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STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

In the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company; Cease and Desist Order WR 2009-0060	**AMENDED APPLICATION FOR ORDER MODIFYING STATE WATER BOARD ORDER WR 2009-0060 (CEASE AND DESIST ORDER)**

The Marina Coast Water District (MCWD), a county water district, submits the following comments in response to the State Water Resources Control Board (State Water Board or SWRCB) staff's Notice of Comment Deadline in the above matter.

I. Preliminary Statement/Introduction

MCWD has reviewed the State Water Board staff's proposed Order and Rationale Document. The following is a summary of some of MCWD comments, all of which comments are more fully discussed below:

A. MCWD supports the extension to December 31, 2021.

B. MCWD supports a hard cap of 8,310 AFY.

C. The Seaside Groundwater Basin limitations need to be clarified because while Cal-Am states that its adjudicated allocation is only 1,424 AFY, Cal-Am pumped 3,232 AF in Water Year 2014 and 2,765 AF in Water Year 2015.

D. MCWD has no objection to the proposed Carryover Credit cap of 750 AFY.

E. MCWD generally supports the proposed milestones. However, as shown in these comments, Cal-Am's proposed MPWSP is unnecessary to meet its 2022 water supply needs and is not environmentally or legally sound.

F. The penalty for missed milestones should be fines imposed on Cal-Am, the corporation, and not reductions in the Effective Diversion Limit, which would only penalize Cal-Am's ratepayers and customers.

G. The proposed provisions addressing Cal-Am diversions of Carmel River water for the ASR Phases 1 and 2 and recovery of ASR water for use by its customers need to be reconciled and clarified.

H. The amount and breadth of required Carmel River steelhead mitigation measures under the existing and proposed Orders need to be contrasted with Cal-Am's refusal to propose any mitigation for adverse impacts to groundwater aquifers and legal users of groundwater within the immediate vicinity of the CEMEX property's source wells south of the Salinas River. Cal-Am's proposed mitigation to provide desalinated water to the Castroville area north of the Salinas River would not mitigate any adverse impacts to groundwater south of the Salinas River.

I. While Cal-Am is currently a very Carmel River surface water dependent system, a significant amount of its water supply comes from the Seaside Groundwater Basin. With the GWR Project, increased ASR production, and substantially decreased Carmel River diversions after 2021, Cal-Am's water supply will become very dependent upon Seaside Basin operations. The State Water Board Order Amending and Restating Order WR 2009-0060 must recognize the interplay between (1) Cal-Am's Seaside Basin pumping of its adjudicated groundwater and ASR and GWR recovery pumping and (2) Cal-Am's Carmel River diversions for direct use and for ASR.

J. Whether at the State Water Board or at the CPUC, the regulatory agencies need to first examine Cal-Am's Total Water Portfolio of existing and future water source options. As shown in these comments, a critical analysis of Cal-Am's 2022 Total Water Portfolio shows that Cal-Am should have sufficient water sources to meet its Monterey District demands, be 100% CDO compliant, and without the MPWSP.

K. Cal-Am should be required to produce for public review a computer model, which integrates all of Cal-Am's existing water sources, GWR water, and provision for additional water sources and which sets forth each source's availability by water year type and by month and which then compares water supply availability to water system demand by water year type and by month.

L. The Seaside Groundwater Basin Watermaster should be requested to independently review and prepare a public report to the State Water Board of Cal-Am's production rights and history, including, but not limited to Cal-Am's adjudicated groundwater rights, its over pumping right, the effect of rampdowns on Cal-Am's rights, and Cal-Am's payback obligation. The State Water Board should require Cal-Am to reimburse the Watermaster for all costs of such review and report.

The Marina Coast Water District and its Groundwater Rights. MCWD was formed in 1960. Today MCWD is a 100% groundwater dependent public water agency serving municipal and industrial water uses within the City of Marina and the former Fort Ord. Pursuant to that certain Annexation Agreement and Groundwater Mitigation Framework for Marina Area Lands dated March 1996 (1996 Annexation Agreement), among the Monterey County Water Resources Agency (MCWRA), MCWD, the City of Marina, the Armstrong Family, and RMC Lonestar, predecessor owner of the CEMEX property, MCWD itself was allocated the right to 3,020 AFY of potable groundwater. By October 2001 quitclaim deeds, the U.S. Army (retaining 1.729 AFY of potable water for its exclusive use) transferred to the Fort Ord Reuse Authority (FORA) and FORA in turn transferred to MCWD the 4,871 AFY of the potable groundwater previously allocated to the Army by MCWRA under that certain Agreement concerning the

Annexation of Fort Ord into Zones 2 and 2A of the MCWRA dated September 21, 1993. Therefore, pursuant to the 1996 Marina Lands Annexation Agreement and the 2001 quitclaim deeds, MCWD owns vested potable groundwater rights of 7,891 AFY to serve its Central Marina and Ord Community service areas.

The 1996 Annexation Agreement was entered into for the express purposes of groundwater protection and reduction of seawater intrusion. The 1996 Annexation Agreement limits groundwater pumping of non-potable water on the CEMEX property to a total amount of not more than 500 acre-feet per year; all of which groundwater can only to be used on the CEMEX property. The then CEMEX property owner agreed to limit its then existing overlying groundwater rights in exchange for other consideration in the agreement and that limitation took effect upon signing of the Annexation Agreement in 1996.

In addition to these comments, MCWD incorporates by reference its previously filed comments dated May 31, 2016, in this matter.

II. Cal-Am's Total Water Portfolio Options versus System Requirements – The Need for an Integrated Approach to Cal-Am's Water Supply Planning

Cal-Am aggressively asserts that a minimum 6.4MGD desalination plant with source water intakes on the CEMEX property is vitally needed to make-up the water lost from the State Water Board rightfully curtailing Cal-Am's illegal diversions on the Carmel River. Cal-Am uses that mantra to push the CPUC to quickly grant approval of the MPWSP thereby avoiding an integrated and comprehensive environmental, legal, and feasibility review. While the State Water Board staff in its proposed Order addresses in part the interrelationship of the elements of Cal-Am's Total Water Portfolio, a closer examination is essential regarding Cal-Am's existing and proposed elements in its Total Water Portfolio, including how those existing and proposed source elements would interact and be integrated, and their relationship to Cal-Am's total system requirements.

Cal-Am's Monterey District is currently a Carmel River surface water-dependent water system, which will shift by 2022 to a Seaside Groundwater Basin-dependent system.

Cal-Am is proposing an 8,310 AFY soft cap on its Carmel River diversions. For calendar year 2015, Cal-Am's total system deliveries were 9,545 AF. 8,310 ÷9,545 = 87%. As everyone was reminded by the current drought, surface water supply varies considerably depending upon the water year type. For its estimated 87% surface water-dependent water system, Cal-Am has not produced for public review a computer model of its water supply sources and demands as they vary by water year type and by month. MCWD request that the State Water Board require Cal-Am to produce such a computer model for public review and use.

Cal-Am's Total Water Portfolio Options. Cal-Am's CDO extension request must be considered within the context of Cal-Am's Total Water Portfolio, including full consideration of its ratepayers' significant and continuing reductions in water use in recent years. To assist the State Board in that regard, MCWD has prepared the following:

- Spreadsheet of four water supply options for Cal-Am moving forward based upon (1) a Total Water Portfolio analysis, (2) 100% CDO compliance, and (3) using Cal-Am's 2015 system deliveries of 9,545 AF[1] as the baseline. [**Attachment A to MCWD's Comments**]
- Bar graph of the spreadsheet results. [**Attachment B to MCWD's Comments**]

MCWD examined four different Total Water Portfolio options, which could be in place by January 1, 2022, with 100% CDO compliance – NO DESAL, 2 MGD Desal, 3 MGD Desal, and 6.4 MGD Desal – in relationship to Cal-Am's actual 2015 water deliveries. The "NO

[1] Cal-Am's 2015 system deliveries may be found at http://www.watersupplyproject.org/#!system-delivery/pjews.

DESAL" option assumes that Cal-Am's MPWSP is not constructed. The "2 MGD Desal," "3 MGD Desal," and "6.4 MGD Desal" options assumes that Cal-Am would construct a desalination plant (location of source wells are not assumed to be the CEMEX property) with those respective treatment capacities. Cal-Am reports a 6.4 MGD plant would produce 6,252 AFY[2], but MCWD did not make a similar adjustment for the 2 MGD and 3 MGD options.

MCWD's NO DESAL Option is based upon the following water sources, which should be available to Cal-Am when the GWR Project becomes operational and on January 1, 2022:

Cal-Am's NO DESAL Water Sources When GWR becomes operational and on January 1, 2022	**Acre Feet per Year**
Carmel River Legal Limit	3,376
Seaside Basin Adjudicated Groundwater Supply	774
Sand City Desalination Plant	250
Aquifer Storage & Recover (ASR) Project Phases 1 and 2	1,970
Groundwater Replenishment (GWR) Project	3,500
Additional Water: Seaside Basin, ASR, and GWR	330
Total No Desal Water Supply	10,200

Carmel River Legal Limit: As determined in State Water Board Order 95-10.

Seaside Basin Adjudicated Groundwater Supply: The amount of Seaside Basin groundwater available to Cal-Am under its existing adjudicated rights varies depending upon

[2] See the table at the end of Amended Appendix H to its Amended Request to the CPUC, a copy of which was filed in this matter

how the data is represented. As shown in the following table, there are at least five possible amounts for Water Year 2014-15:

Data Source	Acre Feet
Represented by Cal-Am as its adjudicated AFY amount	1,474
Represented by Cal-Am in table at the end of Amended Appendix H to Amended Request to the CPUC filed by Cal-Am in this matter, which assumes that Cal-Am will payback the Watermaster for over pumping at a replenishment rate of 700 AFY for 25 years	774
Figure 1 to Applicants' June 29, 2016 comments for Water Years 2014-15 through 2016-17 with assumed "rampdown" from 2,669 to 2,251	2,251
Watermaster's report of Cal-Am's Total Production for Water Year 2014-15	2,775
Amendment No. 1 to the Memorandum of Understanding between the Seaside Basin Watermaster and California American Water dated December 3, 2008	2,436(?)

The reason for the discrepancies in the above numbers is because Cal-Am has failed to disclose to the State Water Board that the Seaside Basin Watermaster authorizes Cal-Am to pump more than Cal-Am's claimed 1,474 AFY adjudicated amount and more than Cal-Am's rampdown amount as Cal-Am has represented to the State Water Board in Figure 1 to Applicants' June 29, 2016 comments (**Attachment C to MCWD's Comments**) to the State Water Board staff's Preliminary Recommendation.

On April 25, 2014, the Watermaster signed Amendment No. 1 to the Memorandum of Understanding between the Seaside Basin Watermaster and California American Water dated December 3, 2008 (**Attachment D to MCWD's Comments**). Recital D to Amendment No. 1 recognizes Cal-Am's right to over pump by stating, "As of the date of this Amendment, CAW's total Over-Production for all Water years (sic) Through Water Year 2012-2013 is 11,981.29 acre

feet, and it is anticipated that upon the estimated date on which CAW's MPWSP becomes fully operational, Cal-Am's total Over-Production will be 18,718.17 acre feet." 18,718.17 – 11,981.29 = 6,737 AF. Assuming that in 2014, the Watermaster assumed that the MPWSP would become fully operational during Water Year 2019-20 – seven years after Water Year 2012-13 – then the average annual assumed Cal-Am over pumping would be 962 AFY. 1,474 AFY + 962 AFY = 2,436 AFY. However, MCWD has no information about the data assumptions used by the Watermaster to derive the 11,981 AF and 18,718 AF numbers.

This lack of transparency by Cal-Am is why MCWD requests the State Water Board to ask the Seaside Basin Watermaster to prepare an independent public report of Cal-Am's production rights and history, including, but not limited to Cal-Am's adjudicated groundwater rights, the effect of rampdowns on Cal-Am's rights, and Cal-Am's payback obligation.

Sand City Desalination Plant: The 250 AF amount comes from State Water Board Order WR 2009-0060's Table 1, Projected Reductions in Illegal Diversions from the Carmel River, as the Estimated Sand City Desalination Plant production for Water Year 2014-15.

ASR Project Phases 1 and 2: MPWMD on its website on "Aquifer Storage & Recovery" reports an average yield for Phase 1 of "about 920 AFY" and for Phase 2 of "approximately 1,050 AFY", for a total of 1,970 AFY.[3] Cal-Am in the table at the end of Amended Appendix H to its Amended Request to the CPUC filed in this matter reports a "ASR Project (Existing)" of 1,300 AFY. The difference between MPWMD's total annual yield amount and Cal-Am's is 670 AFY. In addition, MCWD has not seen an analysis of the additional ASR water that would seemingly be available when Cal-Am reduces its diversions after December 31,

[3] See http://www.mpwmd.net/water-supply/aquifer-storage-recovery/.

2021, to the Legal Limit of 3,376 AFY. For purposes of these comments, MCWD is using MPWMD's 1,970 AFY annual yield.

GWR Project Supply: A water purchase agreement wherein Cal-Am would purchase 3,500 AFY of GWR Project supply is pending before the CPUC.

Additional Water Supply from Seaside Groundwater Basin, ASR, and GWR:

In MCWD's analysis of Cal-Am Total Water Portfolio beginning January 1, 2022, MCWD has estimated additional water supply from the Seaside Basin, the ASR Project, and the GWR Project totaling 330 AFY, which MCWD believes is a reasonable number for 2022 based upon the information presented in these comments.

Additional Seaside Basin Groundwater. Once the GWR Project is operational, the Seaside Basin becomes a comingled pool of native groundwater, Carmel River ASR water, and GWR advanced treated water. The Watermaster will be responsible for managing and accounting for the imported and comingled waters and their extraction/recovery for use for the overall benefit of the Seaside Basin. Subject to an independent report of the Watermaster, the substantial increase in the amount of imported water into the Basin should be managed to significantly improve the groundwater conditions within the Basin thereby allowing for additional pumping by Cal-Am above the 774 AFY

Additional ASR Water. When Cal-Am reduces its Carmel River diversions by some 6,000 AFY to its Legal Limit of 3,376 AFY, more river water for ASR should be available at greater frequencies.

Additional GWR Project Water. The Central Coast Regional Water Quality Control Board in its June 15, 2016 letter to the State Water Board in this proceeding has asked the State Water Board to "direct CalAm to pursue sending its Salinas-area wastewater to the MRWPCA.

Increased wastewater flows could be used by MRWPCA's Pure Water Monterey Project to increase recycled water deliveries either directly to the Seaside aquifer for use by CalAm or to the agricultural irrigation project in the lower Salinas valley." MCWD supports the Regional Board's request.

Phase 1 of the GWR Project provides for the 3,500 AFY transfer to the MPWMD and 600 AFY to MCWD for use within its Ord Community service area, which includes a portion of the Adjudicated Seaside Basin. Phase 2 of the GWR Project will increase the Advance Water Treatment Plant capacity by at least an additional 827 AFY to produce additional water for MCWD. Planning for Phase 2 should include the feasibility of transferring additional advance treated water to MPWMD. The GWR Product Water Conveyance Facilities (pipeline), which will convey the advance treated water from the new treatment plant to MCWD's Ord Community service area and then to the new GWR injection facilities, will have sufficient capacity to convey more than 5,127 AFY. It should be noted that MCWD's peak use of the Advance Water Treatment plant and the pipeline will be during the summer months so a much greater portion of the treatment plant capacity and the conveyance capacity of the pipeline will be available during the other months to treat and convey water to the GWR injection facilities. Pursuant to the April 2016 Pure Water Delivery and Supply Project Agreement between MRWPCA and MCWD, the pipeline is to be designed, constructed, owned, and operated by MCWD.

New Potential Cal-Am Water Sources. Cal-Am's total effort has been to aggressively push the MPWSP as the "only" solution for compliance with the CDO for its illegal Carmel River diversions. Only recently has Cal-Am supported the GWR Project. Previously, Cal-Am worked against the GWR Project because it would significantly decrease the size of the MPWSP

thereby directly impacting Cal-Am's projected financial return from the MPWSP. As a result of the drought, stormwater capture is the new "low hanging fruit" for additional water supplies.

Salinas River Stormwater Capture. MCWD agrees that the primary purpose of the Salinas Valley Water Project should be to provide groundwater recharge for the Salinas Valley Groundwater Basin. However, during the wetter water years there are substantial Salinas River flows to Monterey Bay in excess of groundwater recharge and environmental flow needs. For example, because of the substantial magnitude of those wetter year flows, MCWRA's proposed Interlake Tunnel[4] would divert water from Nacimiento Reservoir to San Antonio Reservoir that would otherwise have been spilled at Nacimiento Dam. MCWRA's Salinas River Diversion Facility (the "rubber dam") is a permitted diversion facility located near Marina at the MRWPCA's regional tertiary treatment plant and the site of the to-be-constructed Advance Treated Water plant. As the State Water Board knows, the MCWRA has existing unexercised water rights that could be modified to accommodate additional river diversions at the rubber dam for groundwater recharge. For example, a recharge project could divert some 5,000 AF when there are excess flows in the river with at least three potential uses for this water:

(1) If a blend of stormwater and tertiary treated water could be treated at MRWPCA's Advance Water Treatment plant, then a portion of this water could be incorporated into the GWR Project for use by Cal-Am's Monterey District. MCWRA's Agency Act only prohibits the export of Salinas Valley Groundwater Basin (SVGB) groundwater, not Salinas River water.

(2) A portion of the stormwater could be conveyed north of the Salinas River to the Castroville area for groundwater recharge. The river water would be treated (e.g., filtered and chlorinated) to the extent necessary. In spite of the many years that the Castroville Seawater Intrusion Project (CSIP) has been in operation, the Castroville Community Service District continues to experience significant groundwater supply problems.

(3) A portion of the stormwater should remain south of the Salinas River in the Marina area for seawater intrusion protection and groundwater recharge.

[4] See http://www.mcwra.co.monterey.ca.us/interlake_tunnel/interlake_tunnel.php.

As discussed below, because the 180/400 Foot Aquifer Subbasin of the SVGB is classified as a Critically Overdrafted subbasin, this type of groundwater recharge project should be a mandatory project under the Groundwater Sustainability Plan for the 180/400 Foot Aquifer Subbasin.

Salinas River Stormwater Capture Variant – Salinas River Water Treatment Plant. This is not necessarily low hanging fruit but MCWD has already performed a preliminary analysis of the feasibility of diverting Salinas River water **in excess of existing agricultural and recharge uses** to meet potable water demands. The project would utilize excess water in MCWRA's water right licenses and permits and could utilize the rubber dam or wells along the Salinas River as Cal-Am does along the Carmel River. River water would not be available in all water years, but for a 5,000 AFY water treatment plant, 1,000 AFY could be used to meet potable water demands within MCWD's Ord Community and the remaining 4,000 AFY could be made available to Cal-Am's Monterey District.

III. Applicants' June 29, 2016 Comment Letter Wherein Applicants Misrepresent that Cal-Am will only have 4,850 AFY of Water Supply Available for Water Year 2021-22.

By letter dated June 29, 2016, the Applicants have provided their comments on the Preliminary Staff Recommendation. MCWD has the following comments relating to the Figure 1 graph in Attachment A to the June 29, 2016 filing. Figure 1 is **Attachment C to MCWD's Comments**:

1. Cal-Am significantly misrepresents its January 1, 2022 Total Water Portfolio available to meet Monterey District demands. In Figure 1, Cal-Am only shows the Carmel River Legal Limit of 3,376 AF and a Seaside Basin adjudicated amount of 1,474 AF for a total of 4,850 AF. Cal-Am seeks to hide the fact that if you add to this 4,850 AF, a GWR amount of 3,500 AF, a ASR amount of 1,970 AF, the Sand City Desalination Plant amount of 250 AF and

additional water supply discussed above in the amount of 330 AF, and you then subtract 700 AFY for payback water to the Seaside Basin Watermaster[5], the total comes to 10,200 AF under the NO DESAL option, not 4,850 AFY. **Attachment E to MCWD's Comments** inserts MCWD's NO DESAL option in Figure 1 next to Cal-Am's representation of its Water Year 2021-22 water supply. **Attachment F** separately graphs the comparison between Cal-Am's representation of its Water Year 2021-22 water supply and the water supply for the same water year under MCWD's NO DESAL option. The Cal-Am depiction of Water Year 2021-22 water supply is very representative of why MCWD is requesting that Cal-Am be required to produce a water supply/demand computer model.

2. Cal-Am represents that its "Seaside Basin Limit" for Water Year 2013-14 was 2,669 AF and for Water Year 2014-15 was 2,251 AF. Yet the Watermaster reports that Cal-Am pumped from the Seaside Basin 3,232 AF in Water Year 2014 (October 1, 2013 to September 30, 2014) and 2,765 AF in Water Year 2015.[6] As discussed in more detail above in Section II of these comments, the State Water Board cannot rely upon Cal-Am's representations as to Cal-Am's Seaside Basin "Limits." An independent report from the Seaside Basin Watermaster should resolve Cal-Am's pumping rights for the years shown on Figure 1.

3. Figure 1 also shows "Seaside Groundwater Basin Triennial Rampdown Events." The Applicants do not disclose that Cal-Am may petition to postpone the Water Year 2017-18

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[5] Amendment No. 1 to the Memorandum of Understanding between the Seaside Basin Watermaster and California American Water dated December 3, 2008, which is Attachment D to MCWD's Comments, may also be found at http://www.seasidebasinwatermaster.org/Other/WM_Cal-Am%20Amended%20RA%20Credit%20MOU.pdf. Under Section 2 of the Agreement, Cal-Am is not required to provide any payback water unless and until "final completion and acceptance of all MPWSP components." MCWD has shown that a MPWSP is not necessary to meet Cal-Am's objective of fully complying with the CDO by December 31, 2021. However, Cal-Am has over pumped the Seaside Basin and should be required to provide payback water and, as MCWD has shown, Cal-Am can do that even without the MPWSP.

[6] See http://www.seasidebasinwatermaster.org/Other/Final%20Annual%20Report%202014%2012-5-14.pdf and http://www.seasidebasinwatermaster.org/Other/Annual%20Report%202015%20Final%2012-2-15[1]%20reduced1.pdf.

through 2020-21 rampdowns. Every year the Watermaster is required to submit an annual report to the Monterey County Superior Court, which maintains oversight of the Watermaster's activities. MCWD has attached as **Attachment G** an excerpt from the Watermaster's May 23, 2016 annual report to the Court prepared by Russell M. McGlothlin who also represents the applicant Monterey Peninsula Regional Water Authority in this State Water Board proceeding. Section G of the Court filing discusses "Potential Request for Relief from the 2018-2021 Triennial Rampdown," which rampdowns are graphically represented in Figure 1. The basis for the potential rampdown postponement request is an April 2010 Land Transfer and Water Service Agreement between MCWD and the City of Seaside wherein MCWD agreed to supply the City with 2,500 AF total of potable groundwater for the City's two golf courses. The golf courses are within MCWD's Ord Community service area. Delivery of Salinas Valley groundwater to portions of the former Fort Ord are expressly exempt from the MCWRA Agency Act's groundwater export prohibition. Apparently, had MCWD sold the 2,500 AF directly to the Watermaster, that would have constituted a direct replenishment supply for the Basin's benefit upon which a rampdown could be postponed.

4. While the period between now and December 31, 2021, is important to Cal-Am and its Monterey District customers, a primary focus of this proceeding is on how Cal-Am can achieve full compliance with the CDO by December 31, 2021, and have sufficient water supply available to meet Monterey District demands in 2022 and beyond. As shown by MCWD's Total Water Portfolio analysis, by 2022, Cal-Am can achieve both (a) 100% compliance with the CDO and (b) have an adequate water supply without a desalination plant. However, Cal-Am has instead chose to misrepresent its projected Water Year 2021-22 water supply situation in Figure

1 by ignoring the then available water supplies from the ASR, GWR, and Sand City Desalination Project.

IV. Groundwater

As described above, Cal-Am is shifting its Total Water Portfolio from a Carmel River-centric system to a groundwater-centric system. Cal-Am currently depends upon the Adjudicated Seaside Groundwater Basin for its existing adjudicated groundwater supply and the ASR Project. That groundwater dependency will substantially increase in the future with the implementation of the GWR Project. In addition, Cal-Am is proposing to pump the source water for the MPWSP from that portion of 180/400 Foot Aquifer Subbasin of the SVGB located south of the Salinas River. In January 2016, the 180/400 Foot Aquifer Subbasin was designated by the State of California as a Critically Overdrafted Basin.[7]

The MPWMD has filed a timely request with the California Department of Water Resources (DWR) pursuant to the Sustainable Groundwater Management Act (SGMA) to modify the boundaries of the existing Seaside Area Subbasin of the SVGB and divide the subbasin into two separate areas: (1) the Adjudicated Seaside Basin, which would be a basin separate and apart from the SVGB, and (2) the Marina Area Subbasin of the SVGB, which would continue to consist of that area within the existing Seaside Area Subbasin located north of the Adjudicated Basin and south of the existing 180/400 Foot Aquifer Subbasin.

For reference purposes, these comments will use the following definitions:

"Adjudicated Seaside Basin" – That portion of the existing Seaside Area Subbasin, which has been adjudicated.

[7] See http://www.water.ca.gov/groundwater/sgm/pdfs/COD_BasinsTable.pdf.

"Marina Area Subbasin" – that portion of the existing Seaside Area Subbasin located north of the Adjudicated Seaside Basin.

"North Marina Area" -- that portion of the 180/400 Foot Aquifer Subbasin located south of the Salinas River.

"Greater Marina Area" – the combined geographic area of the Marina Area Subbasin and the North Marina Area.

MCWD's Central Marina and Ord Community water service areas are within the Marina Area Subbasin, the Adjudicated Seaside Basin, and a portion of the 180/400 Foot Aquifer Subbasin. MCWD's production wells are located along the northern boundary of the Marina Area Subbasin and pump from the groundwater aquifers that are within both the 180/400 Foot Aquifer Subbasin and the Marina Area Subbasin. A MCWD production well is located approximately 1.6 miles from the CEMEX property.

Cal-Am has no existing overlying, appropriative or prescriptive groundwater right or claim of right to pump groundwater from the 180/400 Foot Aquifer Subbasin. Cal Am cannot obtain an "appropriative" right to export groundwater from the Basin either directly or through an equitable physical solution. In the State Water Board's Final Review of California American Water Company's Monterey Peninsula Water Supply Project dated July 31, 2013 (Final Review), the State Water Board states, "because groundwater in the Basin is in a condition of overdraft, the only way to show there is surplus water available for export to non-overlying parcels is for a user to develop a new water source" and "[t]he only water that would be available for export is a new supply, or developed water." (Final Review at 35 and 40.) The Final Review went on to state at pages 45, 46, and 47,

> Within this 2-mile radial zone, the three foreseeable injuries that overlying users could experience [from developed water] are: (1) a reduction in the overall

availability of fresh water due to possible incidental extraction by the MPWSP; (2) a reduction in water quality in those wells in a localized area within the capture zone; and (3) a reduction in groundwater elevations requiring users to expend additional pumping energy to extract water from the Basin.

* * *

As discussed in this report, additional data will be necessary to ensure that continued operation of the MPWSP, under different source water extraction scenarios, will not injure other legal groundwater users.

Both near and long-term, a new water supply from desalination, or the implementation of a physical solution could ensure an adequate water supply for all legal water users in the Basin and provide an assured supply of groundwater to the Basin's users. Even if overdraft continues continued in the Basin following imposition of the solution, Cal-Am possibly could continue pumping brackish water legally so long as the quantity was not detrimental to the conditions in the Basin and other Basin users' rights. "When the supply is limited public interest requires that there be the greatest number of beneficial uses which the supply can yield." (*Peabody*, supra, 2 Cal.2d at p. 368.)

The Final Review had to speak in general terms because as the State Water Board itself admitted, it lacked the necessary on-site technical information needed to make a legal determination. While emphasizing the need for accurate on-site technical information, the entire Final Review is founded on the misplaced acceptance for legal analysis purposes of Cal-Am's representation of the condition of the SVGB in the vicinity of the CEMEX property. For example, the State Water Board accepted Cal-Am's allegation that "the seawater intrusion front extends approximately 5 miles landward from the proposed [CEMEX] well locations" (Final Review at 45-46) and that consequently, almost all water pumped will be brackish water and not "fresh water" and that "[t]here is expected to be minimal impact to fresh water sources at start-up and for the first several years of operation as water will **certainly** be sourced from the intruded portion of the aquifer." (Final Review at 44, emphasis added.) The State Water Board also incorrectly assumes that "it is unlikely that Basin conditions would improve independent of MPWSP operations." (Final Review at 43.) In addition, the Final Review failed to use the

"Sources of Drinking Water" standard of 3,000 mg/L of total dissolved solids (5,000 uS/cm, electrical conductivity) contained in the State Water Board's own Resolution No. 88-63, Adoption of Policy Entitled "Sources of Drinking Water," which is incorporated by reference into the existing Water Quality Control Plan for the Central Coastal Basin. As discussed below, the Final Review assumptions about the groundwater conditions within the North Marina Area were wrong,

Because MCWD had major concerns about Cal-Am's assertions about the groundwater conditions in the vicinity of the CEMEX property, MCWD retained Curtis J. Hopkins, Principal Hydrogeologist, Hopkins Groundwater Consultants, Inc. While Cal-Am and the Monterey Peninsula Regional Water Authority have sought to discredit Mr. Hopkins' opinions, his analysis and opinions demonstrate that Cal-Am is misrepresenting the groundwater conditions in the vicinity of the CEMEX property and the probable adverse impacts of Cal-Am's MPWSP source water pumping on the groundwater aquifers and adjoining groundwater users, such as MCWD. **Attachment H to MCWD's Comments** is Mr. Hopkins' Technical Memorandum dated May 26, 2016, on the North Marina Area Groundwater Data and Conditions. Mr. Hopkins analyzed the water quality data developed as part of Cal-Am's test slant well project. The following are some of the important findings from pages 7 and 12 of his analysis:

> The significance of these data is that they indicate beneficial conditions have developed (or have always existed) in the North Marina Area of the 180-400 Foot Aquifer Subbasin and may be contrary to information published by the Monterey County Water Resources Agency (MCWRA). The recent investigation that is being conducted in and around the North Marina Area as part of the MPWSP has discovered an occurrence of freshwater within the shallow Dune Sand Aquifer and the underlying 180-Foot Aquifer within the area delineated as seawater intruded by the MCWRA. As previously shown, water level data from wells in the shallow dune sand aquifer appear to show protective water levels that are sufficiently above sea level to prevent seawater intrusion in the shallower sediments. This condition, combined with the lack of pumping in the 180-Foot Aquifer in the North Marina Area, appears to have slowed seawater intrusion in this portion of the coastline. * * *

> These data suggest a change of groundwater conditions in this coastal section of the aquifer or alternatively, they may reveal the groundwater conditions that existed in an area largely lacking historical data. While the freshwater in this area contains salts and nutrients that are derived from overlying land uses that include agriculture, landfill, and wastewater treatment plant and composting facilities, the chemical character is not sodium chloride, which is indicative of seawater intrusion.
>
> * * *
>
> These data indicate a unique condition exists in the North Marina Subarea south of the Salinas River that provides a significant degree of protection against seawater intrusion in the shallower aquifers under the present and recent past hydrologic conditions.

As Mr. Hopkins explained, Cal-Am's proposed MPWSP source water pumping on the CEMEX property would adversely impact the existing groundwater conditions in the vicinity of the CEMEX property and would destroy that existing protective condition against seawater intrusion.

Cal-Am misrepresents that MCWD's opposition to source water pumping from the CEMEX property is inconsistent with MCWD's prior support for the failed Regional Desalination Project. Cal-Am continues to argue that MCWD's position against locating the MPWSP source wells on the CEMEX property is totally inconsistent with MCWD's prior position supporting source wells along the coast for the abandoned Regional Desalination Project alternative of the Coastal Water Project. Cal-Am ignores the fact that unlike Cal-Am, MCWD has vested rights to pump groundwater from the SVGB and that MCWD has the ability to offset the amount of SVGB groundwater contained within the desalination project source water by reducing its own lawful pumping from the Greater Marina Area. That offset ensured that the Regional Desalination Project would not adversely affect groundwater aquifers or impair the existing rights of other users of SVGB groundwater.

Just as Cal-Am is required to mitigate for adverse impacts to steelhead from its Carmel River diversions, Cal-Am is required to mitigate for all of its adverse impacts from its proposed MPWSP source water pumping to the groundwater aquifers and legal users of groundwater in the area adjoining the CEMEX property south of the Salinas River.

Because new scientific data shows the probable adverse impacts from Cal-Am's MPWSP proposed source water wells on the CEMEX property on groundwater aquifers and legal users of the groundwater, MCWD asks the State Water Board to not support before the CPUC the proposed desalination plant component of the MPWSP as requested by the Applicants.

V. Comments on State Water Board Staff's Proposed Order

MCWD provides the following comments on the State Water Board staff's proposed Order:

Section 2, Extension of the Order to December 31, 2021. MCWD supports the extension to December 31, 2021, for the following reasons:

(1) Cal-Am has continually used the CDO's December 31, 2016 deadline as the primary reason for the CPUC to quickly review and approve the MPWSP. MCWD supports the five-year extension because the additional time is needed for a comprehensive and integrated environmental, legal, and feasibility review of the MPWSP as currently proposed by Cal-Am.

(2) MCWD contends that much of the additional costs and delays in developing a desalination project are due to Cal-Am's own actions and corporate attitude toward those who raise legitimate questions about the MPWSP, its impacts on the environment, and its lack of groundwater rights. Cal-Am's customers and ratepayers should not be punished because of that fact.

(3) Those Federal and State fishery agencies and NGOs most involved with Carmel River steelhead issues do not appear to have any objections to a five-year extension provided that the State Water Board imposes adequate steelhead mitigation measures.

Subsection 4.a, Effective Diversion Limit. MCWD could support a hard cap of 8,310 AFY. The higher cap would give credit for the forbearance agreement that would keep up to 300 AFY of river water currently for Rancho Canada golf course irrigation in the river through 2021. In addition, the Federal and State fishery agencies and NGOs most involved with Carmel River steelhead issues do not appear to have any objections to a hard cap of 8,310 AFY.

Subsection 4.b, Adjustments to the Effective Diversion Limit.

i. Pure Water Monterey Groundwater Replenishment Project Offset

The proposed Order states, "If the reduction will result in the Effective Diversion Limit for that year being lower than Cal-Am's available lawful diversions from the Carmel River in that year, Cal-Am may apply to the Deputy Director for a limitation of this condition such that the provision will not limit lawful diversions." It is unclear as to the intended of meaning of the proposed term "Cal-Am's available lawful diversions from the Carmel River in that year," which is used elsewhere in the proposed Order. The ambiguity is created by the words "in that year," which implies that the term does not refer to the 3,376 AF Legal Limit since that limit should not vary year by year. Therefore, the term can be said to refer (1) to the 3,376 AF Legal Limit or (2) to 3,376 AF plus any lawful ASR diversions or (2) to the 7,990 AF? What would be the probable circumstances when this particular situation could occur? Does this qualifier go away if Cal-Am is fined instead of the Effective Diversion Limit being reduced because of a missed milestone?

ii. Seaside Groundwater Basin Limitations

Cal-Am states that its Seaside Basin adjudicated allocation will be 1,474 AFY. In addition, Cal-Am has agreed to pay back the Seaside Basin Watermaster 700 AFY for 25 years for over-pumping. At the very end of Cal-Am's Attachment H to its March 14, 2016 Amended Application to the CPUC, Cal-Am reported a Seaside Basin allocation of only 774 AFY. Yet

Cal-Am pumped from the Seaside Basin 3,232 AF in Water Year 2014 (October 1, 2013 to September 30, 2014) and 2,765 AF in Water Year 2015.

The first sentence of the proposed Order states that this provision would only apply when "an unexpected reduction in Cal-Am's production allocation from the Seaside Groundwater Basin, or access to water pumped makes the supply unavailable." Does the phrase "makes the supply unavailable" mean "totally unavailable"? What does the term "unexpected" mean? Cal-Am has a voting representative on the Seaside Basin Watermaster Board. The Watermaster proceeds very deliberately so no action by the Watermaster is ever "unexpected." The Monterey County Superior Court, which oversees the Watermaster, acts upon filings made by the Watermaster so Cal-Am knows ahead of time of possible court actions pursuant the Seaside Groundwater Basin Judgment.

The proposed provision also overlooks the interplay within the Seaside Basin of Cal-Am's adjudicated groundwater rights, ASR water, and GWR water. For example, while there may be "an unexpected reduction in Cal-Am's production allocation" by order of the Watermaster or the Court, the ASR and GWR water recovered during the same water year could more than offset a temporary reduction in the applicable adjudicated production allocation. The new CDO order needs to address these issues.

For purposes of this proposed provision is the adjudicated production allocation number (1) 774 AFY or (2) 1,474 AFY or (3) a two or three-year running average? WY 2013-14 and WY 2014-15 averaged 2,999 AFY.

All of the above re-emphasizes the need for the State Water Board to request the Watermaster to independently explain and report on these issues.

iii/iv. Carryover; Cap on Carryover

As discussed above, Cal-Am can "game" the system by pumping more water from the Seaside Basin and diverting less water from the Carmel River during any water year. Cal-Am has existing seasonal pumping limits on Carmel River diversions to protect steelhead, including under its jointly held ASR water right permits, which will presumably not be relaxed to

allow Cal-Am to pump any Carryover Credit. The State Water Board should address in its Order how the existing seasonal pumping limits would limit the use of any Carryover Credit with or without a soft or hard cap on total diversions. This is a good example of where a computer model of Cal-Am's water supply sources and demands would be of assistance. MCWD does not object to a Carryover Credit cap of 750 AFY, but the implementation of any Carryover Credit must be based upon accurate diversion and environmental monitoring data

v. Milestones

MCWD understands the necessity for milestones but leaves their formulation to the State Water Board. MCWD would point out the need for the State Board to consider Cal-Am's Total Water Portfolio then available at any milestone and then to readjust milestones as appropriate.

The proposed milestones for the desalination plant component of the MPWSP will most likely continue to be a problem for Cal-Am. MCWD's analysis of Cal-Am's Total Water Supply Options demonstrates that no desalination plant is needed to serve its Monterey District. The pilot slant test well project could very well be terminated for violating monitoring well level criteria. As discussed above and in MCWD's May 31, 2016 comment letter, Cal-Am faces substantial legal, hydrogeological, and environmental impact mitigation issues pertaining to its proposed source well pumping on the CEMEX property. Mere facial compliance with the MCWRA Agency Act's non-export provision does not remedy those other substantive issues.

vi. Reductions to the Effective Diversion Limit Based on Missed Milestones

MCWD objects to reducing the EDL when Cal-Am misses a milestone. Cal-Am's Monterey District customers have done their part to conserve water. Delays in meeting milestones will be mainly due to Cal-Am's own actions or inactions and corporate attitude. Failure to meet a milestone should result in fines levied by the State Board on Cal-Am, the corporation, which should not be passed on to its ratepayers in increased rates. Cal-Am's ratepayers should not be penalized through a reduction in their water supply. MCWD requests this Board to recommend to the CPUC that any fines levied by the Board pursuant to the new

CDO Order be imposed upon Cal-Am the corporation and not be included in Monterey District rates.

ix and Section 8. ASR Project

Cal-Am pumps its adjudicated groundwater right from the Seaside Basin. ASR water is diverted from the Carmel River and injected into and recovered from the Seaside Basin. GWR water will also be injected into and recovered from the Seaside Basin. The proposed Order appears to assume that pumping of adjudicated water, ASR water, and GWR water can be clearly differentiated for accounting purposes under this Order. However, that is not necessarily the case since all of the pumping is from a common pool. MCWD recommends that the State Water Board work with the Seaside Basin Watermaster to address this water accounting issue.

Subsection 4.d.ix addresses ASR diversions from the Carmel River. Section 8 addresses recovery of ASR water from the Seaside Basin for use by Cal-Am customers, which is based upon Ordering Paragraph 4 of WRO 2009-0060. As requested by the Applicants, Subsection 4.d.ix proposes that the first 600 AFY of ASR water diverted from the Carmel River be counted against the cap. Section 8 states that "Cal-Am shall reduce its illegal diversions from the Carmel River at the same rate ASR water is recovered from the groundwater basin." For example, if Cal-Am diverts 1,800 AF of ASR water from the Carmel River and then recovers 1,000 AF for use, then pursuant to these two proposed provisions, 600 AF of ASR water diverted and the 1,000 AF recovered, a total of 1,600 AF would be counted against the cap. Is that what is intended by Subsection ix and Section 8 when they are read together?

A separate but related issue: The applicants themselves have requested that the first 600 AFY diverted under the existing ASR permits in any water year be counted against the hard cap; however, once Cal-Am's river diversions (excluding any ASR diversions) are reduced to the 3,376 AFY Legal Limit, then Subsection 4.d.ix should no longer apply since then all diversions would then be subject to existing permit limits.

Sections 5, 6 and 7. Steelhead Mitigation Requirements versus No Requirements on Cal-Am to Mitigate Impacts to Groundwater Aquifers and Legal Users of Groundwater in the Area Adjacent to the CEMEX Property South of the Salinas River

Cal-Am pumping on the Carmel River impacts the steelhead population. Consequently, Cal-Am is required to implement substantial mitigation measures because of those impacts.

MCWD has provided substantial evidence demonstrating the adverse impacts to the groundwater aquifers within the 180/400 Foot Aquifer Subbasin south of the Salinas River and to MCWD's production wells located in the immediately adjoining Marina Area Subbasin that would likely result from implementation of Cal-Am's proposed MPWSP. While MCWD understands Castroville Community Services District's groundwater problems and agrees that those problems should be alleviated, CCSD's groundwater problems are long-standing pre-existing problems and are not related in any way to Cal-Am's proposed MPWSP. More importantly, no desalinated water injected or provided as in-lieu groundwater recharge in the vicinity of the CCSD north of the Salinas River could result in any groundwater benefits or mitigation to the groundwater aquifers adjoining the CEMEX property.

As the State Water Board knows, on July 11, 1949, the predecessor to the Monterey County Water Resources Agency filed Application 13225, which resulted in the issuance of Permit 11043 on March 8, 1983. Two points of diversion were approved, including the "Castroville Canal Intake" project. While the Castroville Seawater Intrusion Project has been successfully implemented utilizing tertiary treated wastewater and supplemented by diversions of Salinas River water, which is diverted at a rubber dam near Marina, CCSD's groundwater problems have persisted. MCWD has described above potential "low hanging fruit" water supply options, which could significantly help CCSD.

VI. Conclusion

MCWD's comments demonstrate the following:

1. The State Water Board needs to closely examine Cal-Am's claimed Total Water Portfolio of existing and future water sources. As demonstrated by MCWD, the Applicants' Figure 1 to its June 29, 2016 comments misrepresent the water supply that will be available to Cal-Am come January 1, 2022. The actual 2022 water supply will be comparable to Cal-Am's representation in Figure 1 of the amount of its water supply for Water Year 2015-16 and 2016-17 and will be greater than that shown in Figure 1 for succeeding water years.

2. The shift in its Total Water Portfolio from a Carmel River-centric to a groundwater-centric water supply system requires that Cal-Am produce for public review a computer model, which integrates all of its water sources and Monterey District water demands by water year type and by month.

3. Cal-Am has failed to provide the State Water Board with accurate information on Cal-Am's Seaside Basin Groundwater rights versus what it is allowed to pump in excess of those rights. The claimed Seaside Groundwater Basin Triennial Rampdowns may not occur as claimed by Cal-Am. The Seaside Groundwater Basin Watermaster should be requested to independently review and prepare a public report to the State Water Board of Cal-Am's production rights and history, including, but not limited to Cal-Am's adjudicated groundwater rights, its over pumping right, the effect of rampdowns on Cal-Am's rights, and Cal-Am's payback obligation. The State Water Board should require Cal-Am to reimburse the Watermaster for all costs of such review and report. The State Water Board needs to be aware that Cal-Am is a voting member of the Watermaster Board and actively participates in all Watermaster committees.

4. Cal-Am's proposed MPWSP (utilizing sources wells on the CEMEX property) is unnecessary to meet Cal-Am's 2022 water demands and is not environmentally or legally sound.

Respectfully Submitted,

Dated: July 12, 2016.

MARINA COAST WATER DISTRICT

By Roger K. Masuda

Roger K. Masuda, Legal Counsel

Attachment	Description
A	Spreadsheet of Cal-Am's Total Water Portfolio Options with 100% CDO Compliance.
B	Bar graph of the Attachment B spreadsheet.
C	Figure 1 bar graph contained in Applicants' June 29, 2016 comments on the Preliminary Staff Recommendation.
D	Amendment No. 1 to the Memorandum of Understanding between the Seaside Basin Watermaster and California American Water dated December 3, 2008
E	Modification to Attachment C by inserting MCWD's NO DESAL option water supply as of January 1, 2022
F	Bar graph comparing Applicants' Figure 1 bar graph for Water Year 2021-22 with MCWD's NO DESAL option for the same year
G	Excerpt from the Seaside Groundwater Basin Watermaster's May 23, 2016 Annual Report filed with the Monterey County Superior Court
H	Curtis J. Hopkins' Technical Memorandum dated May 26, 2016, on North Marina Area Groundwater Data and Conditions.

In the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company; Cease and Desist Order WR 2009-0060

Comments of the Marina Coast Water District

ATTACHMENT A

CAL-AM'S TOTAL WATER PORTFOLIO OPTIONS WITH 100% CDO COMPLIANCE
Beginning January 1, 2022
All amounts are in Acre Feet per Year unless a percentage

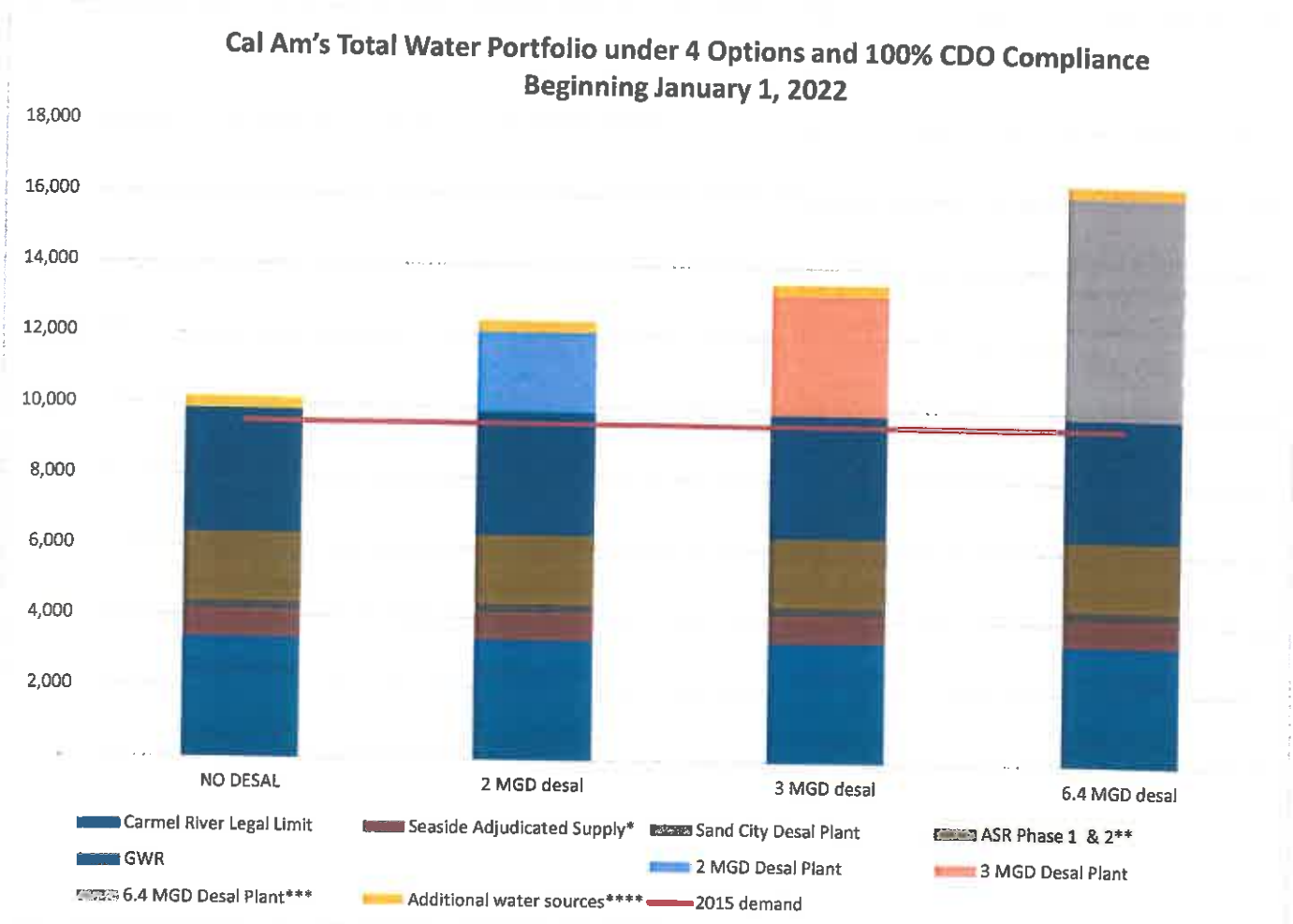
	NO DESAL	2 MGD desal	3 MGD desal	6.4 MGD desal
Carmel River Legal Limit	3,376	3,376	3,376	3,376
Seaside Adjudicated Supply*	774	774	774	774
Sand City Desal Plant	250	250	250	250
ASR Phase 1 & 2**	1,970	1,970	1,970	1,970
GWR	3,500	3,500	3,500	3,500
2 MGD Desal Plant		2,240		
3 MGD Desal Plant			3,360	
6.4 MGD Desal Plant***				6,252
Additional water sources****	330	330	330	330
Totals	10,200	12,440	13,560	16,452
2015 demand	9,545	9,545	9,545	9,545
Water Supply Reserve	655	2,895	4,015	6,907
Percent Water Supply Reserve	6.9%	30.3%	42.1%	72.4%

*CAW adjusts 1,474 to 774 to account for the 700 in annual payback for Seaside Basin overpumping
**MPWMD states combined Phase 1 and 2 yield of 1,970 AFY, which is used here
CAW uses an ASR Average Annual Yield of only 1,300.
***CAW assumes only 6,252 AFY as opposed to 7,168 (6.4 X 1,120 AF)
****Spreadsheet assumes a total combined additional water supply of 330 AFY from the Seaside Basin, ASR Project, and GWR Project

In the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company; Cease and Desist Order WR 2009-0060

Comments of the Marina Coast Water District

ATTACHMENT B


Cal Am's Total Water Portfolio under 4 Options and 100% CDO Compliance
Beginning January 1, 2022
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
NO DESAL
2 MGD desal
3 MGD desal
6.4 MGD desal
Carmel River Legal Limit
GWR
6.4 MGD Desal Plant***
Seaside Adjudicated Supply*
Additional water sources****
Sand City Desal Plant
2 MGD Desal Plant
2015 demand
ASR Phase 1 & 2**
3 MGD Desal Plant

In the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company; Cease and Desist Order WR 2009-0060

Comments of the Marina Coast Water District

ATTACHMENT C

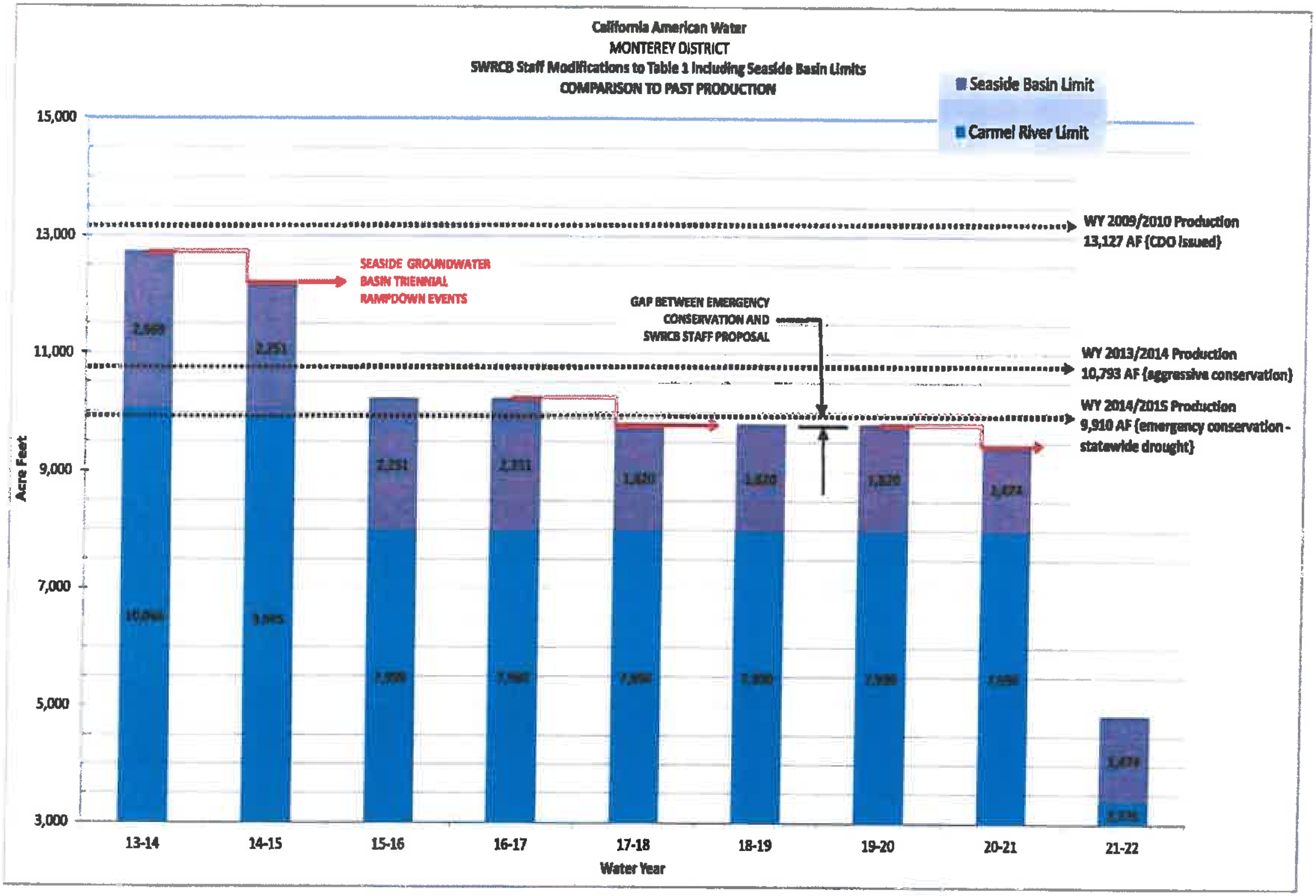

California American Water
MONTEREY DISTRICT
SWRCB Staff Modifications to Table 1 Including Seaside Basin Limits
COMPARISON TO PAST PRODUCTION
Seaside Basin Limit
Carmel River Limit
Acre Feet
15,000
13,000
11,000
9,000
7,000
5,000
3,000
WY 2009/2010 Production
13,127 AF (CDO Issued)
SEASIDE GROUNDWATER
BASIN TRIENNIAL
RAMPDOWN EVENTS
GAP BETWEEN EMERGENCY
CONSERVATION AND
SWRCB STAFF PROPOSAL
WY 2013/2014 Production
10,793 AF (aggressive conservation)
WY 2014/2015 Production
9,910 AF (emergency conservation - statewide drought)
13-14
14-15
15-16
16-17
17-18
18-19
19-20
20-21
21-22
Water Year

Figure 1

[5]

In the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company; Cease and Desist Order WR 2009-0060

Comments of the Marina Coast Water District

ATTACHMENT D

AMENDMENT NO. 1
TO THE
MEMORANDUM OF UNDERSTANDING
BETWEEN
THE SEASIDE BASIN WATERMASTER AND CALIFORNIA AMERICAN WATER
DATED
DECEMBER 3, 2008

The Memorandum of Understanding pertaining to the repayment of Replenishment Assessments (December 3, 2008 MOU) between the Seaside Basin Watermaster (Watermaster) and California American Water (CAW), which was entered into pursuant to a motion passed by Watermaster on December 3, 2008 and executed by the Watermaster on January 21, 2009 and by CAW on January 29, 2009, is hereby modified by this Amendment No. 1 (Amendment) as follows:

RECITALS

A. The December 3 2008 MOU was entered into to comply with and fulfill the conditions of the Amended Decision entered in the case California American Water Company v. City of Seaside et al., Monterey Superior Court, Case No. M66343.

B. Section 2.a of the December 3, 2008 MOU states in part that "...upon completion and implementation of a water supply augmentation Project, CAW shall provide Watermaster, at no cost to Watermaster, and on a schedule that is feasible [emphasis added] either (1) water for Artificial Replenishment through direct replenishment and/or (2) cause in-lieu replenishment of the Basin by forbearing to produce water to which CAW is entitled as CAW's share of the Native Safe Yield, in an amount equal to CAW's total acre feet of Over-Production for the Water Years 05-06, 06-07, and 07-08, which total is 6,390.1 acre feet. Future CAW requests for Replenishment Credit shall be granted subject to the same conditions set forth in this Section 2 (a)."

C. CAW is currently prosecuting before the California Public Utilities Commission an application for a Certificate of Public Convenience and Necessity to construct the Monterey Peninsula Water Supply Project ("MPWSP"), as an alternative to the Coastal Water Project.

D. As of the date of this Amendment, CAW's total Over-Production for all Water years Through Water Year 2012-2013 is 11,981.29 acre feet, and it is anticipated that upon the estimated date on which CAW's MPWSP becomes fully operational, Cal-Am's total Over-Production will be 18,718.17 acre feet.

E. On November 29, 2012 the Watermaster voted to accept a replenishment repayment schedule proposed by CAW under which the MPWSP would provide potable water to fulfill CAW's replenishment obligations as set forth in the December 3, 2008 MOU.

F. Watermaster and CAW desire to amend the December 3, 2008 MOU to formalize their agreement that the replenishment repayment schedule proposed by CAW constitutes a "feasible" schedule as referred to in Section 2.a of the December 3, 2008 MOU.

AGREEMENT

Watermaster and CAW agree as follows:

1. Except as modified by the language below, all terms and conditions of the December 3, 2008 MOU are unchanged by this Amendment No. 1 and remain in full force and effect.

2. Beginning October 1 following final completion and acceptance of all MPWSP components (as defined by the relevant MPWSP construction contracts) by CAW, CAW shall commence Artificial Replenishment of the Seaside Basin as follows:

a. At the conclusion of the first Water Year after final completion and acceptance of the MPWSP, and each Water Year thereafter, Watermaster shall report, in accordance with the Amended Decision and Watermaster Rules and Regulations:
   i. The cumulative total of CAW's Overproduction from Water Year 05/06 to date;
   ii. CAW's Non-Native Water Stored in the Basin;
   iii. The cumulative total of CAW's prior Artificial Replenishment.

b. CAW's Replenishment Obligation shall be fulfilled in accordance with the Replenishment Schedule contained in Attachment "A" hereto. The volume of artificial or in-lieu replenishment shall be based on a running five (5) Water Year average. Should the average volume of artificial or in-lieu replenishment calculated by the Watermaster be less than 700 acre feet annually, and if the Watermaster declares that water for Artificial Replenishment is available from sources other than the CAW Water Supply Project, Watermaster shall have the option of requiring CAW to pay a part of CAW's Outstanding Replenishment Assessment for the purpose of providing Watermaster with funds to obtain Artificial Replenishment in sufficient quantities to replenish that quantity not provided via in-lieu replenishment.

c. Should conditions change in the Basin sufficient to indicate that seawater intrusion is occurring, this Replenishment Schedule shall be subject to immediate modification.

d. Replenishment Years subsequent to Replenishment Year 25 shall continue at 700 acre-feet annually based on a running 5-year average until CAW's total Replenishment Obligation has been fulfilled.

e. In accordance with Section 4 of the December 3, 2008 MOU, at any stage in CAW's replenishment prior to Replenishment Year 25 should the Court determine that the Basin has been replenished in an amount sufficient to prevent seawater intrusion, or the Basin has been protected by alternative seawater intrusion preventive measures, CAW's obligations under conditions set by the December 3, 2008 MOU shall be deemed fully satisfied.

f. CAW's total Replenishment Obligation pursuant to the December 3, 2008 MOU shall equal the number of acre feet CAW Overproduced and for which CAW was assessed a Replenishment Assessment beginning with the Water Year 05/06 to the first Water Year after final completion and acceptance of the MPWSP occurs. In no event shall the total amount of Artificial Replenishment by CAW be greater than the cumulative total of acre feet of CAW's Over Production for which CAW was granted Replenishment Credits.

3. All terms used in this Amendment No. 1 that are defined terms in the Amended Decision shall be defined herein as set forth in Section III.A of the Amended Decision.

IN WITNESS WHEREOF the Parties hereby agree to the full performance of the terms and conditions set forth in this Amendment No. 1.

SEASIDE BASIN WATERMASTER

Chair, Seaside Basin Watermaster

Date: 4/25/14

CALIFORNIA AMERICAN WATER

President, California American Water

Date: 6-6-14

ATTACHMENT "A"

REPLENISHMENT SCHEDULE

REPLENSIHMENT YEAR	ARTIFICIAL REPLENISHMENT (AFA)	IN-LIEU REPLENISHMENT (AFA)
1		700
2		700
3		700
4		700
5		700
6		700
7		700
8		700
9		700
10		700
11		700
12		700
13		700
14		700
15		700
16		700
17		700
18		700
19		700
20		700
21		700
22		700
23		700
24		700
25		700
--		700

In the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company; Cease and Desist Order WR 2009-0060

Comments of the Marina Coast Water District

ATTACHMENT E

Cal-Am June 29, 2016 Figure 1 Modified to Show MCWD's No Desal Option as of January 1, 2022

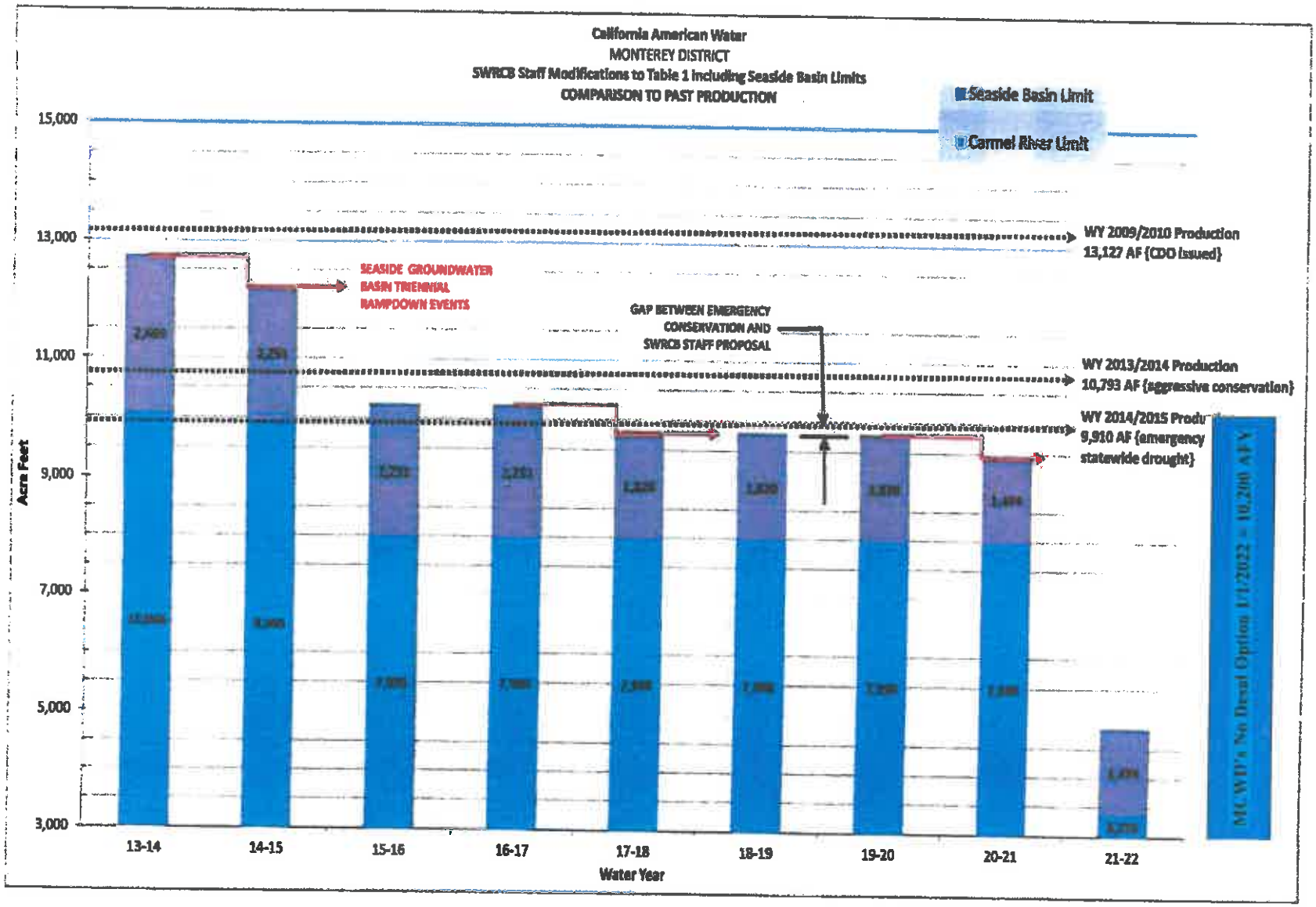


Figure 1

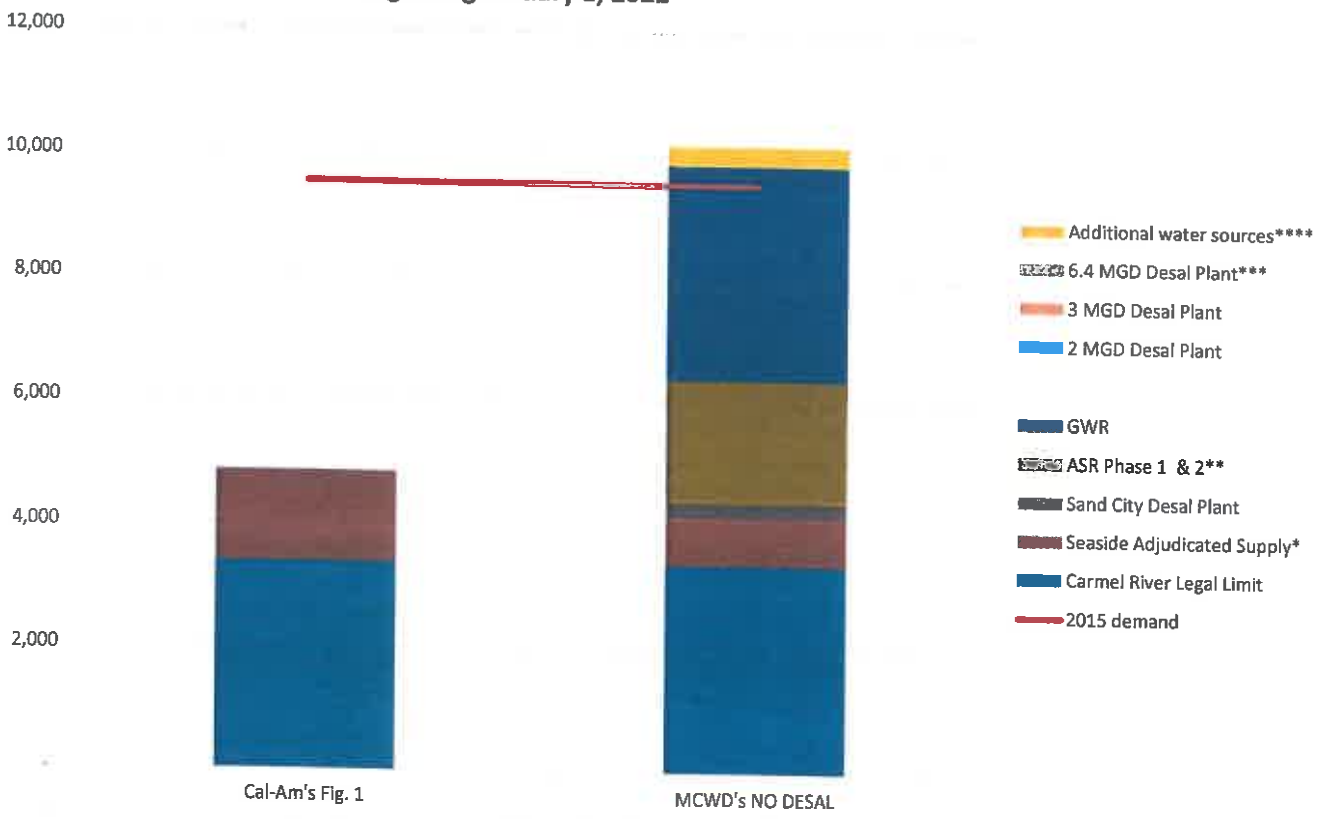
[5]

In the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company; Cease and Desist Order WR 2009-0060

Comments of the Marina Coast Water District

ATTACHMENT F

Comparison of Cal Am's Figure 1 Water Year 21-22 versus MCWD's NO DESAL Scenario Beginning January 1, 2022



In the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company; Cease and Desist Order WR 2009-0060

Comments of the Marina Coast Water District

ATTACHMENT G

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RmcGlothlin@bhfs.com

Attorneys for Seaside Groundwater Basin Watermaster

EXEMPT FROM FILING FEES
(Cal. Gov. Code § 6103)

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF MONTEREY

CALIFORNIA AMERICAN WATER,

Plaintiff,

v.

CITY OF SEASIDE, et al.,

Defendants.

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT,

Intervenor.

MONTEREY COUNTY WATER RESOURCES AGENCY,

Intervenor.

AND RELATED CROSS-ACTIONS.

Case No. M66343

Assigned for All Purposes to the Honorable Leslie C. Nichols

REQUEST FOR STATUS CONFERENCE, AND ADJUDICATION BACKGROUND REPORT AND UPDATE

([Proposed] Order Granting Status Conference Filed Concurrently)

Action Filed: August 14, 2003
Trial Date: December 13, 2005

BROWNSTEIN HYATT FARBER SCHRECK, LLP
1020 State Street
Santa Barbara, CA 93101-2711

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Cal-Am anticipates that a decision on the proposed modified CDO will be issued by the SWRCB during the second half of 2016.

G. Potential Request for Relief From the 2018-2021 Triennial Rampdown

Pursuant to terms of the proposed CDO extension, the most challenging years for the Monterey Peninsula will be 2018-2020. Depending on the SWRCB's actions on the proposed CDO extension, demand projections, and developments concerning the MPWSP, Cal-Am has indicated that it may request Watermaster to seek the Court's permission to postpone the 2018-2021 rampdown to the Operating Safe Yield of 560 AFY. Such relief from the Operating Safe Yield is currently justified and consistent with the Decision, in the view of Watermaster, principally because Watermaster, through an arrangement with the City of Seaside, has already replenished 2,500 acre-feet of non-native water into the Basin. This has occurred through the City of Seaside's acquisition of 2,500 acre-feet of imported water, which it has used in-lieu of producing the Alternative Production Allocation to which it is entitled for irrigation of two golf courses owned by the city. Watermaster, with the Court's concurrence, entered into an agreement with the City to grant it a credit against the replenishment assessment liability that it incurred in relation to the City's production of Standard Production Allocation for its small municipal water system. Thus, effectively, Watermaster has purchased this 2,500 acre-feet of replenishment supply for the Basin's benefit.

The Decision allows relief from the triennial rampdown if "Watermaster has secured and is adding an equivalent amount of Non-Native water to the Basin on an annual basis" (Cite.) Watermaster's in-lieu replenishment program with the City of Seaside does not meet the express criteria of replenishing equivalent Non-Native water *on an annual basis*. However, there currently is, in Watermaster's view, a reasonable basis to postpone the 2018-2021 rampdown for the following reasons:

- The three-year rampdown total is 1,680 AF (560 AF x 3 years) and 2,500 acre-feet of replenishment has occurred. Thus, the quantity of replenishment water is 149% of the quantity of rampdown relief that may be requested.

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- Watermaster has implemented a robust monitoring and seawater intrusion response program, and there is no evidence of seawater intrusion or any other imminent adverse impact to the Basin.
- Relief from the rampdown may be critical to avoid deleterious economic and social consequences to the region associated with Cal-Am's CDO extension request.
- Once it is operational, the MPWSP will be able to provide water allowing for replenishment of the Basin in an amount equivalent to the postponed rampdown.

Although it has not yet been determined whether relief from the 2018-2021 rampdown will be requested, Watermaster apprises the Court of this issue now to afford the Court advanced notice and, given the importance of this issue in the context of the CDO extension, to provide the Court with an opportunity to ask questions and provide any early direction concerning the issue.

H. Next Steps and Proposed 2017 Status Conference

Watermaster will monitor and, to the extent possible, participate in the GSA formation process for the Corral de Tierra Area Subbasin and begin coordination efforts once the GSA is established. Cal-Am and the MPWMD will continue to update Watermaster on progress for the MPWSP and GWRP.

In addition to reporting to the Court at the 2016 Status Conference requested herein, Watermaster will report on the status of the issues described in this report in its 2016 Annual Report to the Court. Watermaster also proposes that the Court set a subsequent status conference hearing for the first quarter of 2017. At that status conference, Watermaster will update the Court on the development of the MPWSP and the requested CDO extension from the SWRCB, report on any updates to the strategy to address groundwater level declines in the LSSA, and discuss whether a motion for relief from the 2018-2021 rampdown is anticipated in 2017.

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Dated: May 23, 2016

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By: _____
RUSSELL M. MCGLOTHLIN
Attorneys for Seaside Groundwater Basin Watermaster

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In the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company; Cease and Desist Order WR 2009-0060

Comments of the Marina Coast Water District

ATTACHMENT H

Curtis J. Hopkins' Technical Memorandum dated May 26, 2016, on "North Marina Area Groundwater Data and Conditions" is a separate PDF filed in this matter

HOPKINS
GROUNDWATER
CONSULTANTS, INC.
THE WATER RESOURCE SPECIALISTS

TECHNICAL MEMORANDUM

To: Mr. Keith Van Der Maaten
General Manager, Marina Coast Water District

From: Curtis J. Hopkins
Principal Hydrogeologist, Hopkins Groundwater Consultants, Inc.

Date: May 26, 2016

Subject: North Marina Area Groundwater Data and Conditions

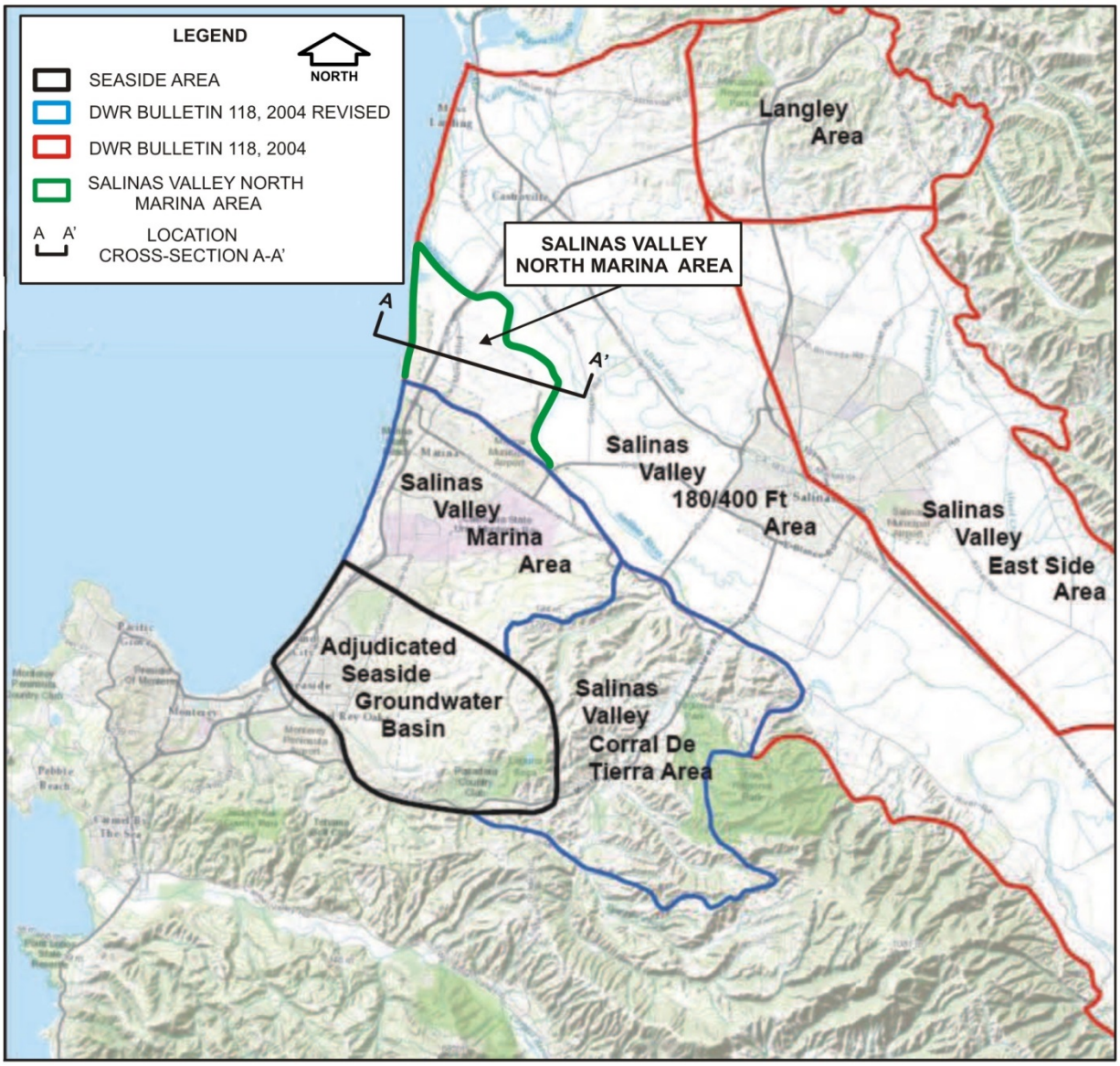
I. Introduction

Hopkins Groundwater Consultants, Inc. (Hopkins) has reviewed groundwater data provided by the California-American Water Company's (Cal-Am's) test slant well project for the Monterey Peninsula Water Supply Project (MPWSP) as requested by Marina Coast Water District (MCWD). This memorandum provides a summary of groundwater data and the conditions that are inferred from these data in the North Marina Area of the 180-400 Foot Aquifer Subbasin[1] within the Salinas Valley Groundwater Basin (SVGB). The North Marina Area is delineated for reference in Figure 1 – Groundwater Basin Boundary Map which shows its location within the SVGB. As shown, the North Marina Area is located between the northern boundary of the Marina Area and the Salinas River. This area of the basin has been largely undeveloped and historically contained very few wells to provide groundwater data.

The geology in the North Marina Area differs from the geology north of the Salinas River in the main portion of the 180-400 Foot Aquifer Subbasin and has been described in detail by studies conducted for the MPWSP. An interpretation of subsurface deposits within this specific coastal area is provided in Plate 1 – Cross-Section A-A', which is a portion of a subsurface profile constructed by Geoscience Support Services, Inc. from borehole data collected in the area (Geoscience, 2014). The approximate location of Cross-Section A-A' is shown in Figure 1. As shown and as described by previous study (Geoscience, 2014 and 2015, KJC, 2004), the terrace deposits that comprise the 180-Foot Equivalent Aquifer (180-FTE) in the North Marina Area grade into the alluvial deposits that comprise the 180-Foot Aquifer in the main portion of the basin around the present location of the Salinas River.

[1] / For purposes of the memorandum, the North Marina Area is defined as that portion of the 180/400 Foot Aquifer Subbasin located south of the Salinas River and north of the Salinas Valley Marina Area.

Figure 1 – Groundwater Basin Boundary Map

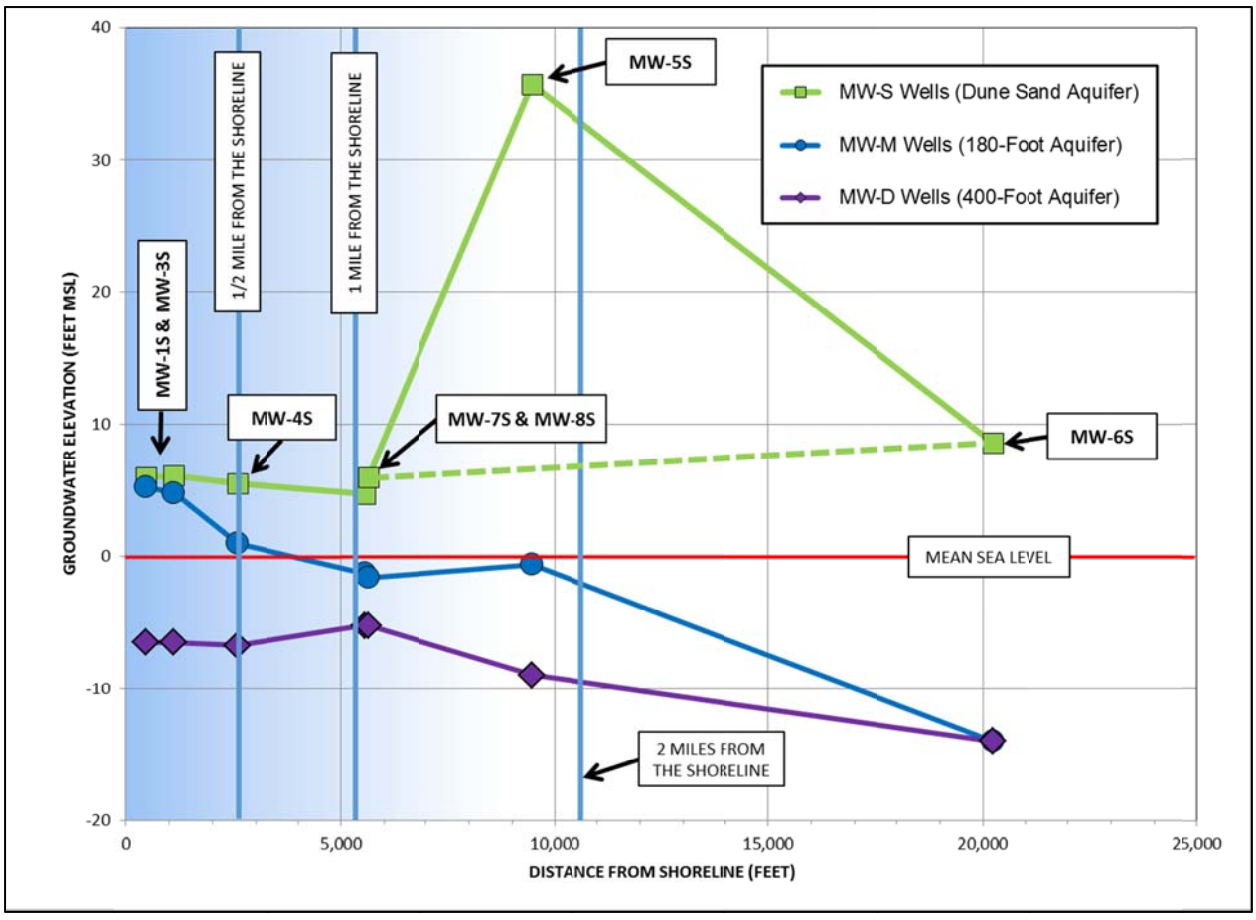


II. Coastal Groundwater Elevations

Recent investigation for the MPWSP includes the installation of a test slant well and multiple monitoring wells in and around the CEMEX property where the MPWSP intake wells are proposed to be located. The monitoring well network is being used to generate background water level and water quality data within the North Marina Area of the 180-400 Foot Aquifer Subbasin. The location of the monitoring facilities is shown on Plate 2 – Well Location Map. The construction details of these wells are included for reference as Attachment A – Well Construction Information.

Routine monitoring of the well network is presented in weekly summary reports that are posted on the Cal-Am website. Water level data are graphically presented as hydrographs which show daily changes and seasonal trends. A set of hydrographs provided by the MPWSP test slant well long term pumping test Monitoring Report No. 55 are included as Attachment B – MPWSP Water Level Data. We must note that while we have over a year of data, the climatic conditions prior to initiation of testing have been extremely dry. For comparison of the groundwater conditions across the area prior to resumption of pumping, data from May 2, 2016 were used to construct Figure 2 – Groundwater Elevation From MPWSP Monitoring Wells. As shown, the water level elevations vary significantly between the shallow Dune Sand Aquifer (indicated by the MW-S Wells), the 180-FTE Aquifer (indicated by the MW-M Wells), and the 400-Foot Aquifer (indicated by the MW-D Wells).

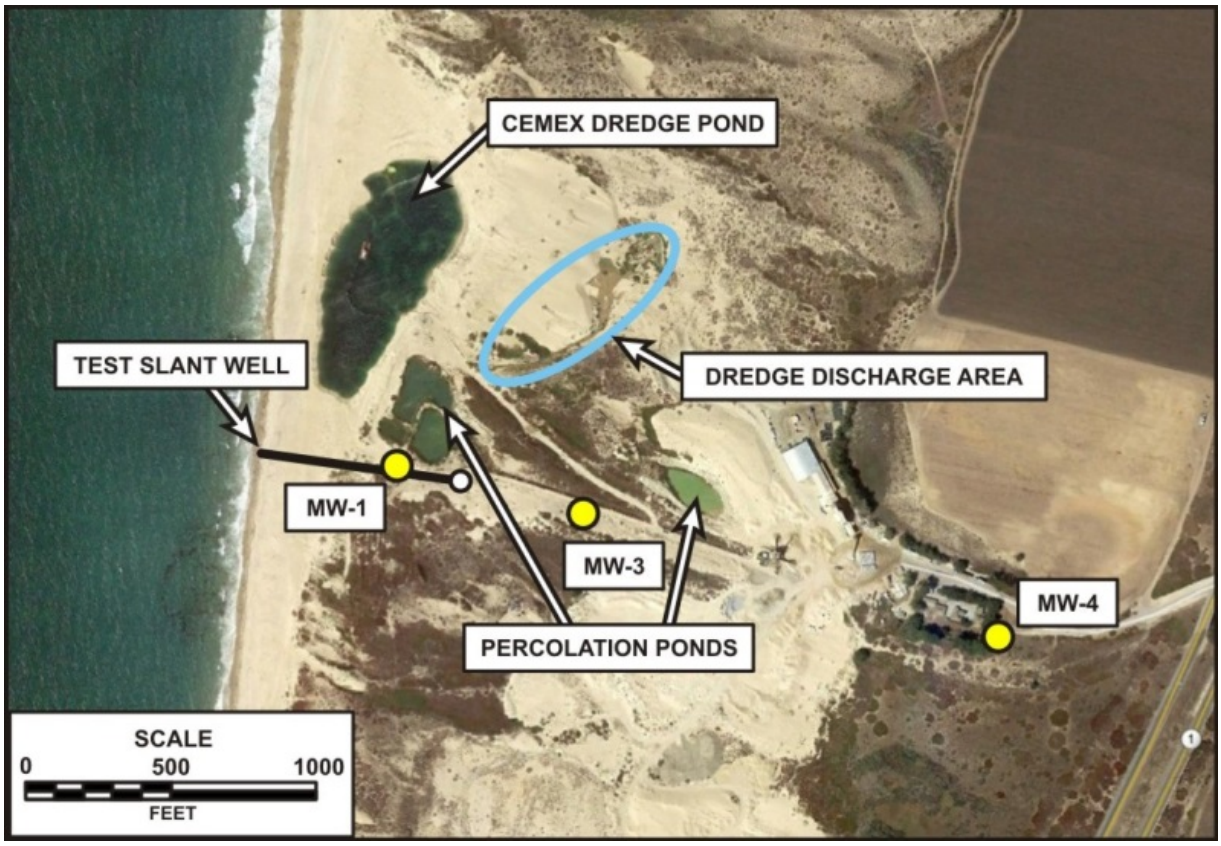
Figure 2 – Groundwater Elevation From MPWSP Monitoring Wells



The Dune Sand Aquifer has water levels that are notably above sea level and maintain a protective head against seawater intrusion (Geoscience, 2013). The coastal groundwater mounding at MW-1 and MW-3 is believed to be maintained by the CEMEX dredge pond operation that is discharged on the landward side of the coastal dunes as well as process water

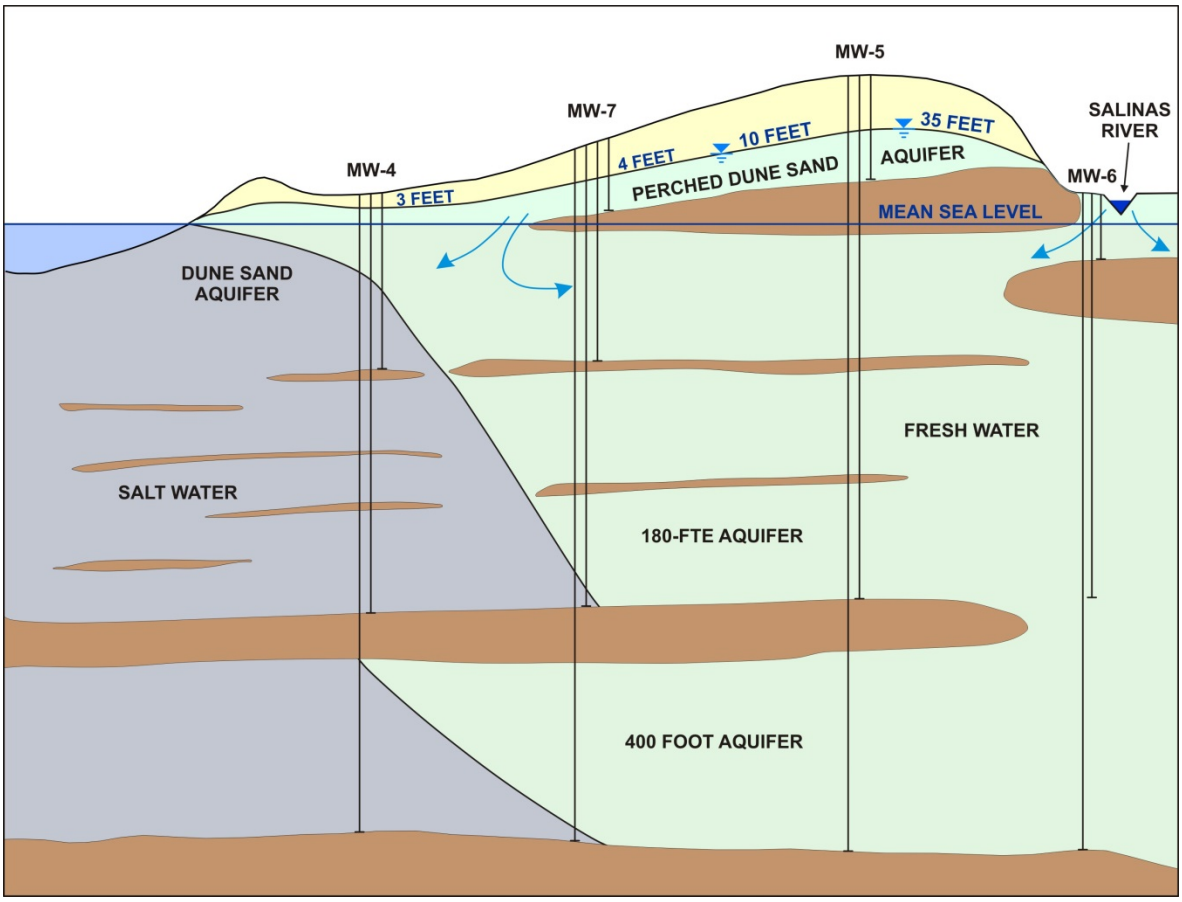
that is discharged to percolation ponds. Figure 3 – CEMEX Salt Water Discharge Locations shows the surface water features that have influenced the groundwater levels and quality at this location along the coast for decades. The maintenance of these features undoubtably increases the amount of ocean water present in the vicinity of the test slant well.

Figure 3 – CEMEX Salt Water Discharge Locations



These data also show the perched groundwater condition in the vicinity of MW-5 where the groundwater elevation is 36 feet above mean sea level (msl). The groundwater perched above the Salinas Valley Aquitard equivalent flows toward the coast and results in downward recharge where the aquitard layer thins (or ends) and provides fresh water recharge into the coastal unconfined Dune Sand Aquifer and the underlying 180-Foot Aquifer in the vicinity of MW-7 and MW-8. Figure 4 – Conceptual Drawing of the Hydrogeology in the North Marina Area illustrates the subsurface conditions indicated by these available data.

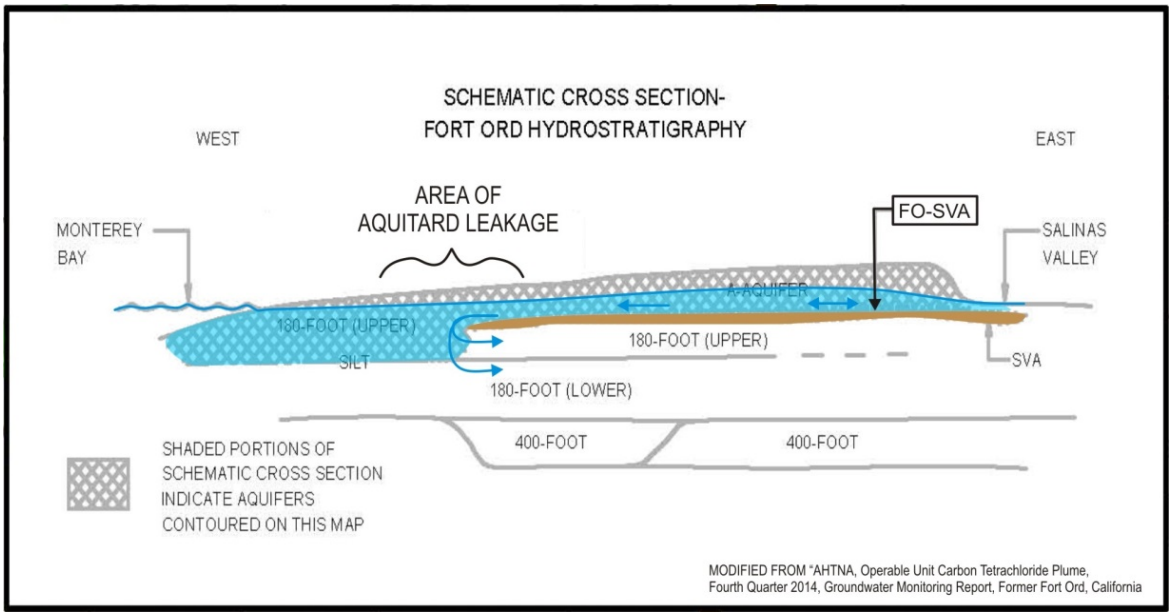
Figure 4 – Conceptual Drawing of the Hydrogeology in the North Marina Area



Years of reduced pumping has resulted in beneficial groundwater conditions that are apparently slowing the movement of seawater and providing a freshwater source that is replenishing the aquifers. Notably, the fact that the Dune Sand and 180-Foot Aquifers at Monitoring Well MW-7 are no longer contaminated by high concentrations of seawater can likely be explained by the changing hydrogeological conditions resulting from the efforts of MCWD (e.g., Annexation Agreement, etc.) and others to reduce pumping in the coastal area. As a result, recharge from rainfall into the Dune Sand Aquifer creates a mound of freshwater that flows toward the Salinas River and the ocean.

We further note this protective condition is not isolated in a small area. This coastal condition was previously documented as part of the Fort Ord cleanup effort located southeast of the CEMEX site. The study named the aquitard layer the “Fort Ord-Salinas Valley Aquitard” (FO-SVA). Figure 5 - Perched Dune Sand Aquifer Schematic from Fort Ord Groundwater Monitoring Program shows a drawing of this condition, which was modified to illustrate groundwater flow directions (Ahtna, 2014).

**Figure 5 – Perched Dune Sand Aquifer Schematic
from Fort Ord Groundwater Monitoring Program**



This is a very significant development. Given that the groundwater found with a 36-foot elevation in the Dune Sand Aquifer at the location of MW-5S (and a 6-foot elevation at MW-7S), the Dune Sand Aquifer effectively provides a protective layer preventing seawater intrusion from moving into the Basin at a shallow depth and percolating downward into the underlying aquifers. Instead of allowing a shallow pathway for ocean water, the Dune Sand Aquifer having a potable fresh water quality based on its TDS concentration, appears to be slowly recharging the lower aquifers (i.e., the 180-Foot Aquifer and perhaps 400-Foot Aquifer), which has significantly reduced their TDS levels in this coastal area. This unique condition in the Marina Subarea is believed to provide recharge all along the coast in an area that effectively forms a linear recharge barrier within a mile of the shoreline. The extent of the Fort Ord-Salinas Valley Aquitard was estimated in a 2001 study conducted as part of the Fort Ord cleanup program (Harding ESE, 2001).

Monitoring data indicate that the elevation of the water levels in Monitoring Wells MW-7M and MW-8M are presently lower than the levels in both MW-4M and MW-5M. While the groundwater elevation is near mean sea level, the gradient indicated by the higher level at MW-5M shows that groundwater flows toward the coast up to MW-7 and MW-8 under these conditions. The significance is that after several years of drought conditions, the groundwater gradient between MW-4M (roughly ½ mile from the coast) and MW-5M (almost 2 miles from the coast) is relatively flat in the 180-FTE Aquifer. A significant decline in the groundwater level is observed to occur between MW-5M and MW-6M (see Figure 2). Further study would be required to understand if the mounding indicated in the 400-Foot Aquifer at MW-7 and MW-8 were from vertical recharge from the 180-FTE in this area along the coast.

III. Groundwater Quality Data

Water quality data developed as part of the test slant well project are summarized in the tables included in Attachment C – Laboratory Water Quality Test Results. The first table shown in Attachment C provides the only data published for wells other than the test slant well and MW-4 (Geoscience, 2015a). This table includes laboratory results for wells including MW-1, MW-3, MW-4, MW-5, and the test slant well. The second table in Attachment C is a compilation of laboratory data received by MCWD in October 2015 in response to a data request in the California Public Utilities Commission proceedings. This table includes data for monitoring wells MW-6, MW-7, MW-8, and MW-9 that to our knowledge, have not be published in any of the MPWSP documents.

The significance of these data is that they indicate beneficial conditions have developed (or have always existed) in the North Marina Area of the 180-400 Foot Aquifer Subbasin and may be contrary to information published by the Monterey County Water Resources Agency (MCWRA). The recent investigation that is being conducted in and around the North Marina Area as part of the MPWSP has discovered an occurrence of freshwater within the shallow Dune Sand Aquifer and the underlying 180-Foot Aquifer within the area delineated as seawater intruded by the MCWRA. As previously shown, water level data from wells in the shallow dune sand aquifer appear to show protective water levels that are sufficiently above sea level to prevent seawater intrusion in the shallower sediments. This condition, combined with the lack of pumping in the 180-Foot Aquifer in the North Marina Area, appears to have slowed seawater intrusion in this portion of the coastline. Water quality test results for total dissolved solids and chloride concentrations in these two uppermost aquifer zones are shown on Figures 6 and 7 – Average Total Dissolved Solids Concentrations in Groundwater and Average Chloride Concentrations in Groundwater, respectively.

These data suggest a change of groundwater conditions in this coastal section of the aquifer or alternatively, they may reveal the groundwater conditions that existed in an area largely lacking historical data. While the freshwater in this area contains salts and nutrients that are derived from overlying land uses that include agriculture, landfill, and wastewater treatment plant and composting facilities, the chemical character is not sodium chloride, which is indicative of seawater intrusion. Figure 8 and 9 – Stiff Diagrams of Dune Sand Aquifer Groundwater and 180-Foot Aquifer Groundwater, respectively show that the chemical character of groundwater in these new wells is predominantly calcium chloride and calcium bicarbonate. Additionally, elevated concentrations of nitrate are present in monitoring wells MW-5S, MW-7S and MW-8S and range from 115 mg/l to 237 mg/l. The concentration of nitrate decreases with depth at all of these sites, and is the highest at MW-5, which is closest to the landfill and the wastewater treatment facilities. Future use of this area for a direct potable groundwater supply may be unlikely; however, existing conditions do show abatement of seawater intrusion in the shallower aquifer zones in this coastal portion of the Salinas Valley Groundwater Basin. This condition may support the future beneficial uses of the 180-Foot Aquifer zone potentially including aquifer storage and recovery of highly purified recycled water for indirect potable reuse.

Figure 6 – Average Total Dissolved Solids Concentrations in Groundwater

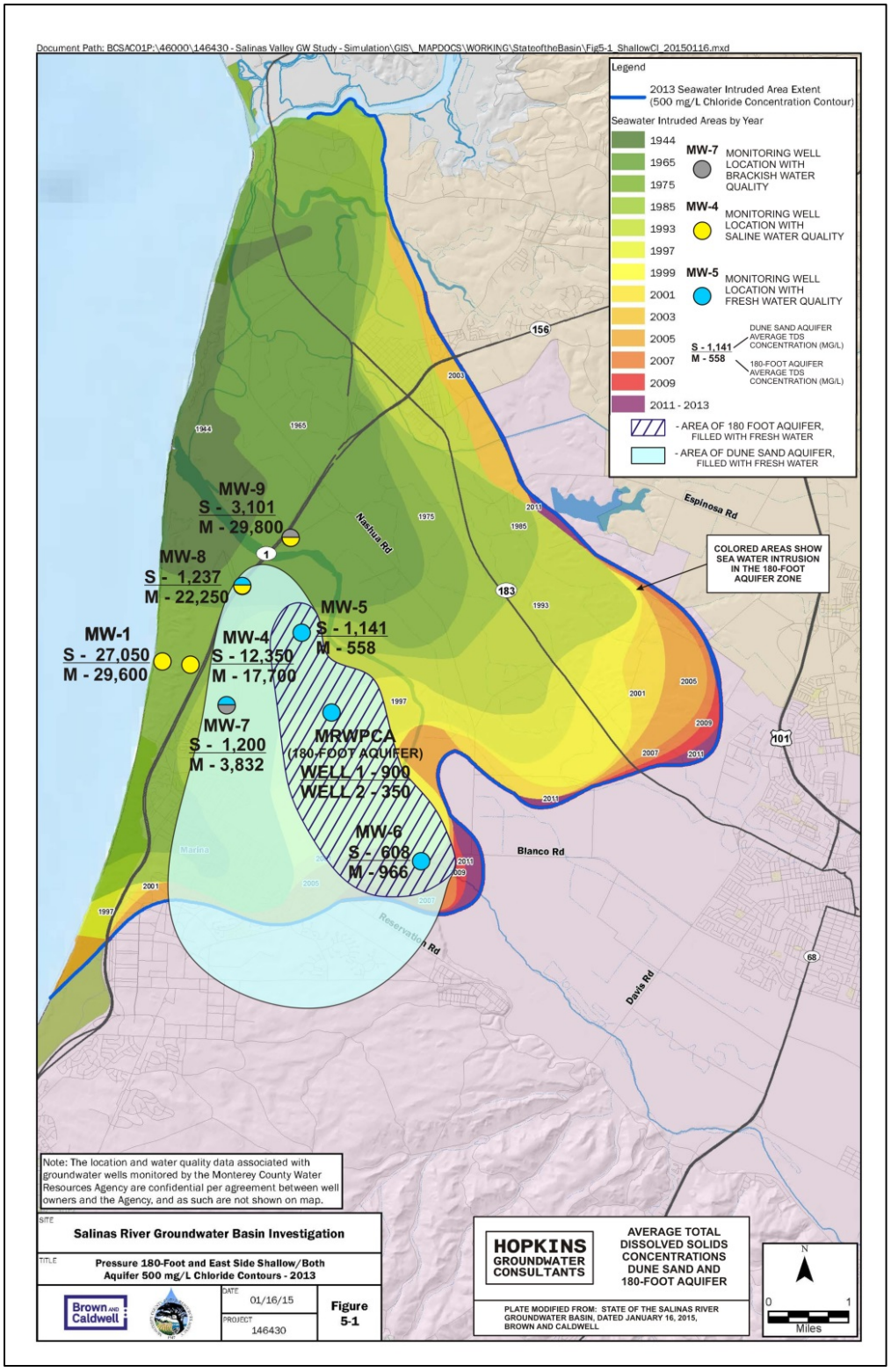


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Figure 7 – Average Chloride Concentrations in Groundwater

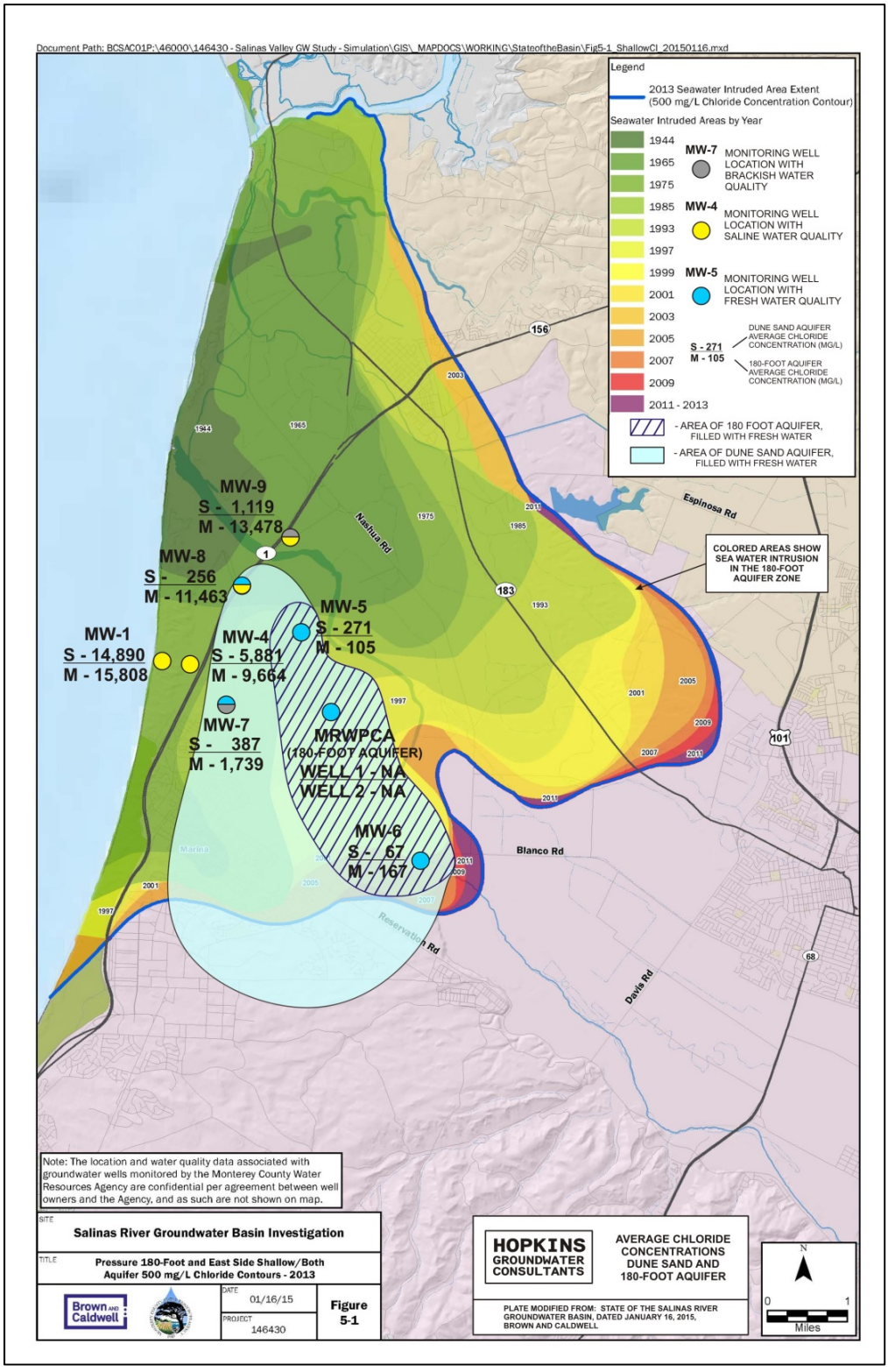


Figure 8 – Stiff Diagrams of Dune Sand Aquifer Groundwater

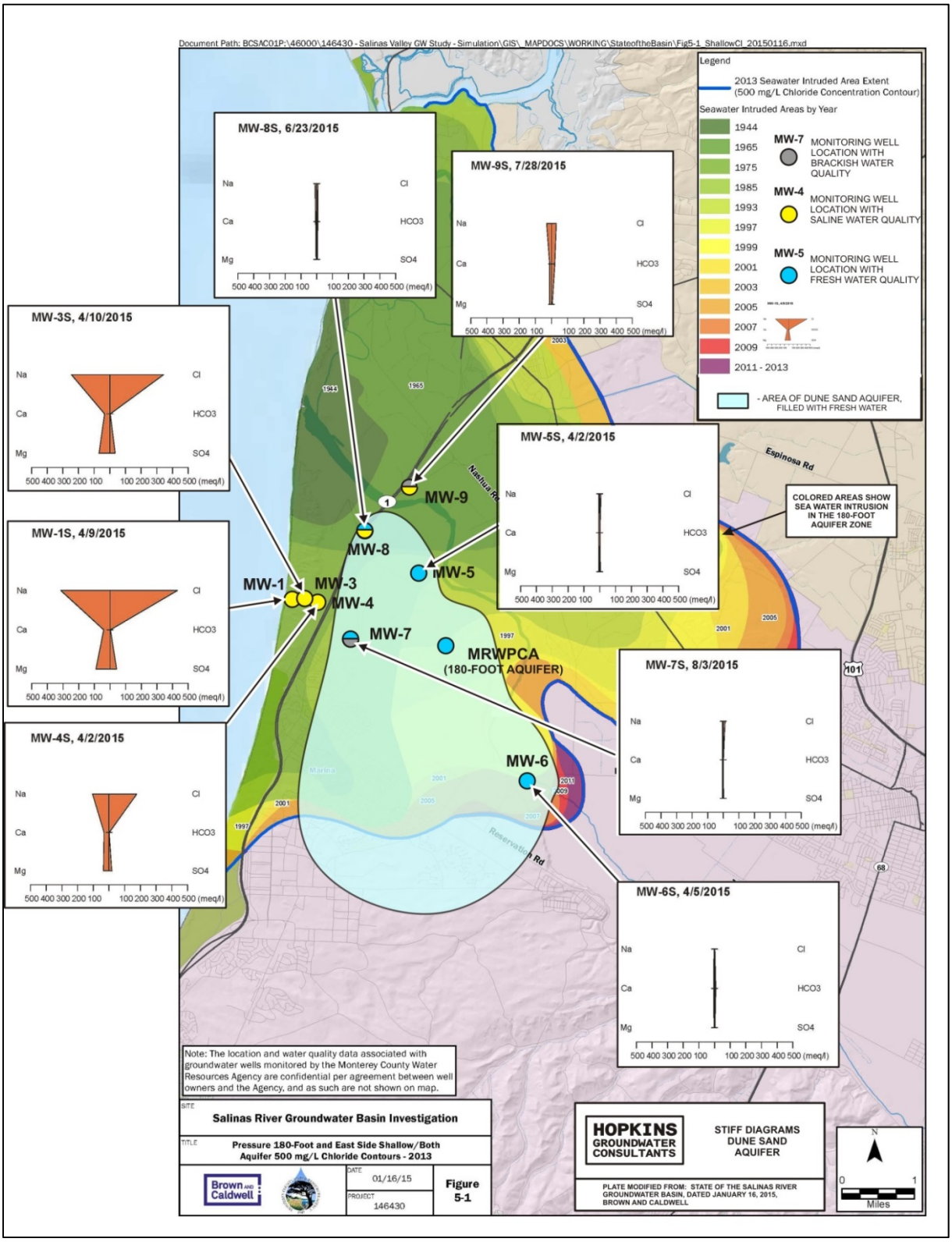
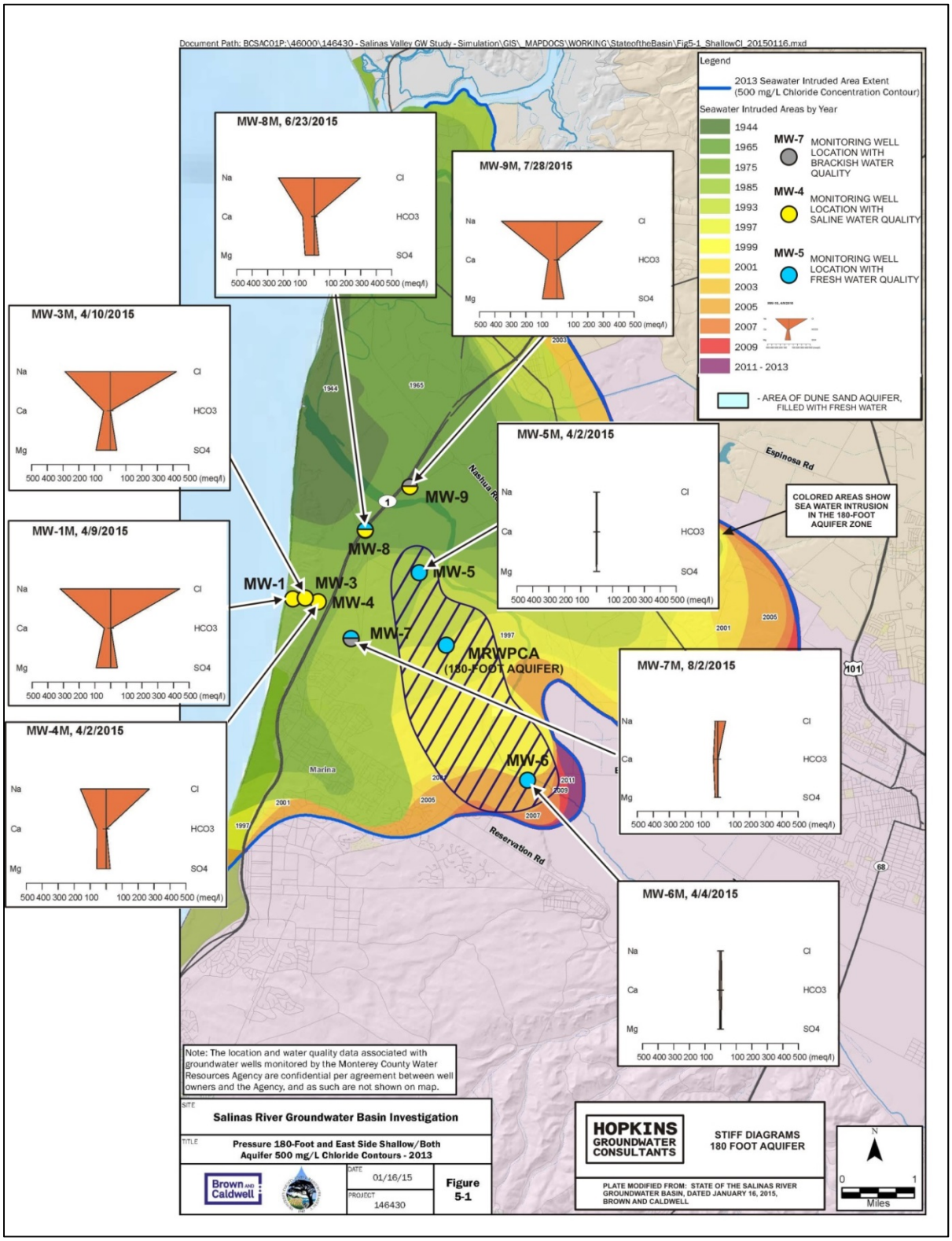


Figure 9 – Stiff Diagrams of 180-Foot Aquifer Groundwater



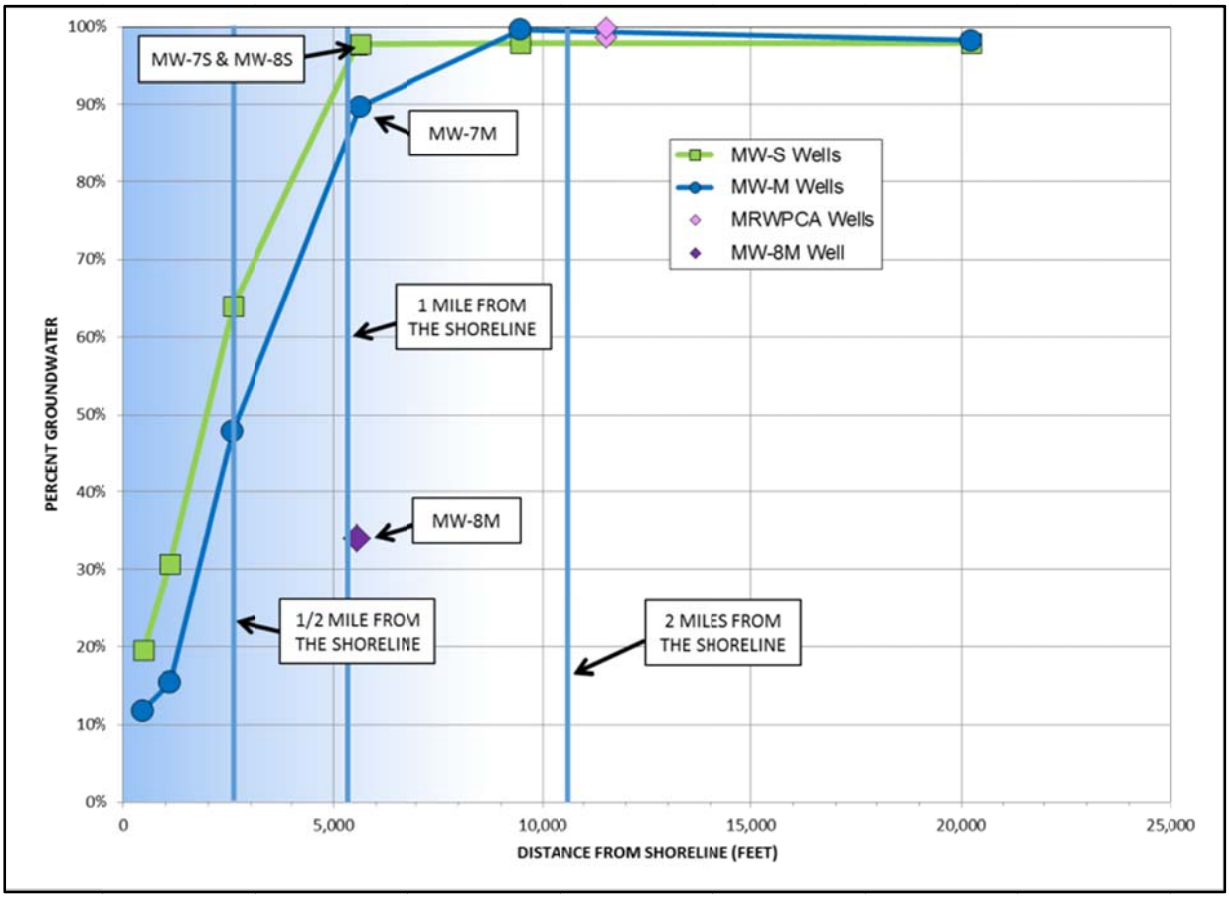
These data indicate a unique condition exists in the North Marina Subarea south of the Salinas River that provides a significant degree of protection against seawater intrusion in the shallower aquifers under the present and recent past hydrologic conditions. Figure 10 – Percent Groundwater with Distance From the Shoreline shows the rudimentary calculation of groundwater percentage versus ocean water percentage using the same equation applied to the test slant well discharge. The percentage of fresh groundwater in well water samples was calculated using the following equation:

$$GWP = [\,1 - (\,WSS - GWS/OWS - GWS)\,] \times 100$$

Where:

GWP = Percent Groundwater
WSS = Well Sample Salinity (mg/l)
GWS = Groundwater Salinity (420 mg/l)
OWS = Ocean Water Salinity (33,500 mg/l)

Figure 10 – Percent Groundwater with Distance From the Shoreline



Water quality data for this analysis were provided by the laboratory test results summarized in Attachment C. These available data show that the percentage of ocean water decreases significantly within a short distance from the coastline in the North Marina Area and the salinity of groundwater that is comparable to seawater is not up to 8 miles inland in the 180-Foot Aquifer as assumed by previous study. Calculation of percent ocean water using this method cannot differentiate between salts from overlying land uses and salt from ocean water. This calculation assumes that all salt in groundwater with a TDS above a concentration of 420 mg/l is from ocean water.

As shown in Figure 10, monitoring wells MW-5M and MW-6M along with the Monterey Regional Water Pollution Control Agency (MRWPCA) Wells are located in the 180-Foot Aquifer and the average TDS concentration for samples from these wells ranges from approximately 454 to 966 milligrams per liter (mg/l) and is also considered fresh water (See Figure 4 and Attachment C). However, the TDS concentration for MW-7M (3,832 mg/l) and MW-8M (22,250 mg/l) show that closer to the coast and closer to the main portion of the Basin north of the river, seawater has impacted the underlying 180-Foot Aquifer as shown in Figure 9 and 10.

We trust this review of available data provides a better understanding of what the MPWSP test slant well monitoring program has discovered. It is clear that without the new monitoring wells, this type of understanding about groundwater conditions in the North Marina Area could not have been provided from available data.

Sincerely,

HOPKINS GROUNDWATER CONSULTANTS, INC.

Curtis J. Hopkins
Principal Hydrogeologist
Certified Engineering Geologist, EG1800
Certified Hydrogeologist, HG114

Attachments: Plate 1 – Cross-Section A-A'
Plate 2 – Well Location Map
Attachment A – Well Construction Information
Attachment B – MPWSP Water Level Data
Attachment C – Laboratory Water Quality Test Results

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PLATES

NORTH MARINA AREA

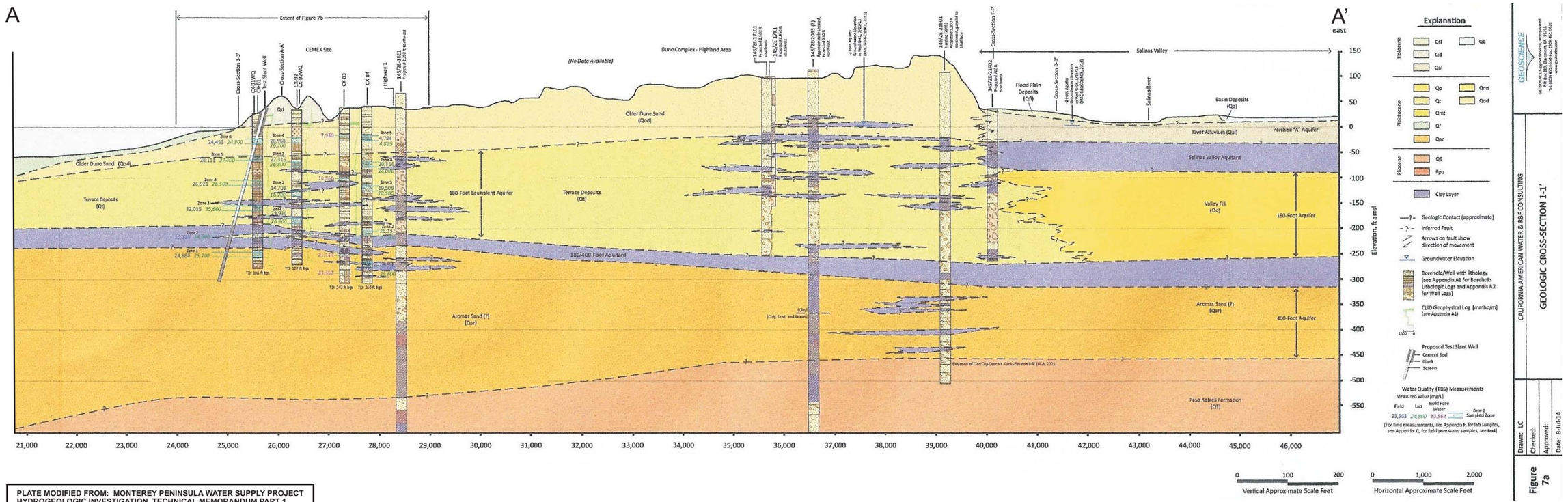

PLATE MODIFIED FROM: MONTEREY PENINSULA WATER SUPPLY PROJECT HYDROGEOLOGIC INVESTIGATION, TECHNICAL MEMORANDUM PART 1 SUMMARY OF RESULTS - EXPLORATORY BOREHOLES DATED JULY 8, 2014, GEOSCIENCE SUPPLY SERVICES, INC.

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GEOLOGIC CROSS-SECTION 1-1'

Drawn: LC
Checked:
Approved:
Date: 8-Jul-14

Figure 7a

CROSS-SECTION A-A'
Technical Memorandum
Marina Coast Water District
Marina, California

PLATE 1

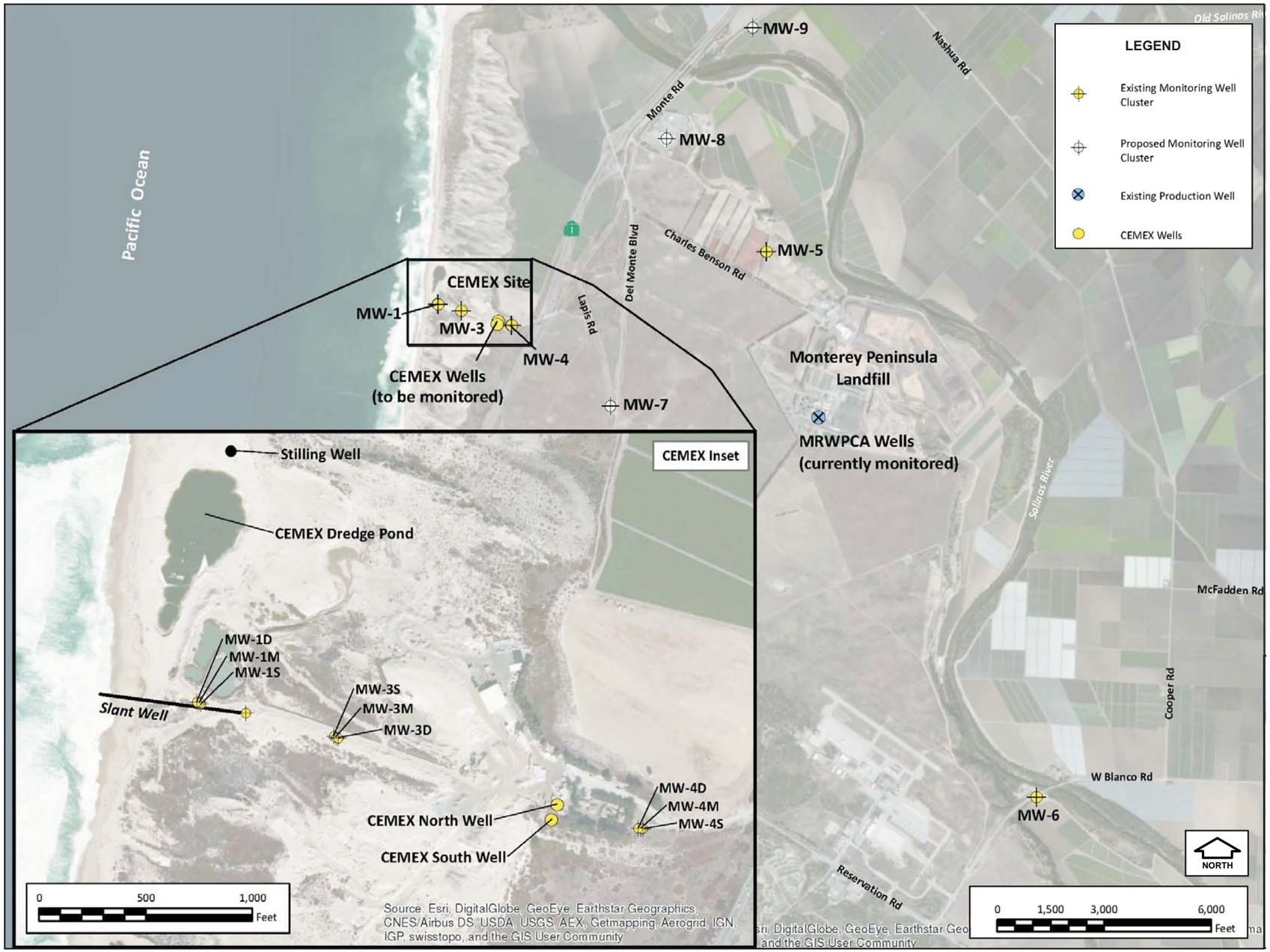

PLATE MODIFIED FROM: MONTEREY PENINSULA WATER SUPPLY PROJECT TEST SLANT WELL LONG TERM PUMPING MONITORING REPORT NO. 55 DATED MAY 24, 2016, GEOSCIENCE SUPPLY SERVICES, INC.

WELL LOCATION MAP
Technical Memorandum
Marina Coast Water District
Marina, California

PLATE 2

ATTACHMENT A
WELL CONSTRUCTION INFORMATION

Table 1: Well Information Table

Well Name	Cluster	Reference Point (RP)	State Plane Coordinates Northing	Easting	RP Elevation ft NAVD88	RP Height (ft above GS)	Distance of RP from Slant Well Head (ft)	Top of Screen Interval (ft below GS)	Bottom of Screen Interval (ft below GS)	Transducer Installed Depth (ft below RP)	Survey Date	Data Logging Start Date	Data Collected
MW-1S	MW-1	Top of ABS Transducer Mount	2,154,745.35	5,739,355.82	30.51 [1]	2.65 [1]	211	55	95	76	26-Mar-15	19-Feb-15	Level, Conductivity
MW-1M	MW-1	Top of ABS Transducer Mount	2,154,751.93	5,739,347.94	29.86	2.48	220	115	225	182	26-Mar-15	19-Feb-15	Level, Conductivity
MW-1D	MW-1	Top of ABS Transducer Mount	2,154,753.60	5,739,337.98	29.68 [1]	2.65 [1]	230	277	327	309	26-Mar-15	19-Feb-15	Level, Conductivity
MW-3S	MW-3	Top of ABS Transducer Mount	2,154,599.85	5,739,977.02	37.16	2.66	428	50	90	76	26-Mar-15	4-Mar-15	Level, Conductivity
MW-3M	MW-3	Top of ABS Transducer Mount	2,154,592.96	5,739,988.54	37.35	2.73	441	105	215	182	26-Mar-15	4-Mar-15	Level, Conductivity
MW-3D	MW-3	Top of ABS Transducer Mount	2,154,589.81	5,739,998.68	36.93	2.74	451	285	330	321	26-Mar-15	4-Mar-15	Level, Conductivity
MW-4S	MW-4	Top of ABS Transducer Mount	2,154,170.90	5,741,427.62	41.96	2.26	1,940	60	100	66	26-Mar-15	9-Mar-15	Level, Conductivity
MW-4M	MW-4	Top of ABS Transducer Mount	2,154,172.79	5,741,416.78	41.99	2.15	1,929	130	260	208	26-Mar-15	9-Mar-15	Level, Conductivity
MW-4D	MW-4	Top of ABS Transducer Mount	2,154,174.30	5,741,406.08	41.95	2.15	1,918	290	330	317	26-Mar-15	20-Feb-15	Level, Conductivity
MW-5S	MW-5	Top of ABS Transducer Mount	2,156,239.19	5,748,566.86	80.25 [1]	2.20 [1]	9,135	43	83	71	26-Mar-15	10-Mar-15	Level, Conductivity
MW-5M	MW-5	Top of ABS Transducer Mount	2,156,230.38	5,748,564.26	80.48 [1]	2.31 [1]	9,131	100	310	171	26-Mar-15	10-Mar-15	Level, Conductivity
MW-5D	MW-5	Top of ABS Transducer Mount	2,156,220.77	5,748,560.95	80.06	1.97	9,126	395	435	417	26-Mar-15	19-Feb-15	Level, Conductivity
MW-6S	MW-6	Top of ABS Transducer Mount	2,141,142.87	5,756,164.01	35.89	2.45 [1]	21,436	30	60	61	1-Oct-15	22-Apr-15	Level, Conductivity
MW-6M	MW-6	Top of ABS Transducer Mount	2,141,138.40	5,756,154.35	35.68	2.44 [1]	21,431	150	210	103	1-Oct-15	22-Apr-15	Level, Conductivity
MW-6D	MW-6	Top of ABS Transducer Mount	2,141,133.06	5,756,144.94	35.82	2.42 [1]	21,427	255	325	201	1-Oct-15	22-Apr-15	Level, Conductivity
MW-7S	MW-7	Top of ABS Transducer Mount	2,152,099.25	5,744,148.10	50.64	2.06	5,274	60	80	72	1-Oct-15	13-Aug-15	Level, Conductivity
MW-7M	MW-7	Top of ABS Transducer Mount	2,152,110.46	5,744,146.08	50.29	2.09	5,266	130	220	187	1-Oct-15	13-Aug-15	Level, Conductivity
MW-7D	MW-7	Top of ABS Transducer Mount	2,152,120.50	5,744,144.38	50.24	2.24	5,260	295	345	322	1-Oct-15	13-Aug-15	Level, Conductivity
MW-8S	MW-8	Top of ABS Transducer Mount	2,159,440.33	5,744,871.52	19.96	2.14 [3]	7,116	40	80	-	1-Oct-15	30-May-15	Hand Level
MW-8M	MW-8	Top of ABS Transducer Mount	2,159,430.86	5,744,866.05	19.99	2.17 [2]	7,106	125	215	181	1-Oct-15	30-May-15	Level, Conductivity
MW-8D	MW-8	Top of ABS Transducer Mount	2,159,421.47	5,744,861.04	20.08	2.10 [3]	7,096	300	350	-	1-Oct-15	30-May-15	Hand Level
MW-9S	MW-9	Top of ABS Transducer Mount	2,162,010.77	5,747,345.03	18.42	2.16 [3]	10,677	30	110	-	1-Oct-15	1-Jul-15	Hand Level
MW-9M	MW-9	Top of ABS Transducer Mount	2,162,016.58	5,747,353.64	18.32	2.13 [2]	10,687	145	225	182	1-Oct-15	29-Jun-15	Level, Conductivity
MW-9D	MW-9	Top of ABS Transducer Mount	2,162,022.89	5,747,362.25	18.32	2.15 [3]	10,697	353	393	-	1-Oct-15	26-Jun-15	Hand Level
Well No. 1[4]	MRWPCA	Well Cover	2,151,622.14	5,750,015.59	114 ft amsl (GS)	1.60	10,898	260	340	299	-	19-Feb-15	Level, Conductivity
Well No. 2[4]	MRWPCA	Well Cover	2,151,550.18	5,749,987.41	115 ft amsl (GS)	1.65	10,892	260	340	319	-	19-Feb-15	Level, Conductivity
CEMEX Dredge Pond	CEMEX	Top of ABS Transducer Mount	2,155,912.41	5,739,497.26	14.14	8.92*	1,212	-	-	-	26-Mar-15	8-Mar-15	Level, Conductivity
Test Slant Well	CEMEX	Near Ground Surface	2,154,702.56	5,739,561.92	30.86	0	0	46**	231**	305MD	26-Mar-15	1-Apr-15	Level, Conductivity
CEMEX North Well	CEMEX	Well Cover	2,154,284.48	5,741,032.07	39.20	0.25	1,529	244	481	150	1-Oct-15	1-Apr-15	Level, Conductivity
CEMEX South Well[4]	CEMEX	Ground Surface	2,154,213.90	5,740,998.57	31 ft amsl (GS)	0	1,518	400	506	-	-	-	-

Horizontal Datum: NAD83 State Plane Zone 4
Vertical Datum: NAVD88
* RP height above pond water level 5.22 ft NAVD88 (8-11 am 26-Mar-15)
** Top of 18 in. screen = 140 ft x Sin(19) = 46 ft TVD, Bottom of 14 in. screen = 710 x Sin(19) = 231 ft TVD

[1] RP/elevation change on May 17, 2015 - New caps
[2] RP/elevation change on July 17, 2015 - New caps
[3] RP/elevation change on September 24, 2015 - New caps
[4] Estimated - not surveyed.

MD: Measured Depth - lineal feet along the angle of the slant well
GS: Ground Surface - approximate ground surface elevation based on Google Earth

ATTACHMENT B
MPWSP WATER LEVEL DATA

Groundwater Elevation in MPWSP MW-1

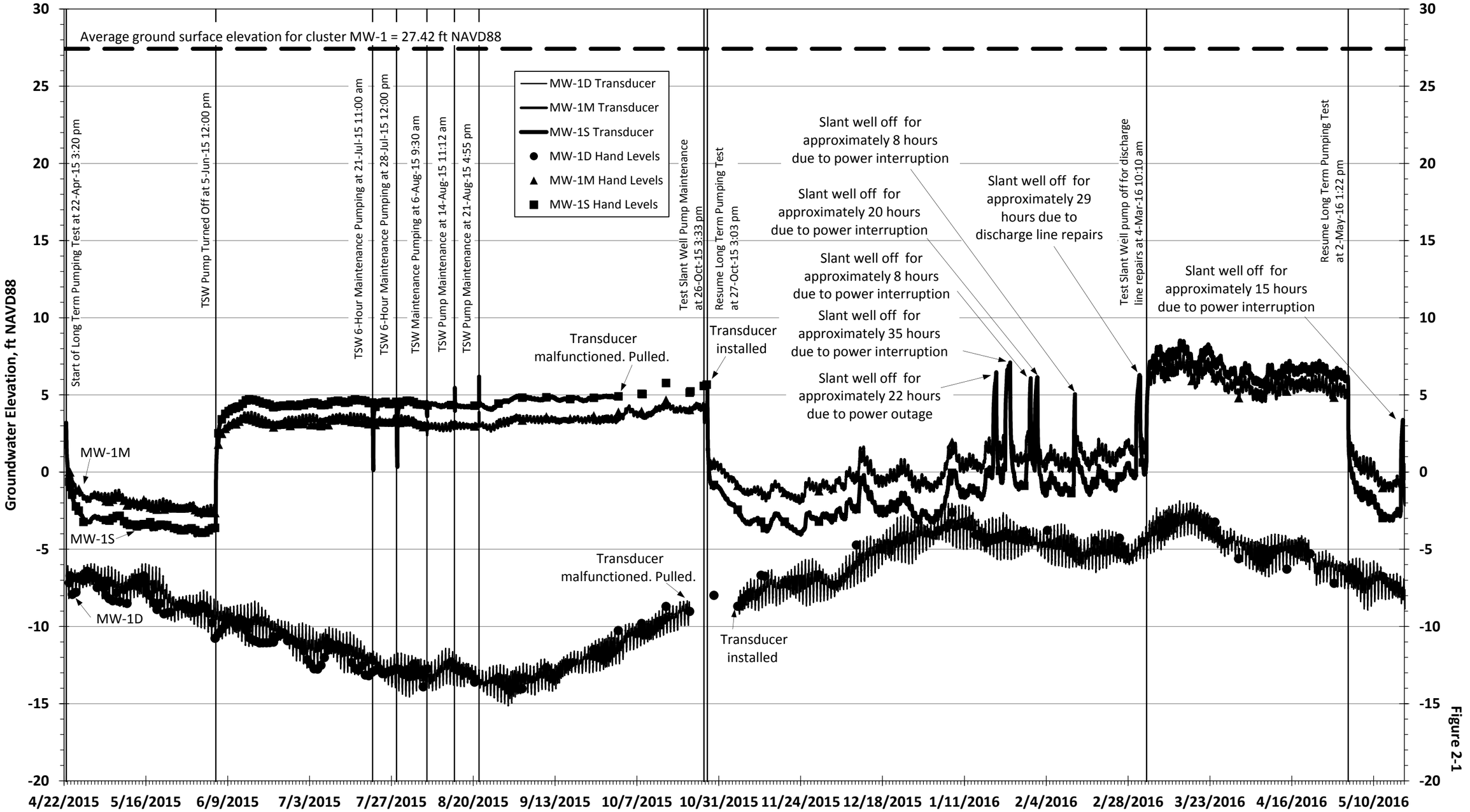

Figure 2-1

Groundwater Elevation in MPWSP MW-3

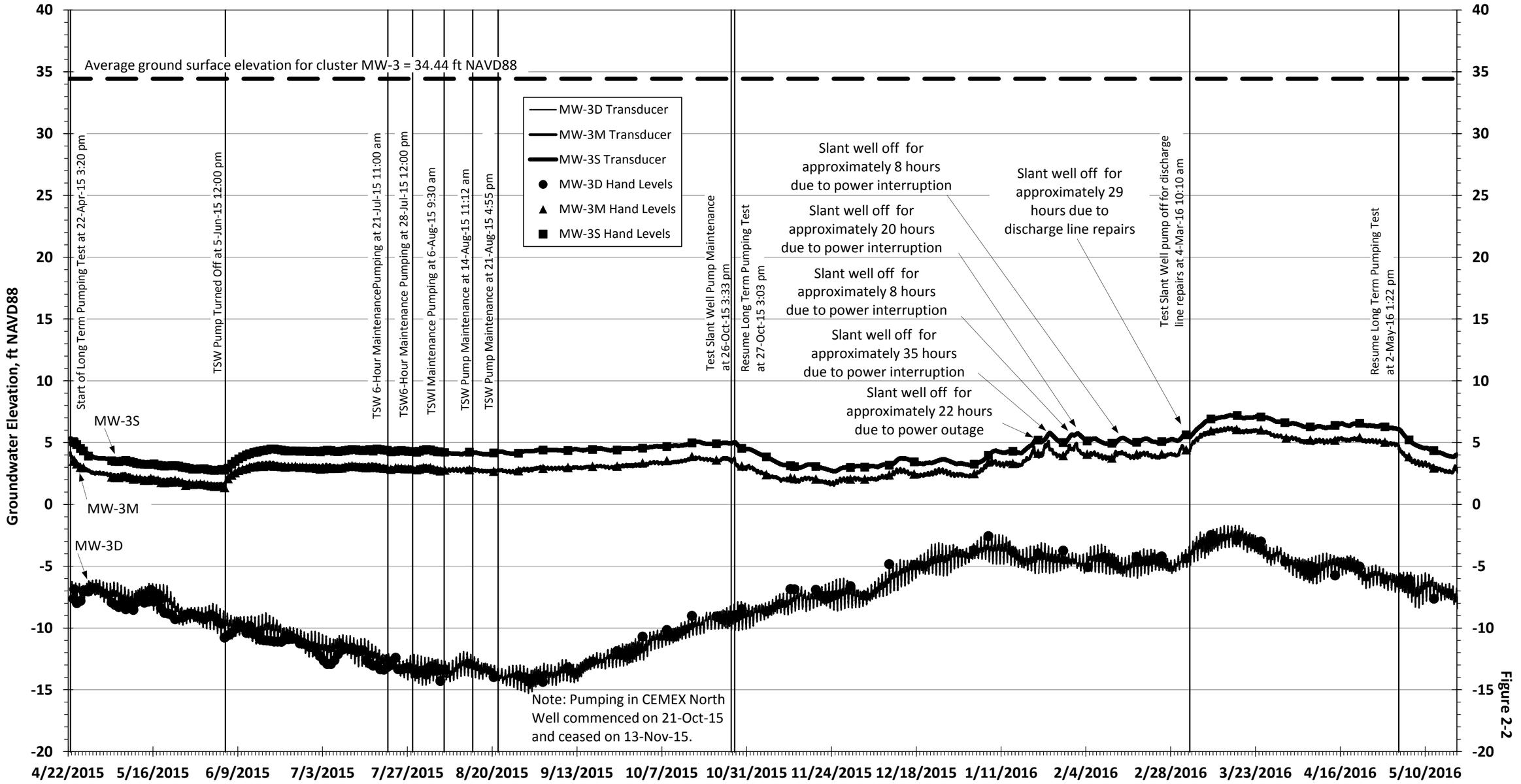

Figure 2-2

Groundwater Elevation in MPWSP MW-4

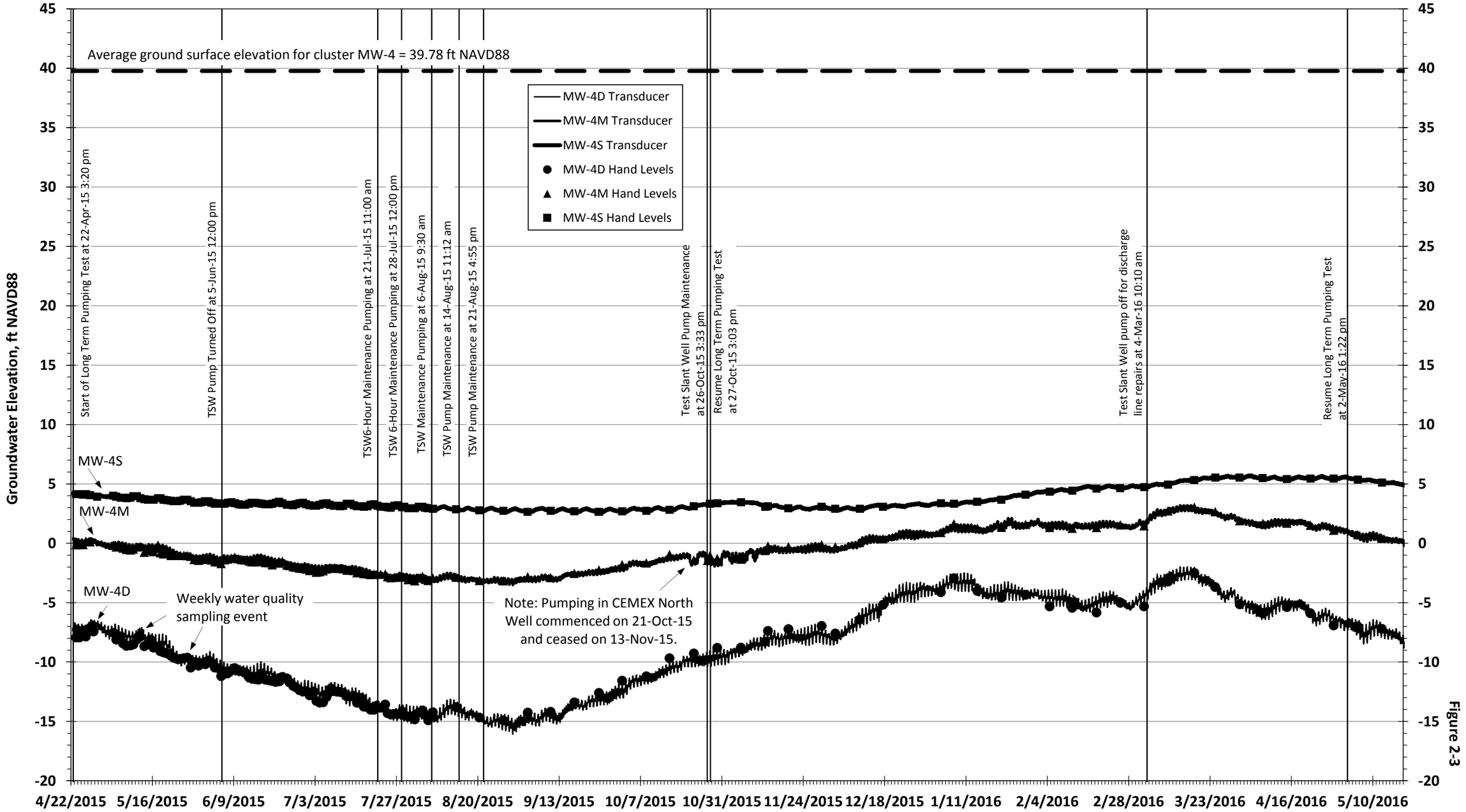

Figure 2-3

Groundwater Elevation in MPWSP MW-5

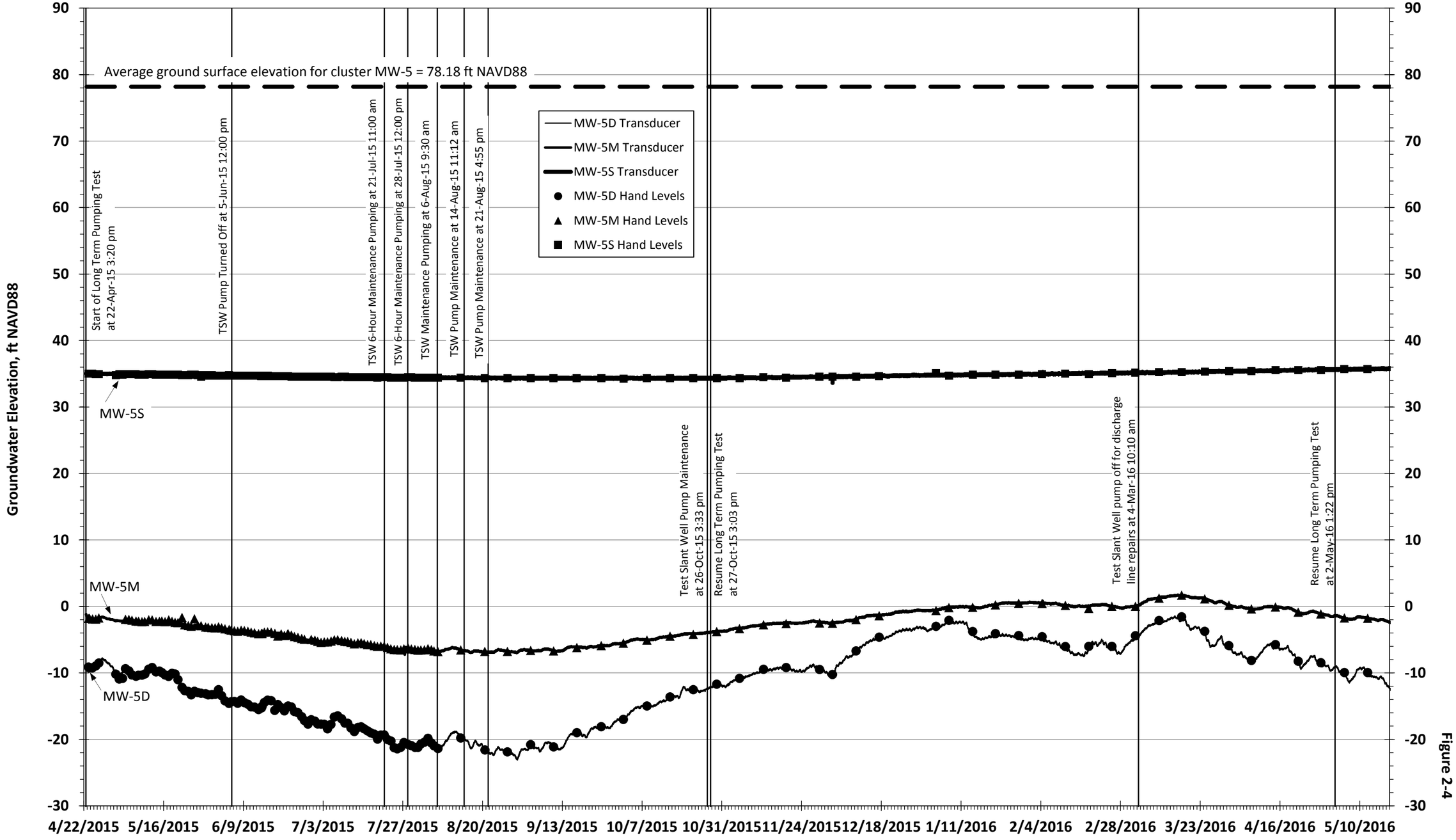

Figure 2-4

Groundwater Elevation in MPWSP MW-6

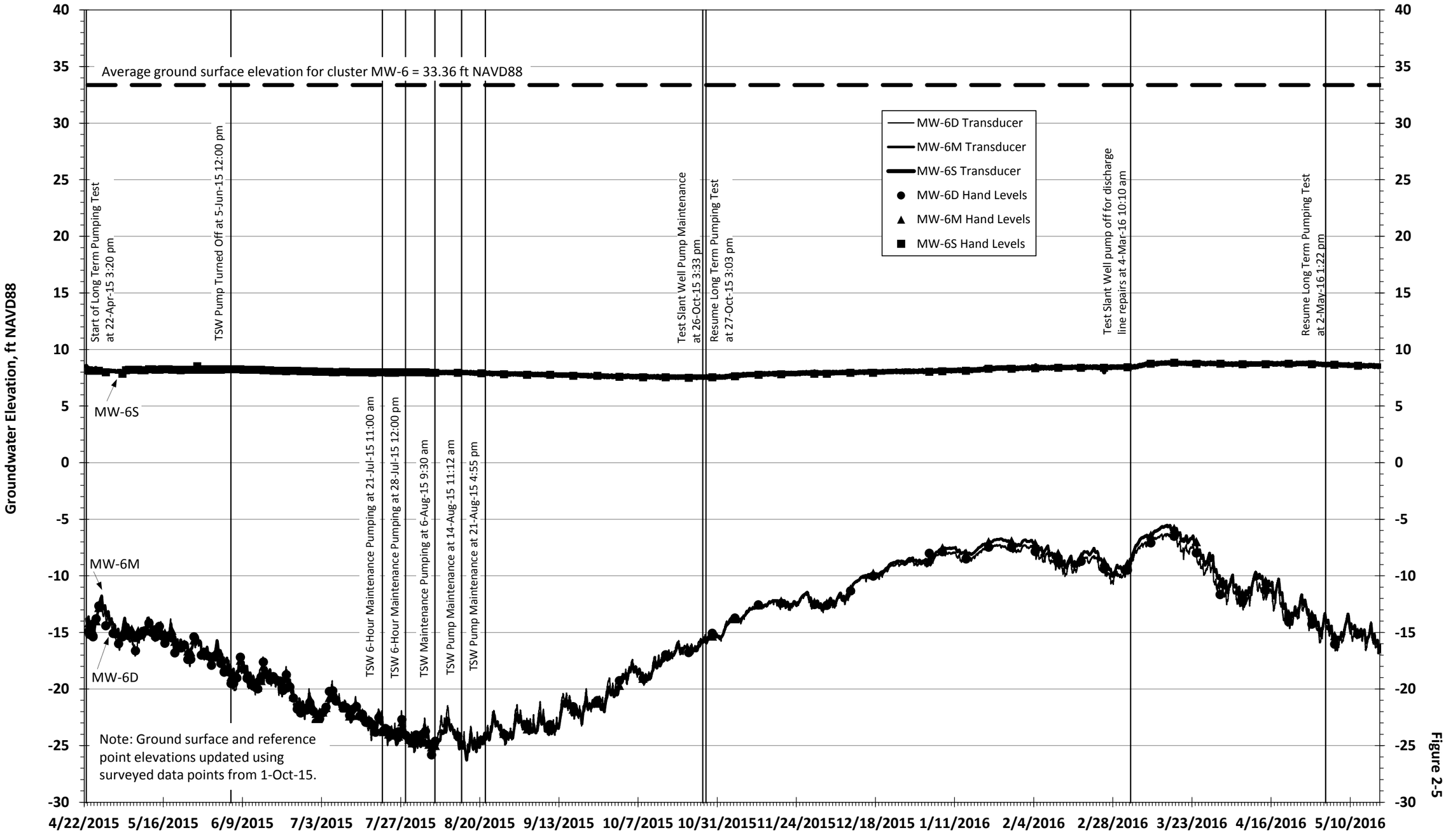

Figure 2-5

Groundwater Elevation in MPWSP MW-7

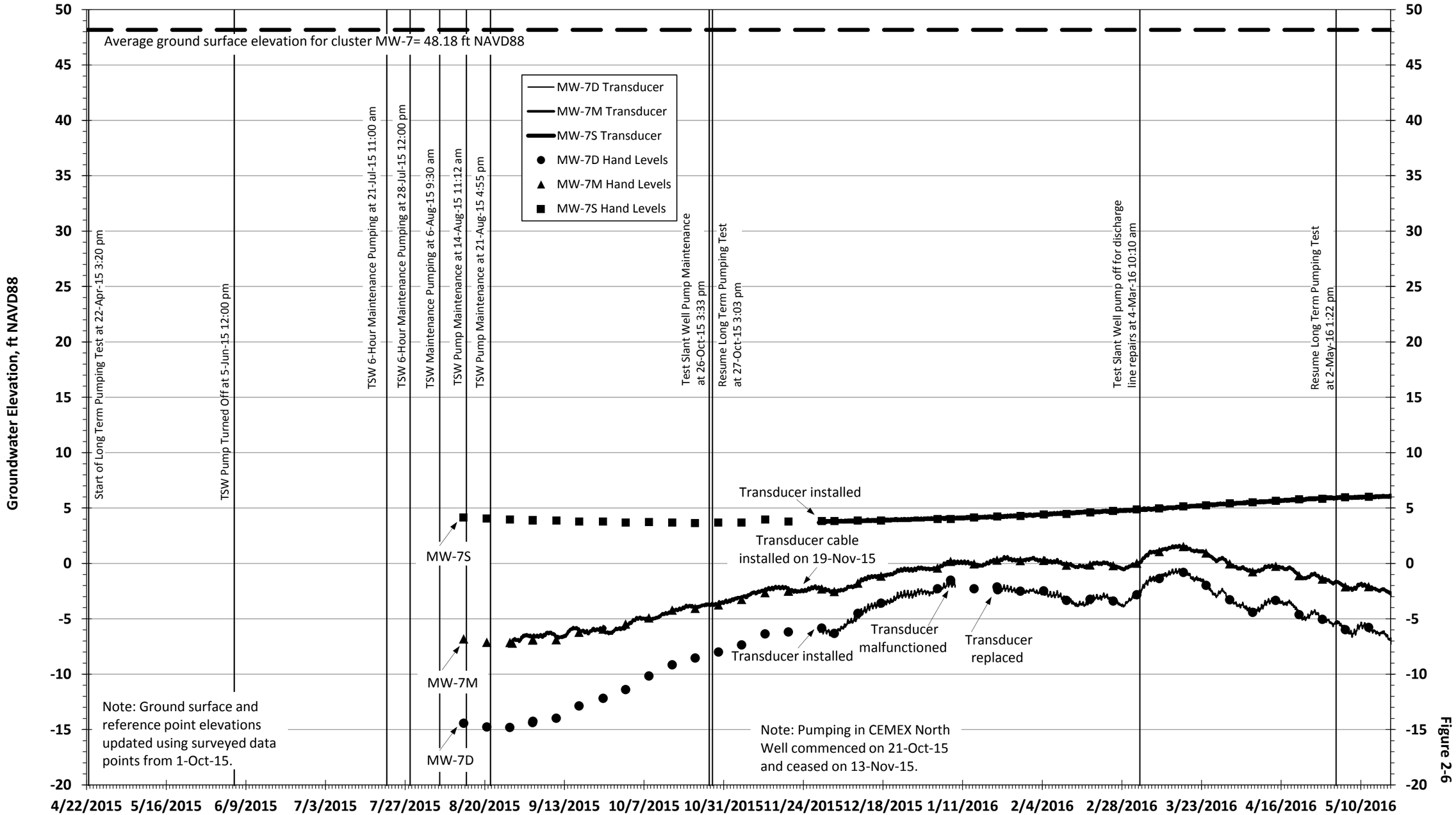

Figure 2-6

Groundwater Elevation in MPWSP MW-8

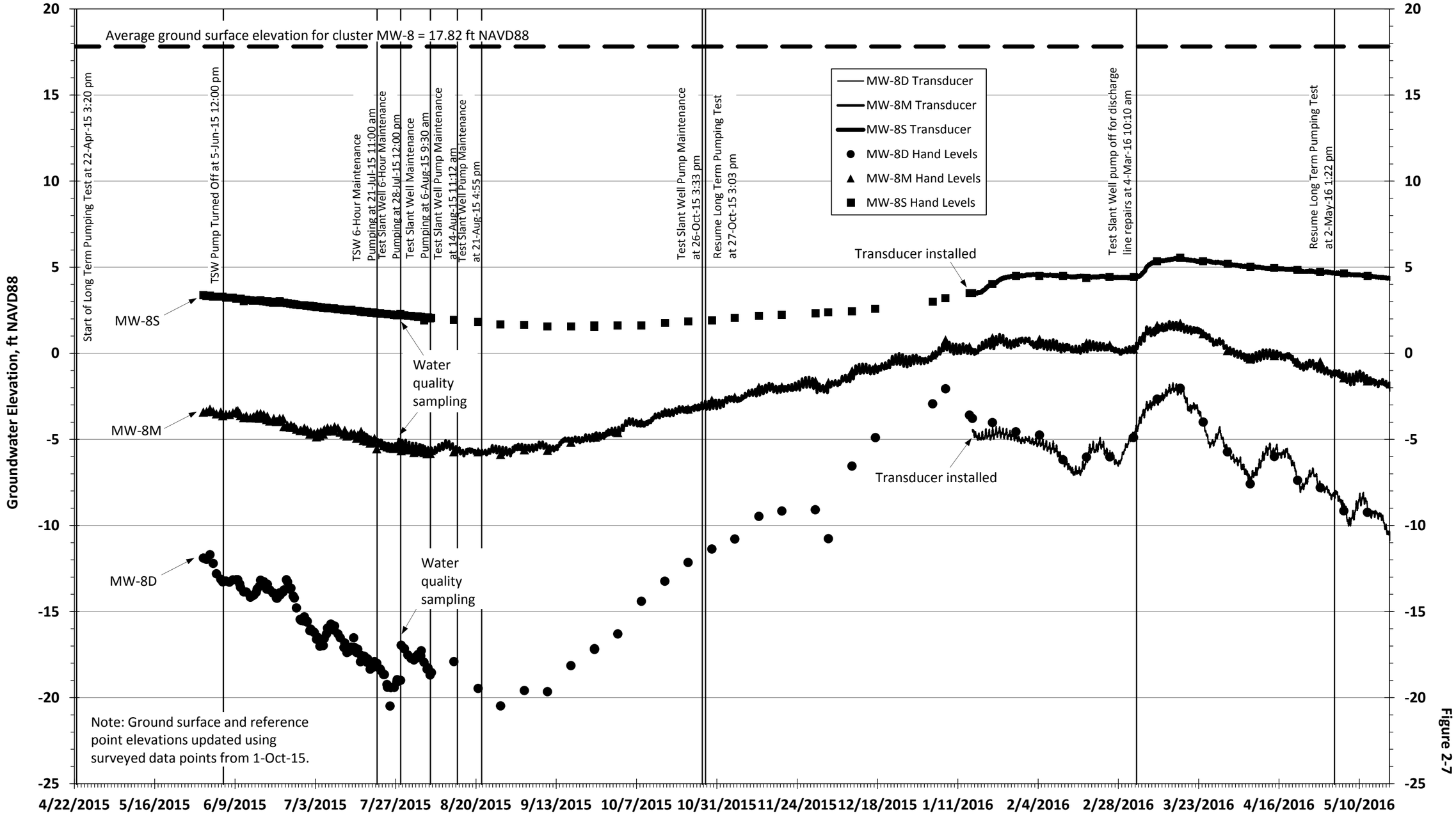

Figure 2-7

Groundwater Elevation in MPWSP MW-9

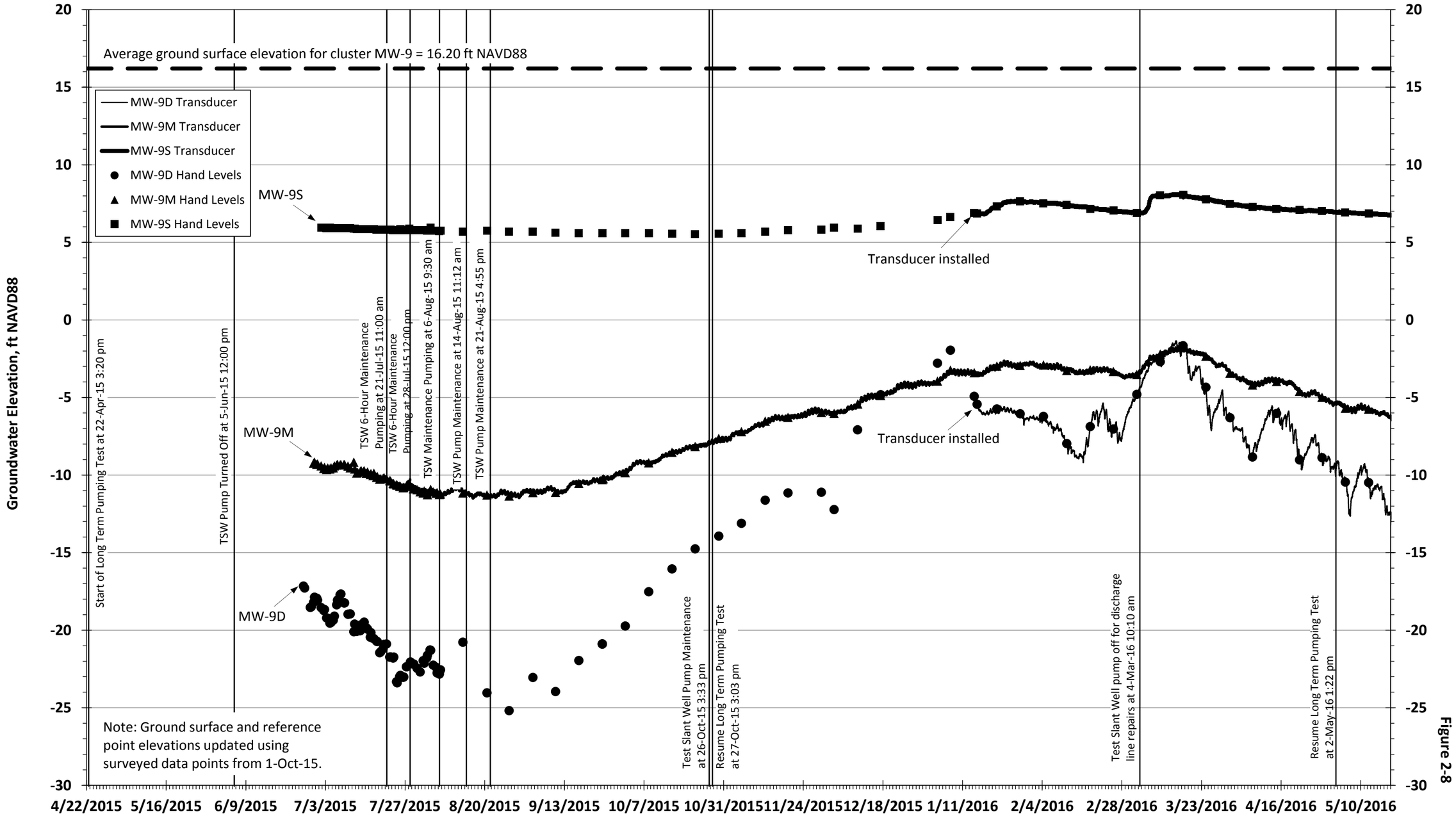

Figure 2-8

Groundwater Elevation in Monterey Regional Water Pollution Control Agency Wells

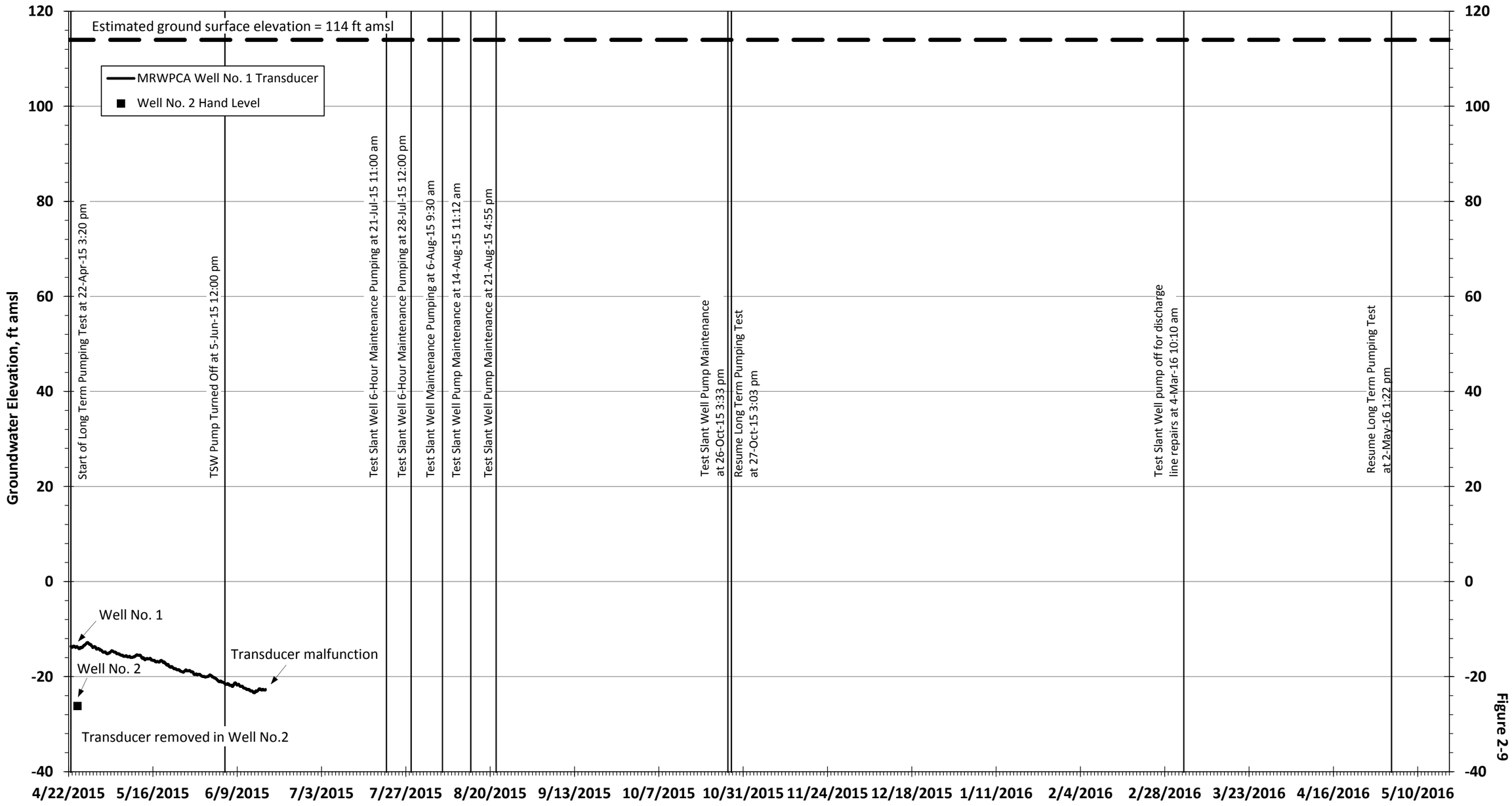

Figure 2-9

Surface Water Elevation in CEMEX Dredge Pond

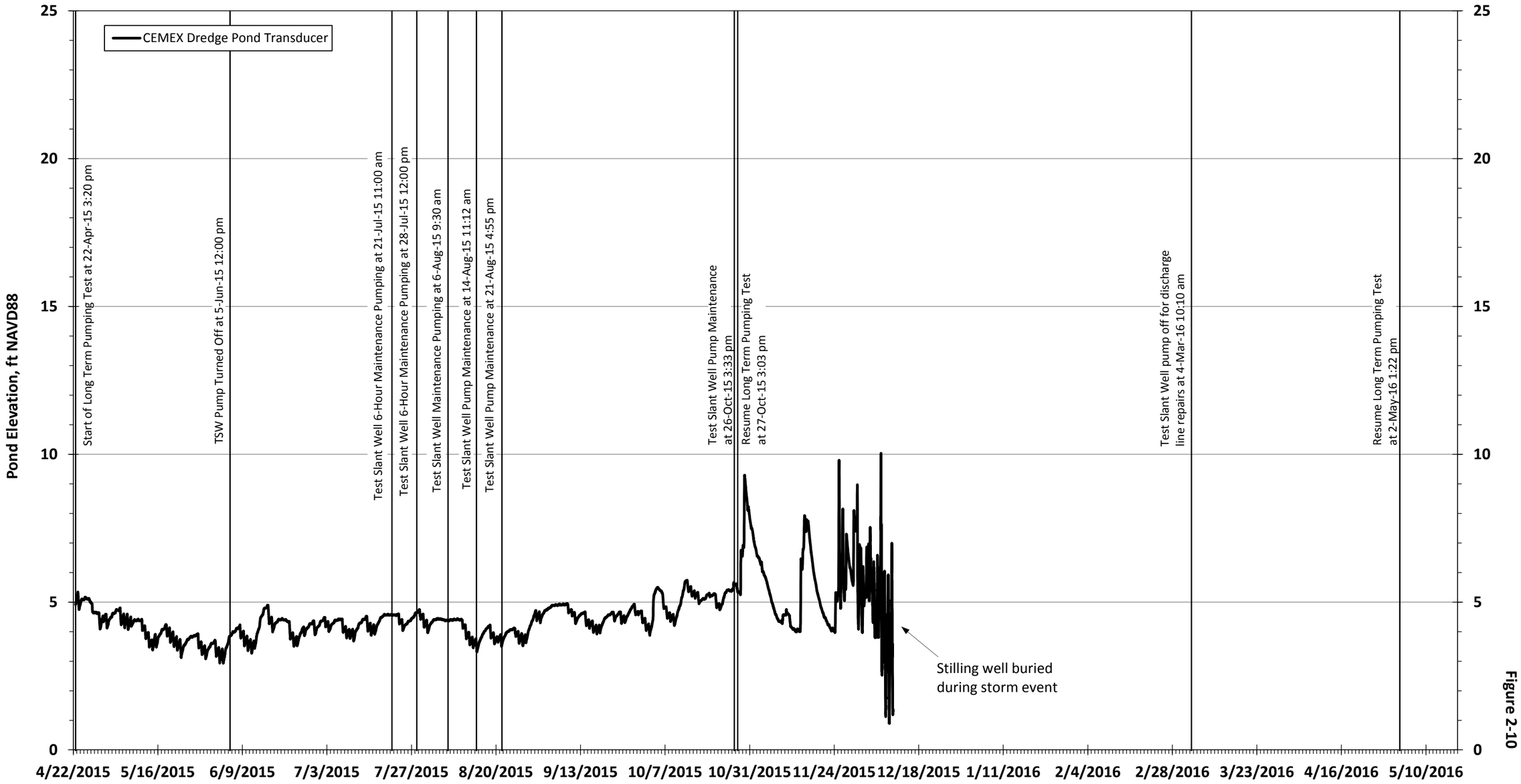

Figure 2-10

Groundwater Elevation in CEMEX North Well

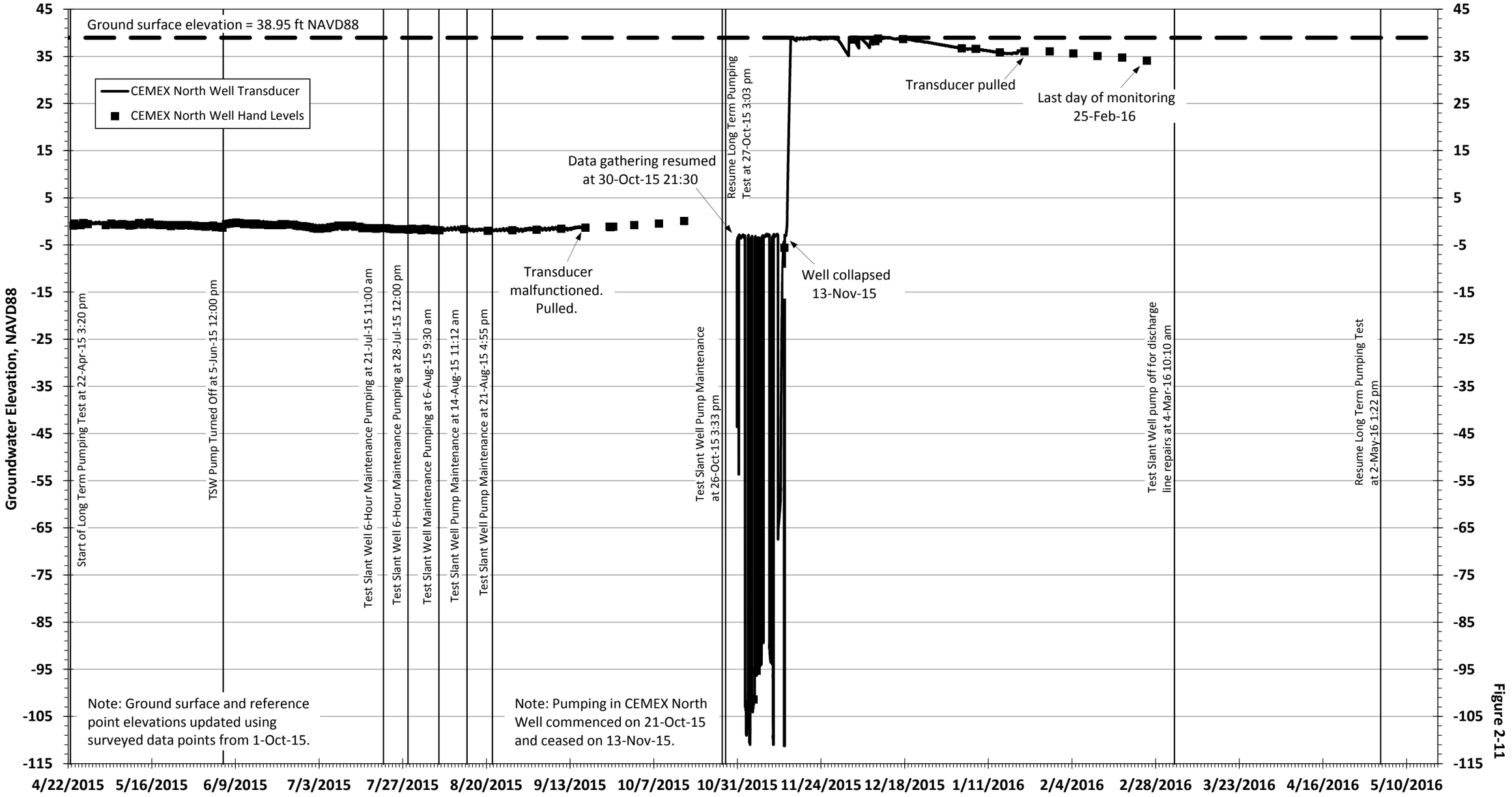

Figure 2-11

Groundwater Elevation in MPWSP Test Slant Well

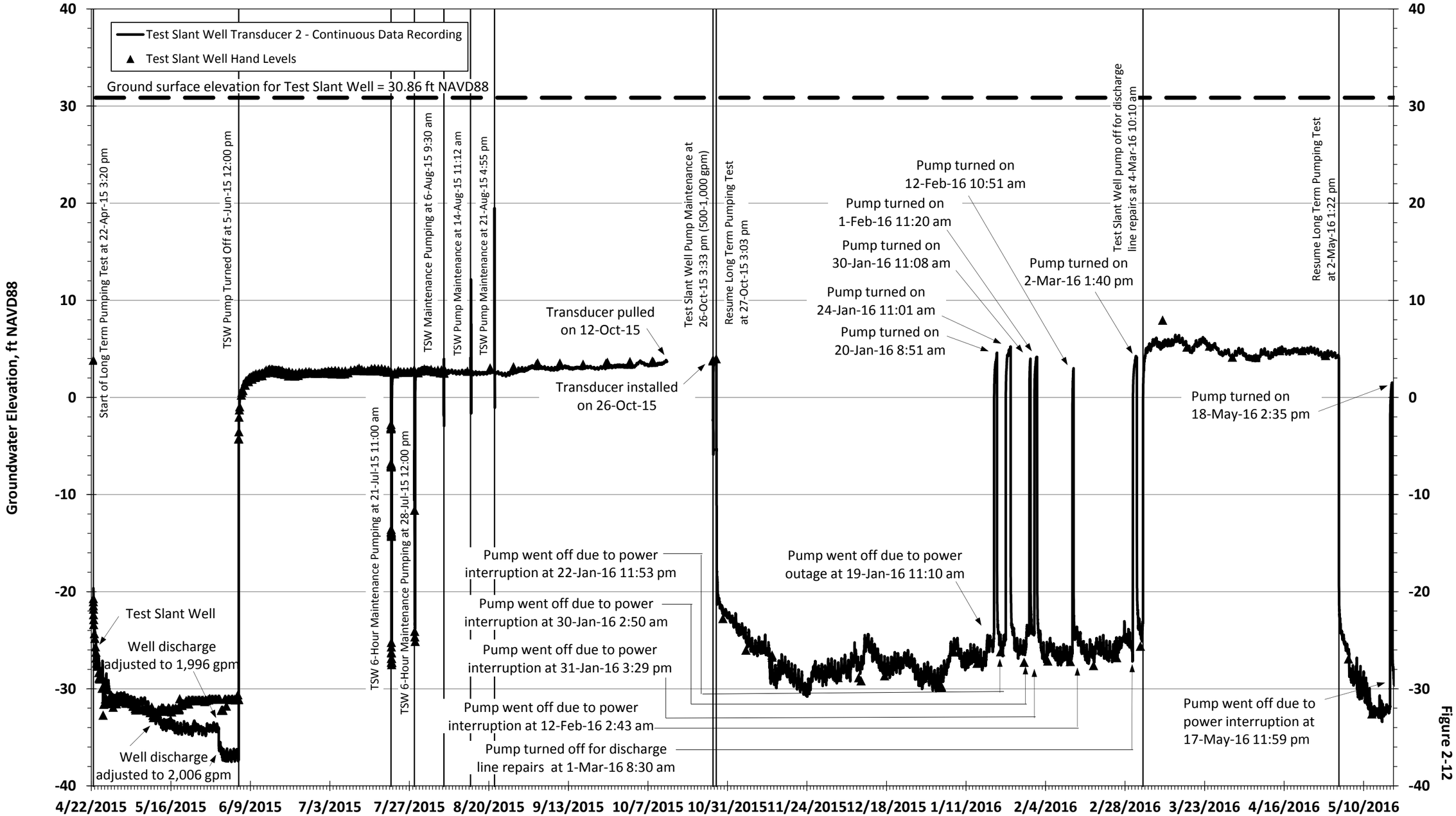

Figure 2-12

ATTACHMENT C
LABORATORY WATER QUALITY
TEST RESULTS

Cal Am / RBF
Baseline Water and Total Dissolved Solids Levels
Monterey Peninsula Water Supply Project Area

Table 2

Summary of Laboratory Water Quality Results in Monitoring Wells

Well Name:		MW-1D		MW-1M		MW-1S		MW-3D		MW-3M		MW-3S		MW-4D		MW-4M		MW-4S		MW-5D		MW-5M		MW-5S		Test Slant Well		
Screen Interval (ft bgs):		277 - 327		115 - 225		55 - 95		285 - 330		105 - 215		50 - 90		280 - 330		100 - 230		50 - 90		380 - 430		100 - 325		50 - 90		140 - 320, 400 - 710 (MD)		
Sample Date:		14-Feb-15	9-Apr-15	14-Feb-15	9-Apr-15	13-Feb-15	9-Apr-15	21-Feb-15	10-Apr-15	24-Feb-15	10-Apr-15	25-Feb-15	10-Apr-15	19-Feb-15	2-Apr-15	6-Mar-15	2-Apr-15	7-Mar-15	2-Apr-15	17-Feb-15	2-Apr-15	3-Mar-15	2-Apr-15	10-Mar-15	2-Apr-15	20-Mar-15	24-Mar-15	8-Apr-15
Constituent[1]	**Units**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Alkalinity, Total (as $CaCO_3$)	mg/L	123	124	112	117	105	120	114	118	105	104	97	97	111	124	97	97	80	86	112	117	195	121	50	50	N/A	N/A	117
Aluminum, Total	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	166	18	166	36	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	33	N/A	N/A	ND
Ammonia-N	mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.08	ND	N/A
Ammonia-N, Dissolved	mg/L	ND	*	ND	*	ND	*	ND	*	ND	*	ND	*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	ND
Ammonia-NH_3 (calc) Un-Ionized	ug/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	N/A
Arsenic, Total	µg/L	46	34	41	33	43	30	44	39	37	34	34	27	40	30	21	22	15	14	4	3	2	3	4	3	N/A	N/A	33
Barium, Dissolved	µg/L	141	143	61	63	68	63	162	157	79	66	97	91	166	176	104	104	92	107	562	466	96	67	173	200	N/A	N/A	95
Bicarbonate (as HCO3-)	mg/L	150	151	137	143	128	146	139	144	128	127	118	118	135	151	118	118	98	105	137	143	238	148	61	61	N/A	N/A	143
Boron, Dissolved	mg/L	0.89	1.16	2.36	2.78	2.27	2.73	1.06	1.03	1.01	2.68	2.2	2.3	0.65	0.75	1.16	1.03	0.79	0.88	0.09	ND	ND	ND	ND	ND	N/A	N/A	2.6
Bromide, Dissolved	mg/L	44	44	46	50	39	49	44.1	44	53.8	49	44.8	38	43.8	47	31	31	16.7	18	3.3	2	0.4	ND	4.4	5.2	N/A	N/A	37
Calcium	mg/L	2,440	2,510	746	805	661	791	2,470	2,350	826	835	628	664	2,980	2,827	1,040	1,131	594	621	360	358	96	62	129	132	N/A	N/A	349
Calcium, Dissolved	mg/L	2,410	2,480	732	781	646	771	2,370	2,360	844	879	666	664	3,070	2,810	1,060	1,100	617	627	363	356	99	63	142	138	N/A	N/A	371
Carbamates by HPLC (EPA 531)	µg/L	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	N/A	N/A	ND
Carbonate as $CaCO_3$	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	ND
Chloride, Dissolved	mg/L	14,905	16,346	16,037	15,580	14,504	15,276	16,069	16,456	14,686	14,964	11,680	12,136	14,142	14,177	9,751	9,587	5,497	6,266	1,168	1,152	120	90	271	272	N/A	N/A	13,830
Chlorinated Pesticides and PCB (EPA 508)	µg/L	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	N/A	N/A	ND
Chlorine Residual,Total (Laboratory)	mg/L (H)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	N/A
Coliform, E. Coli (Quantitray)	MPN/100mL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<10	N/A
Coliform, E. Coli (Quantitray)-18 Hour	MPN/100mL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
Coliform, Total (Quantitray)	MPN/100mL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	490	N/A
Coliform, Total (Quantitray)-18Hour	MPN/100mL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,755	N/A	N/A
Color, Apparent (Unfiltered)	CU	10	20	ND	ND	4	ND	6	ND	ND	ND	ND	7	8	ND	4	ND	3	ND	ND	4	ND	ND	7	8	60	10	4
Copper, Total	µg/L	40	52	61	80	62	52	56	76	62	90	42	78	46	30	42	22	ND	16	13	4	ND	ND	5	ND	N/A	N/A	44
DBCP & EDB	µg/L	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	N/A	N/A	ND
Dioxin	pg/L	ND	N/A	ND	N/A	ND	N/A	ND	N/A	RP	N/A	RP	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	N/A	N/A	ND
Diquat (EPA 549)	µg/L	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	N/A	N/A	ND
Dissolved Oxygen (Field)	mg/L (H)	N/A	0.08	N/A	3.34	N/A	2.64	N/A	0.225	N/A	3.85	4.7	3.56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.28	N/A	N/A
Dissolved Oxygen (Laboratory)	mg/L (H)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.34	8.84	N/A
Endothall	µg/L	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	N/A	N/A	ND
Fluoride, Dissolved	mg/L	ND	ND	ND	ND	0.3	ND	ND	ND	0.5	ND	0.4	ND	ND	0.1	ND	ND	ND	0.1	0.1	0.1	0.1	0.1	ND	ND	N/A	N/A	0.2
Glyphosate	µg/L	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	N/A	N/A	ND
Hardness (as $CaCO_3$)	mg/L	10,765	11,338	6,327	6,606	5,678	6,439	12,063	11,140	6,378	6,520	5,044	5,109	11,617	11,021	5,601	5,740	3,176	3,321	1,484	1,429	367	229	561	540	N/A	N/A	4,751
Hydroxide	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	ND
Iodide	µg/L	ND	*	ND	*	ND	*	ND	*	ND	*	ND	*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	ND
Iron	µg/L	146	722	ND	ND	25	ND	169	671	ND	ND	ND	ND	77	223	ND	ND	ND	169	39	17	ND	ND	ND	26	N/A	N/A	69
Iron, Dissolved	µg/L	118	726	12	ND	15	ND	142	684	ND	ND	ND	ND	80	215	ND	ND	ND	175	ND	ND	ND	ND	ND	ND	N/A	N/A	65
Kjehldahl Nitrogen, Dissolved	mg/L	ND	*	ND	*	ND	*	ND	*	ND	*	ND	*	0.6	ND	1.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	ND
Lithium	µg/L	254	200	201	155	172	157	250	184	159	115	144	106	222	193	34	25	16	18	75	53	7	3	6	8	N/A	N/A	152
Magnesium	mg/L	1,130	1,230	1,080	1,120	978	1,080	1,430	1,280	1,050	1,080	844	838	1,020	962	730	708	411	430	142	130	31	18	58	51	N/A	N/A	942
Magnesium, Dissolved	mg/L	1,180	1,230	1,100	1,110	979	1,080	1,290	1,310	1,020	1,160	797	859	979	969	752	681	421	437	135	128	31	18	62	54	N/A	N/A	989
Manganese, Dissolved	µg/L	440	1,060	18	ND	41	ND	259	1,080	ND	ND	ND	170	268	1,220	113	ND	ND	248	340	645	ND	ND	ND	ND	N/A	N/A	26
Manganese, Total	µg/L	484	1,100	19	ND	43	ND	289	1,060	14	ND	58	154	276	1,221	90	ND	ND	268	336	653	ND	ND	ND	ND	N/A	N/A	26
MBAS (Surfactants)	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	ND
Nitrate as NO_3	mg/L	1	2	2	4	3	4	ND	2	5	3	29	6	1	ND	4	3	20	10	3	1	70	64	237	233	N/A	N/A	5
Nitrate+Nitrite as N	mg/L	0.4	0.6	1.1	1	0.7	0.9	0.1	0.6	1.2	0.8	6.5	1.5	0.2	0.1	1	0.9	5.3	2.3	0.8	0.4	16.2	14.6	54	52.7	N/A	N/A	1
Nitrite as NO_2-N, Dissolved	mg/L	0.2	ND	0.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	ND	0.1	ND	0.1	ND	0.1	0.3	0.3	ND	0.1	N/A	N/A	ND
Odor Threshold at 60 C	TON	1	2	1	2	1	1	3	3	3	1	5	2	3	1	1	1	4	14	3	2	2	1	2	10	N/A	N/A	2
Oil & Grease (HEM)	mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	N/A
o-Phosphate-P	mg/L	0.03	0.06	0.07	0.09	0.07	0.05	0.06	0.04	0.05	0.06	0.18	0.14	0.06	0.04	ND	0.06	0.06	0.09	0.04	0.05	0.06	0.12	0.05	0.12	N/A	N/A	0.1
pH (Field Test)	pH	6.72	7.24	7.02	7.74	7.15	7.87	6.55	6.84	6.89	7.05	7.25	7.27	6.65	6.56	6.78	6.78	6.77	6.91	7	7.18	7.23	7.44	6.46	6.63	7.53	7.07	7.03
pH (Laboratory)	pH (H)	7.1	7.1	7	7.4	7.2	7.5	6.9	7.2	7.2	7.4	7.2	7.5	7	7.1	7.1	7.2	7	7.2	7.5	7.4	7.3	7.5	6.7	7.1	7.7	7.2	7.2
Phenoxy Acid Herbicides (515.3)	µg/L	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	N/A	N/A	ND
Phosphorus, Dissolved Total	mg/L	0.04	0.03	0.09	0.08	0.05	0.04	0.04	ND	ND	0.06	0.12	0.13	0.11	0.14	ND	0.06	0.06	0.07	0.04	0.04	0.06	0.12	0.08	0.08	N/A	N/A	0.09
Potassium	mg/L	60	61	201	209	228	247	64.4	58	197	214	168	157	51.2	46.2	46	43.9	26	30.2	7.8	6.7	3.4	2.2	2	3.1	N/A	N/A	203
Potassium, Dissolved	mg/L	59	60.9	197	207	224	244	55.7	59.6	197	232	157	161	49.1	46.3	50	43.3	28	31.5	7.1	6.6	3.6	2.2	2.4	3	N/A	N/A	213
QC Ratio TDS/SEC		0.73	0.66	0.7	0.67	0.68	0.67	0.74	0.66	0.69	0.69	0.68	0.68	0.72	0.74	0.68	0.64	0.7	0.68	0.69	0.65	0.6	0.64	0.67	0.64	N/A	N/A	0.67
Reg. Org. Compounds (EPA 525)	µg/L	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	N/A	N/A	ND
Settleable Solids	mL/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	N/A
Silica as SiO_2, Dissolved	mg/L	33	32	22	21	20	19	32	30	21	18	19	19	36	31	30	27	27	24	45	41	35	32	39	38	N/A	N/A	20
Sodium	mg/L	5,760	5,913	8,011	7,381	7,306	7,211	6,960	5,620	7,232	6,590	5,340	5,632	4,286	4,092	4,079	3,685	2,579	2,399	161	131	71	51	120	116	N/A	N/A	7,606
Sodium, Dissolved	mg/L	6,150	6,340	8,320	7,920	7,500	7,480	6,110	6,180	6,930	7,670	5,550	6,260	4,730	4,090	4,320	3,490	2,750	2,500	136	128	76	51	131	120	N/A	N/A	8,040
Specific Conductance (E.C)	µmhos/cm	40,120	43,440	43,960	42,510	39,090	40,840	44,020	43,570	41,090	41,040	34,180	34,300	38,000	37,390	26,250	27,200	17,050	18,800	3,775	3,729	1,106	714	1,752	1,735	36,890	36,280	37,860
Specific Conductance (E.C) (Field)	µmhos/cm	40,882	43,249	43,788	42,426	39,747	41,557	41,740	43,223	42,340	40,642	33,456	33,798	5,750	37,532	26,779	27,703	16,917	18,376	3,961	3,968	962	796	1,828	1,746	35,270	36,306	38,097
Strontium, Dissolved	µg/L	15,666	16,477	8,689	9,434	7,995	9,084	16,370	16,228	9,500	9,458	7,619	7,287	17,499	17,148	9,637	9,864	5,208	5,455	2,777	2,834	630	435	1,231	1,288	N/A	N/A	7,440

Cal Am / RBF
Baseline Water and Total Dissolved Solids Levels
Monterey Peninsula Water Supply Project Area

Table 2

Summary of Laboratory Water Quality Results in Monitoring Wells

Well Name:		MW-1D		MW-1M		MW-1S		MW-3D		MW-3M		MW-3S		MW-4D		MW-4M		MW-4S		MW-5D		MW-5M		MW-5S		Test Slant Well		
Screen Interval (ft bgs):		277 - 327		115 - 225		55 - 95		285 - 330		105 - 215		50 - 90		280 - 330		100 - 230		50 - 90		380 - 430		100 - 325		50 - 90		140 - 320, 400 - 710 (MD)		
Sample Date:		14-Feb-15	9-Apr-15	14-Feb-15	9-Apr-15	13-Feb-15	9-Apr-15	21-Feb-15	10-Apr-15	24-Feb-15	10-Apr-15	25-Feb-15	10-Apr-15	19-Feb-15	2-Apr-15	6-Mar-15	2-Apr-15	7-Mar-15	2-Apr-15	17-Feb-15	2-Apr-15	3-Mar-15	2-Apr-15	10-Mar-15	2-Apr-15	20-Mar-15	24-Mar-15	8-Apr-15
Constituent[1]	**Units**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Sulfate	mg/L	1,950	N/A	2,070	N/A	1,840	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,700	N/A	N/A	N/A	N/A	N/A	58	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sulfate, Dissolved	mg/L	N/A	2,148	N/A	2,048	N/A	2,008	2,058	2,158	1,960	1,967	1,533	1,605	N/A	1,796	1,184	1,205	716	807	N/A	31	110	67	197	192	N/A	N/A	1,840
Temperature	° C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	16.3	N/A	N/A
Temperature (Field)	° C	19.2	20.02	17.2	17.89	18.8	17.64	19.6	20.22	16.3	18.74	17.5	19.17	19.9	19.8	18.4	18.3	17.7	18.1	21.3	21.4	16.97	18.2	16.7	18.1	20.9	19.1	17.2
Total Diss. Solids	mg/L	29,100	28,700	30,900	28,300	26,600	27,500	32,600	28,600	28,500	28,300	23,400	23,300	27,500	27,600	17,900	17,500	11,900	12,800	2,616	2,437	663	454	1,166	1,117	25,300	24,400	25,400
Total Susp. Solids	mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	36	ND	N/A
Turbidity	NTU	1.8	0.15	0.1	0.1	0.1	0.15	1	0.3	0.1	0.16	0.15	0.24	0.65	0.15	0.25	0.05	0.3	0.2	0.25	0.25	ND	ND	0.4	0.75	17	1.6	0.4
Turbidity (Field)	NTU	0.65	0.69	0.41	0.35	0.28	0.43	0.38	0.87	0.42	0.21	0.96	0.55	0.76	0.53	0.71	0.84	0.52	0.17	0.71	0.87	0.47	0.45	1.31	1.26	40.3	0.66	0.74
Volatile Org. Compounds (524)	µg/L	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	RP	N/A	RP	N/A	ND	N/A	RP	N/A	RP	N/A	ND	N/A	RP	N/A	N/A	N/A	ND
Zinc, Total	µg/L	ND	ND	ND	ND	413	ND	ND	ND	297	ND	312	ND	ND	ND	211	107	ND	108	51	ND	40	ND	43	ND	N/A	N/A	ND

Notes:

°C	= Degrees Celsius
CU	= Color Units
mg/L	= Milligrams per Liter
NTU	= Nephelometric Turbidity Units
pg/L	= Picograms per Liter
TON	= Threshold Odor Number
µg/L	= Micorgrams per Liter
µmhos/cm	= Micromhos per Centimeter
H	= Analyzed outside of hold time
MPN/100mL	= The most probable number (MPN) of coliform or fecal coliform bacteria per 100 milliliter
ND	= NOT DETECTED at or above the Reporting Limit or Practical Quantitation Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL)
N/A	= No Lab Results available
RP	= Results to be provided

[1] Laboratory water quality reports will be provided in the Test Slant Well and mornitoring well completion report.
* Laboratory water quality results pending.

CONSTITUENT	UNIT	MW-6D	MW-6M	MW-6S	MW-7D	MW-7M	MW-7S	MW-8D	MW-8D	MW-8M	MW-8M	MW-8S	MW-8S	MW-9D	MW-9D	MW-9M	MW-9M	MW-9S	MW-9S
		4/2/2015	4/4/2015	4/5/2015	9-Aug-15	2-Aug-15	3-Aug-15	5/21/2015	6/23/2015	5/27/2015	6/23/2015	5/28/2015	6/23/2015	25-Jun-15	28-Jul-15	28-Jun-15	28-Jul-15	30-Jun-15	28-Jul-15
ALKALINITY, TOTAL (as $CaCO_3$)	mg/L	117	397	366	109	98	29	152	112	140	155	320	302	170	176	127	128	1,051	1,019
ALUMINUM, TOTAL	µg/L	ND	ND	ND	ND	18	ND	37	128	292	ND	ND	ND	ND	ND	ND	ND	11	ND
AMMONIA-N	mg/L	NA	NA	NA				NA	NA	NA	NA	NA	NA						
AMMONIA-N, DISSOLVED	mg/L	ND	0.17	0.45	ND	ND	0.08	ND	ND	ND	ND	ND	ND	ND	0.07	0.12	0.17	2.83	2.86
AMMONIA-NH_3 (CALC) UN-IONIZED	ug/L	NA	NA	NA				NA	NA	NA	NA	NA	NA						
ARSENIC, TOTAL	µg/L	3	5	16	41	4	1	1	11	28	24	1	1	2	2	39	35	11	12
BARIUM, DISSOLVED	µg/L	255	155	105	110	282	199	88	178	154	119	57	75	59	48	163	141	315	273
BICARBONATE (AS HCO3-)	mg/L	143	484	447	133	120	35	185	137	171	189	390	368	207	215	155	156	1,282	1,243
BORON, DISSOLVED	mg/L	ND	ND	ND	1.71	ND	ND	0.05	0.66	1.83	1.37	0.22	0.29	0.08	0.07	2.93	2.77	0.69	0.64
BROMIDE, DISSOLVED	mg/L	2	0.5	0.2	44.3	6.6	1.3	0.6	11.5	42.1	33.6	0.9	1	0.2	0.2	49.6	47.6	4.2	3.5
CALCIUM	mg/L	341	139	93	1,900	507	120	64	413	1110	1500	149	142	32	34	878	1,060	209	234
CALCIUM, DISSOLVED	mg/L	347	140	92	1,890	520	114	59	416	1140	1500	151	139	35	33	869	1,100	242	235
CARBAMATES BY HPLC (EPA 531)	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND		ND		ND	
CARBONATE AS $CaCO_3$	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLORIDE, DISSOLVED	mg/L	814	167	57	13,589	1,739	387	220	3995	12380	10546	261	251	74	75	16,519	10,436	1,199	1,038
CHLORINATED PESTICIDES AND PCB (EPA 508)	µg/L	ND	A	A	A	ND	ND	ND	ND	ND	ND	A	A	ND		ND		ND	
CHLORINE RESIDUAL, TOTAL (LABORATORY)	mg/L (H)	NA	NA	NA				NA	NA	NA	NA	NA	NA						
COLIFORM, E. COLI (QUANTITRAY)	MPN/1OOml	NA	NA	NA				NA	NA	NA	NA	NA	NA						
COLIFORM, E. COLI (QUANTITRAY) - 18 HOUR	MPN/1OOml	NA	NA	NA				NA	NA	NA	NA	NA	NA						
COLIFORM, TOTAL (QUANTITRAY)	MPN/1OOml	NA	NA	NA				NA	NA	NA	NA	NA	NA						
COLIFORM, TOTAL (QUANTITRAY) - 18 HOUR	MPN/1OOml	NA	NA	NA				NA	NA	NA	NA	NA	NA						
COLOR, APPARENT (UNFILTERED)	CU	5	16	20	ND	ND	ND	11	16	ND	7	3	ND	ND	3	6	14	175	60
COPPER, TOTAL	µg/L	8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10	ND	ND	ND	ND	ND
DBCP & EDB	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND		ND	
DIOXIN	pg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND		ND	
DIQUAT (EPA 549)	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND		ND	
DISSOLVED OXYGEN (FIELD)	mg/L (H)	NA	NA	NA				NA	NA	NA	NA	NA	NA						
DISSOLVED OXYGEN (LABORATORY)	mg/L (H)	NA	NA	NA				NA	NA	NA	NA	NA	NA						
ENDOTHALL	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND		ND	
FLUORIDE, DISSOLVED	mg/L	0.1	ND	0.2	ND	ND	0.1	0.3	ND	0.4	ND	0.1	ND	0.3	0.3	ND	ND	ND	0.4
GLYPHOSATE	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND		ND	
HARDNESS (AS $CaCO_3$)	mg/L	1222	565	393	9,030	2,044	547	263	2057	6080	6698	578	556	133	138	6,718	7,296	1,218	1,206
HYDROXIDE	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
IODIDE	µg/L	ND	35	35	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	500	330
IRON	µg/L	ND	184	315	ND	ND	33	81	274	ND	ND	104	ND	10	ND	670	1,540	6,964	6,878
IRON, DISSOLVED	µg/L	ND	182	315	ND	ND	26	15	ND	ND	ND	99	ND	ND	ND	667	1,520	6,300	1,400
KJEHLDAHL NITROGEN, DISSOLVED	mg/L	ND	0.7	1	ND	ND	0.09	ND	ND	ND	ND	ND	ND	ND	0.11	0.2	0.19	6.12	2.9
LITHIUM	µg/L	25	17	6	271	29	5	49	157	132	132	ND	6	38	39	289	296	23	20
MAGNESIUM	mg/L	90	53	39	1,040	189	60	25	249	801	717	50	49	13	13	1,100	1,130	169	151
MAGNESIUM, DISSOLVED	mg/L	83	49	37	1,010	192	58	23	250	828	692	51	47	13	13	1,090	1,140	161	152
MANGANESE, DISSOLVED	µg/L	714	821	2090	230	372	476	283	759	353	642	ND	76	247	186	1,120	1,410	4,920	4,830
MANGANESE, TOTAL	µg/L	750	810	1880	232	372	500	310	847	354	668	ND	86	254	188	1,160	1,380	5,140	4,840
MBAS (SURFACTANTS)	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NITRATE AS NO_3	mg/L	2	ND	ND	6	15	198	2	6	5	6	123	115	2	2	5	6	ND	ND
NITRATE+NITRITE AS N	mg/L	0.7	0.5	0.5	1.4	3.4	44.8	0.7	1.3	1.5	1.4	28.2	26.8	0.9	0.8	1.2	1.3	2.5	1.2
NITRITE AS NO_2-N, DISSOLVED	mg/L	0.2	0.1	0.5	ND	ND	0.1	0.3	ND	0.4	ND	0.4	0.8	0.3	0.3	ND	ND	2.5	1.2
ODOR THRESHOLD AT 60 C	TON	1	1	2	1	2	2	1	2	1	1	2	1	1	2	1	2	2	5
OIL & GREASE (HEM)	mg/L	NA	NA	NA				NA	NA	NA	NA	NA	NA						
o-PHOSPHATE-P	mg/L	0.05	0.32	1.55	0.05	0.016	0.035	0.06	0.04	0.06	0.04	0.1	0.13	0.06	0.13	0.06	0.04	1.34	0.28
pH (FIELD TEST)	pH	7.24	7.43	7.07	6.77	7.17	7.05	7.33	8.17	6.67	6.92	7.13	6.99	7.44	8.03	6.84	7.03	7.06	7.04
pH (LABORATORY)	pH (H)	7.4		7.1	6.9	7.2	7.3	7.6	8.2	7.2	7.2	7.4	7.2	7.5	7.8	6.9	6.9	7.1	7.1
PHENOXY ACID HERBICIDES (515.3)	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND		ND	
PHOSPHORUS, DISSOLVED TOTAL	mg/L	0.06	0.31	1.38	0.02	0.017	0.04	0.06	ND	0.07	ND	0.11	0.07	0.12	0.029	0.06	ND	1.4	0.16
POTASSIUM	mg/L	7.1	6.4	7.6	57	10	5.9	5.1	41	108	55	4.1	5	3.5	6.1	197	168	14	13
POTASSIUM, DISSOLVED	mg/L	8	7	7.2	55	10	5.5	4.6	42	111	50	4.3	4.8	3.6	6	196	167	12.8	13
QC RATIO TDS/SEC		0.67	0.63	0.61	0.69	0.68	0.68	0.56	0.58	0.69	0.7	0.62	0.63	0.59	0.61	0.66	0.69	0.6	0.58
REG. ORG. COMPOUNDS (EPA 525)	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND		ND	
SETTLEABLE SOLIDS	mL/L	NA	NA	NA				NA	NA	NA	NA	NA							
SILICA AS SiO_2, DISSOLVED	mg/L	44	44	34	35	30	37	45	33	30	33	37	40	45	44	35	30	43	40
SODIUM	mg/L	77	140	79	6,834	338	124	148	2192	6106	5310	262	245	68	75	8,407	8,224	732	691
SODIUM, DISSOLVED	mg/L	78	141	79	6,540	342	119	135	2290	6270	4950	265	239	68	74	8,430	8,240	698	692
SPECIFIC CONDUCTANCE (E.C)	µmhos/cm	2758	1545	989	38,800	5,650	1,768	1045	12190	35020	29320	2036	1935	624	617	44,090	44,660	5,330	5,190
SPECIFIC CONDUCTANCE (E.C) (FIELD)	µmhos/cm	2859	1531	869	39,065	5,507	1,762	1113	15312	35040	29888	2004	1932	574	658	44,462	45,724	5,384	5,255
STRONTIUM, DISSOLVED	µg/L	1826	761	561	12,676	3,689	1,327	470	3536	8504	8507	868	855	273	260	8,148	8,301	3,064	1,861
SULFATE	mg/L	NA	NA	NA				NA	NA	NA	NA	NA	NA						
SULFATE, DISSOLVED	mg/L	85	175	87	1,882	176	61	32	541	1743	1430	258	239	25	23	2,286	2,207	210	220
TEMPERATURE	°C	NA	NA	NA				NA	NA	NA	NA	NA	NA						
TEMPERATURE, (FIELD)	°C	10.6	16.8	NA	19.7	18.4	18.2	21.2	19.2	17.17	17.2	16.83	17	21.2	20.2	17.2	17.3	17.3	17.1
TOTAL DISS. SOLIDS	mg/L	1840	966	608	26,700	3,832	1,200	583	7100	24000	20500	1260	1214	366	377	29,000	30,600	3,204	2,997
TOTAL SUSP. SOLIDS	mg/L	NA	NA	NA				NA	NA	NA	NA	NA	NA						
TURBIDITY	NTU	0.2	0.7	2.6	0.2	0.2	0.3	0.55	1.9	0.1	0.2	0.1	0.15	0.1	0.5	1.3	3	55	50
TURBIDITY (FIELD)	NTU	0.59	0.7	0.62	0.85	0.88	0.7	2.48	1	0.56	1	0.92	1	0.86	0.7	0.29	0.3	0.82	0.2
VOLATILE ORG. COMPOUNDS (524)	µg/L	ND	ND	ND	ND	A	ND	ND	ND	ND	ND	A	A	ND		ND		A	
ZINC, TOTAL	µg/L	24	ND	ND	ND	ND	ND	ND	ND	340	ND	636	ND	22	ND	ND	ND	ND	ND