid	53	unk	Test Well	unk	NC	WMI
Ca. Water&Phone-7	TRS Centroid	53	unk	Test Well	unk	NC	WMI
Ca. Water&Phone-8	TRS Centroid	53	unk	Test Well	unk	NC	WMI
Ca. Water&Phone-1	TRS Centroid	53	unk	Test Well	unk	NC	WMI
Ca. Water&Phone-2	TRS Centroid	53	unk	Test Well	unk	NC	WMI
Ca. Water&Phone-3	TRS Centroid	53	unk	Test Well	unk	NC	WMI
Durksen	TRS Centroid	unk	unk	unk	unk	SC	WMI
FO-05 Deep	TRS Subsection Centroid	19	PVC	Monitoring	unk	OB	SBWM
FO-05 Shallow	TRS Subsection Centroid	19	PVC	Monitoring	unk	OB	SBWM
Del Rey Oaks Test	TRS Subsection Centroid	20	PVC	Test Well	unk	SC	WMI
FO-03 Deep	TRS Subsection Centroid	24	PVC	Monitoring	unk	NI	SBWM
City of Mont. Ryan Ranch Test	TRS Subsection Centroid	32	nd	Test Well	ABD	LS	WMI
CDM MW-4	TRS Subsection Centroid	34	PVC	Monitoring	unk	SC	SBWM
Ciry of Seaside Test No. 5	TRS Subsection Centroid	37	unk	Test Well	unk	SC	WMI
Hot Spring Well	TRS Subsection Centroid	108	Steel	unk	DST	NC	MPWMD
Blue Larkspur	TRS Subsection Centroid	unk	unk	unk	unk	LS	SBWM
LS Driving Range (SCS Deep)	TRS Subsection Centroid	unk	unk	unk	unk	LS	SBWM
Paddock #4	TRS Subsection Centroid	unk	unk	unk	unk	LS	SBWM
SBWM MW-1	TRS Subsection Centroid	unk	unk	unk	unk	OB	SBWM
SBWM MW-2	TRS Subsection Centroid	unk	unk	unk	unk	OB	SBWM
SBWM MW-5d	TRS Subsection Centroid	unk	unk	unk	unk	OB	SBWM
SBWM MW-5s	TRS Subsection Centroid	unk	unk	unk	unk	OB	SBWM
City Dump	TRS Subsection Centroid	unk	Steel	Industrial	unk	NC	WMI

Table 9. Wells located using TRS Centroid or TRS Subsection Centroids.

Well Name	Location Method	Casing Material	Well Age	Data Source	Well Use	Subarea
SUBDIV	air photo	nd	48	SBWM	Unknown	LS
Granite-CAW	air photo	nd	Unknown	SBWM	Unknown	LS
LS1959	air photo	nd	Unknown	WMI	Unknown	LS
LAGUNASEC	air photo	PVC	22	SBWM	Monitoring	LS
ROBLEYN	air photo	PVC	22	SBWM	Monitoring	LS
ROBLEYS	air photo	PVC	22	SBWM	Monitoring	LS
YORK_WEST	air photo	PVC	22	SBWM	Monitoring	LS
FO4EAST	air photo	PVC	22	SBWM	Monitoring	LS
FO4WEST	air photo	PVC	22	SBWM	Monitoring	LS
MCPD No. 2	air photo	Steel	8	SBWM	Domestic	LS
ordterracedee	air photo	nd	Unknown	SBWM	Unknown	NC
ordterracesha	air photo	nd	Unknown	SBWM	Unknown	NC
Fitch MW-1	air photo	PVC	1	SBWM	Monitoring	NC
Fitch MW-2	air photo	PVC	1	SBWM	Monitoring	NC
ASR-MW 1	air photo	PVC	Unknown	SBWM	Monitoring	NC
MW-B-30-180	air photo	nd	36	WMI	Unknown	NC
MW-B-32-180	air photo	nd	Unknown	WMI	Unknown	NC
LS Old #12	air photo, Log description	PVC	13	WMI	Irrigation	LS
FO6DEEP	air photo, Log description	PVC	19	SBWM	Monitoring	LS
FO6SHAL	air photo, Log description	PVC	19	SBWM	Monitoring	LS
SECA_PLAC	air photo, Log description	PVC	22	SBWM	Monitoring	LS
RYAN_RANC	air photo, Log description	PVC	29	SBWM	Monitoring	LS
FORT ORD #9 D	air photo, Log description	PVC	16	SBWM	Monitoring	NC
FORT ORD #9 S	air photo, Log description	PVC	16	SBWM	Monitoring	NC
M. SAND CO. D	air photo, Log description	PVC	20	SBWM	Monitoring	NC
M. SAND CO. S	air photo, Log description	PVC	20	SBWM	Monitoring	NC
PARALTA_TEST_	air photo, Log description	PVC	20	SBWM	Test Well	NC
PCA W Deep	air photo, Log description	PVC	20	SBWM	Monitoring	NC
PCA W Shallow	air photo, Log description	PVC	20	SBWM	Monitoring	NC
PCA_EAST_MULT	air photo, Log description	PVC	20	SBWM	Monitoring	NC

Table 10. Wells with unknown status

Well Name	Location Method	Casing Material	Well Age	Data Source	Well Use	Subarea
FORT ORD #7 D	air photo, Log description	PVC	16	SBWM	Monitoring	NI
FORT ORD #7 S	air photo, Log description	PVC	16	SBWM	Monitoring	NI
FO1DEEP	air photo, Log description	PVC	24	SBWM	Monitoring	NI
FO1SHAL	air photo, Log description	PVC	24	SBWM	Monitoring	NI
PLUMAS_TEST_9	air photo, Log description	PVC	20	SBWM	Monitoring	SC
KMART	air photo, Log description	PVC	34	SBWM	Unknown	SC
SBWM MW-3	Coordinates	nd	3	SBWM	Monitoring	NC
SBWM MW-4	Coordinates	nd	3	SBWM	Monitoring	NC
FO Boring GD-1	Coordinates	PVC	33	WMI	Unknown	NC
FO Boring GD-2	Coordinates	PVC	33	WMI	Unknown	NC
FO Boring GD-3	Coordinates	PVC	33	WMI	Unknown	NC
FO Boring GS-1	Coordinates	PVC	33	WMI	Unknown	NC
FO Boring GS-2	Coordinates	PVC	33	WMI	Unknown	NC
FO Boring GS-3	Coordinates	PVC	33	WMI	Unknown	NC
FO Boring GS-5	Coordinates	PVC	33	WMI	Unknown	NC
FO Boring GS-6	Coordinates	PVC	33	WMI	Unknown	NC
FO Boring GS-7	Coordinates	PVC	33	WMI	Unknown	NC
FO Boring GS-4	Coordinates	PVC	33	WMI	Unknown	OB
MW-B-22-180	Coordinates	PVC	33	SBWM	Unknown	OB
MW-B-23-180	Coordinates	PVC	33	SBWM	Unknown	OB
City of Seaside Test No. 2	Log description, drawing	nd	46	WMI	Test Well	NC
FO-11 Shallow	Log description, drawing	PVC	14	SBWM	Monitoring	OB
FO-10 Deep	Log description, drawing	PVC	14	SBWM	Monitoring	OB
FO-10 Shallow	Log description, drawing	PVC	14	SBWM	Monitoring	OB
FO-08 Shallow	Log description, drawing	PVC	16	SBWM	Monitoring	OB
FO-11 Deep	Log description, drawing	PVC	14	SBWM	Monitoring	OB
FO-08 Deep	Log description, drawing	PVC	16	SBWM	Monitoring	OB
n/a - Granite Rock	Log description, drawing	Steel	32	SBWM	Industrial	SC
Cypress Pacific	Log description, drawing	PVC	9	SBWM	Domestic	SC
MCPD No. 1	Log description	Steel	18	SBWM	Public	LS
Paddock #1	Log description	Steel	38	SBWM	Irrigation	LS
New Cities Land Co.	Log description	nd	Unknown	SBWM	Unknown	LS

Table 10. (continued)

Well Name	Location Method	Casing Material	Well Age	Data Source	Well Use	Subarea
City of Seaside Test No. 4	Log description	nd	37	WMI	Test Well	NC
FO Test Hole A	Log description	nd	46	WMI	Test Well	NC
CalAm Test No. 4	Log description	nd	53	WMI	Test Well	NC
CalAm Test No. 5	Log description	nd	53	WMI	Test Well	NC
CalAm Test No. 6	Log description	nd	53	WMI	Test Well	NC
CalAm Test No. 1	Log description	nd	53	WMI	Test Well	NC
CalAm Test No. 2	Log description	nd	53	WMI	Test Well	NC
G.J. No. 1	Log description	nd	61	WMI	Test Well	NC
Metz No. 1	Log description	nd	65	WMI	Unknown	NC
CDM MW-2	Log description	PVC	7	SBWM	Monitoring	NC
Bougainville	Log description	PVC	36	WMI	Monitoring	NC
Luzern Original	Log description	Steel	44	SBWM	Municipal	NC
Playa No. 1	Log description	Steel	44	SBWM	Municipal	NC
Harding	Log description	Steel	53	WMI	Municipal	NC
Mission Memorial Monitor	Log description	nd	Unknown	SBWM	Unknown	NC
Playa Well	Log description	nd	Unknown	SBWM	Unknown	NC
FO Test Hole C	Log description	nd	46	WMI	Test Well	NI
FO Test Hole B	Log description	Steel	69	WMI	Unknown	NI
CDM MW-1	Log description	PVC	7	SBWM	Monitoring	OB
Dune Well	Log description	nd	52	WMI	Unknown	SC
CalAm Test No. 3	Log description	nd	53	WMI	Test Well	SC
CalAm Test No. 7	Log description	nd	53	WMI	Test Well	SC
CalAm Test No. 8	Log description	nd	53	WMI	Test Well	SC
James Siino	Log description	nd	Unknown	WMI	Unknown	SC
Seaside Sanitary District	Log description	nd	Unknown	WMI	Unknown	SC
CalAm Test No. 6	Log description	none	43	WMI	Test Well	SC
CDM MW-3	Log description	PVC	7	SBWM	Monitoring	SC
MPWMD Plumas-1	Log description	PVC	28	WMI	Recharge	SC
MPWMD Plumas-2	Log description	PVC	28	WMI	Monitoring	SC
Plumas 4	Log description	Steel	14	SBWM	Public	SC
Monte No.4	Log Description	Steel	37	WMI	Unknown	SC
Granite Const. Co -4	Log description	Steel	37	WMI	Industrial	SC

Table 10. (continued)

Well Name	Location Method	Casing Material	Well Age	Data Source	Well Use	Subarea
CalAm-71	Log description	Steel	39	WMI	Municipal	SC
CalAm 1961-B	Log description	Steel	42	WMI	Domestic	SC
Elm Well	Log description	Steel	42	WMI	Municipal	SC
Seaside #1	Log description	Steel	44	WMI	Municipal	SC
Granite Const. Co -1	Log description	Steel	44	WMI	Irrigation	SC
Granite Const. Co -2	Log description	Steel	44	WMI	Irrigation	SC
Granite Const. Co -3	Log description	Steel	44	WMI	Irrigation	SC
Orange	Log description	Steel	54	WMI	Unknown	SC
Hilby MGT	Log description	Steel	57	SBWM	Unknown	SC
Desal Monitor	Log description	nd	Unknown	SBWM	Unknown	SC
City of Seaside #2	Log description	Steel	45	SBWM	Municipal	NC
City of Seaside #1	Log description	Steel	45	SBWM	Municipal	NC
Chiantelli	Log description	Steel	33	WMI	Test Well	SC
Love Motors MW-1	Log description, drawing	nd	17	WMI	Monitoring	SC
PG&E	Log description, drawing	nd	32	WMI	Cathodic Protection	SC
PG&E	Log description, drawing	nd	32	WMI	Cathodic Protection	SC
PG&E	Log description, drawing	nd	32	WMI	Cathodic Protection	SC
PG&E	Log description, drawing	nd	32	WMI	Cathodic Protection	SC
Love Motors MW-2	Log description, drawing	PVC	16	WMI	Monitoring	SC
Love Motors MW-3	Log description, drawing	PVC	16	WMI	Monitoring	SC
PRT1W	APN, Log description	Steel	12	SBWM	Other	NC
Ord Grove #2	APN, Log description	Steel	27	SBWM	Unknown	NC
Cunningham Park	APN centroid	nd	Unknown	WMI	Unknown	NC
Metz Park	APN centroid	nd	Unknown	WMI	Unknown	NC
CalAm W-3917	APN centroid	Steel	27	WMI	Municipal	NC
Wells Fargo	APN centroid	PVC	17	WMI	Monitoring	SC
Righello	APN centroid	PVC	19	SBWM	Domestic	SC
Blue Larkspur	TRS Subsection Centroid	nd	Unknown	SBWM	Unknown	LS
LS Driving Range (SCS Deep)	TRS Subsection Centroid	nd	Unknown	SBWM	Unknown	LS
Paddock #4	TRS Subsection Centroid	nd	Unknown	SBWM	Unknown	LS
FO-03 Deep	TRS Subsection Centroid	PVC	24	SBWM	Monitoring	NI
SBWM MW-1	TRS Subsection Centroid	nd	Unknown	SBWM	Unknown	OB

Table 10. (continued)

Well Name	Location Method	Casing Material	Well Age	Data Source	Well Use	Subarea
SBWM MW-2	TRS Subsection Centroid	nd	Unknown	SBWM	Unknown	OB
SBWM MW-5d	TRS Subsection Centroid	nd	Unknown	SBWM	Unknown	OB
SBWM MW-5s	TRS Subsection Centroid	nd	Unknown	SBWM	Unknown	OB
FO-05 Deep	TRS Subsection Centroid	PVC	19	SBWM	Monitoring	OB
FO-05 Shallow	TRS Subsection Centroid	PVC	19	SBWM	Monitoring	OB
City of Seaside Test No. 5	TRS Subsection Centroid	nd	37	WMI	Test Well	SC
CDM MW-4	TRS Subsection Centroid	PVC	34	SBWM	Monitoring	SC
Del Rey Oaks Test	TRS Subsection Centroid	PVC	20	WMI	Test Well	SC
City Dump	TRS Subsection Centroid	Steel	Unknown	WMI	Industrial	NC
Ca. Water&Phone-4	TRS Centroid	nd	53	WMI	Test Well	NC
Ca. Water&Phone-5	TRS Centroid	nd	53	WMI	Test Well	NC
Ca. Water&Phone-6	TRS Centroid	nd	53	WMI	Test Well	NC
Ca. Water&Phone-7	TRS Centroid	nd	53	WMI	Test Well	NC
Ca. Water&Phone-8	TRS Centroid	nd	53	WMI	Test Well	NC
Ca. Water&Phone-1	TRS Centroid	nd	53	WMI	Test Well	NC
Ca. Water&Phone-2	TRS Centroid	nd	53	WMI	Test Well	NC
Ca. Water&Phone-3	TRS Centroid	nd	53	WMI	Test Well	NC
Central Post Test - B	TRS Centroid	nd	46	WMI	Test Well	NI
Durksen	TRS Centroid	nd	Unknown	WMI	Unknown	SC
Ranches	TRS Centroid	PVC	13	WMI	Monitoring	SC
Chas Brown	TRS Centroid	Steel	37	WMI	Domestic	SC

Table 10. (continued)

Name	Status	Casing	Casing Type	Drill Method	Drill Year	Well Age	Data Source	Well Use	Subarea
64 SEASIDE TEST 1	ACT	nd	nd	nd	UNK	UNK	WMI	Unknown	NC
AMADOR	ACT	nd	nd	nd	UNK	UNK	WMI	Unknown	SC
BayRidge	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Behen/Wayland	IA	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
Bishop No. 1	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Bishop No. 2	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Blue Larkspur	UNK	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Ca. Water&Phone-1	UNK	nd	nd	Rotary	1957	53	WMI	Test Well	NC
Ca. Water&Phone-2	UNK	nd	nd	Rotary	1957	53	WMI	Test Well	NC
Ca. Water&Phone-3	UNK	nd	nd	Rotary	1957	53	WMI	Test Well	NC
Ca. Water&Phone-4	UNK	nd	nd	Cable	1957	53	WMI	Test Well	NC
Ca. Water&Phone-5	UNK	nd	nd	Cable	1957	53	WMI	Test Well	NC
Ca. Water&Phone-6	UNK	nd	nd	Cable	1957	53	WMI	Test Well	NC
Ca. Water&Phone-7	UNK	nd	nd	Cable	1957	53	WMI	Test Well	NC
Ca. Water&Phone-8	UNK	nd	nd	Cable	1957	53	WMI	Test Well	NC
Calabrese	ACT	nd	nd	nd	1945	65	MPWMD	Domestic	NC
CalAm 1961-B	UNK	Steel	12 gage	Cable	1968	42	WMI	Domestic	SC
CalAm Plumas 2	DST	nd	na	na	UNK	UNK	SBWM	Destroy	SC
CalAm Plumas 3	DST	nd	na	na	UNK	UNK	SBWM	Destroy	SC
CalAm Test No. 1	UNK	nd	nd	Rotary	1957	53	WMI	Test Well	NC
CalAm Test No. 2	UNK	nd	nd	Rotary	1957	53	WMI	Test Well	NC
CalAm Test No. 3	DST	nd	nd	Rotary	1967	43	WMI	Test Well	SC
CalAm Test No. 3	UNK	nd	nd	Rotary	1957	53	WMI	Test Well	SC
CalAm Test No. 4	UNK	nd	nd	Cable?	1957	53	WMI	Test Well	NC
CalAm Test No. 4: Lowell	DST	nd	na	na	UNK	UNK	WMI	Test Well	SC
CalAm Test No. 5	UNK	nd	nd	Cable?	1957	53	WMI	Test Well	NC
CalAm Test No. 5: Flores	DST	nd	na	na	UNK	UNK	WMI	Test Well	NC
CalAm Test No. 6	DST	nd	nd	Rotary	1967	43	WMI	Test Well	SC
CalAm Test No. 6	UNK	nd	nd	Cable?	1957	53	WMI	Test Well	NC
CalAm Test No. 7	UNK	nd	nd	Rotary	1957	53	WMI	Test Well	SC
CalAm Test No. 8	UNK	nd	nd	Rotary	1957	53	WMI	Test Well	SC
Castaldo	ACT	Steel	12 gage	Cable	1952	58	SBWM	Domestic	SC
Central Post Test - B	UNK	nd	nd	Rotary	1964	46	WMI	Test Well	NI
City Dump	UNK	Steel	nd	Dug	UNK	UNK	WMI	Industrial	NC
City of Seaside #1	UNK	Steel	1/4	Rotary, Cable	1965	45	SBWM	Municipal	NC

Table 11. Wells that are likely to be cased in steel and over 40 years old.

Name	Status	Casing	Casing Type	Drill Method	Drill Year	Well Age	Data Source	Well Use	Subarea
City of Seaside #2	UNK	Steel	nd	Rotary	1965	45	SBWM	Municipal	NC
City of Seaside Test No. 1	ABD	nd	na	Rotary	1964	46	WMI	Test Well	NC
City of Seaside Test No. 2	UNK	nd	na	Rotary	1964	46	WMI	Test Well	NC
Coe Ave.	DST	Steel	5/16	Cable	1965	45	SBWM	Municipal	NC
County Parks No. 4?	ACT	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
Cunningham Park	UNK	nd	nd	nd	UNK	UNK	WMI	Unknown	NC
Darwin	ACT	Steel	8 gage	Cable	1954	56	SBWM	Municipal	NC
Desal Monitor	UNK	nd	nd	nd	UNK	UNK	SBWM	Unknown	SC
Dune Well	UNK	nd	nd	nd	1958	52	WMI	Unknown	SC
Durksen	UNK	nd	nd	nd	UNK	UNK	WMI	Unknown	SC
E.O. Neuman	DST	nd	nd	nd	UNK	UNK	WMI	Unknown	SC
East Well	IA	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Elm Well	UNK	Steel	1/4	Rotary	1968	42	WMI	Municipal	SC
Ethel Jackson	DST	nd	nd	nd	UNK	UNK	WMI	Destroy	NC
FO Test Hole A	UNK	nd	nd	nd	1964	46	WMI	Test Well	NC
FO Test Hole B	UNK	Steel	nd	nd	1941	69	WMI	Unknown	NI
FO Test Hole C	UNK	nd	nd	nd	1964	46	WMI	Test Well	NI
Fowler_Snyder	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
G.C. 1	ACT	nd	nd	nd	1965	45	WMI	Unknown	NC
G.J. No. 1	UNK	nd	nd	nd	1949	61	WMI	Test Well	NC
Granite	DST	nd	na	na	UNK	UNK	WMI	Unknown	NC
Granite Const. Co -1	UNK	Steel	16 gage	Rotary Bucket	1966	44	WMI	Irrigation	SC
Granite Const. Co -2	UNK	Steel	16 gage	Rotary Bucket	1966	44	WMI	Irrigation	SC
Granite Const. Co -3	UNK	Steel	16 gage	Rotary Bucket	1966	44	WMI	Irrigation	SC
Granite-CAW	UNK	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Harding	UNK	Steel	1/4	Rotary	1957	53	WMI	Municipal	NC
Hilby MGT	UNK	Steel	nd	nd	1953	57	SBWM	Unknown	SC
Hot Spring Well	DST	Steel	nd	Cable	1902	108	MPWMD	Unknown	NC
James Siino	UNK	nd	nd	nd	UNK	UNK	WMI	Unknown	SC
Laguna Seca ABD 1	ABD	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
Laguna Seca ABD 2	ABD	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
LaSalle	ACT	Steel	1/4	Rotary	1955	55	MPWMD	Industrial	NC
LaSalle No. 2	DST	Steel	8 gage	Cable	1959	51	SBWM	other	NC
LazyJake	IA	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
LS Driving Range (SCS Deep)	UNK	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
LS1959	UNK	nd	nd	nd	UNK	UNK	WMI	Unknown	LS

Table 11. (continued)

Name	Status	Casing	Casing Type	Drill Method	Drill Year	Well Age	Data Source	Well Use	Subarea
LSS new #12	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Luxton	IA	Steel	8 gage	Cable	1959	51	SBWM	other	NC
Luzern Original	UNK	Steel	1/4	Rotary	1966	44	SBWM	Municipal	NC
M9	IA	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
Main Gate No. 2	ACT	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
Manuel Morton	DST	nd	nd	nd	UNK	UNK	WMI	Unknown	SC
MCPD Dest. 1999	DST	nd	nd	nd	UNK	UNK	SBWM	Unknown	NI
MCPD Dest. 2003	DST	nd	nd	nd	UNK	UNK	SBWM	Unknown	NI
MCPD Dest. 2005	DST	nd	nd	nd	UNK	UNK	SBWM	Unknown	NI
Metz No. 1	UNK	nd	nd	nd	1945	65	WMI	Unknown	NC
Metz Park	UNK	nd	nd	nd	UNK	UNK	WMI	Unknown	NC
Military	ACT	Steel	8 gage	nd	1963	47	SBWM	Industrial	NC
Mission Memorial Monitor	UNK	nd	nd	nd	UNK	UNK	SBWM	Unknown	NC
Mutual	IA	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
MW-B-32-180	UNK	nd	nd	nd	UNK	UNK	WMI	Unknown	NC
New Cities Land Co.	UNK	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
NG1983	ACT	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
NG2	IA	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
NG3	IA	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
NGIA	IA	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
Orange	UNK	Steel	10 gage	Cable	1956	54	WMI	Unknown	SC
Ord Grove	ACT	Steel	8 gage	Rotary	1968	42	MPWMD	Municipal	NC
Ord Village No. 2	ABD	Steel	10 gage	nd	1941	69	WMI	Unknown	NC
ORD_GROVE_TES	DST	nd	nd	Rotary	1967	43	SBWM	Test Well	NC
ordterracedee	UNK	nd	nd	nd	UNK	UNK	SBWM	Unknown	NC
ordterracesha	UNK	nd	nd	nd	UNK	UNK	SBWM	Unknown	NC
Oscar Veach	DST	nd	nd	nd	UNK	UNK	WMI	Destroy	NC
OV-1	ACT	nd	nd	nd	1941	69	WMI	Unknown	NC
P.C.A.	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	NC
Paddock #4	UNK	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Palm Well	DST	nd	nd	nd	UNK	UNK	WMI	Unknown	SC
Pasadera Paddock	ACT	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
PLAYA #02	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	NC
Playa No. 1	UNK	Steel	1/4	Rotary	1966	44	SBWM	Municipal	NC
Playa Test No. 3	DST	nd	nd	nd	1966	44	WMI	Test Well	NC
Playa Well	UNK	nd	nd	nd	UNK	UNK	SBWM	Unknown	NC

Table 11. (continued)

Name	Status	Casing	Casing Type	Drill Method	Drill Year	Well Age	Data Source	Well Use	Subarea
Playa3	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	NC
Plumas #2	DST	Steel	1/4	Cable	1958	52	SBWM	Other	SC
PLUMAS 03	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	SC
PLUMAS M-02	ACT	nd	nd	nd	UNK	UNK	WMI	Unknown	SC
Plumas Production	ACT	Steel	1/4	Rotary	1958	52	MPWMD	Municipal	SC
Pratt	IA	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Robinette Well	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	SC
RR6 ABD	ABD	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
Ryan Ranch #2	ABD	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
RYAN RANCH M7S	ACT	nd	nd	nd	UNK	UNK	WMI	Unknown	LS
RYAN RANCH M8S	ACT	nd	nd	nd	UNK	UNK	WMI	Unknown	LS
Ryan Ranch No. 10	ABD	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Ryan Ranch No. 11	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Ryan Ranch No. 4	ABD	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
Ryan Ranch No. 5	ABD	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Ryan Ranch No. 7	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Ryan Ranch No. 8	IA	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Ryan Ranch No. 9	IA	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
SBWM MW-1	UNK	nd	nd	nd	UNK	UNK	SBWM	Unknown	OB
SBWM MW-2	UNK	nd	nd	nd	UNK	UNK	SBWM	Unknown	OB
SBWM MW-5d	UNK	nd	nd	nd	UNK	UNK	SBWM	Unknown	OB
SBWM MW-5s	UNK	nd	nd	nd	UNK	UNK	SBWM	Unknown	OB
Schmeltz	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	SC
Seaside #1	UNK	Steel	1/4	Rotary	1966	44	WMI	Municipal	SC
SEASIDE 02	ACT	nd	nd	nd	UNK	UNK	WMI	Unknown	NC
SEASIDE 03	ACT	nd	nd	nd	UNK	UNK	WMI	Unknown	NC
Seaside Rec. Center	ABD	nd	nd	nd	UNK	UNK	WMI	Destroy	SC
Seaside Sanitary District	UNK	nd	nd	nd	UNK	UNK	WMI	Unknown	SC
Shea/Johnen	IA	nd	nd	nd	UNK	UNK	SBWM	Monitoring	SC
Shi Ting Huang	IA	nd	nd	nd	UNK	UNK	SBWM	Unknown	SC
SNG	ACT	Steel	1/4	Rotary	1966	44	SBWM	Unknown	NC
Souza, Frank and Tina	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	SC
SPCA WDS	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Standex	IA	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
Stolich	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
StolichIA	IA	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS

Table 11. (continued)

Name	Status	Casing	Casing Type	Drill Method	Drill Year	Well Age	Data Source	Well Use	Subarea
SUBDIV	UNK	nd	nd	nd	1962	48	SBWM	Unknown	LS
TAWorthwindmillABD	ABD	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
Tom Phillips	DST	nd	nd	Cable	1959	51	WMI	Industrial	SC
Wang 02	IA	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
Wang 03	ACT	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
Wang02072	IA	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
WangOldIA	IA	nd	nd	nd	UNK	UNK	MPWMD	Unknown	LS
Water Pollution Control Plant	DST	Steel	10 gage	Rotary	1968	42	WMI	Destroy	NC
Watkins	DST	nd	na	na	UNK	UNK	WMI	Destroy	SC
WisonStreetEnt	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS
York School	ACT	nd	nd	nd	UNK	UNK	SBWM	Unknown	LS

Table 11. (continued)

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