STATE WATER RESOURCES CONTROL BOARD

DRAFT FINAL REVIEW OF CALIFORNIA AMERICAN WATER COMPANY'S MONTEREY PENINSULA WATER SUPPLY PROJECT

May 22, 2013

EXECUTIVE SUMMARY

Introduction

The California Public Utilities Commission (Commission) asked the State Water Resources Control Board (State Water Board) whether the California American Water Company (Cal-Am) has the legal right to extract desalination feedwater for the proposed Monterey Peninsula Water Supply Project (MPWSP). Cal-Am proposes several approaches that it claims would legally allow it to extract water from the Salinas Valley Groundwater Basin (SVGB or Basin) near or beneath Monterey Bay without violating groundwater rights or injuring groundwater users in the Basin. The purpose of this report is to examine the available technical information and outline legal considerations which would apply to Cal-Am's proposed MPWSP.

Technical Conclusions

There are gravity and pumped well designs proposed for the MPWSP, with several well locations proposed. Well design and location tests will be needed for complete technical and legal analysis. The conditions in the aquifer where MPWSP feedwater would be extracted could be either confined or unconfined, however, there is currently not enough information to determine what type of conditions exist at the location of the MPWSP wells. Effects from confined aquifer pumping would be observed over a larger area than if extraction occurred from an unconfined aquifer. Previous groundwater modeling studies for one of the proposed MPWSP well locations indicated there would be an approximate 2-mile radius for the "zone-of-influence" of the extraction wells, if groundwater was pumped from an unconfined aquifer. It is unknown what the effects would be if water was pumped from a confined aquifer with different hydrogeologic conditions.

The aquifers underlying the proposed extraction locations have been intruded with seawater since at least the 1940's. The impairment means that beneficial uses of the water in the intruded area are limited; however the actual extent of water use is not known. Groundwater quality in the Basin will be a key factor in determining the effects

of extraction on groundwater users in the Basin, assessing any potential injury that may occur, and measures that would be necessary to compensate for it.

Legal Conclusions

To appropriate groundwater from the Basin, the burden is on Cal-Am to show their project will not cause injury to other users. Key factors will be: (1) how much fresh water Cal-Am extracts as a proportion of the total pumped amount, (to determine the amount of water, that after treatment, would be considered desalinated seawater available for export as developed water); (2) whether pumping affects the water table level in existing users' wells, (3); whether pumping affects seawater intrusion within the Basin (4) how Cal-Am returns any fresh water it extracts to the Basin to prevent injury to others; and (5) how groundwater rights might be affected in the future if the proportion of fresh and seawater changes in the larger Basin area or the immediate area around Cal-Am's wells.

If overlying groundwater users are protected from injury, appropriation of water consistent with the principles discussed in this report may be possible. To export water outside the Basin, Cal-Am must show 1) the desalinated water it produces is developed water, 2) replacement water methods to return water to the Basin are effective and feasible, and 3) the MPWSP can operate without injury to other users. A physical solution could be employed to assure all groundwater users rights are protected.

Recommendations

Additional information is needed to accurately determine MPWSP impacts on current and future conditions of the Basin regardless of whether the extraction occurs from pumped or gravity wells. First, specific information is needed on the depth of the wells and aquifer conditions. Studies are needed to determine the extent of the Dune Sand Aquifer, the water quality and water quantity of the Dune Sand Aquifer, the extent and thickness of the Salinas Valley Aquitard, and the extent of the 180-Foot Aquifer.

Second, the effects of the MPWSP on the Basin need to be evaluated. Specifically, a series of test boring/wells are needed to assess the hydrogeologic conditions at the site.

Aquifer testing is also needed to establish accurate baseline conditions and determine the pumping effects on both the Dune Sand Aquifer and the underlying 180-Foot Aquifer. Aquifer tests should mimic proposed pumping rates. To avoid unnecessary delays in development of the final system configuration, it is advisable that Cal-Am conduct similar testing, concurrently, at the other potential alternative locations for the extraction wells.

Third, updated groundwater modeling is needed to evaluate future impacts from the MPWSP. Specifically, modeling scenarios are necessary to predict changes in groundwater levels, groundwater flow direction, and changes in the extent and boundary of the seawater intrusion front. Additional studies are also necessary to determine how any extracted fresh water is replaced, whether through re-injection wells, percolation basins, or through existing recharge programs. It may also be necessary to survey the existing groundwater users in the affected area. The studies will form the basis for a plan that avoids injury to other groundwater users and protects beneficial uses in the Basin. To ensure that this modeling provides the best assessment of the potential effects of the MPWSP, it is important that any new information gathered during the initial phases of the groundwater investigation be incorporated into the groundwater modeling studies. In addition, modeling should include cumulative effects of the MPWSP, the Castroville Seawater Intrusion Project, and the Salinas Valley Water Project on the Basin.

1. Introduction

In a letter dated September 26, 2012, the California Public Utilities Commission (Commission) asked the State Water Resources Control Board (State Water Board) whether the California American Water Company (Cal-Am) has the legal right to extract desalination feedwater for the proposed Monterey Peninsula Water Supply Project (MPWSP). The Commission, lead agency under the California Environmental Quality Act (CEQA) for the proposed project, did not request that the State Water Board make a water rights determination, rather it requested an opinion on whether Cal-Am has a credible legal claim to extract feedwater for the proposed MPWSP in order to inform the Commission's determination regarding the legal feasibility of the MPWSP.

In a letter dated November 16, 2012, the State Water Board informed the Commission that State Water Board staff would prepare an initial report for the Commission. On December 21, 2012, the State Water Board provided the Commission an initial draft of the report and on February 14, 2013, the Commission provided the State Water Board comments on the initial draft report. The Commission's February 14, 2013 correspondence also contained additional information for the State Water Board to evaluate, specifically, a revised design of the feedwater intake system for the MPWSP. State Water Board staff reviewed the additional information and prepared a revised draft. The revised draft was then noticed to the public for comment on April 3, 2013, and additional information included with the comment letters received was considered and used to revise the report where appropriate.

Cal-Am proposes several approaches it claims would legally allow it to extract water from the Basin near or beneath Monterey Bay without violating groundwater rights or injuring other groundwater users in the Basin. The purpose of this report is to examine the available technical information and outline legal considerations which would apply to Cal-Am's proposed MPWSP.

This paper will (1) examine the available technical information[1] and that provided by the Commission; (2) discuss the effect the proposed MPWSP could have on other users in the Basin; (3) discuss the legal constraints and considerations that will apply to any user who proposes to extract water from the Basin; and (4) outline information that will be necessary to further explore MPWSP's feasibility and impacts. Ultimately, whether a legal means exists for Cal-Am to extract water from the Basin, as described in its proposal outlined in the CEQA Notice of Preparation[2] (NOP) document and in the additional information provided, will depend on developing key hydrogeologic information to support a determination based on established principles of groundwater law.

2. Background

In 2004, Cal-Am filed Application A.04-09-019 with the Commission seeking a Certificate of Public Convenience and Necessity for the Coastal Water Project. The primary purpose of the Coastal Water Project was to replace existing water supplies that have been constrained by legal decisions affecting the Carmel River and Seaside Groundwater Basin water resources. The Coastal Water Project proposed to use existing intakes at the Moss Landing Power Plant to draw source water for a new desalinization plant at Moss Landing. In January 2009, the Commission issued a Draft Environmental Impact Report (EIR) for the Coastal Water Project and two project alternatives – the North Marina Project and the Monterey Regional Water Supply Project (Regional Project). In October 2009, the Commission issued the Final EIR[3] (FEIR) and in December 2009, it certified the FEIR. In December 2010, the Commission approved implementation of the Regional Project.

In January 2012, Cal-Am withdrew its support for the Regional Project and subsequently submitted Application A.12-04-019 to the Commission for the proposed MPWSP as described in their September 26, 2012 letter. In October 2012, the

[1] Please see Appendix C for a list of references relied upon and considered in this report.
[2] California Public Utilities Commission, Notice of Preparation, Environmental Impact Report for the Cal-Am Monterey Peninsula Water Supply Project, October 2012.
[3] Cal-Am, Coastal Water Project, FEIR, October, 2009.

Commission issued a NOP for a Draft EIR for the proposed MPWSP. The Commission requested in their September letter that the State Water Board prepare an initial staff report by December 2012. The short timeframe for the initial report was necessary to inform written supplemental testimony due in January 2013 for Cal-Am and written rebuttal testimony from other parties due February 2013. The State Water Board completed and transmitted its initial draft report to the Commission on December 21, 2012.

In a memo dated February 14, 2013, the Commission expressed its appreciation to the State Water Board for the initial draft report. Additionally, the Commission included comments and questions regarding the draft report and requested the State Water Board evaluate new and additional information in its final report. State Water Board staff reviewed the additional information and prepared a revised draft.[4]

The revised draft was then noticed to the public for comment on April 3, 2013. At the conclusion of the public comment period on May 3, 2013, six comment letters had been received on the Draft Report.[5] Comments that pertain to the State Water Board's report generally fell into the following categories: 1) State Water Board's role and objective in preparing the Report; 2) sources of information used in preparing the Report (including adequacy of the environmental document for the previously proposed Coastal Water Project and use of previously developed groundwater model); 3) concerns about injury to other legal users of water (including potential impacts on existing efforts to control seawater intrusion); 4) legal issues related to the exportation of water from the Basin; 5) the need for better information about the hydrogeology of the proposed project location and the effects the proposed project would have on groundwater in the Basin; and 6) legal interpretation of groundwater appropriation law and concepts discussed within the Draft Report. We have modified the report to be responsive to the comments received,

[4] Commission correspondence to State Water Board, February 14, 2013. http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M047/K304/47304686.pdf

[5] Monterey County Farm Bureau (Norman Groot), LandWatch Monterey County (Amy L. White), the Salinas Valley Water Coalition (Nancy Isakson), Ag Land Trust (Molly Erickson of the Law Offices of Michael W. Stamp), Water Plus (Ron Weitzman), and Cal-Am (Rob Donlan of Ellison, Schneider, & Harris L.L.P)

where appropriate. Additionally, we have included summary responses to the above general categories as Appendix A to this report.

3. Monterey Peninsula Water Supply Project Description

When the Commission requested the assistance of the State Water Board in September 2012, the most current information available on the MPWSP was the description in the NOP for a forthcoming Draft EIR. State Water Board staff analyzed the NOP and how closely the new description matched the alternatives in the December 2009 FEIR completed for the Coastal Water Project. Of the two project alternatives in the FEIR, the North Marina Project more closely resembled the proposed MPWSP described in the NOP. For this reason, State Water Board staff assumed most of the information, including the slant well construction and operation as described in the FEIR – North Marina Project Alternative[6], was applicable to the proposed MPWSP. However, because the configuration and location for the proposed extraction well system has not yet been studied, direct comparison of the findings from the previous environmental reviews to the system that is currently being considered is not possible.

On February 14, 2013, the Commission provided comments on an initial draft of this report and requested that State Water Board staff make revisions to address ambiguities while also considering new and additional information concerning modifications to the design and configuration of the MPWSP. The new information provided to the State Water Board by the Commission includes: an updated project description, changes in the location and configuration of the extraction well system, new information about the nature of the 180-Foot Aquifer, timing of implementation for certain compensation measures, and supplemental testimony from Richard Svindland of Cal-Am.[7]

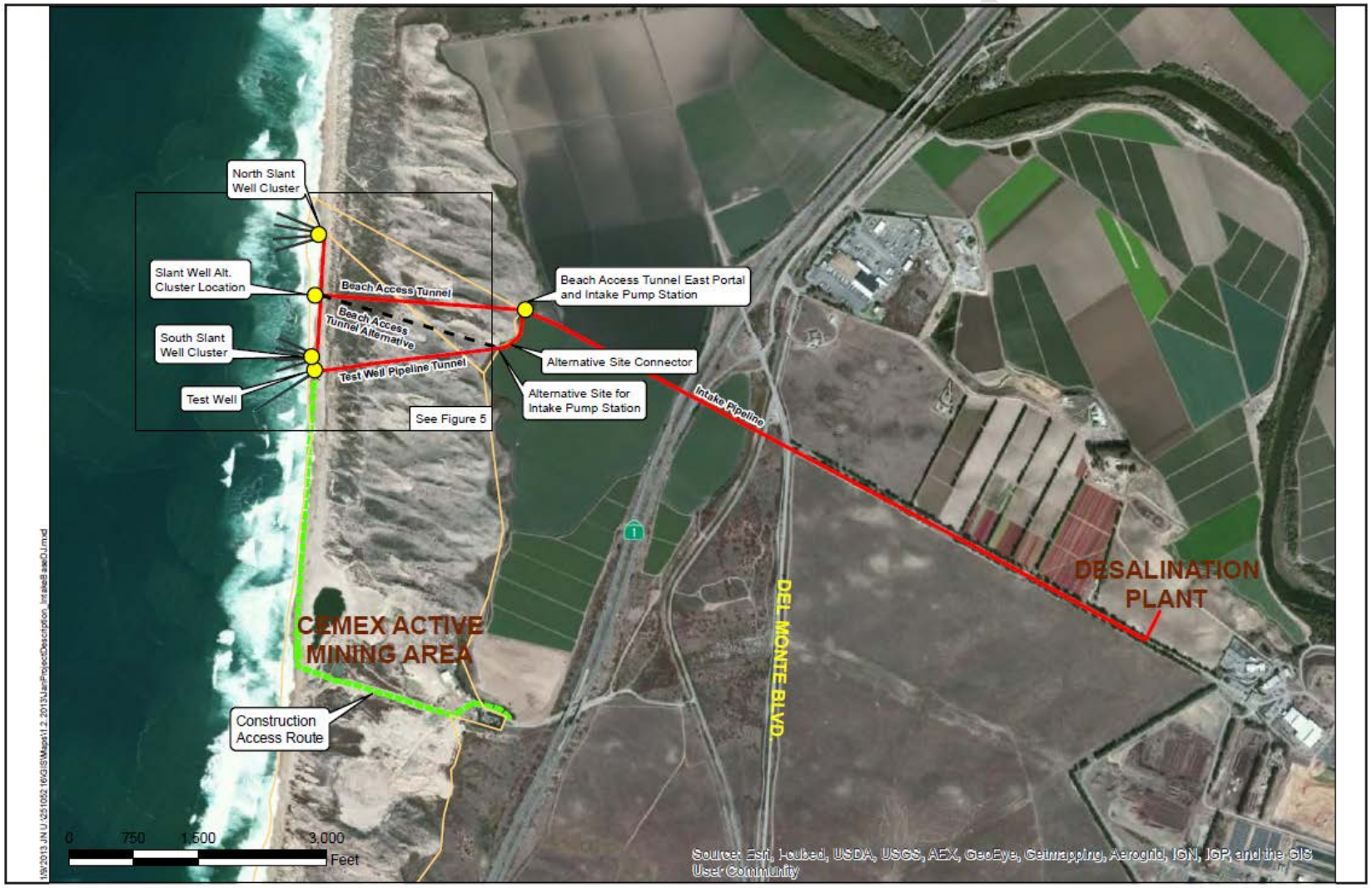
The Commission requested that the State Water Board evaluate two possible alternatives for the MPWSP; (1) the "Proposed Project" (preferred alternative) with slant wells located at a 376-acre coastal property owned by the CEMEX Corporation and

[6] Cal-Am, Coastal Water Project, FEIR, Section 3.3 – North Marina Project, October, 2009.
[7] Commission correspondence to State Water Board, February 14, 2013. http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M047/K304/47304686.pdf

illustrated by the yellow dots on Figure “SWRCB 1”, and; (2) “Intake Contingency Option 3” with a slant well intake system at Portrero Road north of the Salinas River as shown in the top center of Figure “SWRCB 2” by the small green dots. Figure “SWRCB 3” shows the approximate locations of the alternatives in the greater geographic area. The preferred alternative would consist of 7 to 9 slant wells that would draw water from under the ocean floor by way of gravity for delivery to the desalination plant. Intake Contingency Option 3 would consist of 9 wells extracting water from beneath the ocean floor by use of submersible pumps. For both alternatives, approximately 22 million gallons of water per day (mgd) would be extracted from the wells to produce 9 mgd of desalinated water. The design of these options is further described in Section 5 of this report.

Information provided to the State Water Board to date does not allow staff to definitively address the issue of how the proposed project would affect water rights in the Basin. Currently, it is unknown which aquifer(s) the wells will extract water from, and further complicating the analysis, the relationship of the aquifers in the well area to surrounding low-permeability aquitards is uncertain. Given these significant unknowns, this State Water Board report assumes, for the purposes of this preliminary evaluation, that the MPWSP hydrogeologic characteristics and effects to the SVGB would be similar to the North Marina Project alternative analyzed in the FEIR, inclusive of the design modifications described in the Commission’s February 2013 correspondence. The State Water Board provides recommendations for additional studies that are necessary to clarify the hydrogeologic conditions that would allow for a more complete review.

Figure SWRCB 1



CALIFORNIA AMERICAN WATER

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Monterey Peninsula Water Supply Project

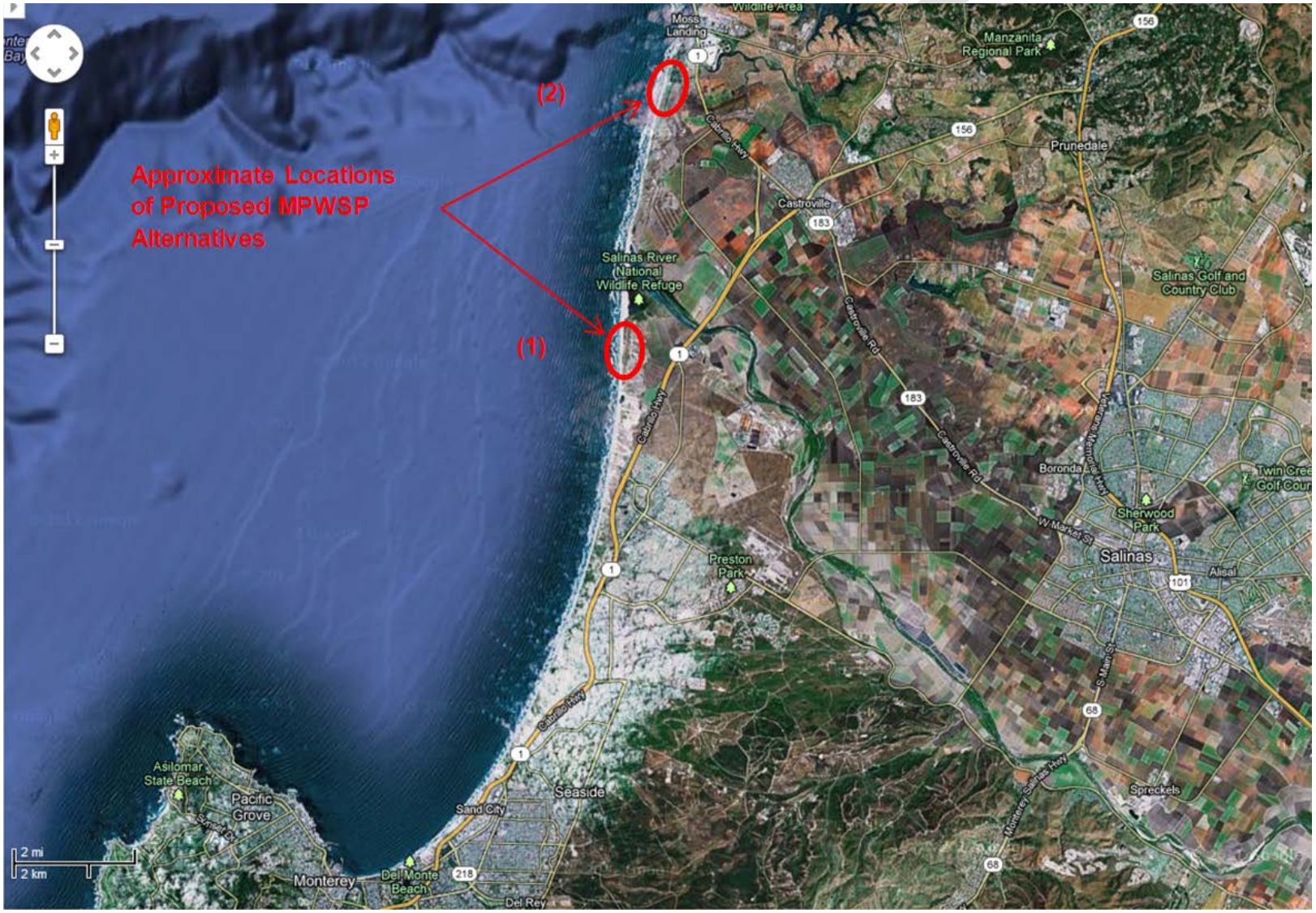
Intake Facilities

Figure 4

Figure SWCRB 2

Figure - 4 Intake Contingency Option 3

Figure SWRCB 3



4. Physical Setting

This section contains a discussion of the physical setting of the SVGB that includes a description of the hydrogeologic characteristics, groundwater quality, movement and occurrence of groundwater, and groundwater modeling results. It is important to understand the physical characteristics of the Basin to accurately determine the effects the MPWSP will have on the Basin.

4.1 Groundwater Aquifers

Knowledge of the hydrogeologic characteristics in the area of the proposed MPWSP wells is important in determining the impacts of the proposed project. As shown by the dark blue line in Figure "SWRCB 4", the SVGB extends approximately 100 miles from Monterey Bay in the northwest to the headwaters of the Salinas River in the southeast. Major aquifers in the SVGB are named for the average depth at which they occur. The named aquifers from top to bottom include the 180-Foot Aquifer, the 400-Foot Aquifer and the 900-Foot or Deep Aquifer. A near-surface water-bearing zone comprised of dune sands, commonly referred to as the "Dune Sand Aquifer", also exists but is considered a minor source of water due to its poor quality.[8] The Dune Sand Aquifer is not regionally extensive and is not a recognized subbasin within the SVGB.[9] The extent and the amount of groundwater in storage in the Dune Sand Aquifer are unknown. Figure "SWRCB 5" is a cross-section taken from the FEIR for the Coastal Water Project that shows the relationship of aquifers and aquitards. The estimated extent of the Dune Sand Aquifer and its relation to the 180-Foot Aquifer can be seen in the upper left hand corner of Figure "SWRCB 5". Figure "SWRCB 6" shows the westerly portion of the cross-section in the vicinity of the project area. The proposed slant wells will either extract water from the 180-Foot Aquifer subbasin and/or the Dune Sand Aquifer.

[8] California Department of Water Resources, California's Groundwater, Bulletin 118, Central Coast Hydrologic Region, SVGB, February 2004.
[9] Cal-Am, Coastal Water Project, FEIR, Section 4.2, Groundwater Resources, p. 4.2-5, October 2009.

The 180-Foot Aquifer is generally confined by the overlying Salinas Valley Aquitard (SVA). The SVA is a well-defined clay formation with low permeability that retards the vertical movement of water to the underlying 180-Foot Aquifer. The SVA extends vertically from the ground surface to approximately 100 to 150 feet below mean sea level (msl) and extends laterally from Monterey Bay to 10 miles south of Salinas. Based on information from logs of two wells located approximately ½ mile south and ½ mile northeast from the proposed MPWSP slant wells, the top of the SVA is between 150 to 180 feet below msl. The well logs show the top of the underlying 180-Foot Aquifer at approximately 190 to 220 feet below msl.[10]

Studies have shown that in some areas the SVA thins enough to create unconfined conditions in the 180-Foot Aquifer. [11] It is unknown if these unconfined conditions exist in the proposed MPWSP well area. Determination of the existence of the SVA, and thus the conditions of the aquifer at the location of the proposed MPWSP wells will be critical in determining the area of impact of the project as discussed at greater length in Section 5 of this report.

[10] Cal-Am, Coastal Water Project, FEIR, Section 4.2 – Groundwater Resources, Figure 4.2-3, October, 2009.
[11] Monterey County Water Resources Agency, Monterey County Groundwater Management Plan, Chapter 3 – Basin Description, pp. 3.7 & 3.8, May 2006.

Figure SWRCB 4

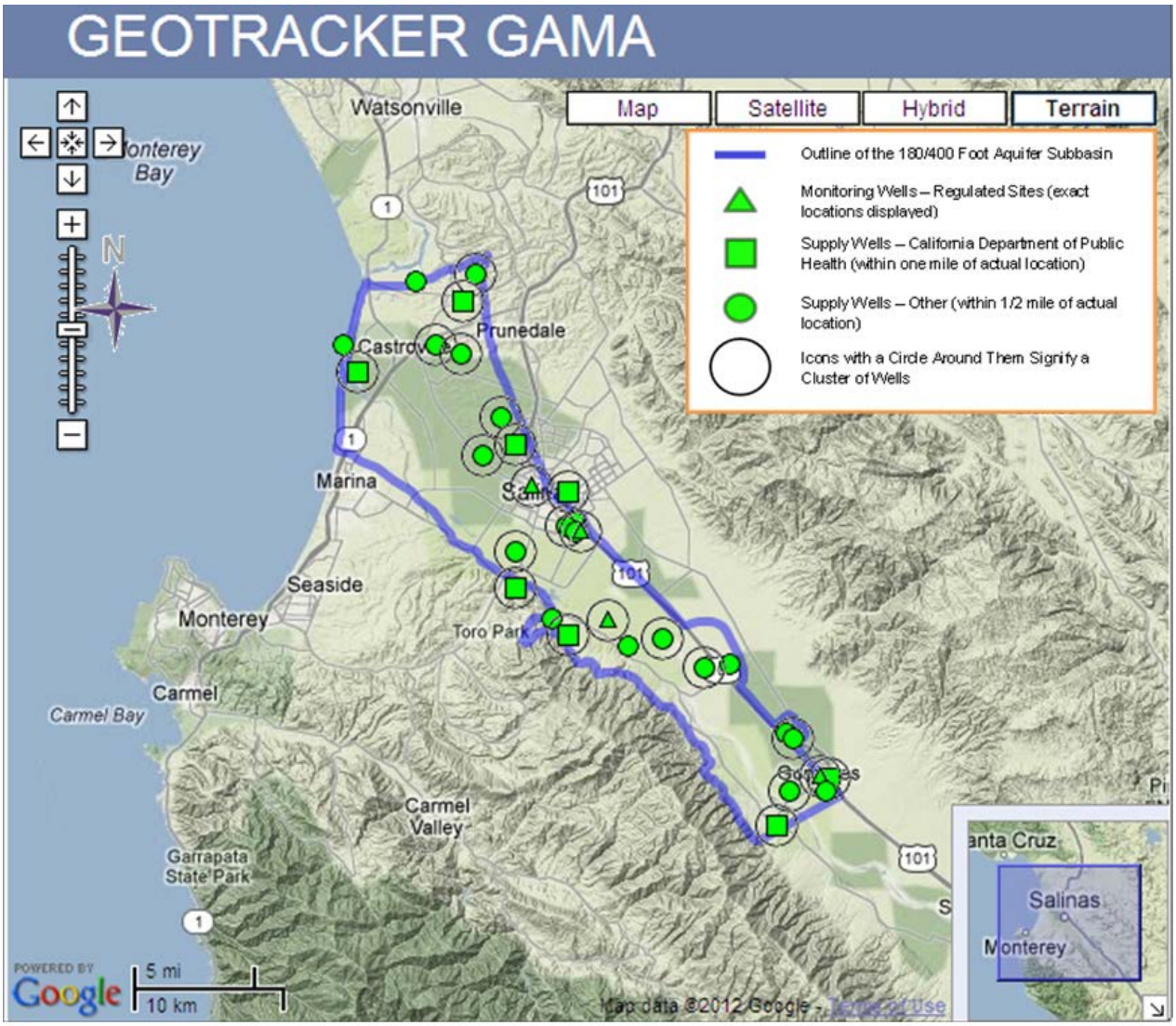
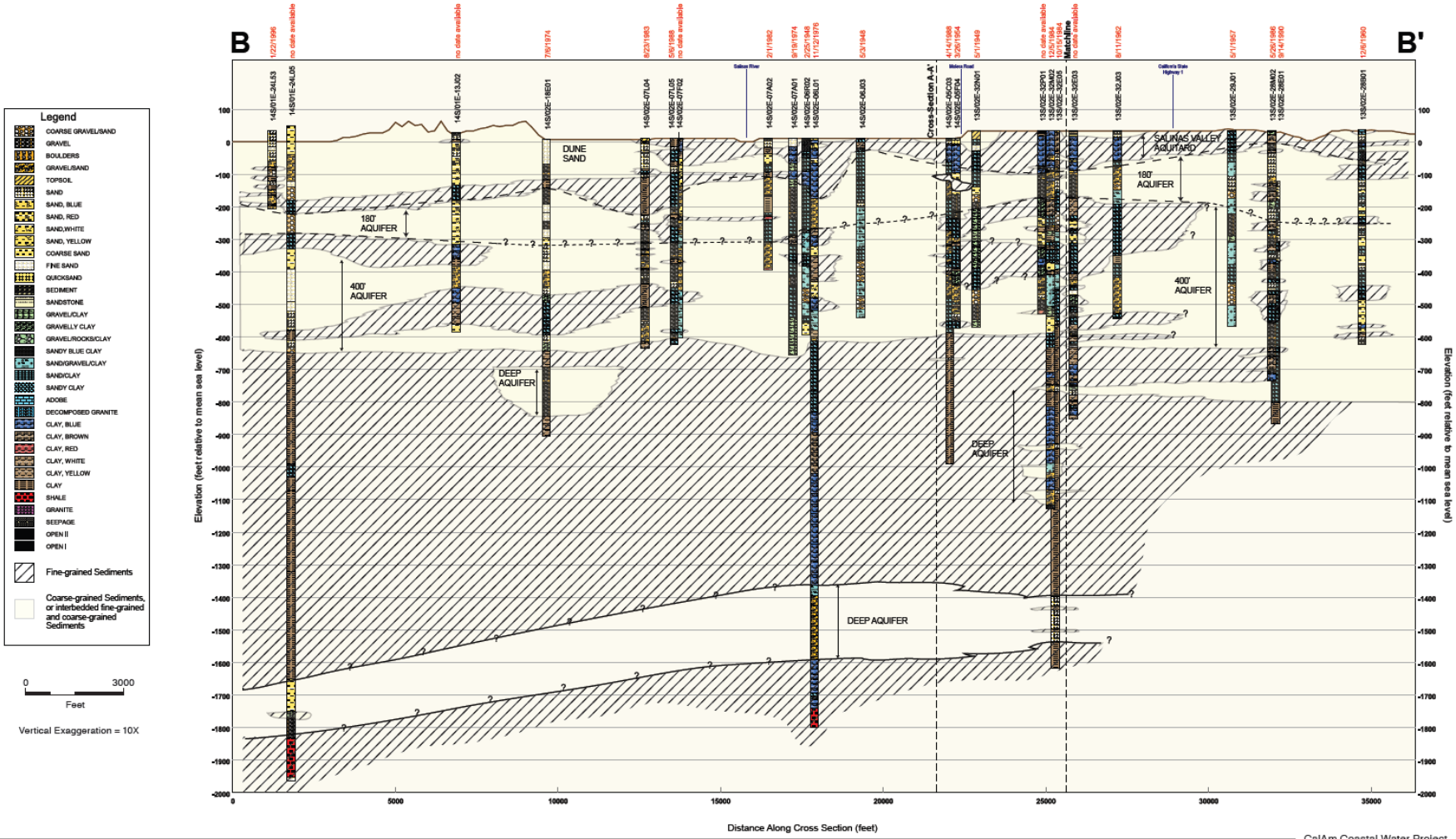


Figure SWRCB 5



SOURCE: Kennedy/Jenks, 2004

CalAm Coastal Water Project . 205335

Figure 4.2-3

Cross-Section B-B'

Figure SWRCB 6

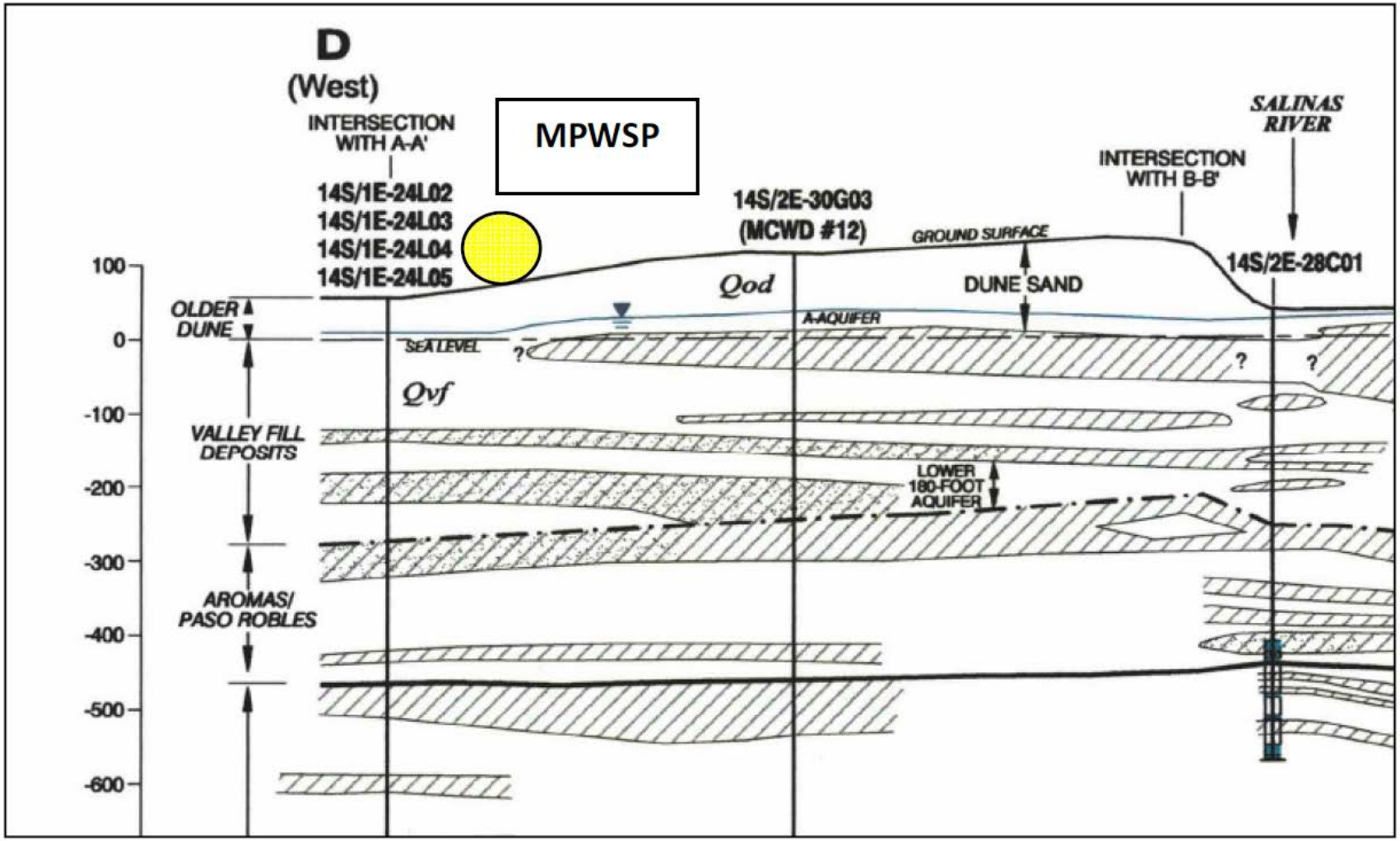


Figure 13. Geologic Cross-Section (Portion of Plate 6 from HLA, 2001)

4.2 Groundwater Quality & Seawater Intrusion

Groundwater quality at the site of the proposed MPWSP wells will play an important role in determining the effects of extraction on the other users in the Basin. Historic and current pumping of the 180-Foot Aquifer has caused significant seawater intrusion, which was first documented in the 1930s.[12] Seawater intrusion is the migration of ocean water inland into a fresh water aquifer. This condition occurs when a groundwater source (aquifer) loses pressure, allowing the interface between fresh water and seawater to move into the aquifer. A common activity that induces intrusion is pumping of the groundwater basin faster than the aquifer can recharge.[13]

The Monterey County Water Resources Agency (MCWRA) uses the Secondary Drinking Water Standard upper limit of 500 milligrams per liter (mg/L) concentration for chloride to determine the seawater intrusion front. The MCWRA also uses the Secondary Drinking Water Standard to determine impairment to a source of water. MCWRA uses 100 mg/L of chloride as a threshold value for irrigation.[14] Standards are maintained to protect the public welfare and to ensure a supply of pure potable water. MCWRA currently estimates seawater has intruded into the 180-Foot Aquifer approximately 5 miles inland as shown on Figure "SWRCB 7". The increasing trend of inland movement of seawater intrusion is also important and provides qualitative data on future trends in the Basin. This seawater intrusion has resulted in the degradation of groundwater supplies, requiring numerous urban and agricultural supply wells to be abandoned or destroyed. In MCWRA's latest groundwater management plan (2006), an estimated 25,000 acres of land overlies water that has degraded to 500 mg/L chloride. The amount of 500 mg/L chloride water that

[12] California Department of Water Resources, California's Groundwater, Bulletin 118, Central Coast Hydrologic Region, SVGB, 180/400 Foot Aquifer subbasin, February 2004.
[13] MCWRA, Monterey County General Plan Final Environmental Impact Report, pp. 4.3-25, March 2012,
[14] Ibid.

enters the Basin was reported to be as high as 14,000 acre-feet per annum (afa) or 4.5 billion gallons.[15]

The Central Coast Regional Water Quality Control Board's Basin Plan lists designated beneficial uses and describe the water quality which must be attained to fully support those uses.[16] The Basin Plan states that water for agricultural supply shall not contain concentration of chemical constituents in amounts which adversely affect agricultural beneficial use. Table 3-3 of the Basin Plan provides guidelines for interpretation of the narrative water quality objective and indicates that application of irrigation water with chloride levels above 355 mg/L may cause severe problems to crops and/or soils with increasing problems occurring within the range of 142-355 mg/L.[17]

The MCWRA and the Central Coast Regional Water Quality Control Board show impairment in the intruded area for drinking and agricultural uses. Since this groundwater is reportedly impaired, it is unlikely that this water is, or will be put to beneficial use. However, if groundwater use is occurring in the intruded area, MPWSP effects that cause injury to legal users will need to be determined.[18] Conditions in the Basin will need to be monitored to determine the level of water quality impairment and any changes that occur as a result of the MPWSP.

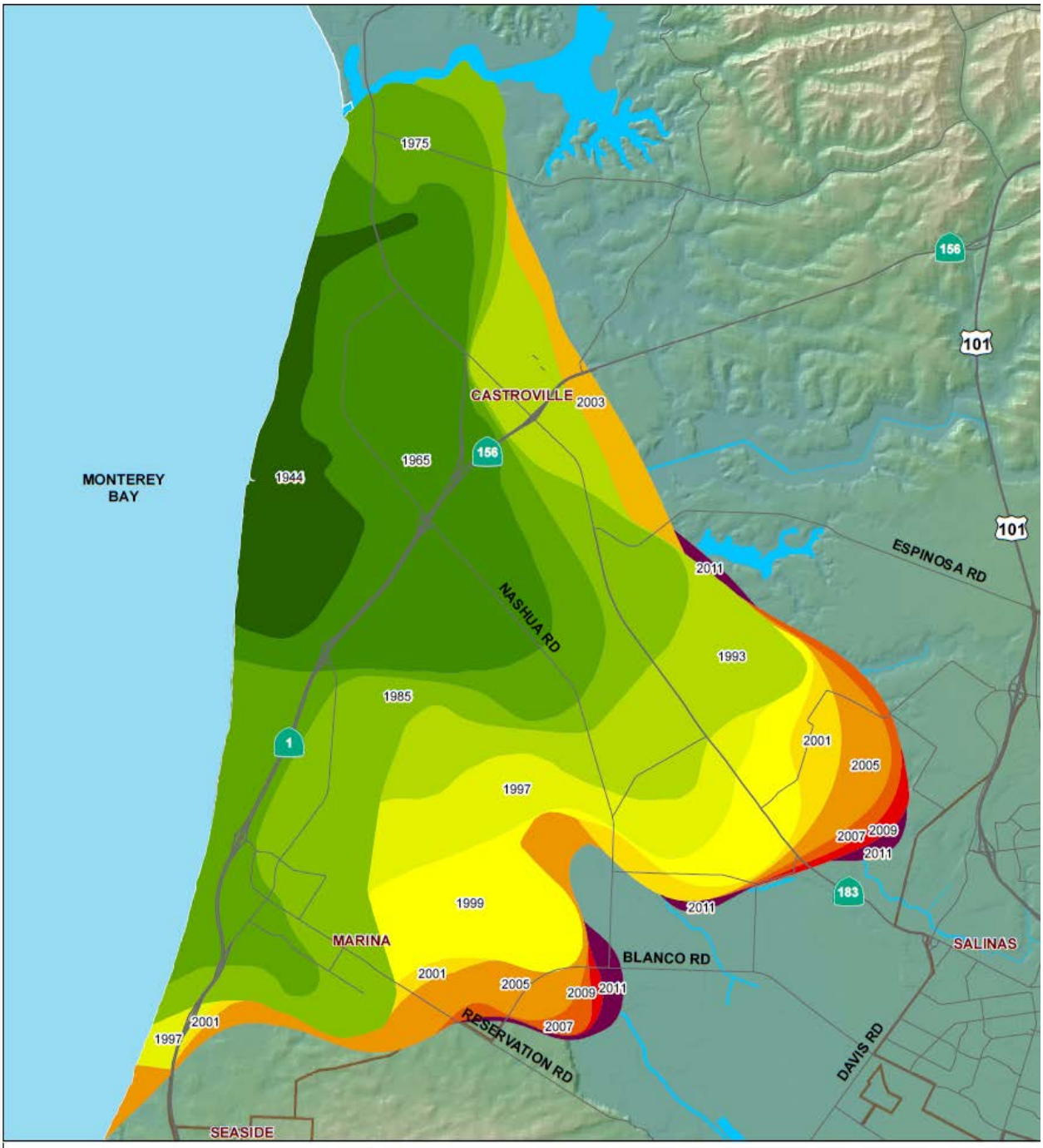
Local agencies have taken steps to reduce the rate of seawater intrusion and enhance groundwater recharge in the SVGB. To address the seawater intrusion problem, the MCWRA passed and adopted Ordinance No. 3709 in September 1993.[19] Ordinance No. 3709 prohibits groundwater extractions and installation of new groundwater extraction facilities in certain areas within the seawater intrusion zone. To enhance groundwater recharge, efforts have also been made

[15] MCWRA, Monterey County Groundwater Management Plan, Chapter 3 – Basin Description, pages 3.14 & 3.15, May 2006.
[16] Water Quality Control Plan for the Central Basin, Regional Water Quality Control Board, Central Coast Region. Page I-1, June 2011.
[17] CCRWQCB, Basin Plan, pp. III-5 and III-8.
[18] A comment letter submitted by Law Offices of Michael W. Stamp on behalf of Ag Land Trust on May 3, 2013, states that a well on the Armstrong Ranch, adjacent to the CEMEX site, is being used to irrigate more than one acre of seed stock.
[19] Monterey County Water Resources Agency, Ordinance No. 3709, September 14, 1993.

to increase fresh water percolation through the Castroville Seawater Intrusion Project (CSIP) which was completed in 1998.[20] The CSIP is a program operated by the Monterey County Water Pollution Control Agency that reduces groundwater pumping from seawater intruded areas and distributes recycled water to agricultural users within the SVGB. The program provides a form of groundwater recharge by effectively reducing groundwater extraction in those areas of the Basin that are part of the CSIP area and providing some recharge through deep percolation of applied irrigation water. The Salinas Valley Water Project (SVWP) was initiated in 2000 to address seawater intrusion and provide other benefits. The main components of the project involve reservoir reoperation, modifications to the Nacimiento Dam spillway, and installation of a rubber dam on the Salinas River in the northern part of the Salinas Valley to increase summer flows and provide agricultural water to offset the use of groundwater.[21] Despite these and other efforts, seawater intrusion continues an inland trend into the Basin.[22]

[20] Cal-Am, Coastal Water Project, FEIR p. 4.2-17, October, 2009.
[21] Although several components of the SVWP have been implemented and future phases of this project are being considered, any potential implications the SVWP may have for development of the MPWSP are unknown.
[22] MCWRA, Monterey County General Plan Final Environmental Impact Report, March 2012, concludes on page 4.3-33 that without the SVWP and the associated development of additional water supplies to augment existing groundwater supplies, both existing and future water needs would result in further basin overdraft and seawater intrusion.

Figure SWRCB 7



Historic Seawater Intrusion Map

Pressure 180-Foot Aquifer - 500 mg/L Chloride Areas

Legend

Seawater Intruded Areas By Year

1944	1997	2007
1965	1999	2009
1975	2001	2011
1985	2003	Cities
1993	2005	

0 0.5 1 1.5 2 Miles

Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for survey or design work. Contour lines are drawn from best available data.

Map Date: August 6, 2012

4.3 Groundwater Recharge and Discharge

An understanding of groundwater recharge and discharge in a groundwater basin is important in determining whether a basin is in overdraft. Basins that have overdraft (i.e. more discharge than recharge) experience a reduction in the amount of available groundwater. This shortage may lead to a reduction in the amount of water a legal user may extract under their water right.

Groundwater recharge in the lower portion of the Salinas Valley is largely by infiltration along the channel of the Salinas River and its tributaries. This accounts for approximately 50 percent of the total recharge within the SVGB. Approximately 40 percent of the total recharge is from irrigation return water with the remaining 10 percent due to precipitation, subsurface inflow and seawater intrusion. [23]

Approximately 95 percent of outflow from the Basin is from pumping with the remaining 5 percent due to riparian vegetation evapotranspiration. Groundwater withdrawal outpaces groundwater recharge of fresh water, resulting in overdraft conditions.[24]

Historically, groundwater flowed seaward to discharge zones in the walls of the submarine canyon in Monterey Bay.[25] This seaward flow of groundwater prevented seawater from intruding landward into the SVGB. In much of the area, groundwater in the 180-Foot Aquifer and 400-Foot Aquifer is confined beneath extensive clay layers, and the hydraulic head in the aquifers is influenced by the elevation of the water table in the upgradient recharge areas where the aquifer materials are near the surface. When a well is drilled through these confining layers, this hydraulic head, or pressure head, forces water in wells to rise above the top of the aquifer; such aquifers are called confined aquifers. With increased pumping, groundwater head elevations in the 180-Foot and 400-Foot Aquifers have declined creating large pumping depressions in the aquifer pressure

[23] MCWRA, County Groundwater Management Plan, Chapter 3 – Basin Description, pp. 3-10, May 2006
[24] Ibid
[25] DWR, Bulletin 118.

surface. These cause the groundwater gradient to slope landward, reversing the historic seaward direction of groundwater flow. The pressure surface for the water in these aquifers is now below sea level in much of the inland area and flow is now dominantly northeastward from the ocean toward the pumping depressions.[26] This northeastward flow gradient has allowed seawater to intrude into the SVGB, thereby degrading groundwater quality in the 180-Foot and 400-Foot Aquifers.

The Department of Water Resources calculated that total water inflow into the 180-Foot and 400-Foot Aquifers is approximately 117,000 afa. Urban and agriculture extractions were estimated at 130,000 afa and subsurface outflow was estimated at 8,000 afa.[27] Therefore, there is currently a net loss or overdraft of approximately 21,000 afa in the 180-Foot and 400-Foot Aquifers. Basin overdraft has averaged approximately 19,000 afa during the 1949 to 1994 hydrologic period with an average annual seawater intrusion rate of 11,000 af.[28] The overdraft condition is important because it limits the availability of fresh water supplies to Basin users.

4.4 Groundwater Gradient

Based on the occurrence of large pumping depressions in inland areas, it can be reasonably assumed that there is a strong landward gradient (slope) of groundwater flow, at least within the 180-Foot Aquifer.[29] However, because the degree of confinement of the 180-Foot Aquifer and the degree of connection between this aquifer and the overlying Dune Sand Aquifer are not known it is not possible to accurately predict what the effects of the landward gradient of groundwater flow will be for various extraction scenarios. However, if present, this landward gradient in the 180-Foot Aquifer would be a factor in determining the effects of the groundwater extraction, regardless of whether the aquifer is

[26] Cal-Am, Coastal Water Project, FEIR, Section 4.2, p. 4.2-9, October 2009.
[27] DWR, Bulletin 118.
[28] Monterey County Groundwater Manage Plan, p. 3-10, May 2006
[29] Monterey County Water Resources Agency Groundwater Informational Presentation, August 27, 2012 (http://www.mcwra.co.monterey.ca.us/Agency_data/Hydrogeologic%20Reports/GroundwaterInformationalPresentation_8-27-2012.pdf)

confined or unconfined in this area. It is important to understand the groundwater gradient in the area of the proposed MPWSP because it will influence the amount of water extracted from the landward side versus the seaward side of the basin. More investigation will be needed to verify the degree of the gradient and determine its effects on the MPWSP.

4.5 Groundwater Modeling

A groundwater model that accurately reflects the hydrogeologic characteristics of the Basin is critical in providing insight to the effects the MPWSP would have on the Basin. As part of the FEIR for the Coastal Water Project, a local groundwater flow and solute transport model (Model) was developed to determine the effects that pumping would have on groundwater levels and seawater intrusion in the area. [30] This Model was constructed using aquifer parameters, recharge and discharge terms, boundary conditions and predictive scenarios developed for a regional groundwater model called the Salinas Valley Integrated Groundwater and Surface Model (SVIGSM). The Model was developed to specifically focus on the North Marina area and has a much finer cell size than the SVIGSM, allowing for improved resolution in the vicinity of the proposed MPWSP. The Model can model seawater intrusion, a capability that the SVIGSM does not have.

The Model consists of six layers. The layers represented from top to bottom are the following: (1) a layer directly beneath the ocean that allows direct connection from the ocean to the aquifers; (2) the 180-Foot Aquifer and overlying Dune Sand Aquifer;[31] (3) an unnamed aquitard; (4) the 400-Foot Aquifer; (5) an unnamed aquitard; and (6) the Deep Aquifer. It should be noted the Model does not include a layer that represents the SVA. [32] Therefore, the Model assumes that

[30] Cal-Am, Coastal Water Project, FEIR, Appendix E, Geoscience, North Marina Groundwater Model Evaluation of Projects, July and September 2008.
[31] Cal-Am, Coastal Water Project, FEIR, Section 4.2, p. 4.2-47, October 2009.
[32] Cal-Am, Coastal Water Project, FEIR, Appendix E, Geoscience, North Marina Groundwater Model Evaluation of Projects, p. 19, July 2008.

the 180-Foot Aquifer is unconfined and in hydraulic connection with the Dune Sand Aquifer.

The Model's aquifer parameters such as depth, hydraulic conductivity, storativity, and effective porosity were obtained from the SVIGSM. In addition, monthly data for recharge and discharge values were obtained from the SVIGSM. The North Marina predictive scenario was run for a 56-year period from October 1948 through September 2004. This is the same period used in the SVIGSM predictive scenarios.

Two potential projects were evaluated with the Model: (1) the North Marina Project; and (2) the Regional Project. In both of these alternatives, the 180-Foot Aquifer was modeled as an unconfined aquifer. It is not known if the MPWSP wells would indeed be in unconfined conditions. Consequently, the alternative's results discussed below may or may not be predictive of the MPWSP. In addition, the groundwater model did not include the Portrero Road alternative. Therefore, an updated groundwater model that accurately reflects the most current understanding of local hydrogeologic conditions for all alternatives is needed in order to estimate the effects the MPWSP would have on the Basin and groundwater users.

5. Proposed Monterey Peninsula Water Supply Project

On March 8, 2013, the Commission requested that the State Water Board evaluate two possible alternatives for the MPWSP; a preferred alternative consisting of gravity well design and a secondary alternative consisting of a pumping well design. This section contains a discussion on the intake design of both alternatives and potential effects each would have on the SVGB.

5.1 Gravity Well Design

The preferred alternative has two options for the feedwater intake system: a 6.4 mgd system consisting of seven slant wells and a 9.6 mgd system consisting of nine slant wells. This report focuses on the 9.6 mgd system since it has the potential to have a greater effect on the groundwater basin. The 9.6 mgd system

will consist of eight slant wells and one test slant well. Results of the test well will dictate final well design and will determine whether the wells would extract water from the Dune Sand Aquifer and/or the 180-Foot Aquifer. The proposed location of the gravity intake system is adjacent to the 376-acre parcel of land owned by the CEMEX Corporation (Figure "SWRCB 1"). The well system consists of two four-well clusters (North Cluster and South Cluster) plus the test well. Each well is thirty inches in diameter and up to approximately 630 feet in length with up to 470 feet of screen. The wells are designed as gravity wells without the requirement for submersible well pumps. The output of each slant well is estimated at approximately 1,800 gpm. Each slant well has an 8-foot diameter vertical cassion, which is connected to a 36-inch diameter beach connector pipeline via an 18-inch diameter gravity connector. Feedwater flows by gravity from the slant well to the gravity connector and to the beach connector pipeline where it enters a 23 mgd intake pump station. The intake pump system pumps the feedwater to the desalination plant using four 250-horsepower pumps. The total well capacity required is approximately 23 mgd to meet the feedwater requirement for a 9.6 mgd desalination plant operating at an overall recovery of 42 percent.

The gravity well design is a new alternative presented to the State Water Board for evaluation at the CEMEX owned property. Groundwater modeling for an earlier pumping well alternative at the CEMEX site indicated that the pumped wells would have an impact to groundwater users within a 2–mile radius of the wells due to the lowering of groundwater levels. Since modeling has not been done for the gravity well alternative, State Water Board staff is unable to accurately predict impact to existing users and the Basin from the gravity wells.

5.2 Pumping Well Design

As described in the Commission's February 14, 2013 correspondence, the secondary alternative (Intake Contingency Option 3) includes a feedwater intake system consisting of nine pumped slant wells extending offshore into the Monterey Bay. The slant wells would extract 23 mgd of water from the Dune Sand Aquifer and convey the water via a 36-inch diameter connector pipeline to

a 23 mgd intake pump station and finally to the desalination plant. The slant wells would be installed at the parking lot on the west end of Portrero Road along the roadway that parallels the beach north of the parking lot (Figure "SWRCB 2").

The potential impacts from the pumping wells at this site cannot yet be determined since groundwater modeling has not been done for this location. Until a more detailed groundwater model is developed for this area, State Water Board staff is unable to determine the extent of impacts to existing water users. Staff recommends that the groundwater modeling include evaluation of potential alternative Project locations that may be under consideration for meeting the water supply needs of this area.

5.3 Groundwater Capture Zone Delineation

For aquifers with a substantial gradient (slope) in the direction of groundwater flow, there is an important distinction between the cone of depression around the pumping well (area where the water surface or pressure head is lowered) and the capture zone for water that flows to the pumping well. Where there is an existing slope to the water table or pressure surface of the groundwater system, not all the water in the cone of depression flows to the pumping well, and much of the water the pumping well intercepts is far outside the cone of depression in the upgradient direction.[33] The practical effect of this situation is that, with a landward gradient of groundwater flow, more of the water captured by the pumping well comes from the upgradient direction (in this case from the seaward direction) and a much smaller proportion of the water captured by the pumping well is from downgradient (inland) direction. Water captured from the seaward direction would likely be seawater. Water captured from the landward side could potentially have a greater likelihood of capturing some portion of fresh water; however, groundwater in this area is expected to be highly impacted by seawater intrusion. Therefore, because the gradient means more water will be captured from the seaward direction and the groundwater in the area is likely impacted by seawater intrusion there is a reduced possibility that the wells will capture fresh

[33] C.W. Fetter. 1994, Applied Hydrogeology 3rd Edition, p. 501

water. At this time it is unclear how many operational wells are in the immediate vicinity of the proposed location for the extraction well system. Because more seawater will be drawn into the extraction well system from offshore areas than water flowing toward the wells from inland areas, any wells located in close proximity to the extraction system could experience increased water quality degradation due to complex flow paths within the capture zone of the extraction well system. If there are wells currently in use within this area, Cal-Am would need to monitor the situation and compensate[34] the well users if they are injured by the decreased water quality or lower water levels.

The extraction wells are not predicted to draw water equally from seaward and landward areas. In a system that has no gradient of flow, extraction wells would draw water equally from seaward and landward directions, but this is not true in the proposed MPWSP area because there is a significant gradient of groundwater flow from the seaward areas toward the inland pumping depressions. In the long-term, the situation may be altered and the source of the water drawn from the extraction well system would need to be reevaluated under the following conditions: (1) if pumping of water from inland areas is reduced to the point that the groundwater system is in equilibrium, and (2) the pumping depressions are reduced such that there is no longer a landward gradient.

The FEIR groundwater modeling studies conducted for the proposed extraction of groundwater from the 180-Foot Aquifer included an evaluation of groundwater elevations and gradients. The modeling evaluated the effects the landward gradient of groundwater flow could have in determining the source of water that would be captured by the extraction well system. As more information about the groundwater system becomes available, a more detailed evaluation of the capture zone for the extraction system will be possible. This type of capture zone analysis will be important in evaluating the long-term effects of the

[34] Compensation could be in the form of monetary payment or other forms to make the injured user whole.

extraction well system and any potential impacts on existing water users and the Basin.

5.4 Extraction Scenarios

There are three likely scenarios in which Cal-Am would extract groundwater for its MPWSP: (1) extraction from gravity wells from an unconfined aquifer or a confined aquifer; (2) pumping from an unconfined aquifer; or (3) pumping from a confined aquifer.

5.4.1 Extraction of Feedwater by Gravity Wells

Cal-Am has proposed to construct a slant test well and collect data that will determine if the gravity well alternative is feasible. If water is extracted using gravity wells, the hydraulic effects on the aquifer would be the same for either pumped wells or the proposed gravity wells as long as the amount of drawdown in the wells is the same. Likewise, if the wells were completed in either a confined or an unconfined aquifer, the effects on those aquifers would be the same if the level of drawdown in the wells were the same. However, if a pumping well had a greater drawdown than a gravity well, there would be more of an effect to the aquifer from the pumping well. The important factor is not what mechanism induces flow from the wells but the actual drawdown produced in the groundwater system.

The gravity well system would limit the maximum amount of drawdown from the extraction wells. Drawdown would be limited to the head differential between sea level and the depth of the intake pump station that the gravity wells drain into. This would add a level of protection against drawing more water from the shoreward direction because it would preclude the larger drawdowns that could result with submersible pumps in the wells. The cone of depression (zone of influence) for the extraction well system would be limited by the fixed head differential established by the depth of the intake pump station. This configuration will also likely prevent the operator from being able to maintain maximum flow rates from

the extraction well system because there is no ability to increase pumping rates should tidal effects become a factor. The obvious potential problem with the gravity well scenario is that if the flow to the wells is limited by lower permeability zones or well efficiency problems, the operator cannot increase pumping rates to obtain the quantities of water the system is designed to achieve.

5.4.2 Pumping from Unconfined Conditions

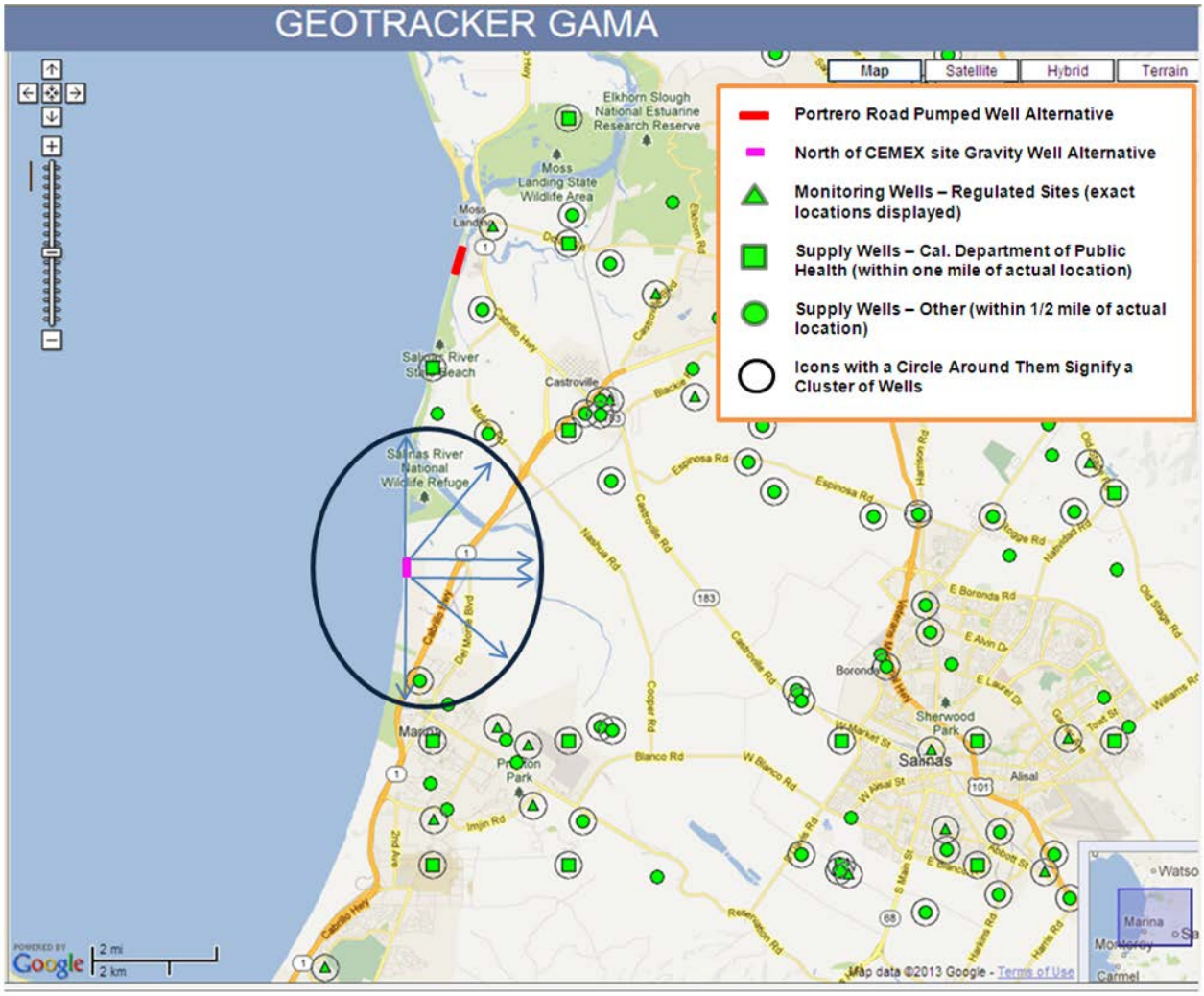
If pumping were to occur under unconfined conditions, water would be extracted either from the Dune Sand Aquifer or from the 180-Foot Aquifer (if the SVA is not present at the proposed well-site). In general, when water is pumped from an unconfined aquifer, water is removed from the aquifer and the water table in the aquifer is lowered as water drains by gravity from the pore spaces in the aquifer. This lowering or drawdown of the water table causes a cone of depression that is greatest close to the well and gets smaller in all directions as the distance from the well increases.[35] Modeling results of the North Marina Project show that pumping would cause a decline in groundwater elevations at the slant wells of approximately 15 feet. There would be about a 2-foot decline in groundwater levels approximately one mile from the slant wells decreasing to less than 0.5 feet about 1.5 miles away.[36] The lowering of groundwater levels approximately 2 miles from the slant wells likely would be negligible. If the final design calls for gravity wells at the north Marina site, then modeling would be needed to estimate the effects from the gravity wells. Since modeling was not done for the Portrero Road site the effects from pumping at that location are unknown. Once the zone of influence is estimated for each location and each pumping scenario, it will be possible to determine whether any wells in the vicinity would be affected by project pumping.

[35] Driscoll, 1986, Groundwater and Wells, pp. 63-64.
[36] Cal-Am, Coastal Water Project, FEIR, Appendix E, Geoscience, North Marina Groundwater Model Evaluation of Projects, p. 21 (E-28), July 2008.

According to information from the State Water Board's GAMA database, approximately 14 wells are within 2 miles of the proposed MPWSP (Figure "SWRCB 8"). All of these wells are within the seawater-intruded portion of the Basin. Currently, the predominant groundwater flow direction in the 180-Foot Aquifer is toward the northeast. Project pumping would likely change the flow direction to more of a southwest to westerly direction within the zone of influence. Outside the zone of influence there would be little if any change to groundwater flow direction; however, the rate of flow in the original direction (northeast) would be reduced. Therefore, the MPWSP would slow the rate of seawater intrusion in a landward direction from the wells. The GAMA database may not include all groundwater wells, so it is not clear how many other wells are located in this area, or at what depths the wells are screened.[37] Cal-Am's investigations should include an inventory of existing wells near the MPWSP extraction well location. Where "Well Completion Reports" are available, information from those reports should be evaluated and considered for inclusion in development of the groundwater model. If legal users of groundwater in this area are found to be impacted by the groundwater extraction system, either through a reduction in the water table level or the amount of fresh water available at their wells, those impacts would need to be addressed by Cal-Am.

[37] A comment letter submitted by Law Offices of Michael W. Stamp on behalf of Ag Land Trust on May 3, 2013, states that a well on the Armstrong Ranch, adjacent to the CEMEX site, is being used to irrigate more than one acre of seed stock.

Figure SWRCB 8



As mentioned above, groundwater flow to the MPWSP extraction wells would initially be from all directions in a radial pattern. Because the ocean provides a constant source of nearby recharge to the extraction wells, the zone of influence for the extraction wells cannot expand much farther than the distance between the extraction wells and the ocean, or in the case of confined aquifer conditions, the distance between the extraction wells and the undersea outcrop of the confined aquifer. While a portion of the water flowing to the well does come from the less saline water on the shoreward side, the relative percentage of water drawn from the shoreward side of the wells will depend on various factors, including the gradient of groundwater flow toward inland pumping depressions. If the North Marina Project model is applicable, then approximately 87 to 97 percent of the water pumped (approximately 21,400 to 23,938 afa) would come from the ocean side of the wells and approximately 3 to13 percent of the water (approximately 762 to 3,250 afa) would come from the landward side of the wells.[38]

It is unlikely that pumping from an unconfined aquifer would extract fresh groundwater since the seawater intrusion front within the 180-Foot Aquifer is approximately 5 miles landward from the proposed pumps. Because the Model shows that the seawater intrusion front remains basically the same with or without the North Marina Project, it is likely that the amount of water extracted from the eastern portion of the aquifer will be seawater intruded. Although this brackish[39] water may be of substantially better quality than seawater, it is likely degraded to the point that it is, with few

[38] Cal-Am, Coastal Water Project, FEIR, Appendix E, Geoscience, North Marina Groundwater Model Evaluation of Projects p. 22 (E-29), July and September 2008.
[39] Brackish water in this report is defined as groundwater within the seawater intrusion zone that contains chloride levels greater than 500 ppm. Water with chloride concentrations less than 500 mg/L is considered fresh water.

exceptions[40], not suitable for any beneficial use other than feedwater for desalination purposes.

5.4.3 Pumping from Confined Conditions

If pumping were to occur under confined conditions, water would be extracted from the confined 180-Foot Aquifer. When a confined aquifer is pumped, the loss of hydraulic head occurs rapidly because the release of the water from storage is entirely due to the compressibility of the aquifer material and the water.[41] This zone of influence in a confined aquifer is commonly several thousand times larger than in an unconfined aquifer.[42] Therefore, the effects from MPWSP pumping on the groundwater pressure head would occur more rapidly and over a much larger area than the effects seen in an unconfined aquifer. Modeling in the FEIR did not predict the effects of pumping from a confined condition, so there are no estimates on the extent of potential impacts. Generally speaking, the pressure head would be lowered in wells much further inland and the long-term effects on groundwater flow direction would be felt over a wider area. Since pumping from a confined condition would affect a much larger area, there would be a greater likelihood of the MPWSP affecting groundwater users at greater distances from the project location.

5.4.4 Potential Pumping Effects on Seawater Intrusion

The seawater intrusion front, as defined by the 500 mg/L chloride limit, currently extends approximately five miles inland from Monterey Bay. Efforts to control seawater intrusion though implementation of the SVWP and CSIP projects and various administrative actions have slowed but not stopped the advance of the seawater intrusion front, and there is concern that the implementation of the proposed MPWSP may hinder the efforts to

[40] A commenter reported that there is a well in this general area used for a small agricultural plot, however there is no information about the well location or depth, and further investigation would be necessary to determine whether this well could be impacted by the proposed extraction wells.
[41] Driscoll, 1986, Groundwater and Wells, pp. 64-65.
[42] United States Geologic Survey, Sustainability of Groundwater Resources, Circular 1186. Section A, p. 2.

restore water quality in the intruded areas. To the extent that the MPWSP will generate new water that will be returned to the Basin as wastewater return flows, any potential impacts on the seawater intrusion control efforts may be lessened. Groundwater modeling conducted for the previously studied North Marina Project indicated that the recession of the seawater intrusion front would be affected positively during the first 13 years of implementation of that project and that thereafter the project would have little or no effect on the efforts to reverse the advancing front of seawater intrusion. [43]

Within the zone of influence of the MPWSP extraction wells, seawater would be drawn into the aquifers from the seaward direction, and brackish water from within the seawater intruded portion of the aquifers would also be drawn toward the extraction well system. As discussed in Section 5.3, the relative percentages of off-shore seawater and on-shore brackish water extracted from the wells would depend on the local groundwater gradient of flow and other factors.

Based on our current understanding of the groundwater system, a greater volume of seawater, relative to brackish water, would be drawn into the extraction well system. For groundwater wells that may be located in close proximity to the extraction wells, i.e., within the capture zone for the extraction wells, groundwater elevations would be lowered and water quality may be adversely affected by the extraction well system.[44]

5.5 Summary of Impacts

There are three types of potential impacts the proposed extraction wells could have on inland water users. First, the inland groundwater users may experience a reduction in groundwater levels in their wells, with associated increases in pumping costs. This type of effect could be reasonably evaluated with

[43] Coastal Water Project, FEIR, Appendix E, Geoscience, North Marina Groundwater Model Evaluation of Projects, p. 21 (E-28), July 2008.
[44] C.W. Fetter. 1994, Applied Hydrogeology 3rd Edition, p. 501

groundwater modeling. Until the degree of confinement and connection between the Dune Sand Aquifer and the 180-Foot Aquifer has been more thoroughly studied, the potential for injury to inland water users due to reduced groundwater elevations and diversion of water from the aquifer cannot be conclusively determined. As discussed in the above sections, however, the incremental effect at any particular location would be relatively slight. Staff estimates, based on currently available data cited in this report, that effect would be on the order of less than a 0.5 foot decline in wells located 1.5 miles from the extraction well system.[45] This impact alone would not likely be sufficient to take any currently known operating production wells out of service.

The second type of effect the extraction well system could have on in-Basin groundwater users is a reduction in the quantity of fresh water that is available for their future use. The quantity would depend on a variety of factors as discussed in the preceding sections. For users outside the capture zone this effect would not be felt immediately; thus, replacement water could be provided after the MPWSP has been in operation and modeling information becomes available to evaluate the actual quantity of fresh water that needs to be returned to the system.[46] One measure to address potential injury to those users would be to supply replacement water to the existing CSIP system for delivery to groundwater users in the affected area.[47] Since the capture zone for the extraction well system will likely be limited to areas already heavily impacted by seawater intrusion, it would not be appropriate to inject or percolate desalinated water in this intruded area, as the water would essentially be wasted. For any users within the capture zone of the MPWSP wells, Cal-Am would be required to assess and compensate for any injury caused by a reduction in the quantity of fresh water that is available for their use. Because injury could occur at the time

[45] Coastal Water Project, FEIR, Appendix E, Geoscience, North Marina Groundwater Model Evaluation of Projects, July 2008. p. 21 (E-28)
[46] A comment letter submitted by LandWatch Monterey County on April 28, 2013, expresses concern for impacts to the groundwater users in the North County area who do not received CSIP water. Impacts from the proposed project would need to be evaluated on a site specific basis.
[47] The CSIP may not be a viable method to address injury at the Portero Road location if the users affected by the MPWSP are outside of the CSIP recharge zone.

of pumping for those users in the capture zone, a supply replacement method such as the CSIP would not be appropriate, and other measures may be necessary.

The third type of effect the extraction well system could have on in-Basin groundwater users is limited to groundwater users in close proximity to the extraction wells. These users could experience additional degradation in the quality of water drawn from their wells. This effect should be isolated to a very localized area within the capture zone of the extraction wells system.

6. Legal Discussion of Proposed Extraction Wells in Basin

Although the Basin is in a condition of overdraft, the Basin has not been adjudicated and water withdrawals by the Basin's users are not quantified by court decree. Water users assert that the Basin's water is managed through cooperative agreements reached by the Basin's groundwater users.[48] Users claim that Cal-Am's proposed Project would disrupt the agreements within the Basin, lead to a costly adjudication, and are barred by principles of groundwater law.[49]

Cal-Am needs no groundwater right or other water right to extract seawater from Monterey Bay. Based on the information provided, however, the proposed MPWSP could extract some fresh water from within the Basin. An appropriative groundwater right is needed to extract water from the Basin for use outside the parcel where the wells are located.[50] To appropriate groundwater from the Basin, Cal-Am will have to demonstrate that the MPWSP will develop a new source of water that is surplus to the needs of groundwater users in the Basin and that operating the Project will not result in injury to other users. This includes showing that the Project will not adversely affect the seawater intrusion front. Because the Basin is in a condition of overdraft, to

[48] *Salinas Valley Water Coalition*, Letter to State Water Board Chair, Charles Hoppin, (December 3, 2012).
[49] See generally, Application 12-04-019 before the California Public Utilities Commission, *Opening Brief of LandWatch Monterey County Regarding Groundwater Rights and Public Ownership*, July 10, 2012; *Opening Brief of Various Legal Issues of Monterey County Farm Bureau*, July 10, 2012, available at: www.cpuc.ca.gov.
[50] An appropriative groundwater right is not necessary to recover water injected or otherwise used to recharge the aquifer, where the water used for recharge would not recharge the aquifer naturally.

appropriate water for non-overlying uses, MPWSP will have to account for any reduction in the amount of fresh water that is available to legal groundwater users in the Basin, and Cal-Am will need to replace and compensate for any reduction.[51]

6.1 General Principles of Groundwater Law

Groundwater rights may generally be classified as overlying, prescriptive or appropriative.[52] Overlying users of groundwater have correlative rights which are rights similar to riparian users' rights, and an overlying user can pump as much water as the user can apply to reasonable and beneficial use on the overlying parcel so long as other overlying users are not injured. (*City of Barstow v. Mojave Water Agency* (2000) 23 Cal.4th 1224, 1240 (*Mojave*).) In times of shortage, pumping must be curtailed correlatively, to provide each overlying user a reasonable share of the available supply. (*Id.* at 1241.)

Prescriptive rights are acquired through the taking of water that is not surplus or excess to the needs of other groundwater users. Similar to other prescriptive property rights, if the elements of prescriptive use are met—the use is actual, open, notorious, hostile, adverse to the original owner, continuous and uninterrupted for the statutory period of five years—a user may acquire a prescriptive right. (*California Water Service Co. v. Edward Sidebotham & Son* (1964) 224 Cal.App.2d 715, 726.)

Appropriative groundwater rights apply to users who extract groundwater other than those described above. (*Mojave, supra,* 23 Cal.4th at p.1241.) Appropriative groundwater rights are not to be confused with appropriative rights that apply to surface waters or subterranean streams administered by the State Water Board. Unlike appropriative water rights that are permitted by the State Water Board, appropriative groundwater rights are any rights to pump

[51] Additionally, the Monterey County Water Resources Act, (Stats. 1990 ch. 52 § 21, West's Ann. Wat. Appen. § 52-21 (1999 ed.).) prohibits water from being exported outside the Salinas Valley Groundwater Basin.

[52] Groundwater rights referenced in this report apply to percolating groundwater only.

groundwater that do not fall into either the overlying or prescriptive category.[53] No permit is required by the State Water Board to acquire or utilize appropriative groundwater rights.

Because Cal-Am proposes to export water from the Basin to non-overlying parcels in the Monterey Region, an appropriative groundwater right is required. To appropriate groundwater, a user must show the water is "surplus" to existing uses or does not exceed the "safe yield" of the affected basin. (*City of Los Angeles v. City of San Fernando* (1975) 14 Cal.3d 199, 214.) The appropriator must show the use will not harm or cause injury to any other legal user of water. The burden is on the appropriator to demonstrate a surplus exists. (*Allen v. California Water and Tel. Co.* (1946) 29 Cal.2d 466, 481.) But if, after excluding all present and potential reasonable beneficial uses,[54] there is water wasted or unused or not put to any beneficial uses, "the supply… may be said to be ample for all, a surplus or excess exists… and the appropriator may take the surplus or excess…" (*Peabody v. City of Vallejo* (1935) 2 Cal.2d 351, 368-369 (*Peabody*).) As discussed previously, 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.

Cal-Am's proposed MPWSP would pump seawater, brackish water, and possibly a fresh water component. The exact composition is yet to be determined, but the proposed source water is substantially degraded by seawater intrusion and other natural factors. Estimates based on the North Marina Project description are that 3 to 13 percent of the total water pumped through the proposed wells could be attributed to the landward portion of the Basin and 87 to 97 percent could come from the seaward direction relative to the pump locations.

[53] This is generally true. There are other types of rights, including pueblo rights, federal reserved rights, and rights to recover water stored underground pursuant to surface water rights. These other types of rights are not discussed in detail in this report.

[54] Potential overlying uses are often inherently implicated in determining whether a long-term surplus actually exists. Where a basin is not in overdraft, however, there may be temporary surplus where probable future overlying uses have not yet been developed.

Based on data currently available, the State Water Board is unable to estimate what percentage or proportion of water extracted from the Basin landward of the proposed well location could be attributed to fresh water sources. It is known, however, that the Basin's waters are degraded some distance landward from the proposed wells. MCWRA currently estimates that seawater has intruded into the 180-Foot Aquifer approximately 5 miles inland. It is unknown whether seawater has intruded the Dune Sand Aquifer, but the reported poor water quality of the Dune Sand Aquifer likely limits beneficial uses of its water. [55] However, if the groundwater is being used in this intruded area an evaluation of the effects to the wells by the MPWSP will be needed to determine any potential injury to the users.

6.2 Developed Water

Water an appropriator pumps that was not previously available to other legal users can be classified as developed or salvaged water.[56] "[I]f the driving of tunnels or making of cuts is the development of water, as it must be conceded it is, we perceive no good reason why the installation of a pump or pumping-plant is not equally such development." (*Garvey Water Co. v. Huntington Land & Imp. Co.* (1908) 154 Cal. 232, 241.) Further, it is generally accepted that whoever creates a new source of water should be rewarded by their efforts. (See generally *Hoffman v. Stone* (1857) 7 Cal. 46, 49-50.)

If Cal-Am shows it is extracting water that no Basin user would put to beneficial use, Cal-Am could show its proposed desalination MPWSP develops new water in the Basin, water that could not have been used absent Cal-Am's efforts to

[55] California Department of Water Resources, California's Groundwater, Bulletin 118, Central Coast Hydrologic Region, SVGB, February 2004.

[56] The concepts of developed and salvaged waters are closely related and the legal concepts are the same. Technically, salvaged waters usually refers to waters that are part of a water supply and are saved from loss whereas developed waters are new waters that are brought to an area by means of artificial works. (See Hutchins, The California Law of Water Rights (1956) p. 383.) For purposes of this report, the distinction is largely irrelevant and the term developed waters will be used throughout for consistency.

make it potable. Of course, this does not apply to any source water that is considered fresh water and would not be considered developed water.

Making use of water before it becomes unsuitable to support beneficial uses or is "wasted," is supported both by statute, case law, and the California Constitution, which in part states: "the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable…and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof." (Cal. Const., art. X, § 2; see also *City of Lodi v. East Bay Municipal Utility District* (1936) 7 Cal.2d 316, 339-341 (*Lodi*); [salvaged water that would otherwise be wasted should be put to beneficial use].)

The key principle of developed waters is if no lawful water user is injured, the effort of an individual to capture water that would otherwise be unused should be legally recognized. As the court determined in *Cohen v. La Canada Land and Water Co.* (1907) 151 Cal. 680 (*La Canada*), if water would never reach or be used by others there can be no injury. (*Id.* at p. 691.) In *La Canada*, waters which were secured by the construction of tunnels could be considered developed waters as the waters were determined to trend away from the direction of the natural watershed and would never have reached it and would be lost if left to percolate in their natural flow. (*Ibid.*)

> Under these circumstances, as the waters developed by the tunnels were not waters which would have trended towards or supported or affected any stream flowing by the land of appellant,…she was not injured as an adjoining proprietor or as an appropriator, and hence could not complain or insist upon the application of the rule announced in the cases cited to prevent the respondents from taking such developed waters to any lands to which they might see fit to conduct them.

(*La Canada, supra*, 151 Cal. at p. 692.)

"[F]ull recognition is accorded of the right to water of one who saves as well as of one who develops it." (*Pomona Land and Water Co. v. San Antonio Water Co.* (1908) 152 Cal. 618, 623-624 (*Pomona*) citing *Wiggins v. Muscupaibe Land & Water Co.* (1896) 113 Cal. 182, 195 (*Wiggins*).)

> [I]f plaintiffs get the one half of the natural flow to which they are entitled delivered, unimpaired in quantity and quality, through a pipe-line, they are not injured by the fact that other water, which otherwise would go to waste…was rescued. Nor can they lay claim to any of the water so saved.

(*Pomona*, *supra,* 152 Cal. at p. 631.)

In summary, if there is no injury, a user should be able to develop all water available:

> The plaintiff could under no circumstances be entitled to the use of more water than would reach his land by the natural flow of the stream, and, if he receives this flow upon his land, it is immaterial to him whether it is received by means of the natural course of the stream or by artificial means. On the other hand, if the defendant is enabled by artificial means to give to the plaintiff all of the water he is entitled to receive, no reason can be assigned why it should not be permitted to divert from the stream…and preserve and utilize the one hundred inches which would otherwise be lost by absorption and evaporation.

(*Wiggins*, *supra,* 113 Cal. at p. 196.)

As discussed above, in developing a new water source Cal-Am must establish no other legal user of water is injured in the process. Even if Cal-Am pumps water unsuitable to support beneficial uses, the water could not be considered developed water unless users who pump from areas that could be affected by Cal-Am's MPWSP are protected from harm.

Cal-Am proposes a replacement program for the MPWSP water that can be attributed to fresh water supplies or sources in the Basin. If Cal-Am can show all users are uninjured because they are made whole by the replacement water supply and method of replacement, export of the desalinated source water would be permissible and qualify as developed water. In the future, this developed water, under the above described conditions, would continue to be available for export even if there are additional users in the Basin. Developed waters are available for use by the party who develops them, subject to the "no injury" standard discussed previously.

Cal-Am could use one or more of several possible methods to replace any fresh water it extracts from the Basin. Cal-Am could return the water to the aquifer through injection wells, percolation basins, or through the CSIP. Cal-Am would need to determine which of those methods would be the most feasible, and would in fact, ensure no harm to existing legal users. The feasibility analysis would depend on site-specific geologic conditions at reinjection well locations and at the percolation areas. These studies need to be described and supported in detail before Cal-Am can claim an appropriative right to export surplus developed water from the Basin.

The Monterey County Water Resources Agency Act (Agency Act) an uncodified Act adopted in 1990 sets out the role and jurisdiction of MCWRA in administering the Basin's waters.[57] In furtherance of the Agency Act, MCWRA adopted Ordinance 3709 (Ordinance) which applies to groundwater extractions after 1995. The Ordinance essentially finds that seawater intrusion is a threat to beneficial uses and the Ordinance prohibits extractions within the northern Salinas Valley from a depth of 0 msl to -250 feet msl. The Ordinance provides a variance procedure for a user to request relief from a strict application of the Ordinance.

Section 21 of the Agency Act acknowledges that the Agency is developing a project that will establish a balance between extraction and recharge in the Basin. To preserve that balance, the Agency Act provides (with limited exception) that "no groundwater from that Basin may be exported for any use outside that basin...." "Export" is not defined in the Agency Act. In the water rights context, limitations on export ordinarily are not interpreted to apply to situations where the conveyance of water to areas outside a watershed or stream system is accompanied by an augmentation of the waters in that area, so there is

[57] The applicability of the Agency Act to the MPWSP is unclear. As currently proposed, the project would use slanted wells and have screened intervals located seaward from the beach. Although the project would serve areas within the territory of the MPWSP, the points of diversion for these proposed wells may be located outside the territory of MCWRA as defined by the Agency Act. (See Section 4 of the Agency Act, Stats. 1990, ch. 1159, West's Ann. Wat. Appen., § 52-4 (1999 ed.); Gov. Code, § 23127 [defining boundaries as following the shore of the Pacific Ocean].)

no net export.[58] An interpretation based on the net effect of the project also appears to be consistent with the purposes of the Agency Act. Section 8 of the Agency Act states that one of the objectives and a purpose of the Agency Act is to "provide for the control of the flood and storm waters of the Agency, and to [control] storm and flood waters that flow into the Agency, and to conserve those waters for beneficial and useful purposes…" In reference to groundwater, the Agency Act states the Agency's purpose is to prevent the waste and diminution of the water supply in the Agency's jurisdiction, including controlling groundwater extractions as required to prevent or deter the loss of usable groundwater through intrusion of seawater. Another purpose of the Agency Act is to provide for the replacement of groundwater through development and distribution of a substitute water supply.

Based on the State Water Board's analysis, as reflected in the Report, the Project as proposed would return any incidentally extracted usable groundwater to the Basin. The only water that would be available for export is a new supply, or developed water. Accordingly, it does not appear that the Agency Act or the Ordinance operate to prohibit the Project. The State Water Board is not the agency responsible for interpreting the Agency Act or MCWRA's ordinances. It should be recognized, however, that to the extent the language of the Agency Act and Ordinance permit, they should be interpreted consistent with policy of article X, section 2 of the California Constitution, including the physical solution doctrine, discussed below.

6.3 Physical Solution Discussion

To operate the MPWSP, Cal-Am must ensure the MPWSP will not injure other legal users in the Basin. This could require implementation of a "physical solution."

[58] See, e.g. SWRCB Decision 1594 (1984) [interpreting the priority of needs for beneficial use in the watershed of origin over exports by the Central Valley Project and the State Water Project not to apply to waters imported to the watershed by the projects].)

A physical solution is one that assures all water right holders have their rights protected without unnecessarily reducing the diversions of others. “The phrase ’physical solution’ is used in water-rights cases to describe an agreed upon or judicially imposed resolution of conflicting claims in a manner that advances the constitutional rule of reasonable and beneficial use of the state's water supply.” (*City of Santa Maria v. Adam* (2012) 211 Cal. App. 4th 266, 286 (*City of Santa Maria*).) A physical solution may be imposed by a court in connection with an adjudication of a groundwater basin where rights of all parties are quantified, as part of a groundwater management program, or as part of a water development project.[59] One important characteristic of a physical solution is that it may not adversely impact a party’s existing water right. (*Mojave*, *supra,* 23 Cal.4th 1224, 1251.) Physical solutions are frequently used in groundwater basins to protect existing users’ rights, maintain groundwater quality, allow for future development, and implement the constitutional mandate against waste and unreasonable use. (See *California American Water v. City of Seaside* (2010) 183 Cal.App.4th 471, 480.)

From the standpoint of applying the State’s waters to maximum beneficial use, and to implement Article X, section 2 of the California Constitution, physical solutions can and should be imposed to reduce waste.[60] (See, e.g., *Lodi, supra,* 7 Cal.2d 316, 339-341, 344-345; *Hillside Memorial Park and Mortuary v. Golden State Water Co.* (2011) 205 Cal.App.4th 534, 549-550.) In *Lodi*, a physical solution was imposed to limit the wasting of water to the sea. The defendant appropriator was required to keep water levels above levels that would injure the senior user or to supply equivalent water to the plaintiff. (*Lodi, supra,* 7 Cal.2d 316, 339-341, 344-345.)

Agreement of all parties is not necessary for a physical solution to be imposed. (See *Lodi, supra,* at p.341, citing *Tulare Irrigation District v. Lindsay Strathmore*

[59] Sawyer, State Regulation of Groundwater Pollution Caused by Changes in Groundwater Quantity or Flow (1998) 19 Pacific. L.J.1267, 1297.
[60] Additionally, Water Code section 12947 states the general policy of promoting saline water conversion to fresh water in the State.

Irrigation District (1935) 3 Cal.2d 489, 574.) In addition, a basin need not be determined to be in a condition of overdraft for a physical solution to be instituted. "Although we may use physical solutions to alleviate an overdraft situation, there is no requirement that there be an overdraft before the court may impose a physical solution." (*City of Santa Maria, supra,* 211 Cal.App.4th, 266, 288.) Likewise, a physical solution can also be imposed in a basin that is determined to be in a condition of overdraft. (See generally *Pasadena v. Alhambra* (1949) 33 Cal.2d 908 [in a situation of continued overdraft, the court imposed limits on all users].)

Under the physical solution doctrine, although the Basin continues to be in a condition of overdraft, to maximize beneficial use of the state's waters Cal-Am may be allowed to pump a mixture of seawater, brackish water, and fresh water and export the desalinated water to non-overlying parcels. As a subsequent appropriator, the burden is on Cal-Am to show its operations will result in surplus water that will not injure users with existing legal rights. (See *Lodi, supra*, 7 Cal.2d at p.339.) To avoid injury to other users and protect beneficial uses of the Basin's waters, Cal-Am would have to show it is able to return its fresh water component to the Basin in such a way that existing users are not harmed and foreseeable uses of the Basin water are protected.

Modeling of the North Marina Project, which may be similar to the MPWSP, indicates that approximately 762 to 3,250 afa could be extracted from the landward direction of the slant wells, or approximately 3 to 13 percent of the total water extracted could be water that is contained or sourced from the Basin rather than seawater derived from Monterey Bay. The percentage of this water that is fresh or potable would have to be determined and the proportion of fresh water that is extracted for the desalination facility would have to be replaced. The exact method for replacing the fresh water extracted will be a key component of any legally supportable project. Replacement methods such as injection to recharge wells, delivery to recharge basins, or applying additional water through the CSIP program would need to be further examined to implement a physical solution that ensures no injury to other legal users. Cal-Am would need to

determine which of those methods would be the most feasible and result in returning the Basin to pre-project conditions.

One possibility raised by interested parties is that Basin conditions may change in the future, and if the seawater intrusion front shifts seaward, Cal-Am may extract a higher proportion of fresh water from its wells and reach a limit where it will be infeasible for it to return a like amount of fresh water back to the Basin and still deliver the amount of desalinated water needed for off-site uses. Based on the current project design and location of the extraction wells, it is highly unlikely that in the foreseeable future Cal-Am will draw an increased percentage of fresh water from wells with intake screens located several hundred feet offshore. If pumping within the Basin remains unchanged, it is projected that the MPWSP would not pump fresh water within a 56-year period if pumping occurred in an unconfined aquifer.[61] Since modeling has not been done simulating confined conditions, the extent of the impact on fresh water supply or wells is unknown in this situation. If, however, Basin conditions do change and Cal-Am's fresh water extractions increase, several scenarios could develop.

One possible scenario is that Cal-Am could show that (1) but-for the MPWSP, new fresh water would not be available in the Basin, and (2) as Cal Am continues to operate the MPWSP, the increased amount of fresh water available is developed water that would have previously been unavailable both to it and to other users. If this increased fresh water available to Basin users alleviates seawater intrusion issues, as well as provides for a new supply in excess of what would otherwise be available in the Basin, a physical solution could be imposed that would apportion the new water supply and allow continued pumping.

Another possibility is that Basin conditions could improve independent of MPWSP operation. If increased fresh water availability in the Basin could not be attributed to the MPWSP and Cal-Am's fresh water extractions exceed what it

[61] North Marina Project modeling showed that if pumping occurred in an unconfined aquifer over a 56 year period, then pumping would have little to no effect on the movement of the seawater intrusion front FEIR July 2008, Appendix E p. 21 (E-28).

can return to the Basin, Cal-Am may have to limit its export diversions to ensure that other legal users are not injured. Alternatively, it is possible that Cal-Am could implement modifications to the groundwater extraction system to offset any impacts on fresh water sources[62].

Based on historical uses of water in the Basin and despite efforts to reduce groundwater pumping in seawater intruded areas through enactment of Ordinance 3709 and efforts to increase recharge through the CSIP, there is no substantial evidence to suggest that Basin conditions will improve independent of the MPWSP without a comprehensive solution to the overdraft conditions. Although implementation of the SVWP has reportedly contributed to a reduction in the rate of seawater intrusion, there are still very large pumping depressions in the Basin, and these pumping depressions provide a significant driving force for sustained seawater intrusion which will likely continue for many decades.

There 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. The magnitude and timing of the effect on other users would have to be determined to allow for a design solution to avoid or compensate for the impact of continued operation. (See *Lodi*, 7 Cal.2d 316, 342; ["the fact that there is no immediate danger to the City of Lodi's water right is an element to be considered in working out a proper solution."] The physical solution doctrine could allow for an adjustment of rights, so long as others legal rights are not infringed upon or injured. "[I]f a physical solution be ascertainable, the court has the power to make and should make reasonable regulations for the use of the water by the respective parties…and in this connection the court has the power to and should reserve unto itself the right to change and modify its orders…" (*Peabody, supra,* 2 Cal.2d at pp. 383-384.)

Ongoing monitoring of the impacts of the MPWSP will be necessary to determine whether, and to what extent, changes to the Basin's conditions occur. If and

[62] For example, active groundwater barrier systems, or other means of isolating the extraction wells from the groundwater system could be implemented.

when impacts to fresh water resources in the Basin are identified, any fresh water injection wells would have to be designed to ensure water is injected in areas not already degraded. Alternatively, or in conjunction with injection wells, Cal-Am could ensure an adequate supply of replacement water is maintained within the CSIP program. Initial studies would be needed to determine the most suitable location based on soil permeability for additional percolation basins, if necessary. As with injection wells, percolation basins would need to be located where the underlying aquifer does not contain degraded water.

Based on the information provided in the FEIR, North Marina Project modeling suggests a zone of influence of approximately 2 miles from the proposed extraction wells.[63] According to the State Water Board's GAMA database, there are approximately 14 known water wells within this zone. These 14 wells are within the seawater intruded portion of the Basin. The current use of these wells is unknown; however, it is unlikely the MPWSP would injure users of these wells as the wells are within a zone where water quality is significantly impacted from seawater intrusion and may not serve beneficial uses. Within this 2-mile radial zone, the three foreseeable injuries that overlying users could experience 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.

If the MPWSP wells are located where unconfined aquifer conditions exist, Project pumping likely would extract both seawater and brackish groundwater. Other than seawater, the majority of the source water would be from within the seawater-intruded portion of the Basin as the seawater intrusion front extends approximately 5 miles landward from the proposed well locations. If the MPWSP receives source water from a confined aquifer it would affect a much larger area

[63] Cal-Am, Coastal Water Project, FEIR, Appendix E, Geoscience, North Marina Groundwater Model Evaluation of Projects p. 21 (E-28), July and September 2008.

in the Basin, but without test wells and data showing operations under confined aquifer conditions, it is not possible to determine what percentage of fresh water would be pumped under confined conditions. Staff concludes, however, that the potential for injury is greater if the source water is pumped under confined conditions.

6.4 Summary of Legal Analysis

In summary, to appropriate groundwater from the Basin, the burden is on Cal-Am to show no injury to other users. Key factors will be the following: (1) how much fresh water Cal-Am is extracting as a proportion of the total pumped amount and how much desalinated seawater is thus available for export as developed water; (2) whether pumping affects the water table level in existing users' wells and whether Cal-Am can avoid injury that would otherwise result from any lowering of water levels through monetary compensation or paying for upgraded wells; (3) whether pumping affects water quality to users' wells within the capture zone and whether Cal-Am can avoid or compensate for water quality impacts.(4) how Cal Am should return any fresh water it extracts to the Basin to prevent injury to others; and (5) how groundwater rights might be affected in the future if the proportion of fresh and seawater changes, both in the larger Basin area and the immediate area around Cal-Am's wells.

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.[64] Even if overdraft conditions continued in the Basin

[64] Some parties argue an adjudication of the Basin's rights would be needed for the MPWSP to proceed. While adjudication could provide some benefits to the Basin's users it is not necessary for a physical solution to be imposed. For reference, there are three general procedures by which an adjudication or rights to use groundwater in the Basin could be quantified and conditioned: 1) civil action with no state participation; 2) civil action where a reference is made to the State Water Board pursuant to Water Code

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.)

So long as overlying users are protected from injury, appropriation of water consistent with the principles previously discussed in this report should be possible. (See generally *Burr v. MacClay Rancho Water Co*. (1908) 154 Cal. 428, 430-31, 438-39 [if an appropriator does not exceed average annual replenishment of groundwater supply, lower users' water levels in wells or restrict future pumping, the appropriator's use is not adverse to other users].). Additional support is found in *City of San Bernardino v. City of Riverside* (1921) 186 Cal. 7, 20; "No injunction should issue against the taking of water while the supply is ample for all. But the respective priorities of each water right should be adjudged, so that if in the future the supply falls below the quantity necessary for all, he who has the prior right may have his preferred right protected."

Cal-Am must show any desalinated water it produces is developed water; a new supply to the existing groundwater resources in the Basin. It must show replacement water methods are effective and feasible, and the MPWSP can operate without injury to other users. As discussed earlier, if the MPWSP pumps source water from an unconfined aquifer, there may be no injury to other users outside of a 2-mile radius, with the exception of possibly slightly lower groundwater levels in the seawater-intruded area. Based on current information

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section 2000; or 3) a State Water Board determination, pursuant to the outlined statutory procedure that groundwater must be adjudicated in order to restrict pumping or a physical solution is necessary to preserve the quality of the groundwater and to avoid injury to users. (Wat. Code, § 2100 et seq.) Whether Cal-Am could force an adjudication of water rights is beyond the scope of this report but will be briefly discussed. As applied in *Corona Foothill Lemon Co. v. Lillibridge*, (1937) 8 Cal. 2d 522, 531-32, "an exporter cannot force an apportionment where it is conclusively shown that no surplus water exists and there is no controversy among overlying owners." But a conclusive showing that there is no water available for export does not appear to be the case here. Water that is currently unusable, both due to its location in the Basin and corresponding quality, could be rendered usable if desalinated and would thus be surplus to current water supplies in the Basin.

we do not know the exact effects on other users if source water is pumped from a confined aquifer, but the effects in general will be amplified.

7. Conclusion

The key determination is whether Cal-Am may extract water from the SVGB while avoiding injury to other groundwater users and protecting beneficial uses in the Basin. If the MPWSP is constructed with gravity wells or pumping wells the effects on the aquifer would be the same as long as the amount of drawdown in the wells is the same. But in the case of a pumped well, the operator has the ability to induce greater drawdown than they would in the gravity wells. In this case, there would be a greater effect to the aquifer. Since modeling has not been completed for the gravity well scenario, it is unknown at this time the total effect the gravity wells would have on the Basin and other groundwater users.

If the MPWSP is constructed as described in the FEIR for the North Marina Project, the slant wells would pump from the unconfined Dune Sand Aquifer. If groundwater is pumped from an unconfined aquifer and the modeling assumptions in the FEIR for the North Marina Project are accurate, there will be lowering of groundwater levels within an approximate 2-mile radius. Since seawater intrusion occurs in this area, this water developed through desalination is likely new water that is “surplus” to the current needs of other users in the Basin. Based on the information available, it is unlikely any injury would occur by the lowering of the groundwater levels in this region. Nevertheless, Cal-Am must show there is no injury and if the MPWSP reduces the amount of fresh water available to other legal users of water in the Basin or reduces the water quality so that users are no longer able to use the water for the same beneficial use, such impacts would need to be avoided or compensated for.

If the proposed slant wells are determined to be infeasible, and the project is instead designed to extract groundwater with conventional pumping wells, the potential impacts could be greater, but they would not necessarily result in injury that could not be avoided or compensated through appropriate measures. Impacts on other water users in the form of increased groundwater pumping costs could be eliminated through financial compensation within a reasonable time frame from when the costs are

incurred. Impacts on the availability of fresh water could be determined through modeling and any replacement of fresh water would have to be returned in an area that is not already degraded by seawater intrusion. Impacts on users in the form of decreased water quality could be compensated through the replacement of water with similar quality to the pre-project conditions.

Modeling for the North Marina Project does not predict that Basin users' fresh water supplies would be affected if its wells pump from an unconfined aquifer, which we assume to also be true for the MPWSP. If however, further exploratory testing shows water is removed from a confined aquifer, water levels would be lowered in a larger area and the effect on groundwater flow direction would be greater. Although pumping from a confined condition affects a much larger area of the Basin, the quantity of fresh water extracted from the aquifer would not necessarily be greater because the capture zone for the extraction wells would be greatly influenced by existing groundwater gradients. Additional studies are needed to determine whether the revised MPWSP configuration could cause injury to other groundwater users in the Basin that would require additional measures to avoid or compensate for that injury.

Cal-Am could legally pump from the Basin by developing a new water supply through desalination and showing the developed water is surplus to the existing supply. If Cal-Am's extractions are limited to water that currently serves no beneficial use; for example, it is entirely derived from brackish or seawater sources, and Cal-Am returns all incidental fresh water to the Basin in a method that avoids injury to other users, it is likely the MPWSP could proceed without violating other users' groundwater rights. A no injury finding would have to be shown through monitoring, modeling, compensation, project design or other means

A physical solution could be implemented to ensure all rights are protected while maximizing the beneficial uses of the Basin's waters. Such an approach is consistent with the general policy in California Constitution article X section 2, and case law provides guidance on solutions to address complex groundwater issues where supply is constrained. The ongoing development of solutions tailored to the specific conditions that apply to a given groundwater basin reflects the understanding that California waters

are too valuable not to be utilized to the maximum extent possible if beneficial uses and other legal users' rights are maintained.

8. Recommendations

Additional information is needed to accurately determine MPWSP impacts on current and future Basin conditions regardless of whether the extraction occurs from pumped or gravity wells. First, specific information is needed on the depth of the wells and aquifer conditions. Specifically, studies are needed to determine the extent of the Dune Sand Aquifer, the water quality and quantity of the Dune Sand Aquifer, the extent and thickness of the SVA and the extent of the 180-Foot Aquifer.

Second, the effects of the MPWSP on the Basin need to be evaluated. Specifically, a series of test boring/wells would be needed to assess the hydrogeologic conditions at the site. Aquifer testing also would be needed to establish accurate baseline conditions and determine the pumping effects on both the Dune Sand Aquifer and the underlying 180-Foot Aquifer. Aquifer tests should mimic proposed pumping rates.

Third, updated groundwater modeling will be needed to evaluate future impacts from the MPWSP. Specifically, modeling scenarios will need to be run to predict changes in groundwater levels, groundwater flow direction, and changes in the extent and boundary of the seawater intrusion front. Additional studies also will be necessary to determine how any extracted fresh water is replaced, whether through re-injection wells, percolation basins, or through existing recharge programs. It may also be necessary to survey the existing groundwater users in the affected area. The studies will form the basis for a plan that avoids injury to other groundwater users and protects beneficial uses in the Basin. To ensure that this modeling provides the best assessment of the potential effects of the MPWSP, it is important that any new information gathered during the initial phases of the groundwater investigation be incorporated into the groundwater modeling studies as well as all available information including current activities that could influence the groundwater quality in the Basin.

APPENDIX A: RESPONSE TO COMMENTS

State Water Resources Control Board (State Water Board) staff received six comment letters on the Draft Review of California American Water Company's (Cal-Am's) Monterey Peninsula Water Supply Project (MPWSP) (Report). Parties commenting on the Report included the Monterey County Farm Bureau, Norman Groot (Groot); LandWatch Monterey County, Amy L. White (White); the Salinas Valley Water Coalition, Nancy Isakson (Isakson); Ag Land Trust, Molly Erickson of the Law Offices of Michael W. Stamp (Erickson); Water Plus, Ron Weitzman (Weitzman), and Cal-Am, Rob Donlan of Ellison, Schneider, & Harris L.L. P (Donlan). State Water Board staff appreciates the time and consideration taken by the commenters. Staff reviewed and used the comments and additional information included with the comment letters to enhance the accuracy and completeness of the Report. Specifically, staff amended the Report to include: 1) additional emphasis and direction on recommended studies; 2) discussion potential injury that could occur to those users in close proximity to the MPWSP wells; 3) clarification on the information relied upon in the Report; 4) expanded discussion on the Monterey County Water Resources Agency (MCWRA) Act (Agency Act) and Ordinance No. 3709; 5) discussion of the Salinas Valley Water Project; and 6) a new section on potential Project effects on seawater intrusion. Additionally, staff has prepared a categorical response to comments below.

Comments that pertain to the State Water Board's Report generally fell into the following categories: 1) State Water Board's role and objective in preparing the Report; 2) sources of information used in preparing the Report (including adequacy of the environmental document for the previously proposed Coastal Water Project and use of previously developed groundwater model); 3) concerns about injury to other legal users of water (including potential impacts on existing efforts to control seawater intrusion); 4) legal issues related to the exportation of water from the Salinas Valley Groundwater Basin (Basin); 5) the need for better information about the hydrogeology of the proposed project location and the effects the proposed project would have on

groundwater in the Basin; and 6) legal interpretation of groundwater appropriation law and concepts discussed within the Report.

1. Does the State Water Board have authority to review the proposed Project? If so, what is the State Water Board's role in preparing the Report? (Responds to comments received from: Erickson, p. 2)

   The California Public Utilities Commission (Commission) is the lead agency under the California Environmental Quality Act (CEQA) for approval of the proposed project. The Commission requested that the State Water Board provide an opinion on the legal and technical considerations implicated in Cal-Am's proposal to extract desalination feed water for the MPWSP. As stated in the Report, the purpose is to examine the technical information and outline legal considerations which would apply to the proposed MPWSP. State Water Board staff is acting in an advisory role in developing the Report and providing an opinion on whether the proposed project, many aspects of which have not yet been finalized, could be implemented without violating groundwater rights or resulting in injury to the Basin users.

   State Water Board staff prepared the Report in an advisory role only, as requested by the Commission. We have considered and addressed all comments that pertain to the contents of the Report. Many comments go beyond the scope of the Report and the State Water Board's role in its development. The Report is an advisory opinion from State Water Board regarding certain legal and technical issues related to the extraction of saline groundwater for a proposed desalination project. It is not binding on any party or entity, and is in no way a substitute for the public processes and environmental documentation that will occur and be produced as part of the Commission's role in evaluating the proposed project.

2. Is it appropriate for State Water Board staff to consider information included in the Environmental Impact Report (EIR) that was vacated by the Monterey County

Superior Court in developing the Report? (Responds to comments received from; Erickson, pp. 9, 13, 14; White , pp. 3-4)

State Water Board staff considered technical information and groundwater modeling that was conducted as part of the environmental and technical review for the previously studied Coastal Water Project. In the Report, we qualify our assessment of likely potential impacts. We also note that additional investigations are needed to provide the information necessary to develop a better understanding of the effects that pumping from the proposed extraction wells would have on groundwater resources in the Basin. The Report, however, states that we assume for the purposes of preliminary evaluation that the hydrogeologic characteristics and effects to the groundwater system would be similar to the North Marina Project alternative analyzed in the previously considered Final EIR. The State Water Board staff reviewed the technical information contained in the FEIR and relied on its analysis when it prepared the Report because it was the best information available. The Report notes that there are many unanswered questions about the nature of the subsurface geology, and how the implementation of the proposed project will affect subsurface water conditions. These questions can only be addressed by proceeding with subsurface investigations and developing a more detailed and comprehensive groundwater model. The final project design and location will be part of the formal environmental review process conducted by the Commission. The Commission staff indicates that during environmental review, the public will have additional opportunity to comment on the adequacy of the technical aspects of the project that the Commission examines. We have included a list of references as an appendix to the Report.

3. Legal issues related to the exportation of groundwater from the Basin (Responds to comments received from: Erickson, pp. 17, 19; White, p. 2; Groot, p. 2; Isakson, pp. 4-5; Donlan, p. 5; Weitzman, p. 1)

The Report discusses the need for the MPWSP to account for potential injury to overlying users of groundwater in the Basin that may result from groundwater export to non-overlying parcels. Several commenters note that the Agency Act prohibits export of groundwater from the Basin. The Commission did not request that the State Water Board interpret the Agency Act. MCWRA, not the State Water Board, is the agency responsible for interpreting and enforcing its enabling legislation. Consistent with the legal principles applicable to California water rights, however, interpreting the export prohibition to apply even if there is no net export from the Basin, under circumstances where injury to other legal users of water is avoided, does not appear to be a reasonable interpretation of the Agency Act.

4. Would legal users of groundwater in the Basin be injured by the implementation of the proposed Project? (Responds to comments received from: Erickson, pp. 2-6, 11, 14, 17-20; White, pp. 2-4; Groot, pp. 1-2; Isakson, p. 2; Donlan, pp. 1-5)

The State Water Board's Report discusses potential injury from the proposed extraction wells. It concludes that further technical studies are necessary to determine whether water can be extracted without harming existing legal groundwater rights. Some of the commenters point to the importance of developing a more detailed groundwater model, but also oppose constructing the test well(s) and conducting the investigations necessary to obtain the information required to develop such a model because of the assertion that injury will occur immediately as a result of the test wells. Our Report concludes that it is necessary for Cal-Am to conduct groundwater investigations in order to collect the information needed to refine the groundwater model. Without this additional information, the State Water Board cannot conclude whether the project could injure any legal user of groundwater in the Basin.

5. What would be the impact on current or future efforts to address the severe seawater intrusion problems in the Basin, and is it appropriate to conduct the initial phase of investigation for the proposed Project before developing a more definitive groundwater model? (Responds to comments received from: Erickson, pp. 7-10, 12, 15, 16, 21; White, pp. 4-5; Isakson, pp. 3-6; Donlan, p. 4)

The State Water Board used the best available information to characterize the current extent of seawater intrusion. The Report recognizes the efforts embodied in the Salinas Valley Water Project and the Castroville Seawater Intrusion Project to address seawater intrusion and staff concludes that despite these and other efforts, seawater intrusion continues its inland trend into the Basin. One commenter criticizes this assessment stating, "[t]he MCWRA position, affirmed recently, is that seawater intrusion has not worsened." The State Water Board has received no information from MCWRA indicating that its current position is that seawater intrusion has been effectively halted and is no longer advancing. Our characterization that seawater is continuing its inland trend is consistent with the current information published by the MCWRA. Whether the seawater intrusion efforts will be assisted by the implementation of the proposed project, or hindered by it, is a question that can only be answered through further investigation. These investigations are proposed as a component of the MPWSP. Accordingly, the Report makes no finding on the issue. Although outside the scope of the Report, we anticipate that the project proponents will coordinate their activities with those of the MCWRA to ensure that both the desalination project and the efforts to address seawater intrusion are compatible.

It is necessary to conduct the studies proposed for the initial stage of the investigation in order to develop the required groundwater model. State Water Board staff believes that this investigation can be conducted without adversely affecting Basin water users. The investigation should ascertain whether any groundwater users have wells in close proximity to the proposed test well, and

any concerns about the use of that well during the investigation phase should be addressed.

6. Legal interpretation of Groundwater Law. (Responds to specific comments from Erickson and Donlan. Page citations listed below.)

The State Water Board notes that several parties, notably Ag Land Trust, question the State Board's interpretation of the legal principles that apply to the proposed project. Staff has reviewed the comments and confirms that the Report is consistent with its interpretation of legal precedent applicable to the Project. In some instances, comments appeared to focus on selected passages and did not consider the entire context in which the statements were made or the purpose for which the legal precedent was cited. In other instances, it appears the commenters' questions or concerns were later addressed in subsequent sections. Without responding to each legal argument raised, for clarification purposes, staff would like to respond to the following legal points raised by the following parties:

1) Erickson:

a. Comment on page 17 questions the statement in the Report that, "No permit is required by the State Water Board to acquire or utilize appropriative groundwater rights." The comment claims the statement is misleading and the "State Water Resources Control Board has no right to require any permit for an appropriative right."

Response: With respect to the first comment, the State Water Board believes this is an accurate statement—no permit is required by the State Water Board for the acquisition of appropriative groundwater rights in the Basin. Nor is it misleading. As indicated by the extensive discussion of principles of groundwater law, the Report does not

suggest that the inapplicability of state permitting requirements is sufficient to establish a right to divert and use percolating groundwater.

b. Comment on page 2 states, "The SWRCB has no authority over percolating groundwater that is being put to beneficial use." The comment questions why the State Water Board would express view on issues concerning groundwater rights, and states that the Report should include a discussion of the State Water Board's authority.

Response: The State Water Board is the state agency with primary responsibility for the regulatory and adjudicatory functions of the state in the field of water resources. (Wat. Code, § 174.) The water right permitting and licensing system administered by the State Water Board is limited to diversions from surface water channels and subterranean streams flowing through known and definite channels. (See *id*., § 1200.) But the State Water Board has other authority that applies to all waters of the state, surface or underground. This includes the State Water Board's water quality planning authority, which extends to any activity or factor affecting water quality, including water diversions. (*Id.*, §§ 13050 subds. (e) & (i).), 13140 et seq., 13240 et seq.; see 44 Ops. Cal. Atty. Gen. 126, 128 (1964).)

The State Water Board has broad powers to exchange information with other state agencies concerning water rights and water quality, and more specific authority to evaluate the need for water-quality-related investigations. (Wat. Code, §§ 187, 13163, subd. (b).) The State Water Board also has authority to conduct or participate in proceedings to promote the full beneficial use of waters of the state and prevent the waste or unreasonable use of water. (*Id.,* § 275.) This authority includes participation in proceedings before other executive, legislative, or judicial agencies, including the Commission. (*Ibid.*) And the State Water Board's authority to promote the full beneficial use of

water and prevent waste or unreasonable use applies all waters the state, including percolating groundwater. (See, e.g. SWRCB Decision 1474 (1977.)

The Water Code includes procedures for court references to the State Water Board, under which the State Water Board prepares a report on water right issues before the court. (Wat. Code, §§ 2000 et. seq., 2075 et seq.; see *National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419, 451 [these procedures are designed to enable courts to "to make use of the experience and expert knowledge of the board."]; *San Diego Gas & Electric Co. v. Superior Court* (1996) 13 Cal.4th 893, 914-15 [the Commission has broad authority including judicial powers].)

Thus, it is well within the State Water Board's authority and consistent with the execution of its statutory responsibilities to report to the Commission on matters related to rights to diversion and use of water, including diversions of percolating groundwater. The conclusions and recommendations in this Report are not binding on the Commission, but provide a means for the Commission to make use of the knowledge and expertise of the State Water Board.

c. Comment on page 19 states, "Exportation of groundwater is prohibited by state law and case law. There is no provision for this 'replacement and export' scheme absent adjudication."

Response: See Report pages 38-39. A "physical solution" can be imposed without adjudication. "The phrase 'physical solution' is used in water-rights cases to describe an agreed upon or judicially imposed resolution of conflicting claims in a manner that advances the constitutional rule of reasonable and beneficial use of the state's water supply." (*City of Santa Maria v. Adam* (2012) 211 Cal. App. 4th 266,

286 (*City of Santa Maria*).) See also, Hutchins (1956) The California Law of Water Rights pp. 351-354; 497-498.

2) Donlan:

a. Comment page 3, Cal-Am interprets the Report as concluding that effects on wells within the zone of influence will not likely rise to the level of "legal injury" requiring remedial action or a physical solution unless there is a substantial impact to the use of those wells for beneficial purposes citing *Lodi v. East Bay Municipal Utilities District* (1936) 7 Cal.2d 316, 341.

Response: The comment correctly notes the physical solution doctrine does not require that minor inconvenience or other insubstantial impacts be avoided. As the Report notes, further studies are necessary to determine whether Project effects on wells would rise to the level of "legal injury".

APPENDIX B: REFERENCES

References Relied Upon (in text legal citations omitted):

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California American Water Company, Coastal Water Project, FEIR, Appendix E, Geoscience, North Marina Groundwater Model Evaluation of Projects, July 2008.

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Fetter C. W. 1994, Applied Hydrogeology 3rd Edition.

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Monterey County Water Resources Agency, Monterey County Groundwater Management Plan, Chapter 3 – Basin Description, May 2006.

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Salinas Valley Water Coalition, Letter to State Water Board Chair, Charles Hoppin, December 3, 2012.

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Ag Land Trust letters to CPUC, November 6, 2006 and April 15, 2009.

Amy White, LandWatch, letter to Andrew Barnsdale, CPUC, November 24, 2009

Amy White, LandWatch, letter to California Coastal Commission, August 4, 2011.

Evidentiary Hearing Transcript, April 9, 2012 (cross-examination of Timothy Durbin) and Direct Testimony of Timothy Durbin of Behalf of the Salinas Valley Water Coalition, Before the Public Utilities Commission of the State of California, April 23, 2012.

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Johnson, Jim. *Desal EIR dealt blow*, Monterey County The Herald, February 4, 2012.

Paul Findley, RBF Consulting, Memorandum: MPWSP Desalination Plant Sizing Update, January 7, 2013.

Reply Brief of LandWatch Monterey County regarding Groundwater Rights, July 25, 2012. http://docs.cpuc.ca.gov/PublishedDocs/EFILE/BRIEF/171861.PDF

Richard C. Svindland, Supplemental Testimony Before the Public Utilities Commission of the State of California, April 23, 2012 (with attachments).

Timothy Durbin, Technical Memorandum to Salinas Valley Water Coalition, December 3, 2012.

Timothy Durbin, Technical Memorandum to Salinas Valley Water Coalition, February 21, 2013.

U.S. EPA Ground Water Issue EPA/540/S-97/504, Design Guidelines for Conventional Pump-and-Treat Systems, September 1997.

APPENDIX C: COMMENT LETTERS RECEIVED

LandWatch monterey county

Post Office Box 1876, Salinas, CA 93902
Email: LandWatch@mclw.org
Website: www.landwatch.org
Telephone: 831-759-2824
FAX: 831-759-2825

April 25, 2013

Paul Murphey
Division of Water Rights
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812-2000

Subject: Draft Review of California American Water Company Monterey Peninsula Water Supply Project (MPWSP)

Dear Mr. Murphey:

LandWatch Monterey County has reviewed the referenced document (the "Draft Review") and has the following comments:

1. We concur with the recommendation for additional studies to determine the extent of the Dune Sand Aquifer, the water quality and quantity of the Dune Sand Aquifer, the extent and thickness of the Salinas Valley Aquitard and the extent of the 180-Foot Aquifer and the effects of the proposed Monterey Peninsula Water Supply Project (MPWSP) on the Basin.

   In particular, we believe it is critical that the additional studies recommended by Mr. Timothy Durbin in testimony before the CPUC be conducted, including the following:

   - a hydrogeologic investigation to determine subsurface formations in the vicinity of the site, including adequate boreholes and geophysical studies;
   - a geochemical investigation to determine mechanisms of seawater intrusion in the vicinity of the site;
   - a large-scale aquifer test through a test well; and

- groundwater modeling, including consideration of density-drive effects and long-term effects after the end of the project.[1]

As Mr. Durbin explains, it is critical that the investigation proceed in this sequence because the results of the hydrogeologic investigation, the geochemical investigation, and the aquifer testing are essential to informing the groundwater modeling.[2]

Unfortunately, under the current schedule, the groundwater modeling, which is to be provided through the CEQA process, will predate the aquifer testing, which will not occur until after the CPUC is scheduled to decide whether to issue a Certificate of Public Convenience and Necessity ("CPCN") for the MPWSP.[3] The SWRCB should encourage the CPUC to make provision for additional modeling work and decision points on the MPWSP source water intake method and location after the aquifer test, because the actual impacts may not be understood with sufficient certainty at the time the CPUC issues the CPCN.

2. In addition, Cal-Am has proposed groundwater wells at the Potrero Road site as an alternative source water intake. Since this site is also within the Salinas Valley Groundwater Basin (SVGB), the SWRCB should encourage the CPUC to require Cal-Am to undertake at least a preliminary hydrogeologic investigation of the adequacy of this site concurrently with its consideration of its preferred intake site at the Cemex site. Cal-Am is constrained by SWRCB Order 95-10 and the Cease and Desist Order to limit its use of Carmel River water expeditiously. Cal-Am already projects that it will not meet the CDO deadline due to problems with permitting a test well at the Cemex site. Serial investigations of infeasible intake options will only further delay compliance.

3. The Draft Review's legal analysis does not directly address the prohibition against exporting groundwater from the SVGB per the Monterey County Water Resources Agency Act. The sole reference to this prohibition is contained in footnote 32 at page 28. We believe that this prohibition constitutes an independent statutory constraint on the MPWSP, which the SWRCB should acknowledge.

4. The Draft Review acknowledges that Cal-Am has the burden to demonstrate that the MPWSP will not result in injury to any groundwater user. The draft review identifies two

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[1] A12-04-019, Evidentiary Hearing Transcript, April 9, 2013, pp. 1067-1073 (cross-examination of Timothy Durbin) and Direct Testimony of Timothy Durbin on Behalf of the Salinas Valley Water Coalition, Exhibit SV-3, Technical Memorandum No. 2 by Timothy Durbin, February 21, 2013, pp. 6-7.

[2] A12-04-019, Evidentiary Hearing Transcript, April 9, 2013, p. 1073 (cross-examination of Timothy Durbin).

[3] A12-04-019, Administrative Law Judge's Directives To Applicant And Ruling On Motions Concerning Scope, Schedule And Official Notice, August 29, 2012, pp. 8-9.

types of potential impacts: reduction of groundwater levels in wells and reduction in the quantity of fresh water available for future use. The Draft Review acknowledges that the magnitude and geographic extent of the reduction in fresh water is indeterminate at this point because the fresh water capture zone is not delineated and there has been no determination whether the source water aquifer is confined or unconfined.

The Draft Review proposes, apparently by way of example, that injury might be avoided or adequately compensated through the return of pumped fresh water to the Basin via the Castroville Seawater Intrusion Project ("CSIP") or via injection wells, or through monetary compensation for groundwater users who must deepen wells and/or incur higher pumping costs. It is not clear without further analysis that these methods of avoiding or compensating injury would suffice for all impaired groundwater users. For example, users not benefitting from the CSIP project and who are upgradient from injection well sites may not benefit from the proposed methods to return pumped freshwater. And users in marginal pumping locations whose wells run dry may not be made whole by monetary compensation.

We are particularly concerned that Cal-Am be required to evaluate potential impacts to groundwater users in the North County area who do not receive CSIP water. As LandWatch has previously explained, the Coastal Water Project ("CWP") EIR for the previously proposed Regional Water Project and its alternatives failed to evaluate the effects of project pumping on the upgradient North County aquifer.[4] LandWatch identified the following defects in the previous CWP EIR's analysis and proposed mitigation of groundwater impacts to North County:

- The North Monterey County Hydrogeologic Study (Fugro West, Inc., 1995) establishes that
    - North County groundwater is hydrologically connected and interdependent with the Salinas Valley Groundwater Basin ("SVGB"),
    - North County groundwater is up-gradient from the SVGB,
    - Increased pumping in the SVGB depletes available groundwater in North County
- None of the wells upon which projected groundwater elevations were modeled in the CWP EIR are located in the up-gradient subareas of North County. Thus the projected groundwater contours in the CWP EIR are not well founded.

[4] Amy White, LandWatch, letter to Andrew Barnsdale, CPUC, Nov. 24, 2009; Amy White, LandWatch, letter to California Coastal Commission, August 4, 2011. Both documents are available at http://www.coastal.ca.gov/meetings/mtg-mm11-8.html, see link to additional correspondence under August 12, 2011 item 6a, Application No. E-11-019 (Monterey County Water Resources Agency, Marina Coast Water District, California-American Water Company, Monterey Co.)

- The CWP EIR admits that monitoring wells are inadequate to support its conclusions, but proposes that this defect can be remedied after the project is constructed by augmenting the monitoring network in North County. This will not establish baseline conditions.

- No meaningful, measureable, or enforceable mitigation was proposed in the CWP EIR if future monitoring identified impacts.[5]

Given the history of inadequate analysis in the CWP EIR, the SWRCB should urge the CPUC to ensure adequate analysis of North County groundwater users. If additional monitoring wells are required to establish baseline conditions before the MPWSP commences, the CPUC should require Cal-Am to make provision for them now.

5. The Draft Review acknowledges that future impacts must be evaluated, in part because it is critical to protect foreseeable uses of the SVGB. A central consideration in this evaluation is whether current and future efforts to halt and/or reverse sea water intrusion will be successful. LandWatch is concerned that the Draft Report provides little clarity on this topic.

Although it mentions the CSIP program and the MCWRA Ordinance No. 3709 as efforts to address sea water intrusion, the Draft Review unaccountably fails to mention the Salinas Valley Water Project ("SVWP"), which is the latest and most comprehensive effort to address sea water intrusion in the SVGB. Opinions differ significantly regarding the efficacy of the SVWP as planned, the likelihood of its complete implementation, and the prospects of a second phase of the project.[6] However, the SVWP must be considered in the evaluation of future impacts from the MPWSP.

Previous modeling of groundwater impacts from coastal wells for desalination source water in the Coastal Water Project EIR projected a reversal of sea water intrusion due to the assumed

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[5] A 12-04-019 Reply Brief of LandWatch Monterey County regarding Groundwater Rights, July 25, 2012, pp. 8-9.

[6] LandWatch has consistently advocated a more careful evaluation of the adequacy of efforts to address overdrafting and sea water intrusion than has occurred to date. In this regard, LandWatch has presented evidence in connection with the adoption of the Monterey County 2010 General Plan and in connection with environmental review of various development projects that the SVWP may have been oversold as a solution to overdraft and sea water intrusion conditions in the SVGB. For example, although the SVWP EIR concluded that seawater intrusion would be halted based on the assumption that irrigated agricultural acreage and agricultural water use would decline from 1995 to 2030, the Monterey County 2010 General Plan EIR admitted that irrigated acreage actually increased substantially between 1995 and 2008 and projected that irrigated acreage will increase even more by 2030. LandWatch has identified a number of additional problems with analyses of the efficacy of the SVWP and is currently pursuing litigation seeking adequate analysis of SVGB water resource impacts through Monterey County Superior Court Case No. M109434. Regardless whether the SVWP has been oversold, the CPUC should not assume that the County will not eventually address sea water intrusion.

success of the SVWP and CSIP, but projected that this reversal would be slower with the Regional Project than without it.[7] Increased duration of degraded groundwater conditions may constitute injury to groundwater users and should be evaluated by Cal-Am.

Notwithstanding the previous modeling that projected reversal of sea water intrusion and even though it admits that "the extent of the impact on fresh water supply or wells is unknown in this situation," the Draft Review appears to dismiss the possibility that the MPWSP would draw an increased percent of freshwater as "highly unlikely."[8] Again without any reference to the SVWP, the Draft Review also states that "there is no evidence to suggest that Basin conditions will improve independent of the MPWSP without a comprehensive solution to the overdraft conditions."[9]

The Draft Review does acknowledge that success in reversing sea water intrusion would result in a higher percentage of fresh water pumping by the MPWSP. The Draft Review considers two possible causal scenarios for the possible reversal of sea water intrusion. First it suggests that Cal-Am may be able to show that the MPWSP is the "but-for" cause of this improvement, in which case Cal-Am might be entitled to a portion of the new water supply.[10] Alternatively, the Draft Review acknowledges that SVGB conditions might improve independent of the MPWSP, in which case Cal-Am may have to limit its export diversions.

Because these two different outcomes have diametrically opposite consequences with respect to the viability of the MPWSP itself, it is critical that the CPUC decision be informed by the best assessment of the likely future success of efforts to halt or reverse sea water intrusion and the effect of the MPWSP on those efforts. However, the Draft Review appears to suggest that the issue can be deferred simply because "[t]here is expected to be minimal impact to freshwater 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."[11] The Draft Review suggests that measures can be taken "[if] and when impacts to freshwater resources in the Basin are observed . . .."[12] However, if Cal-Am were required to limit export diversions because the MPWSP were pumping more freshwater than may legally be exported, the MPWSP may not remain viable for its projected life. LandWatch submits that the CPUC cannot prudently defer analysis of this possibility in approving a long-lived capital project.

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7 Id., p. 9.

8 Draft Review, p. 36.

9 Id., p. 37.

10 Id., p. 36.

11 Id., p. 37.

12 Id.

Thus, analysis and modeling should be required that would determine the probable success of efforts to halt or reverse sea water intrusion, including MCWRA Ordinance 3709, the CSIP, and the SVWP. This analysis and modeling should project future outcomes both with and without the MPWSP.

Thank you for the opportunity to comment on the Draft report.

Sincerely,

Amy L. White
Executive Director

From: Ron Weitzman
To: Unit, Wr_Hearing@Waterboards
Subject: Comments on MPWSP Draft Report
Date: Wednesday, May 01, 2013 4:39:01 PM

Paul Murphey
Division of Water Rights
State Water Resources Control Board

Dear Mr. Murphey:

Both draft responses by your agency to the CPUC request for your opinion on water rights refer minimally to the state Agency Act (Monterey County Water Resources Act, (Stats. 1990 ch.52 § 21. West's Ann. Cal. Water Code App.), which explicitly prohibits the exportation of groundwater from the Salinas Valley River Basin. Both your draft responses describe this prohibition as follows: "… prohibits water from being exported outside the Salinas Valley Groundwater Basin." This description refers to groundwater as simply water, which is not what the act itself specifies. In the act, the term groundwater is used in contrast to surface water, the prohibition applying only to groundwater. The CPUC, Cal Am, and your agency persistently and incorrectly refer to groundwater as "water" having the meaning of fresh water. Your draft responses concentrate on the question of whether the exportation of groundwater from the Salinas Valley Groundwater Basin would do harm to current users of that water. That question is irrelevant, however, in view of the Agency Act's prohibition of any groundwater, of whatever composition, from the Salinas Valley Groundwater Basin. Although I am not an attorney, my general understanding of the law is that a specific rule takes precedence over a general one. Therefore, regardless of the harm demonstrated to be done or not done to current Salinas Valley water users, the Agency Act specifically prohibits the exportation of groundwater from the basin. Water Plus, the ratepayer organization that I represent, has repeatedly been saying that for months. In this regard, please view the uncontested Water Plus testimony to the CPUC, attached, particularly Section III. Water Plus understands the request by the CPUC to your agency for an opinion on water rights as an attempt by the CPUC to involve you in the current Cal Am water-supply project to an extent that might motivate you to relax your Cease-and-Desist Order, particularly since Cal Am's project cannot now meet the current CDO deadline. Water Plus urges you not to relax the CDO. If you do, your agency will lose all credibility regarding any future CDO deadlines you may set. The Cal Am project is not the only one proposed to provide the water needed to ease the stress on the Carmel River. At least two other proposals have been developed, one of them backed by a considerable investment by its developer. If your agency truly seeks to help resolve our local water problem, Water Plus believes the most effective action you could take would be to require the Monterey Peninsula Water Management District to develop the needed new water supply project. The district has the authority to do that, and if now immediately began the process in conjunction with the partially developed People's project it could likely meet your current CDO deadline. Proceeding in this direction would also save local ratepayers hundreds of millions of dollars, as documented in Section III of the Water Plus CPUC testimony and on the Water Plus Web site, top of the center column.

Thank you for your consideration of these comments.

Respectfully,

Ron Weitzman
President, Water Plus

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Application of California-American Water Company (U210W) for Approval of the Monterey Peninsula Water Supply Project and Authorization to Recover All Present and Future Costs in Rates.	A.12-04-019 (Filed April 23, 2012)

REVISED TESTIMONY OF RON WEITZMAN

ON BEHALF OF WATER PLUS

Ron Weitzman

23910 Fairfield Place

Carmel, CA 93923

Telephone: (831) 375-8439

Facsimile: (no facsimile)

Email: ronweitzman@redshift.com

President, Water Plus

Dated February 22, 2013

Revision: March 21, 2013

Table of Contents

I. Witness Information.

Q. Please tell me your name and provide some biographical information relevant to this proceeding, if you will?

A. Yes, I would be glad to do that. My name is Ron Weitzman. I am married and the father of two daughters, one deceased. I was born and began school in Chicago and completed my pre-college education in Los Angeles. I have a B.A. and an M.A. degree from Stanford University and a Ph.D. from Princeton University in mathematical psychology. I have been on the faculties of a number of universities throughout the United States and elsewhere in the world, including the Middle East, the site of numerous desalination plants. I have taught many dozens of courses in psychology and statistics and published many dozens of articles and technical reports on mental test theory and survey analysis, a good portion of them involving mathematical modeling. You can say that asking questions has been my field of specialization, and so I feel comfortable with the Q & A format of this prepared testimony. Throughout my work life and since retirement, I have been involved as a volunteer and an activist in numerous charitable and civic activities involving social services, performing arts, historic preservation, environmental protection, and consumer interests. That now includes Water Plus, a non-profit public-benefit corporation that meets weekly and that I have served as president since founding it in September of 2010.

II. Purpose of Testimony.

Q. What is the purpose of this testimony?

A. I am presenting this testimony as a representative of Water Plus, a party to this proceeding, pursuant to Rules 1.7(b) and13.8 of the Rules of Practice and Procedure of the California Public Utilities Commission ("CPUC"). Water Plus seeks to represent the ratepayers served by California-American Water's Monterey County District ("Cal Am") in this proceeding. Our concern is ratepayers will foot the bill for yet another failed Cal-Am water-supply project.

III. The Current Cal Am Water Supply Project is Doomed to Failure.

Q. You say that the currently proposed Cal Am water-supply project is doomed to failure. Why?

A. The state Agency Act prohibits the exportation of groundwater from the Salinas Valley Groundwater Basin,[1] which is precisely what the Cal Am project proposes to do.[2]

Q. Supporters of the Cal Am project claim that the exportation prohibition applies only to the fresh-water component of the groundwater and that the project includes plans to return that component to the basin. How would you respond to that claim?

A. The Agency Act makes no distinction between fresh water and salt or brackish water. The only distinction it makes is between surface water and groundwater, and the Act's prohibition applies exclusively to groundwater, of whatever mix.

Q. That being the case, then why did the Salinas Valley farming community not invoke the Agency Act to prevent the now-dead Regional Desalination Project from exporting groundwater from the basin?

A. The farming community did not then invoke and has not even now invoked the Agency Act because it is a measure of last resort that can serve as a useful bargaining tool for farmers to share in the revenue obtained from any water-supply project that involves the exportation of groundwater from the Salinas Valley Groundwater Basin.

Q. What foundation, if any, do you have for that statement?

A. The issue concerning the farmers is that they have spent and are continuing to spend a great deal of money on stemming the intrusion of saltwater into the

[1] Monterey County Water Resources Agency Act ("Agency Act"), Stats. 1990, c. 1159, Section 21.
[2] .12-04-019: *Application of California-American Water Company (U210W) for Approval of the Monterey Peninsula Water Supply Project and Authorization to Recover All Present and Future Costs in Rates*, April 23, 2012 ("A.12-04-019").

Salinas Valley Groundwater Basin. So money is the basic issue. Any water-supply project that could satisfy the farmers would have to provide them with at least enough money to remediate whatever increase in saltwater intrusion the project might produce. Because the farmers have rights to the basin water, they can also add an extra charge for the use of their rights that may be sufficient to cover the costs they have incurred to date in addressing saltwater intrusion.

Q. Has this sort of negotiation ever occurred in other aspects of the Regional Desalination Project or in the current project, as far as you know?

A. Yes, in at least three. First, when Cal Am pulled out of the regional project, the county owed several million dollars to Cal Am, as well as to itself in money borrowed from internal programs unrelated to the project. To recover this money, the county made an agreement with Cal Am to exempt the company from a county ordinance that would have forbidden it from owning a desalination plant in the county.[3] Very likely, Cal Am will use ratepayer revenue to cover the county's debt.[4] Second, in the current project, a deal is pending between Cal Am and the Monterey Peninsula Regional Water Authority involving a trade-off between the establishment of a local project governance committee and a prohibition of support for public ownership. I am going to talk about this deal later in the testimony. Third, in the regional project, the Ag Land Trust drafted a rental agreement to allow the project to draw its groundwater from land owned by the trust. (I have a hard copy of a draft of this agreement.) This agreement never came to fruition because the Marina Coast Water District board believed it was neither a necessary nor an appropriate expenditure for the project to go forward. As a result, the Ag Land Trust sued and prevailed in Superior Court.[5] An impediment to the regional project, the suit is now under appeal.

Q. Why would Cal Am make such an agreement with Monterey County when the CPUC has voted to exempt the company from the county ordinance permitting only a public agency to own and operate a desalination plant in the county?

[3] Monterey County Ordinance 10.72.030(B).
[4] Monterey County Herald, December 5, 2012, front page.
[5] Ruling by Monterey County Superior Court Judge Lydia Villarreal, February 2, 2012.

A. A number of parties to the proceeding have requested a rehearing on the preemption decision by the CPUC. The agreement between the county and Cal Am is Cal Am's insurance against a possible reversal of the CPUC decision.

Q. If the state Agency Act is determinative, then why did an advisory letter from the State Water Resources Control Board to the CPUC[6] fail to consider it and instead indicated that the only hurdle involving water rights that Cal Am had to overcome was to show that its project would do no harm to the farmers or others who had the rights?

A. The advisory letter was solicited by the CPUC as an effort to obtain cover for Cal Am's project in the event that it should fail on the water-rights issue. The solicitation letter from the CPUC loaded its argument in favor of Cal Am's project by interpreting groundwater as meaning fresh water, and the study summarized in the advisory letter adopted that interpretation, contrary to the Agency Act. The 30-page study report in fact referred only once in a footnote on p. 17 to the Agency Act, and that reference incorrectly used the word "water" instead of "groundwater", presumably in an attempt to obscure the intent of the act. In short, rather than resolving the determinative water-rights issue, the advisory letter succeeded only in circumventing it.

Q. Do you have any further observations to make about this advisory letter?

A. Yes. In a decision to preempt the Monterey County desalination ordinance so that Cal Am could go forward with the approval process for its project, the CPUC claimed that seawater is just another form of source water comparable to water drawn from riparian wells so that, In drawing seawater from wells for desalination, Cal Am would just be doing business as usual.[7] The advisory letter interestingly made the opposite claim. Rather than simply filtering water, desalination is a process that produces it. That being the case, the exportation of desalinated water from the Salinas Valley would not be the exportation of existing groundwater but the exportation of something entirely new. Whichever

[6] Letter from Michael Buckman to Paul Clanon, December 21, 2012.
[7] D.12-10-030, October 31, 2012, pp.15-16.

interpretation is correct, if either, they cannot both be correct. Support for the Cal Am project lies on an anything-but-solid foundation.

IV. The CPUC has Subverted its Mission by Discouraging Competition among Water Supply Projects.

Q. You claim that the CPUC has subverted its mission by discouraging competition among water-supply projects? What do you mean by that?

A. A principal reason the CPUC exists is to protect the public from possible abuses by privately-owned public utilities that would otherwise be unregulated monopolies. The mission statement of the CPUC restricts its authority to apply solely to monopolies by requiring it to encourage competition wherever possible.[8] In addition to the Cal Am project, private interests have proposed two other projects designed to meet local water needs. The Monterey Peninsula Regional Water Authority has in fact commissioned a study to compare these two projects with Cal Am's, but the CPUC has encouraged neither of their proponents to apply alongside Cal Am for a CPUC certification of public convenience and necessity.

Q. The intent of both these alternative projects is to be owned and operated by a public agency in compliance with the county desalination ordinance, but the CPUC has jurisdiction only over private companies. Why then would you expect the CPUC to act otherwise?

A. Neither of these other two projects has as yet acquired a public partner, and so currently each of their proponents is a private entity seeking to provide water for conveyance to members of the public. As such, they are currently subject to CPUC authority. Knowing of their existence, the CPUC should not only invite them, it should require them, to apply for a certification of public convenience and necessity alongside Cal Am. Cal Am has no more local history in the water-supply business than the proponents of these other two projects do.

[8] According to its mission statement, the CPUC is to "regulate utility services, stimulate innovation, and promote competitive markets, where possible, in the communications, energy, transportation, and water industries."

Q. The administrative law judge assigned to this proceeding has indicated that time is too short for it to include other projects. The state cease-and-desist-order deadline is less than four years away. What do you have to say about that?

A. At the initial preconference hearing for this proceeding last June, I, as a representative of Water Plus, requested that in the interest of time the CPUC consider all currently proposed projects simultaneously in a "horse race" rather than sequentially.[9] If time were the true issue, that is the course that the proceeding should have taken from the beginning. Now, if Cal Am's project fails, as I am confident that it will, we are going to have to start all over, just as we have done following the failure of the Regional Desalination Project. As long as the CPUC has not certified any single project, it is not too late to include other projects in the proceeding.

Q. Cal Am is an experienced water purveyor with an existing investment in the community. What investment does either of these other two proponents have?

A. I cannot speak for both of them, but I can speak for one, who has to date invested some $34 million in his project. By contrast, Cal Am investors have risked not an iota of capital on their project. The CPUC has no excuse but to include the other two projects in the proceeding.

Q. How can you say that? Where do you think the money that Cal Am has spent on its project to date has come from?

A. That money is an internal company loan recorded in a memorandum account for recovery from ratepayers when the proceeding is over, regardless of whether the project goes forward.

Q. That is not automatically the case. The CPUC can decide not to approve the recovery. So Cal Am investors are also risking capital, is that not so?

A. Either on its own or via its two erstwhile public partners, Cal Am has spent about $40 million on the Regional Desalination Project, and, despite that project's

[9] Transcript of Preconference Hearing for A.12-04-019 on June 6, 2012, p. 45, l. 25 – p. 46, l. 15; p. 61, l. 1 – l. 14; p. 67, l. 12 – p. 68, l. 15.

failure, the CPUC has already approved the recovery of at least $32 million from ratepayers, while its approval of the remainder is pending.[10] So Cal Am has every reason to expect the CPUC to approve the recovery from ratepayers of all its expenses on the current project. Ratepayers, Water Plus included, have no reason to expect otherwise. If the CPUC does not include these other two projects in the current proceeding, all the capital their investors have risked will be lost. That does not constitute a level playing field. That does provide Cal Am an unfair monopolistic advantage in contravention of the CPUC mission to encourage competition.

Q. So what action are you proposing?

A. I am proposing that the CPUC invite the proponents of the other two projects to apply to it alongside Cal Am for a certification of public convenience and necessity. If either of these two decline, then the CPUC need not consider that project further. Otherwise, it should consider the projects of all applicants equally.

Q. How can a private party other than Cal Am apply to the CPUC to build, own, and operate a desalination plant in Monterey County when the county will enforce its ordinance preventing it from doing so while permitting Cal Am to circumvent the ordinance?

A. Rather than exempting Cal Am from the ordinance based on the merits of its project, the CPUC based its exemption of Cal Am solely on it as a private applicant.[11] Simply stated, the CPUC exempted the applicant, not the project. That being the case, the CPUC exemption should apply equally to other applicants, as well, regardless of the merits of their projects. Because the CPUC exemption takes precedence over the county ordinance, that ordinance cannot stand in the way of applications submitted to the CPUC by any private party, not solely Cal Am.

[10] Monterey County Herald, July 19, 2012, front page.

[11] D.12-10-030 does not refer to any specifics of the Cal Am proposal in A.12-04-019, and so it does not authorize the project; it merely authorizes the applicant as a private company to go forward with processing its project application in prospective contravention of Monterey County Ordinance 10.72.030(B).

Q. Different from the proponents of the other two projects, Cal Am does not intend to sell its project to a public agency. Doesn't that make a difference?

A. No. As along as the other two projects are privately owned, they are no different in that regard from Cal Am's. Intentions can change. The CPUC should require all private proponents of water-supply projects to submit applications to it and ignore only the ones that fail to do so. Speaking for Water Plus, that is my strong recommendation.

V. Any New Water Supply Project for the Monterey Peninsula Cannot Rely on the Use of Treated Sewer Water.

Q. The mayors' Monterey Peninsula Regional Water Authority, the Monterey Peninsula Water Management District, and Citizens for Public Water, among others, support the so-called three-legged stool, which includes processing sewer water for drinking along with aquifer storage and recovery and desalination. Why does Water Plus not support the sewer-water leg of this stool?

A. Treating sewer water to make it potable sounds like a good idea when first considered because it can contribute to the conservation of natural resources. On occasion, it may well be a good idea, but not everywhere and particularly not here on the Monterey Peninsula, for two reasons: cost and reliability.

Q. How can that be so? Elsewhere, reliability has not been a problem, and cost has been used as a reason to support the process.

A. Let me deal with reliability first. Locally, the pollution control agency would submit sewer water already treated for agricultural use to further treatment to make it potable. Farmers in the Salinas Valley and the Marina Coast Water District own the rights to the initially-treated water because they paid, and are continuing to pay, for the treatment facilities. Agriculture in the valley needs this water throughout the year except possibly for the winter months. Only then could water be available for further treatment and then only in wet years. The frequency of such years is likely to decrease with the progression of global

warming. In a dry winter, when farmers will need their treated water, they will not be able to give permission to the agency to treat it further for use elsewhere. So dependence on treated sewer water as part of the overall Monterey Peninsula water supply would make that supply extremely unreliable.

Q. What about cost?

A. The cost of treating sewer water to make it drinkable is especially high here in Monterey County. One reason is that, if available at all, the water for treatment would be available only during the four winter months. That means that the capacity of the treatment facility would have to be three times greater than normal for the yield of a specific amount of drinkable water each year. Whatever the reasons, however, the cost of treating sewer water is much greater than desalinating seawater locally. In fact, a study commissioned by the Monterey Peninsula Regional Water Authority showed that for Cal Am's project a combination of desalinated and treated sewer water costs $1,000 per acre-foot more here than the cost of desalinated water alone. [12]

Q. So, is Water Plus against any use of treated sewer water on the Monterey Peninsula?

A. No. Water Plus is not against the use of treated sewer water as a supplementary or emergency water supply. We are just against its use as part of a water supply that our community would depend on.

Q. Does that mean that Water Plus could support its use on the Monterey Peninsula?

A. No. Although we would not be against its use as a supplement, we could not support it either.

[12] Separation Processes, Inc. & Kris Helm Consulting: Evaluation of Seawater Desalination Projects: Final Report Update, January 2013, Table ES 1-2, p. ES-6. This table shows desalinated water would cost $1,000 less per acre-foot when obtained from Cal Am's large desalination plant versus its small one, which would require supplementation by treated sewer water to provide the total amount of potable water needed. The supplementary treated sewer water, according to pollution control agency head Keith Israel in the March 15, 2012, Monterey County Weekly, would cost about $1,000 more per acre-foot than desalinated water obtained from the large desalination plant proposed by either of the other two projects described in the SPI table.

Q. Why?

A. Many people have phobias, such as the fear of heights or public speaking. Similarly, many people have a fear of drinking treated sewer water. They find the very idea to be repulsive. Mixing treated sewer water in the only water supply available to them would be inhumane, regardless of how other people, including Water Plus, may feel about it.

Q. Do you have any other reason why Water Plus does not support the local use of treated sewer water?

A. Yes. Our local economy depends on tourism. Using treated sewer water could hardly contribute to our community's attractiveness as a tourist destination.

Q. In view of all these arguments against the use of treated sewer water, do you know of any reason other than conservation that some people may have to support its use locally?

A. Yes. People who oppose further growth on the Monterey Peninsula support the three-legged stool because it could provide a cap on desalination, which they fear, if unfettered, could open the floodgates to development.[13] Water is essential to life. Water Plus believes that Its supply is an end in itself and should not be used as a means to achieve other ends.

VI. A Large Desalination Plant Is Preferable to a Small One for the Monterey Peninsula.

Q. You seem to by saying that Water Plus favors a large desalination plant over a small one. Is that true?

A. Yes, at least with respect to cost. A large desalination plant may cost more than a small one to build, but the opposite is true for the water they produce. Each unit of water costs less, often much less, when produced by a large

[13] An example is the local chapter of the League of Woman Voters. Its president had a letter in The Carmel Pine Cone on February 8, 2013, taking just this position.

desalination plant than by a small one.[14] So, except for providing a bulwark against development, building a small desalination plant in a community in short supply of water like ours does not make sense. Why pay more for less?

Q. Are you aware of other reasons favoring a large over a small desalination plant locally?

A. Yes. Our community has thousands of lots of records that lack water, and a number of our cities need additional water to meet the requirements of their development plans, particularly for their downtowns. This need exists especially in Monterey, Seaside, and Pacific Grove, whose downtowns are dying. People who want to add a bathroom to their homes are not able to do so, and the scarcity of water is constantly increasing its cost on the Monterey Peninsula, where we are paying several thousand dollars per acre-foot for it when the national average is less than $900.[15] This is especially unfortunate because many local residents are retirees who live on a limited income and because our hotels, vital to our tourist industry, must be competitive in price with hotels elsewhere. This challenge to competitiveness extends to our local military institutions, which, like tourism, are a mainstay of our economy. The ever-escalating cost of water escalates the cost of everything eventually to the point where a budget-constrained Pentagon may have to move our local military institutions to communities where the cost of living is lower. For all these reasons, both the local hospitality industry and the Monterey Peninsula Chamber of Commerce have publicly supported a large over a small desalination plant.[16] Water Plus joins them in that support.

[14] This relationship between size and cost is due at least in part to economies of scale. The Division of Ratepayer Advocates presented a graph showing this relationship to support its request that the Regional Desalination Project cap the cost per acre-foot of product water to $2,200, shown on the graph as a high-end value for a 10,000 acre-foot desalination plant. The graph was based on empirical data.

[15] Cal Am's Monterey Peninsula water-supply revenue is now about $50 million annually. For 11,000 acre-feet of current annual usage, that amounts to more than $4,500 per acre-foot. In the nearby, publicly-owned Marina Coast Water District, it is about half that amount, according to its Comprehensive Annual Financial Report dated June 30, 2012. The current national average, as reported in Wikipedia, is $886 per acre-foot.

[16] In a Monterey County Herald commentary on December 1, 2012, Dale Ellis and Bob McKenzie, representing the Coalition of Peninsula Businesses (including the local hospitality industry), recommended a desalination plant having a capacity of nearly a 20,000 acre-feet per year, and in a November 26, 2012, advertisement in the same

VII. Open-ocean Intake Is Superior to Intake from Slant Wells Almost Generally and Particularly in Monterey County.

Q. Cal Am has proposed to use slant wells terminating under the ocean floor as a source of water for desalination. Hydrologists for and against this proposal have recently submitted reports refuting each other's positions. Are you sure you want to chime in on this dispute among experts?

A. Yes, but not as a hydrologist, which I am not. Both sides agree that the proposed wells will draw groundwater rather than surface water and that the Salinas Valley Groundwater Basin extends under the ocean. Their only significant disagreement seems to be whether at the well site an aquitard may exist above the 180-foot aquifer that could prevent the seepage of ocean water through the ocean floor down to the aquifer.[17] This is the aquifer from which Cal Am initially proposed that its slant wells would draw source water. Acknowledging a possible problem here, Cal Am has now modified its proposal so that withdrawing water from this aquifer would be its fallback choice. Cal Am's currently preferred choice for its groundwater source is the so-called Sand Dunes aquifer, which lies above the disputed aquitard.[18] In either case, Cal Am would be drawing source water from the Salinas Valley Groundwater Basin, an action specifically prohibited by the state Agency Act.

Q. That might justify your claim that the use of slant wells is a bad idea in Monterey County, but you also claim that it is almost generally a bad idea. How would you defend that claim?

A. Different from open-ocean intake, which is the local alternative, slant wells have no history of anything other than experimental use. Aside from a possibly

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newspaper the Monterey Peninsula Chamber of Commerce president recommended one having a capacity of 15,000 acre-feet per year.

[17] GEOSCIENCE: Technical Memorandum, February 6, 2013, a response solicited by the CPUC to Timothy J. Durbin: California-American Water Company – Comments on Proposal to Pump Groundwater from the Salinas Valley Groundwater Basin.

[18] Monterey County Weekly, November 15, 2012, "Cal Am Files Contingency Plans for Desal Roadblocks" by Kera Abraham.

less adverse impact on sea life than open-ocean intake, they have minimal justification. The very existence of a dispute among experts regarding their local viability indicates that geological conditions varying along the shoreline can compromise their usefulness. Not being an expert in this case, I would assign a 50% chance that each side is right. If I were a farmer, that is a chance that I would not like to take. As a ratepayer, that is certainly a chance that I would not like to take. Neither would Cal Am if its shareholder money were at risk. Certainly, investors facing a risk like that would be extremely reluctant to purchase bonds to support the project.

Q. The risk may be 50-50 or even worse, but if the CPUC certifies the project, investors may never know about that risk. What do you have to say about that?

A. That question goes to the difference between the world of law and the world of science, but, as you suggest, it is practical question, not just a philosophical one. Let me try to answer the philosophical question first. A joke among philosophers aptly describes this situation: ""Well yes, it works in practice, but will it work in theory?" The dispute among hydrologists is about the validity of different models of local geology. Models are theories having limited and specific applications. So, in this sense, acting in a legal world, the CPUC is seeking to find in favor of one theory as opposed to another. All the CPUC needs is a finding to move the project forward.

Q. And the practical question?

A. A finding is not a fact. The consequences of making an incorrect finding just to move the project forward can be devastating. Responsibility to both Cal Am customers and prospective project investors requires that the CPUC be risk-averse in making its findings.

Q. Do you have anything further to say on this issue?

A. Yes. A recent white paper I read by experts not involved in the local dispute over slant wells identified a number of problems with them that may not be

merely site-specific.[19] Examples: The accumulation of sedimentation that could clog the intake pipes may make the operation of slant wells costlier and less reliable than open-ocean intake. Further increasing cost and compromising reliability, suction of source water through the ocean floor could deplete its oxygen and intensify its particulate content to the point that aeration, filtration, and other expensive pre-processing such as temperature elevation would be necessary to prevent the destruction of the membranes involved in the reverse osmosis to remove the salt. Based on these and other problems, the paper concludes that, in general, open-ocean intake is superior to the use of slant wells as a source of water for desalination. Now I have a question. Shouldn't the recommendation of independent experts take precedence over a recommendation made by experts hired to favor either party to a dispute?

VIII. Financing Can Cost Ratepayers Hundreds of Millions of Dollars Less if the Project is Owned by a Public Agency rather than by Cal Am.

Q. Water Plus has been claiming for years that public ownership of a desalination plant could be significantly less costly than ownership by Cal Am. How specifically can you substantiate that claim?

A. All you have to do is Google a mortgage calculator to see that for yourself. Cal Am has for years obtained from ratepayers a return of investment on capital-improvement projects of between 8% and 9%. This return is determined by a formula involving about 6.5% interest charged to ratepayers on debt and about 10% profit on equity. By contrast, a public agency can borrow money now for less than 3.5% interest, with no profit add-on chargeable to ratepayers. These percentages are not the only differences between Cal Am and a public agency affecting the cost of capital to ratepayers. SPI, the mayors' consultant, estimated the capital cost of each of the projects at close to $200 million, but Cal Am's own estimate for its project is about twice that amount, the difference accountable as Cal Am shareholder equity (based on a $200 million debt and a 50-50 debt-to-

[19] WaterReuse Association: Overview of Desalination Plant Intake Alternatives: White Paper, June, 2011.

equity ratio).[20] Entering 8.25% with $400 million for Cal Am and 3.5% with $200 million for a public agency into the mortgage calculator for a 30-year loan yields total costs of approximately $1.08 billion for Cal Am and $323 million for a public agency. That is a savings of public over Cal Am ownership of about $757 million, well over a half-billion dollars. And that does not even include taxes and the cost of doing business with the CPUC, expenses that a public agency does not have.

Q. If that is the case, as it appears to be, then why have the local mayors and others supported the Cal Am project?

A. Obviously, money is not their sole or even their principal concern. Yet, the difference is so large that even they cannot ignore it. So both they and Cal Am have proffered a number of possible offsets that are, unfortunately, unlikely to work in practice.

Q. What are these possible offsets and why do you claim that they are unlikely to work in practice?

A. A February 12, 2013, commentary in the Monterey County Herald by two of the mayors listed these possible offsets: (a) a partial "contribution" (of about $100 million) to the project by a public agency, (b) an interest-free $99 million surcharge proposed by Cal Am, (c) at least partial financing via the state revolving fund under the federal Clean Water Act, and (d) decreased electricity costs.[21] These options are either likely to fail to materialize or if they did they would also be available to a public agency that could lower its costs by the same or even a greater amount.

[20] See Footnotes 2 and 12 for reference to this information. These estimates exclude Cal-Am only facilities such as the pipeline from the desalination site to Seaside. Since Cal Am filed its application on April 23, 2012, it has increased the capacity of its larger proposed desalination plant to be close to 10,000 acre-feet per year so that its estimated debt-plus-equity cost to ratepayers will now likely be well over $400 million. The ratio currently proposed by Cal Am for its project is 47-53, and so 50-50 is a conservative prediction of what this ratio will actually turn out to be.

[21] These four possible offsets represent an evolution of five originally proposed in an October 1, 2012, letter sent to Cal Am's president, Robert MacLean, by Monterey mayor Charles Della Sala and Monterey County supervisor David Potter. This letter also contains suggestions for a local governance structure to provide oversight on Cal Am's project. The word "contribution" is in quotes because it is not a true contribution, or grant, but a loan to be repaid with interest..

Q. Now why do you claim that the first offset might not work out?

A. In their commentary, the mayors did not specify any public agency they might have in mind, but since the water management district general manager was a principal author of their proposal the most likely candidate would be that district. This appears to be the behind-the-scenes deal worked out between the authority and the district. The problem is that Cal Am has no incentive to go along with it. The company had a public partner in the Marina Coast Water District and pulled out of the partnership in favor of the current project precisely because this project would offer its shareholders a much greater profit.[22] The mayors' hope apparently is that the CPUC will force Cal Am to accept their deal.

Q. Why wouldn't the CPUC do that?

A. The CPUC has no control over the water management district but is responsible for the safety and reliability of our local water supply. The district has no history of running a water-supply project on its own, and its possible involvement with Cal Am in a complex financial partnership would involve too many uncertainties for the CPUC to take the risk. For the same reason, financing the project would also be at risk.

Q. What about the surcharge?

A. Local ratepayers are extremely upset about even the idea of a surcharge, which, according to the mayors' consultant's data, could amount to almost half the capital cost of the project. Normally, in a capital-improvement project like desalination that requires a loan, the public would pay the interest on the loan and Cal Am would pay the principal out of the profits its shareholders make on the project. A surcharge is entirely different. The ratepayers would pay all the capital costs, and Cal Am shareholders would pay nothing and yet have complete ownership.[23] In ordinary life, that would be called robbery. Aside from getting an

[22] Reinforcing this claim is the CPUC filing by Cal Am on October 26, 2012, opposing public ownership of a desalination plant, reported in The Monterey County Herald, November 11, 2012, front page.

[23] Accountants may have a different view of this transaction if it takes the form of a so-called Mirror CWIP (Construction Work in Process): During construction, ratepayers pay costs treated as debt matched by equity earning shareholder profits used to pay ratepayers back in the form of relatively reduced bills following

early start on rate increases to avoid skyrocketing-rate shock later on, which payback on a partial-project loan could also do, the only excuse for the surcharge is that it would save ratepayers the cost of interest and some profits, a cost that could be substantial. That is the excuse. The reason is something else: Cal Am is unable to secure open-market financing on the beginning of a project that has such an uncertain outcome. The surcharge may be the only money available for the project to get going. Why else would Cal Am choose to forgo a large portion of its possible profit on the project? At the same time, on the other side, why should ratepayers take the risk? They already have lost between $30 million and $40 million on Cal Am's failed regional project.[24] The CPUC must think long and hard before it approves the surcharge.

Q. What about money from the state revolving fund?

A. That is a pie in the sky if ever there was one. Only public agencies or non-profit organizations are eligible for legislatively-defined low-interest funding from this source, and non-profits only when their projects are designed to eliminate at least some non-point-source pollution.[25] The funding is also quite limited and usually distributed in relatively small amounts. Since the desalination component of Cal Am's project is not designed to eliminate non-point-source pollution, the applicant for funding must be a public agency. Again, the mayors in their commentary are unclear about the identity of this agency, and again a good bet is the water management district, which has been working hand-and-glove with the mayors. That being the case, what the mayors likely have in mind is funding for a partial public "contribution" to the project, their first cost-reduction proposal. To be effective, that might require public ownership, which the mayors have failed to specify, Cal Am would resist, and the CPUC likely disapprove.[26]

Q. And reduced electrical rates?

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construction. Whatever the accounting treatment, however, ratepayers would bear all the risks and make all actual payments while Cal Am owns the paid-for project components regardless of whether the entire project reaches completion. This is of especial concern to Water Plus members, who believe the project is going to fail.

[24] See Footnote 10.

[25] This fund is administered by the state Water Resources Control Board under the federal Clean Water Act.

[26] Without public ownership, Cal Am may have to consider the loan to be *its* debt that, matched by equity, would render the public "contribution" ineffectual in reducing ratepayer bills.

A. Like a partial public "contribution", a surcharge, and revolving-fund financing, this is a cost-saving measure available at least as much to a public agency as to Cal Am.[27] This suggestion, like the previous one, amounts to no more than a public-relations ploy.

Q. Do you have anything else to say about the financing proposals of the mayors?

A. Yes. The mayors base their entire financing argument on the capital cost of Cal Am's project estimated by SPI, the consulting firm they engaged to compare project costs. That estimate, around $200 million, is about half of Cal Am's own estimate, which includes shareholder equity as well as debt.[28] To determine the total cost to ratepayers of Cal Am's project, SPI correctly used a percentage charged to ratepayers of between 8% and 9% but incorrectly applied it to its $200 million rather than Cal Am's $400 million estimate (approximate figures).[29] The mayors fail to take this obvious discrepancy into account in their project comparisons. This failure provides additional impetus to the suspicion that the principal concern of the mayors is something other than cost to ratepayers and that their cost-offset proposals amount to little, if anything, more than a smoke-screen obscuring their principal concern.

Q. What do you believe this principal concern might be?

A. The mayors are politicians. The concern that appears most strongly to motivate them is re-election. They have not even obtained the approval of their city councils for their cost-offset proposals, to say nothing of their endorsement of Cal Am's project. The Monterey City Council recently voted unanimously in favor of public ownership,[30] and yet the mayor of Monterey voted on the authority board to endorse Cal Am, a private owner. The Pacific Grove mayor did likewise though his city council has voted to work on the acquisition of one of the

[27] Both of the two alternative projects, in fact, involve the use of solar energy to help offset the cost of electricity.
[28] See Footnote 20.
[29] See Footnote 12 for reference to the SPI report.
[30] The Monterey City Council adopted that resolution at its January 2, 2013, meeting as a contingency in the event that Cal Am's currently proposed project fails. The resolution did not give the mayor permission to vote for the Cal Am project on the Monterey Peninsula Regional Water Authority board.

two alternative projects as a public owner.[31] The mayors' support of Cal Am hardly has any demonstrable support in the public other than among politically active no-growth groups like the League of Women Voters.[32] As laudable as the goals of these groups might be, they do not include the best interests of ratepayers, particularly with respect to the size of their monthly water bills.

IX. The Pending Deal between Cal Am and the Monterey Peninsula Mayors Costing Ratepayers Hundreds of Millions of Dollars Stands on a Shaky Legal Foundation.

Q. Why would the Monterey Peninsula mayors make a deal with Cal Am that could cost local ratepayers hundreds of millions of dollars? Surely the mayors must realize that their making a deal like that could eventually have an adverse political effect on them.

A. The cease-and-desist-order deadline is just over the horizon, December 31, 2016,[33] and local political leaders are getting jittery about it. In contrast to the local proponents of the alternative projects, the mayors perceive Cal Am as part of a national megalith having the strong financial assets needed to go forward with its project. The mayors fear taking a risk on a local project. That fear dominates any concern they may have over costs.

Q. What does that fear have to do with a deal between the mayors and Cal Am?

A. That fear is compounded by another one that strengthens the cost-benefit mindset of the mayors favoring the Cal Am project despite its cost to ratepayers.

Q. What is this other fear?

A. Five of the six mayors comprising the Monterey Peninsula Regional Water Authority or their representatives also sit on the Monterey Regional Water Pollution Control Agency board. These five have voted on the agency board to

[31] The Pacific Grove City Council took that action at its meeting on April 18, 2012.
[32] See Footnote 13.
[33] California Water Resources Control Board Order WR 2009-0060, based on WR 95-10

spend sewer ratepayer money on plans for converting sewer to drinking water for Cal Am water ratepayers, a possible misappropriation of funds in violation of Proposition 218. In 2008, the agency's attorney admonished the agency to terminate that expenditure of funds, then amounting to $700,000.[34] Now, despite that admonition, the expenditure has risen to over $2 million.[35] The mayors' support of the deal with Cal Am depends on the acceptance by Cal Am of the governance structure proposed by the mayors that gives them the authority to decide whether to include the conversion of sewer to drinking water in Cal Am's project, an inclusion that would allow the agency to recover the misappropriated funds.[36] In this exploitation of their authority in one agency to favor another on whose board they also sit, the mayors may be in violation of a Section 1099 conflict of interest. That is in addition to their possible Proposition 218 violation.

Q. What is Cal Am's position on this deal?

A. The deal that Cal Am made with Monterey County, which involves the forgiveness of county debt to Cal Am in exchange for the exemption of Cal Am from the county's desalination ordinance, also prohibits the county from supporting public ownership in opposition to Cal Am.[37] The deal between Cal Am and the Monterey Peninsula Regional Water Authority makes the same prohibition.[38] These deals are good for Cal Am, Monterey County, and the mayors' water authority, as well as no-growth special-interest groups. Unfortunately, they are not good for Monterey Peninsula ratepayers who, as indicated earlier, may lose hundreds of millions of dollars because of them.

Q. Is that the end of your testimony?

[34] Letter from attorney Rob Wellington to Keith Israel, general manager of the pollution control agency, dated January 22, 2008.

[35] This information comes from an agency table titled "Urban Reclamation Projects: Summery of Total Costs" and dated March 31, 2011.

[36] Two of the three voting members of the proposed governance committee that would have this explicit authority are members of the mayors' regional water authority. The third is a member of the water management district board, which also seeks the inclusion of treated sewer water in Cal Am's project.

[37] See Footnotes 3 and 4.

[38] These prohibitions need not be explicit because the deals would make no sense without them.

A. Yes, with just one additional observation. On February 11, 2013, the Monterey Regional Water Pollution Control Agency board voted to use up to $750,000 more of sewer ratepayer funds to support a study of the conversion to drinking water of not only sewer water but also Salinas agricultural and urban run-off water for use by water ratepayers on the Monterey Peninsula.[39] Although the inclusion of run-off water enabled members of the board opposed to the use of sewer water to go along with the vote, the expenditure still may represent a violation of Proposition 218. Conflict of interest may sully the current Cal Am project at least as much as it did the previous one, toward the same ultimate fate.[40]

February 22, 2013

Revision: March 21, 2012

Respectfully submitted,

WATER PLUS

By:

President, Water Plus

[39] The addition of run-off to sewer water literally poisons the well because the resulting brew will contain contaminants like DDT that cannot be removed to the extent required to make the treated water potable.

[40] David Potter is another example of conflict of interest involved in the current project. The mayors' proposed governance committee consists of a single voting representative from each of three public agencies. Mr. Potter sits on the boards of all three of these agencies and has been appointed to be the representative of one of them on the committee.

FARM BUREAU MONTEREY

May 3, 2013

Mr. Paul Murphey
Division of Water Rights,
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812

VIA: Email to Wr_Hearing.Unit@waterboards.ca.gov

RE: Comments on draft review of California American Water Company's Peninsula Water Supply Project

Dear Mr. Murphey:

Monterey County Farm Bureau represents family farmers and ranchers in the interest of protecting and promoting agriculture throughout our County. We strive to improve the ability of those engaged in production agriculture to provide a reliable supply of food and fiber through responsible stewardship of our local resources.

We appreciate the opportunity to make comments on the Draft Review document ('Draft Review') of the proposed water supply project for the Monterey Peninsula ('MPWSP') by California American Water Company ('Applicant').

Since the identification of seawater intrusion into the Salinas Valley groundwater basin, farmers and ranchers have worked with each other to develop water projects that have led to the slowing of further degradation of this basin. Specific projects (the two reservoirs at the south end of the basin, the Castroville Seawater Intrusion Project, the Salinas Valley Water Project, and the Salinas Valley Reclamation Project) have been funded by the Salinas Valley landowners through self-assessments; present day value for the costs of these projects is around $352 million. In addition, Monterey County enacted an ordinance in 1992 prohibiting groundwater pumping the 180' aquifer in the coastal area between Salinas and Castroville. Together, these measures are working to slow, and hopefully halt, the advancement of seawater into the groundwater basin.

Jeopardy for the Salinas Valley groundwater basin comes from the proposed MPWSP due to the location of the source water intakes, which are currently placed directly

T: (831) 751-3100 • F: (831) 751-3167 • 931 Blanco Circle, Salinas, CA 93901 • P.O. Box 1449, Salinas, CA 93902-1449
www.montereycfb.com

over the western portion of the basin. As noted in your Draft Review, circumstances of the exact impacts and harm to the basin are not fully understood or adequately documented.

Further studies should be undertaken to determine the full extent of the shallow or sand dunes aquifer for water quality and quantity. These studies should include a determination of the thickness of the Salinas Valley groundwater basin aquitard in the proposed source water project area. Specific hydro geologic investigations are required to make these determinations and include geophysical studies of the immediate area surrounding the source water intakes, as well as boreholes that sufficiently characterize the subsurface formations.

The mechanics of salt water intrusion need to be fully understood before proceeding forward with any project that will remove substantial amounts of source water from the sand dunes aquifer. This requires the development of groundwater models that will assess the long-term impacts to the groundwater basin and conductivity of any waters between the water layers.

We fully support the assessment of hydrologist Tim Durbin and his suggestions for additional hydro geological studies beyond the installation of a source water test well, as proposed by the Applicant for this project. Timing is critical to make these assessments prior to any development of reporting required under the CEQA process, mainly the Environmental Impact Report. An accurate decision cannot be made about impacts and harm to the Salinas Valley groundwater basin without results of these additional tests; to issue an environmental assessment of this project without fully testing these resources is not acceptable. We encourage the State Water Resources Board to engage the Public Utilities Commission to allow a provision in their process that will ensure that results of these additional studies can be included in the fully realized Environmental Impact Report that will ultimately be considered for approval.

The Draft Review does not include any legal analysis of the prohibition against exporting water from the Salinas Valley groundwater basin that is defined by law in the Monterey County Water Resources Agency Act of 1947. This should be considered as one of the major hurdles that this project must overcome in order to adequately obtain source water for the Applicant's desalination plant. We interpret this to include any brackish water incidentally included in the source water extracted, as that is not true seawater by content. Specific water rights held within this Agency Act must be paramount when considering all exportation issues.

An alternative site north of the Salinas River, along Potrero Road, is noted for possible source water intake. This location is also over the Salinas Valley groundwater basin and would have the same constraints, study requirements, and legal issues with

FARM BUREAU MONTEREY

exportation of water as the primary site. If this is indeed a serious alternative site, we would suggest that these same studies and analysis be conducted in parallel with the primary site, to provide consistency and economies of scale. We believe that the best possible uses of scientific information to guide these approvals are required for all contingencies.

Monterey County Farm Bureau asserts that not enough hydro geological information is known about how the Salinas Valley groundwater basin will respond to desalination source water intakes as presently proposed; indeed, all causation of possible harm and possible degradation must be investigated prior to approving the MPWSP in its present iteration.

It is of greater concern that the prior constructed projects funded by farming operations in the Salinas Valley could be at risk if further harm or degradation does occur due to unintended consequences of the MPWSP.

Your consideration of these concerns is appreciated.

Sincerely,

Norman C. Groot
Executive Director

Salinas Valley Water Coalition
P.O. Drawer 2670 • Greenfield, CA 93927
(831) 674-3783 • FAX (831) 674-3835

Transmitted via Email

Mr. Paul Murphey
Division of Water Rights
State Water Resources Control Board
P. O. Box 2000
Sacramento, Ca 95812-2000

May 3, 2013

Re: Comments on MPWSP Draft Report (Draft Report)

Dear Mr. Murphey;

Salinas Valley Water Coalition (SVWC) has operated 20 years to specifically address our local water issues. SVWC and its members have actively supported the development of water projects within the Salinas Valley. Two reservoirs, the Castroville Seawater Intrusion Project, the Salinas Valley Reclamation Project and the Salinas Valley Water Project (SVWP) have all been approved and funded (over $352,000,000.00) by the Salinas Valley landowners and ratepayers, in an effort to sustain and manage our basin's water resources and to address its overdraft problem and resultant seawater intrusion problem.

We have worked with our neighbors and other organizations to resolve our differences so these projects could be successfully financed and implemented. We have made significant progress on our basin's water problems, but we are not finished – we still have an overdrafted basin and seawater intrusion continues to advance into the Salinas Valley Groundwater Basin (SVGB). The overdraft is stable; additional intrusion is substantially reduced. However, the Monterey Peninsula Water Supply Project (MPWSP) as proposed threatens that stability and the security of these water resources and water rights. The northern part of our SVGB still has significant water resource problems and these needs must be addressed and not further exacerbated.

The Salinas Valley Groundwater Basin is an overdrafted basin in which coastal farming enterprises are already threatened by saltwater intrusion. There is no "surplus" of groundwater available for appropriation by Cal-Am for the MPWSP, and pumping by Cal-Am from the 180-foot aquifer for its proposed project would harm the overlying water users with superior claims. It would export water from the Salinas Valley Groundwater Basin for use elsewhere, in contravention of both California groundwater law and Monterey County Water Resources Legislative Act (California Water Code Chapter 52, Section 21).

We appreciate the opportunity to comment on the SWRCB's Draft Report on the MPWSP, and we appreciate your review of the issues and recognition of the potential harm this project could have on the SVGB.

Mission Statement: The water resources of the Salinas River Basin should be managed properly in a manner that promotes fairness and equity to all landowners within the basin. The management of these resources should have a scientific basis, comply with all laws and regulations, and promote the accountability of the governing agencies.

Technical Comments:

A. We agree with you that "additional information is needed to accurately determine MPWSP impacts on current and future Basin conditions regardless of whether the extraction occurs from pumped or gravity wells."[1]

We also agree with you in that specific information is needed on the depth of the wells and aquifer conditions; studies are needed to determine the extent of the Dune Sand Aquifer, the water quality and quantity of the Dune Sand Aquifer, the extent and thickness of the SVA and the extent of the 180-foot aquifer, and the effects/impacts of the proposed MPWSP on the SVGB. The direct testimony of Mr. Timothy Durbin on behalf of the SVWC to the Public Utilities Commission[2] said that the uncertainty surrounding the MPWSP must be reduced by conducting a thorough hydrologic investigation. He further stated that such an investigation would consist of five parts as follows:

1. Additional site-specific work is needed to define the thickness and extent of the 180-foot aquifer, overlying aquitard, and dune deposits. Especially important are identifying the onshore and offshore extent, thickness, and continuity of the aquitard overlying the 180-foot aquifer, and defining the hydraulic connections among the 180-foot aquifer, overlying aquitard, and dune deposits. The hydrogeologic investigation will require the compilation and analysis of existing hydrogeologic information, the construction of new boreholes, and perhaps conducting geophysical surveys. The number of boreholes must be sufficient to construct at least three hydrogeologic cross section perpendicular to the Monterey Bay shore: through the project site, immediately north of the site, and immediately south of the site. At least nine boreholes into the 180-foot aquifer would be required. Whether the proposed pumping from the 180-foot aquifer or the dune deposits will have adverse impacts will depend largely on the details of the actual hydrogeologic setting.

2. An understanding of the seawater-intrusion mechanisms must be developed. Historical seawater intrusion has occurred by some combination of the mobilization of naturally occurring seawater within the groundwater system, pumping-induced vertical leakage from Monterey Bay into the groundwater system, extrusion of naturally occurring seawater within the aquitards deposited as lagoonal sediments, and other mechanisms. The collection and analysis of geochemical and other information will be required to identify details of the seawater-intrusion processes. Whether the proposed pumping from the 180-foot aquifer or the dune deposits will have adverse impacts may depend significantly on the actual processes that will be activated by the proposed pumping.

3. Large-scale aquifer tests will be needed to supplement the hydrogeologic and seawater-intrusion investigations. As long as wells in both the dune deposits and 180-foot aquifer are considered as primary or contingency water supplies, separate tests must be conducted with pumping from the 180-foot aquifer and the dune deposits. The tests need to include monitoring wells within the 180-foot aquifer, the overlying aquitard, and the dune deposits. The pumping rates and test durations must be sufficient to identify processes that will be activated by the full implementation of the proposed water-supply

[1] SWRCB Draft Review of MPWSP, dated April 3, 2013, pg 42
[2] PUC Evidentiary Hearings, SVWC Exhibit SV-3: Technical Memorandum No. 2 by Timothy Durbin, February 21, 2013.

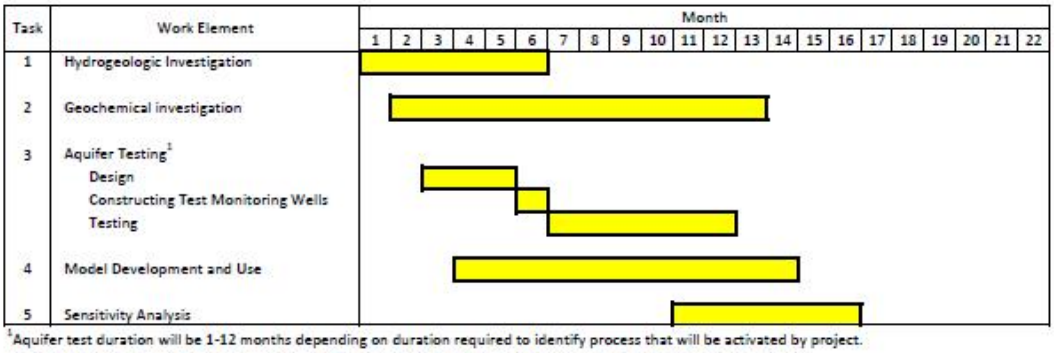
pumping. This could involve pumping for a year or more. However, a shorter duration might be sufficient for pumping from the dune deposits. The tests should be designed with respect to pumping rates, observation-well placement, and test duration using a groundwater model to predict the expected response of the groundwater system during the test and to evaluate the identifiability of critical hydraulic characteristics of the groundwater system.

4. A local groundwater model must be developed that represents the essential elements of the groundwater system onshore and offshore along Monterey Bay. The model must simulate both groundwater flow and solute transport. The model must represent the hydrologic setting, including the thickness and extents of the dune deposits, 180-foot aquifer, 400-foot aquifer, and deep aquifer, and the intervening aquitards. The model must represent the hydraulic characteristics of the groundwater system, and it must represent the seawater-intrusion process active within the groundwater system. The development of an adequate model may require simulating the effects of water density on the hydrodynamics of the groundwater system. The boundary and initial conditions for the local model should be derived from SVIGSM. However, the simulation run on the SVIGSM must represent a realistic representation of baseline conditions. The appropriate baseline condition is for the continued operation of the CSIP project without additional acreage. An expansion of CSIP is not in place or envisioned at this time, and it is not an appropriate or realistic depiction of baseline conditions for analyzing the potential impacts of the CalAm proposal. The proposed CalAm pumping must be simulated for a finite period, and an extended post-project period must be simulated.

5. The modeling results for both the primary and contingency proposal must be subjected to a thorough sensitivity analysis. The modeling results will unavoidably always contain uncertainty, even though the objective of the modeling exercise and supporting investigations described above will be to minimize the uncertainty. The sensitivity analysis will quantify how the modeling results might change with different assumptions about the hydrogeologic setting, seawater intrusion processes, and the hydraulic characterization of groundwater system.

We believe your recommendation in the Draft Report is consistent with these proposed five steps. During his cross-examination, Mr. Durbin also discussed a proposed 'work plan' and schedule for completing the investigations, as shown below:

Study Schedule for Work Described in Durbin Exhibit SV-3



[1]Aquifer test duration will be 1-12 months depending on duration required to identify process that will be activated by project. Schedule shows a 6-month testing period. If a different period is required, the schedule would be adjusted accordingly.

Mission Statement: The water resources of the Salinas River Basin should be managed properly in a manner that promotes fairness and equity to all landowners within the basin. The management of these resources should have a scientific basis, comply with all laws and regulations, and promote the accountability of the governing agencies.

These studies must be completed to provide a thorough analysis of the potential impacts to the SVGB, its landowners and ratepayers. These studies must be completed regardless of where in the SVGB the proposed wells will be located and whether the extraction will be from pumped or gravity wells. This issue is a 'fatal flaw' for the MPWSP and must be identified as quickly and efficiently as possible.

Cal-Am has proposed some alternatives, such as the Potrero Road site, should their proposed location at the Cemex site not work. The Potrero Road site is still within the SVGB and therefore, the same level and extent of hydrologelogic investigation discussed above must be completed in order to show the level of potential impact to the SVGB.

B. Legal Comments:

We support your legal conclusion that "the burden is on Cal-Am to show no injury to other users."[3] However, we believe the discussion pertaining to your legal conclusions fails to adequately consider two key legislative enactments specific to the Salinas Valley Groundwater Basin. These must be considered when determining any impacts to current and future Basin conditions and users. In order for Cal-Am to prove no injury to current and future users, these enactments must be included in that evaluation:

1. MCWRA Agency Act, Water Code Chapter 52, Section 21.

> "Sec. 21. Legislative findings; Salinas River groundwater basin extraction and recharge. The Legislature finds and determines that the Agency is developing a project which will establish a substantial balance between extraction and recharge within the Salinas River Groundwater Basin. For the purpose of preserving that balance, no groundwater from that basin may be exported for any use outside the basin, except that use of water from the basin on any part of Fort Ord shall not be deemed such an export. If any export of water from the basin is attempted, the Agency may obtain from the superior court, and the court shall grant, injunctive relief prohibiting that exportation of groundwater."

This legislation was established to give Monterey County and particularly the Salinas Valley tools and resources to address water resource issues; most particularly the chronic problem of salt water intrusion in the Salinas Valley Groundwater Basin that was and continues to be a decades-long issue of major local, regional and statewide concern. This legislation specifically prohibits the export of ANY groundwater from the Salinas Valley. This legislative act and expression of protection for the SVGB underscores the need that any proposed action/project must be consistent with protection of the Salinas Valley Groundwater Basin – AND must show that there is no exportation of groundwater from the SVGB.

2. Monterey County Water Resources Agency Ordinance No. 3709[4].

This Ordinance, which is attached for your convenient reference, was adopted by MCWRA on September 14, 1993. The ordinance ***prohibits the extraction of groundwater*** from groundwater extraction facilities that have perforations between zero feet mean sea level and -250 feet and are located within the territory between the City of Salinas and Castroville. It also prohibits the drilling of ***any new wells*** with perforations between zero feet mean sea level and -250 feet in the portion of the pressure Area north of Harris Road to the Pacific Ocean.

[3] SWRCB Draft Review of MPWSP, dated April 3, 2013, pg ii
[4] Attachment #4

This Ordinance remains in place today and is known as the ordinance that prohibits pumping in the ***180 foot aquifer***. This is an important piece of information for the SWRCB's record and for the public to understand, as it shows that no well in the northern part of the SVGB can legally pump water from the 180 foot aquifer, and demonstrates the existing public policy of protecting Salinas Valley's 180 foot aquifer. And yet, this is potentially what Cal-Am is proposing to do – something that is prohibited to legal overlying landowners.

The ordinance includes the attached map delineating the boundary of the territories subject to the prohibition. It should be noted that the Ordinance was adopted in 1993, three years prior to the annexation of certain lands that have subsequently been recognized as part of the SVGB and are now included as such as part of Zone 2C.

Zone 2C was defined based on geological conditions and hydrologic factors, which defined and limited the benefits derived from the reservoirs and the proposed changes to the operations, storage, and release of water from the reservoirs. As the Map[5] shows, Zone 2C is essentially the Salinas Valley Groundwater Basin (SVGB) extending from the most southern Monterey County border up to the Monterey Bay. It also includes all of the former Ft. Ord area and up to the Elkhorn Slough in Moss Landing.

This area is critical to any hydrological analysis and consideration of the potential impacts to the SVGB, and proof of no injury to water users within the Basin. Cal-Am's proposed slant well sites are located just adjacent to the southern and northern coastal boundary – just on the 'other side' of the line. Their proposed well sites may not technically be subject to this Ordinance, but they remain within the SVGB and Zone 2C, and have the potential to affect them.

As your Draft Report notes, Basin conditions may change in the future so that the seawater intrusion front moves seaward. If this occurs the MPWSP may then be extracting a higher proportion of freshwater from its wells. Any legal or technical analysis must also consider this potential future impact to the SVGB and its water users, including impacts to landowners' ability to utilize their overlying groundwater rights.

The Salinas Valley Groundwater Basin is an overdrafted basin in which coastal farming enterprises are already threatened by saltwater intrusion. There is no "surplus" of groundwater available for appropriation by Cal-Am, and pumping by Cal-Am from the 180-foot aquifer for its proposed project would harm the overlying water users with superior claims. It would export water from the Salinas Valley Groundwater Basin for use elsewhere, in contravention of both California groundwater law and Monterey County Water Resources Legislative Act (California Water Code Chapter 52, Section 21).

SVWC wants the Peninsula to be successful in securing its water needs. But those needs cannot be met at the expense of degradation to the Salinas Valley Groundwater Basin. Those who steward the SVGB--water right holders, users and ratepayers—will diligently work to assure that the basin's resources are conserved. The communities and ratepayers of the Salinas Valley have spent over $352,000,000.00 to build two reservoirs as well as the

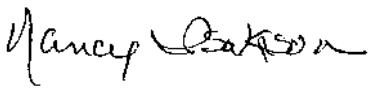
[5] Attachment #5 Map as shown in Engineers Report To Support an Assessment for The Salinas Valley Water Project of the Monterey County Water Resources Agency, RMC, January 2003

Castroville Seawater Intrusion Project, the Salinas Valley Reclamation Project and the Salinas Valley Water Project to solve the basin's water problems. Stakeholders have worked as neighbors to resolve their differences so these projects could be successfully financed and implemented.

Cal-Am's proposed project for the Monterey Peninsula puts a 'straw' into the Salinas Valley Basin and potentially in the 180-foot aquifer, which is the aquifer most vulnerable to seawater intrusion. They should not be allowed to put the stability and security of these water resources and water rights at risk. We ask the State Water Resources Control Board to acknowledge the validity of our concerns and to support our request that Cal-Am move its pumping out of the Salinas Valley Groundwater Basin.

We thank you for your consideration of our concerns.

Sincerely,



President, Salinas Valley Water Coalition

W/ Attachments

Mission Statement: The water resources of the Salinas River Basin should be managed properly in a manner that promotes fairness and equity to all landowners within the basin. The management of these resources should have a scientific basis, comply with all laws and regulations, and promote the accountability of the governing agencies.

Attachment #4

Monterey County
Water Resources Agency

Ordinance No. 3709

**AN ORDINANCE OF
THE MONTEREY COUNTY WATER RESOURCES AGENCY
PROHIBITING GROUNDWATER EXTRACTIONS AND
THE DRILLING OF NEW GROUNDWATER EXTRACTION FACILITIES
IN CERTAIN PORTIONS OF THE PRESSURE 180 FOOT AQUIFER
AFTER JANUARY 1, 1995**

County Counsel Summary

After January 1, 1995, this ordinance prohibits the extraction of groundwater from groundwater extraction facilities that have perforations between zero feet mean sea level and -250 feet and are located within the territory between the City of Salinas and Castroville, bounded by Highway 183 and the dividing line between the Pressure Area and the East Side Area. After January 1, 1995, it also prohibits the drilling of new wells with perforations between zero feet mean sea level and -250 feet in the portion of the Pressure Area north of Harris Road to the Pacific Ocean. It provides a variance procedure in case of hardship and penalties for violations.

The Board of Supervisors of the Monterey County Water Resources Agency ordains as follows:

SECTION 1. The following provisions are hereby enacted:

PART I -- INTRODUCTION

1.01.00 AUTHORITY

Under the Monterey County Water Resources Agency Act (Stats. 1990, Chap. 1159), the Agency has jurisdiction over matters pertaining to water within the entire area of the County of Monterey, including both incorporated and unincorporated areas. Under the Act, the Agency is authorized to conserve water in any manner, to prevent the waste or diminution of the water supply within the territory of the Agency, to conserve water for the present and future use within the territory of the Agency, and to prevent groundwater extractions which are determined to be harmful to the groundwater basin. The Agency may further adopt, by ordinance, reasonable procedures, rules, and regulations to

implement the Act, and may specify in any ordinance that a violation of the ordinance is an infraction. The Board further has power to perform all other acts necessary or proper to accomplish the purposes of the Act.

1.01.01 FINDINGS

A. Groundwater supplies in the Salinas Valley basin are being diminished in both quantity and quality. This inability to maintain a constant, usable water supply is due to historical overdraft, increases in demand, lack of new water supplies, and contamination of the existing supply.

B. Increases in demand have come from all sectors of the Salinas Valley -- agricultural, residential, industrial, commercial, and others. These increases in demand, coupled with the recent six year drought, have exacerbated water quality impacts and significantly accelerated overdraft.

C. Even without drought, overdraft of the groundwater basin is a constant problem; it depletes the existing water supply and contributes to the intrusion of seawater into the basin along the coast.

D. The location of the seawater intrusion front poses an imminent threat to the municipal water supply for the City of Salinas and to farming operations in the lower Salinas Valley. Restrictions on groundwater pumping are necessary in order to reduce the rate of seawater intrusion and allow recharge to raise groundwater levels. Seawater intrusion is most extensive in the Pressure 180 Foot Aquifer and threatens to contaminate lower aquifers which supply drinking water to thousands of Salinas Valley residents. Because of the extent of seawater intrusion in and near these areas, further extraction of groundwater from the water-bearing strata between zero feet mean sea level and -250 feet, within the territory defined in Section 1.01.03.D of this ordinance, would be harmful to the groundwater basin.

1.01.02 PURPOSE

It is the purpose of this ordinance to prohibit groundwater extractions from extraction facilities located in the northern Salinas Valley with perforations between zero feet mean sea level and -250 feet as of January 1, 1995, so as to reduce the rate of seawater intrusion and allow recharge to raise groundwater levels.

1.01.03 DEFINITIONS

A. AGENCY shall mean the Monterey County Water Resources Agency.

B. GROUNDWATER EXTRACTION FACILITY ("Facility") shall mean a groundwater well or facility for the extraction of groundwater which employs a motor-driven pump for the extraction of groundwater and which has a discharge pipe with an inside diameter equal to or greater than 3 inches.

C. PERSON shall mean an individual; a sole proprietorship, corporation, partnership, association, trust, or any other form of business or non-profit entity; or a city, county, state, the United States, or any other federal, state, local or foreign government entity.

D. TERRITORY A shall mean that portion of the northern Salinas Valley bounded by Highway 183 (beginning at Blackie Road) to Davis Road to Laurel Drive to Highway 101 to the Pressure-East Side boundary to Blackie Road back to Highway 183, as more particularly described in Attachment A. The boundary between the Pressure and East Side Areas is described on a map on file with the Clerk of the Board of Supervisors and in the office of the Monterey County Water Resources Agency.

E. TERRITORY B shall mean that portion of the northern Salinas Valley bounded by Highway 183 (beginning at Blackie Road) to Davis Road to Laurel Drive to Sanborn Road to Highway 101 to Harris Road to Zone 2A boundary to Potrero Road to Highway 1 to Highway 183 to Blackie Road, as more particularly described in Attachment B.

F. WATER REPORTING YEAR shall be from November 1 to October 31 of the following year.

G. WATER SUPPLIER shall mean a person who owns or operates a groundwater extraction facility.

H. WATER USER shall mean a person who receives water from a groundwater extraction facility for consumptive use.

PART II -- PROVISIONS

1.01.10 GROUNDWATER EXTRACTIONS PROHIBITED IN TERRITORY A

After January 1, 1995, no person may cause, suffer, or permit the extraction of groundwater from any groundwater extraction facility located in territory A, as defined in Section 1.01.03.D, with perforations between zero feet mean sea level and -250 feet.

1.01.11 NEW GROUNDWATER EXTRACTION FACILITIES PROHIBITED IN TERRITORY B

After January 1, 1995, no person may construct within territory B, as defined in Section 1.01.03.E, any groundwater extraction facility with perforations located between zero feet mean sea level and -250 feet.

1.01.12 REPORTING REQUIREMENTS IN TERRITORY A

Under Agency Ordinance No. 3663, every water supplier must submit to the Agency an annual groundwater extraction report, following the close of each water reporting year during any part of which the water supplier maintained an operational groundwater extraction facility. The annual report for the 1994-95 water reporting year submitted by each water supplier extracting water from territory A, regardless of the depth from which the water is extracted, shall show extractions for that part of the 1994-95 water reporting year prior to January 1; for that part of the 1994-95 water reporting year after January 1, the report shall accurately reflect no groundwater extractions from between zero feet mean sea level and -250 feet in territory A, as defined in Section 1.01.03.D.

1.01.15 VARIANCES

A. Any person may, at any time, apply in writing for a variance from the strict application of this ordinance. The application for the variance shall be filed with the Agency. The General Manager may dispense with the requirement of a written application upon finding that an emergency condition requires immediate action on the variance request.

B. The applicant shall submit an action plan within 30 days after the variance request is filed, describing how and when the applicant will comply with this ordinance without the need for a variance. Compliance with this plan, as presented by the applicant or as modified by the General Manager, shall be a condition of granting the variance.

C. The General Manager may grant a variance to the terms of this ordinance upon making the finding that the strict application of the ordinance would create an undue hardship, or an emergency condition requires that the variance be granted.

D. In granting a variance, the General Manager may impose any conditions in order to ensure that the variance is consistent with the overall goals of this ordinance. Variances may be granted for a limited period of time. The variance and all time limits and other conditions attached to the variance shall be set forth in writing,

and a copy of the written variance shall be provided to the applicant.

E. The decision of the General Manager on an application for a variance may be appealed as provided in the section of Ordinance No. 3539, as now in effect or as subsequently amended or superseded, pertaining to appeals.

F. No person shall operate or maintain a groundwater extraction facility or water distribution system for which a variance has been granted hereunder, or use water therefrom, in violation of any of the terms or conditions of the variance.

1.01.20 PENALTIES

A. Any person who violates any provision of this ordinance is guilty of an infraction.

B. Any violation of this ordinance is hereby declared to be a public nuisance.

C. Any violation which occurs or continues to occur from one day to the next shall be deemed a separate violation for each day during which such violation occurs or continues to occur.

D. Any person who violates this ordinance shall be assessed a fine of $100 for each violation.

E. Any person who violates this ordinance shall be liable for the cost of enforcement, which shall include but need not be limited to:

1. Cost of Investigation
2. Court Costs
3. Attorney Fees
4. Cost of Monitoring Compliance

PART II -- CONCLUDING PROVISIONS

1.01.22 SEVERABILITY

If any section, subsection, paragraph, sentence, clause, or phrase of this ordinance is for any reason held to be invalid or unconstitutional by a decision of a court of competent jurisdiction, it shall not affect the validity of the remaining portions of this ordinance, including any other section, subsection, sentence, clause, or phrase therein.

SECTION 2. EFFECTIVE DATE. This ordinance shall take effect 30 days after its final adoption by the Board of Supervisors.

PASSED AND ADOPTED this 14th day of Sept., 1993, by the following vote:

AYES: Supervisors Salinas, Shipnuck, Perkins, Johnsen & Karas
NOES: None
ABSENT: None

BARBARA SHIPNUCK, Chairwoman
Board of Supervisors

ATTEST:

ERNEST K. MORISHITA
Clerk of the Board

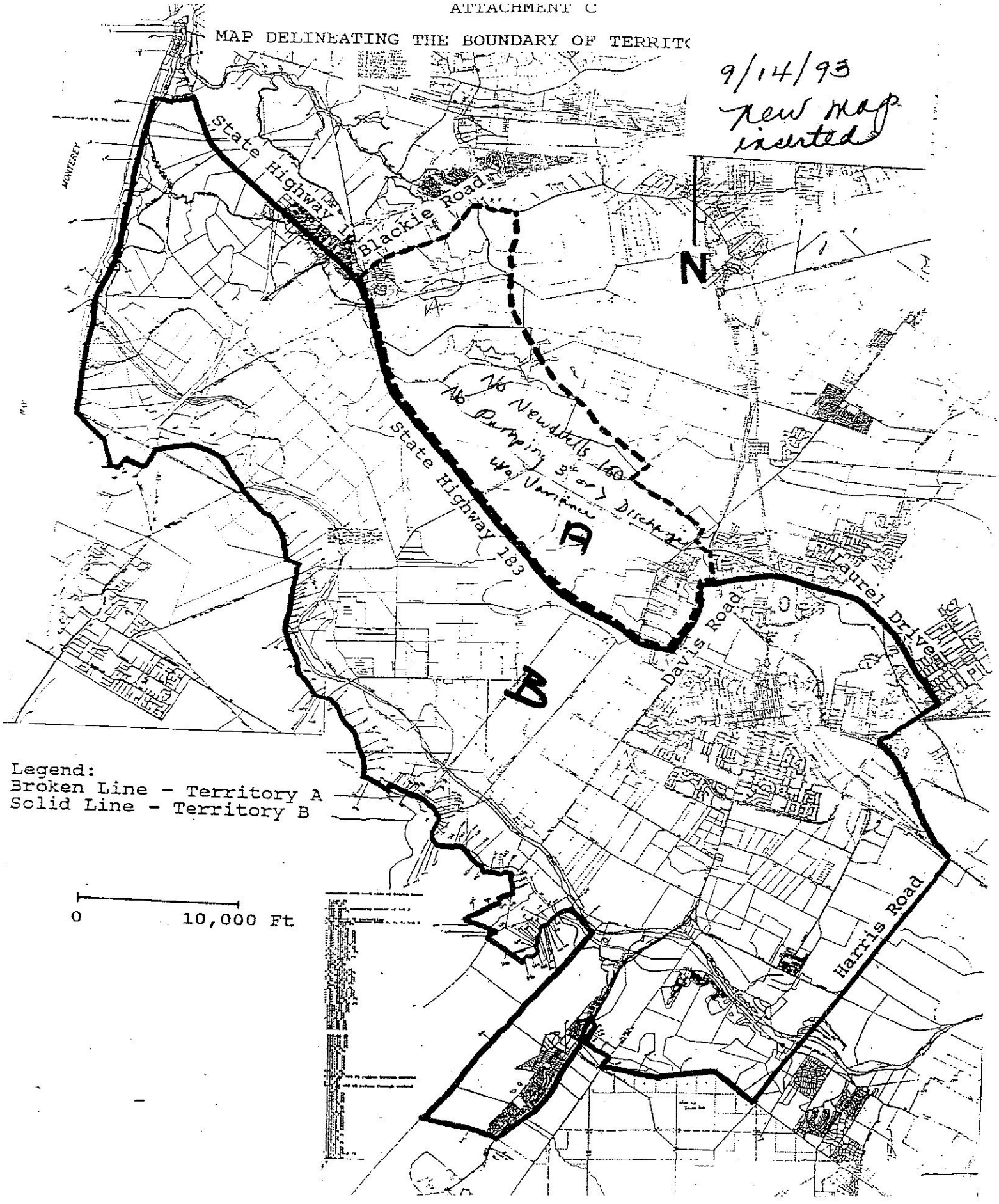
By _____
Deputy

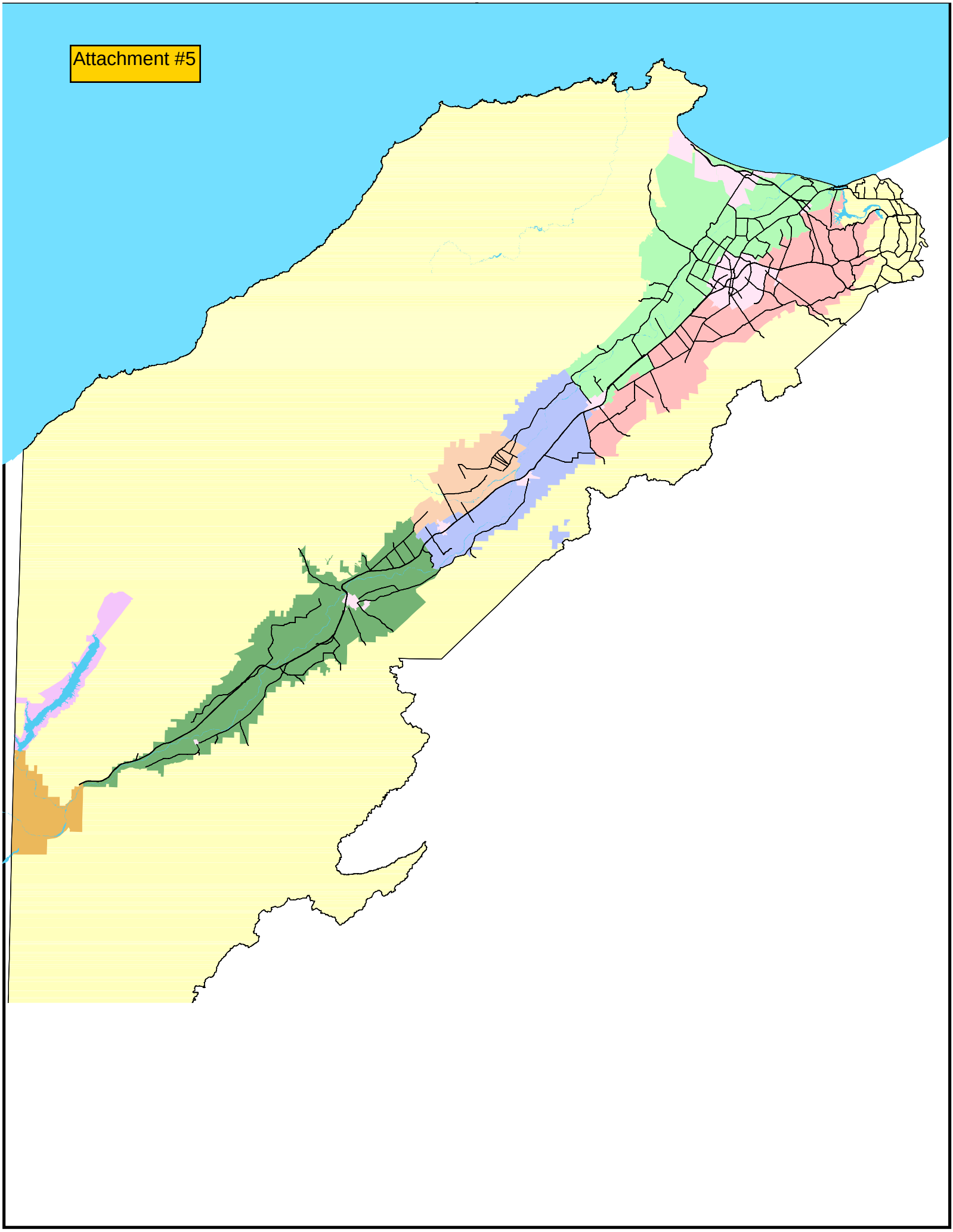
(NOMO180.ORD -- 9/14/93)

ATTACHMENT C

MAP DELINEATING THE BOUNDARY OF TERRITC

9/14/93
New Map inserted




Attachment #5

LAW OFFICES OF
MICHAEL W. STAMP

Michael W. Stamp
Molly Erickson
Olga Mikheeva
Jennifer McNary

479 Pacific Street, Suite One
Monterey, California 93940

Telephone (831) 373-1214
Facsimile (831) 373-0242

May 3, 2013

Via Email Wr_Hearing.Unit@waterboards.ca.gov
Paul Murphey
Division of Water Rights
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812-2000

Subject: SWRCB staff document entitled "Draft Review of California American Water Company's Monterey Peninsula Water Supply Project"
Notice of Opportunity for Public Comment dated April 3, 2013

Dear Mr. Murphey:

We represent Ag Land Trust, which makes the following comments on the "Draft Review of California American Water Company's Monterey Peninsula Water Supply Project."

Interest of Ag Land Trust

Ag Land Trust is a not-for profit public benefit corporation. Its mission is the preservation of agricultural land in the Salinas Valley. Ag Land Trust has preserved more than 25,000 acres of farmland in Monterey County. Ag Land Trust owns prime agricultural land, as defined by the California Department of Conservation, in the area known as Armstrong Ranch. This productive agricultural property is adjacent to the proposed slant well site for the new Cal-Am project. Ag Land Trust has water rights in the Salinas Valley Groundwater Basin arising from its ownership of the prime agricultural land.

Over the last decade, the Ag Land Trust has commented repeatedly to the California Public Utilities Commission (CPUC) raising concerns about water rights and water quality. From the "Draft Review," it appears that the SWRCB staff may not have received all the relevant documents in the CPUC's possession. We attach some of the Ag Land Trust's written comments to the CPUC, starting in 2006.

In Superior Court, Ag Land Trust challenged the reliance upon the EIR called the "Coastal Water Project Environmental Impact Report." The Superior Court found in favor of Ag Land Trust, and found that the EIR was flawed in seven material ways, including an inadequate water rights analysis. We attach the judgment of the Superior Court.

SWRCB authority in this matter

The SWRCB has no authority over percolating groundwater that is being put to beneficial use. (Water Code, § 1200 et seq.) The Courts of the State of California have jurisdiction over nonadjudicated percolated groundwater basins in the state. (*Los Angeles v. Pomeroy* (1899) 124 Cal. 597; *Katz v. Walkinshaw* (1903) 141 Cal. 116.)

The Salinas Valley Groundwater Basin is a percolated groundwater basin. The unadjudicated basin is in overdraft.

The SWRCB's Notice of Opportunity for Public Comment states that "The [California Public Utilities] Commission requested an assessment from the State Water Board on whether Cal-Am has the legal right to extract groundwater for the Project." Under the circumstances, including the SWRCB's lack of authority, the lack of reliable information provided to the SWRCB, and the highly controversial nature of the issues, Ag Land Trust wonders why the SWRCB would want to extend an opinion "on whether Cal-Am has the legal right to extract groundwater for the Project."

For that reason, any "assessment" by the SWRCB is an opinion. If the SWRCB pursues this effort, any SWRCB "assessment" should include a description of the SWRCB's authority and limitations. To date, the CPUC's many years of environmental and review of the Cal-Am projects have failed to adequately account for Salinas Valley water rights. Cal-Am has sought to build additional projects because of its lack of adequate water rights in the Carmel Valley (SWRCB Order 95-10) and the recently adjudicated Seaside groundwater basin. The SWRCB should reject any effort by the CPUC to set up the SWRCB for blame if this project fails, as prior Cal-Am projects have failed.

Comments on the "Draft Review"

For ease of review, we provide excerpts of the SWRCB staff "Draft Review" document in indented quotes, followed by our comments.

> "Cal-Am proposes several approaches that it claims would legally allow it to extract water from the Salinas Valley Groundwater Basin (SVGB or Basin) near or beneath Monterey Bay without violating groundwater rights or injuring other groundwater users in the Basin." (p. i.)

In an overdrafted, percolated groundwater basin, California groundwater law holds that the doctrine of correlative overlying water rights applies (*Katz v. Walkinshaw* (1903) 141 Cal. 116), whereby no surplus water is available for new groundwater appropriators, except by prescription. In an overdrafted basin, as a junior appropriator, there is no water available for Cal-Am to appropriate. (*Pasadena v. Alhambra* (1949)

33 Cal.2d 908.) Any groundwater extraction by Cal-Am would constitute a violation of the groundwater rights of existing water rights holders.

> "The conditions in the aquifer where MPWSP feedwater would be extracted could be either confined or unconfined however; there is currently not enough information to determine what type of conditions exist at the location of the MPWSP wells." (p. i.)

Ag Land Trust agrees with this statement. The statement emphasizes the need to have a comprehensive and reliable model of the basin, including the projects that have been implemented in the basin to slow or halt seawater intrusion. The model should be completed and provided for public review and analysis prior to any drilling or pumping of a test well.

> "Effects from confined aquifer pumping would be observed over a larger area than if extraction occurred from an unconfined aquifer. Previous studies done in the one of [sic] proposed MPWSP well locations indicate that there would be an approximate 2-mile radius zone-of-influence if groundwater was pumped from an unconfined aquifer. It is unknown what the effects would be if water was pumped from a confined aquifer with different hydrogeologic conditions." (p. i.)

The community of Castroville is within a 2-mile radius of the proposed well site. Castroville has a largely minority and underprivileged population. Cal-Am is proposing to pursue a project that would cause harm to the users of the potable aquifer. There is transference from the 180 to the 400 aquifer, which is why the County of Monterey has adopted well closure ordinances. The County of Monterey and the local farmers have deliberately refrained from pumping from the coastal 180-aquifer, in order to try to prevent further harm to the aquifer. Now Cal-Am is proposing to implement the same detrimental conduct that the farmers and the County have largely ceased. The environmental justice issues here are significant, and State policies prohibit the disproportionate effect upon the underprivileged populations.

> "The aquifers underlying the proposed extraction locations have been intruded with seawater since at least the 1940's. The impairment means that there is little or no beneficial use of the water in the intruded area." (p. i.)

This is not accurate. Ag Land Trust is actively using water from its onsite well. Within 100 feet of the Cemex property, the Ag Land Trust is currently using its well and well water from and on the Armstrong Ranch to grow vetch grass, rye grass, and native

dune poppy crops for the production and development of native seed stock for Ag Land Trust's dune stabilization and recovery program. The well water is pumped from the recovering aquifer.

More than one acre of Ag Land Trust property has been planted and is being irrigated with groundwater from the Ag Land Trust well. This is an existing and on-going "beneficial use" of Ag Land Trust's existing potable groundwater rights that will be directly and permanently compromised by Cal-Am's intentional contamination of the 180 foot aquifer from the proposed project. The SWRCB staff conclusion that the aquifers near the proposed Cal-Am wells are irretrievably contaminated and not usable is conclusory and unsupported. Ag Land Trust reports that from 2004 to 2010, the CPUC staff did not contact local landowners, and did not provide notice as mandated by CEQA to landowners affected by the original Cal-Am project The SWRCB staff opinion apparently relies upon an EIR that was overturned by the Superior Court in early 2012. Existing use of the groundwater for existing and recognized beneficial uses by overlying landowners has been ignored by Cal-Am, the CPUC and the now-discredited EIR.

The existing beneficial use of the groundwater by Ag Land Trust means that the project's reduction in the quantity of available fresh water would be felt immediately on in-Basin groundwater users, contrary to the conclusory statements in the Draft Review (e.g., pp. 27-28, 37).

> "To appropriate groundwater from the Basin, the burden is on Cal-Am to show injury to other users. Key facts will be the following: (1) how much fresh water Cal-Am is extracting as a proportion of the told pumped amount, to determine the amount of treated water considered as desalinated sea water, available for export as developed water . . ." (p. ii.)

The statement is not accurate. The burden is on Cal-Am to prove there will not be any injury to other users. Ag Land Trust has asserted since 2004 that the proposed wells would cause injury to Ag Land Trust and to other water rights holders in the basin.

> "(3) how Cal-Am should return any fresh water it extracts to the Basin to prevent injury to others . . ." (p. ii.)

The injury of illegal appropriation occurs at extraction. The injury cannot be repaired. By virtue of taking the water out without legal right, Cal-Am would cause injury to holders of existing water rights. The extraction of fresh water from beneath an overlying property owner by a junior appropriator in an overdrafted basin would violate the law.

> "Both near and long-term, a physical solution that protects legal users in the Basin from harm would permit Cal-Am to extract groundwater. Even if overdraft conditions continued in the Basin following imposition of the solution, Cal-Am could legally continue pumping brackish water so long as the quantity and method of extraction are not detrimental to the conditions in the Basin and other Basin users' rights, taking into account replacement water provided as part of the project." (p. ii.)

The statements are not accurate. Physical solutions to slow or halt seawater intrusion in the Salinas Valley Groundwater Basin have been approved by public elections of the voters, and have been constructed expressly for the purposes of slowing or halting seawater intrusion. Ag Land Trust and hundreds of its neighbors have paid, and continue to pay, many millions of dollars for assessments for multiple Monterey County public projects to address seawater intrusion. Perhaps the CPUC has failed to inform the SWRCB of the expenditure of the public monies and the construction and ongoing operation of the publicly owned facilities for the benefit of the public. This has created the current situation that Cal-Am hopes to exploit. Cal-Am has not paid into these public facilities.

> "Cal-Am should have the opportunity to show any desalinated water it produces is surplus to the current needs of the Basin, replacement water methods are effective and feasible, and the MPWSP can operate without injury to other users." (p. ii.)

There is no basis in case law for this conclusion, absent adjudication of the Salinas Valley Groundwater Basin. If SWRCB staff intends to recommend adjudication, which is implied by the Draft Review's lengthy discussion in section "6.3 Physical Solution Discussion" at pages 33 to 38, SWRCB staff should do so publicly and as early as possible in the process.

> "Studies are needed to determine the extent of the Dune Sand Aquifer, the water quality and quantity of the Dune Sand Aquifer, the extent and thickness of the Salinas Valley Aquitard and the extent of the 180-Foot Aquifer." (p. iii.)

Ag Land Trust agrees. These studies, using a comprehensive hydrologic model, are needed before any test wells are drilled and the aquifers are further intruded with seawater thereby causing harm to overlying landowners.

> "Specifically, a series of test boring/wells would be needed to assess the hydrogeologic conditions at the site. Aquifer

> testing would also be needed to establish accurate baseline conditions to determine the pumping effects on both the Dune Sand Aquifer and the underlying 180-Foot Aquifer. Aquifer tests should mimic proposed pumping rates." (p. iii.)

The proposed test wells will cause irreparable harm to the groundwater supply and groundwater rights of the Ag Land Trust. The proposed test wells are approximately 400 feet from Ag Land Trust property. The proposed test wells would fulfill Cal-Am's desire to deliberately pollute the aquifer. The pollution would be detrimental to in-basin overlying land owners and water rights holders.

> "The studies will form the basis for a plan that avoids injury to other groundwater users and protects beneficial uses in the Basin." (p. iii.)

See above comments regarding adjudication. This statement presumes that it is possible to avoid injury. Under *Pasadena v. Alhambra*, *supra*, there is a presumption that appropriation of groundwater from an overdrafted basin by a junior appropriator with no existing rights will cause injury to senior groundwater users and existing beneficial uses in the basin.

> "In a letter dated September 26, 2012, the California Public Utilities Commission (Commission) asked the State Water Resources Control Board (State Water Board) whether the California American Water Company (Cal-Am) has the legal right to extract desalination feedwater for the proposed Monterey Peninsula Water Supply Project (MPWSP). The Commission stated it is not asking for a determination of water rights, but is instead requesting an opinion as to whether Cal-Am has a credible legal claim to extract feedwater for the proposed MPWSP, in order to inform the Commission's determination regarding the legal feasibility of the MPWSP." (p. 1.)

The SWRCB has no jurisdiction over percolated groundwater basins. More troubling is the fact that the CPUC apparently failed to disclose to the SWRCB ten years of correspondence from senior water rights holders in the Salinas Valley advising the CPUC that Cal-Am has no groundwater rights and cannot acquire groundwater rights absent deliberate contamination of the groundwater or pursuing adjudication of the groundwater basin. (E.g., see attached correspondence from Ag Land Trust.)

> "This paper will (1) examine the readily available technical information and that provided by the Commission" (p. 1.)

The term "readily available technical information" is not defined. It raises serious concerns as to the adequacy of the information that will be considered. The SWRCB should clearly state what information the SWRCB staff considers to be "readily available." The SWRCB should investigate and pursue all needed information.

The Monterey County Water Resources Agency is not a reliable source of information, because under a 2012 settlement agreement with Cal-Am the Agency is prohibited from speaking freely about the current Cal-Am project. This settlement was made to resolve a lawsuit filed by Cal-Am against Monterey County Water Resources Agency. The lawsuit and settlement agreement are public records.

> "In January 2009, the Commission issued a Draft Environmental Impact Report (EIR) for the Coastal Water Project and two project alternatives – the North Marina Project and the Monterey Regional Water Supply Project (Regional Project). In October 2009, the Commission issued the Final EIR (FEIR) and in December 2009, it certified the FEIR. In December 2010, the Commission approved implementation of the Regional Project." (p. 2.)
>
> "State Water Board staff analyzed the NOP and how closely the new description matched the alternatives in the December 2009 FEIR completed for the Coastal Water Project." (p.3.)
>
> "Of the two project alternatives in the FEIR, the North Marina Project more closely resembled the proposed MPWSP described in the NOP. For this reason, State Water Board staff assumed most of the information, including the slant well construction and operation as described in the FEIR – North Marina Project Alternative, was applicable to the proposed MPWSP." (p. 3.)

Reliance on the EIR is not merited. The EIR was found to be inadequate by the Monterey County Superior Court. The EIR may have relied on information from the former chairman of the Monterey County Water Resources Agency board of directors, who resigned and is facing more than 30 felony counts, including two counts for conflicts of interest violations arising from his work for the Regional Desalination Project while on the Water Resources Agency board. The other counts allegedly arise from his work for one of the coastal agricultural interests.

> "The new information provided to the State Water Board includes: an updated project description, changes in the location and configuration of the extraction well system, new

> information about the nature of the 180-Foot Aquifer, timing of implementation for certain mitigation measures, and supplemental testimony from Richard Svindland of Cal-Am." (p. 3.)

Please state who provided "the new information." It appears to have come solely from Cal-Am and/or the CPUC. There has not been an opportunity for landowners to meet with SWRCB staff and express their concerns regarding the proposed project.

> "The preferred alternative would consist of 7 to 9 slant wells that would draw water from under the ocean floor by way of gravity for delivery to the desalination plant." (p. 4.)

Due to cones of depression, Cal-Am would be taking fresh water. Pumping from beneath the Monterey Bay National Marine Sanctuary would violate the 1992 Memorandum of Agreement to which the SWRCB is a signatory through the California Environmental Protection Agency. Such pumping would violate the Sanctuary rules regarding removal and exploitation of Public Trust resources within the Sanctuary, including fresh water seeps.

> "A near-surface water-bearing zone comprised of dune sands, commonly referred to as the "Dune Sand Aquifer", also exists but is considered a minor source of water due to its poor quality. The Dune Sand Aquifer is not regionally extensive and is not a recognized subbasin within the SVGB. The amount of groundwater in storage in the Dune Sand Aquifer is unknown." (p. 8.)

There is no current pumping from the so-called Dunes aquifer. To the limited extent the aquifer exists, its sources of recharge are solely rainfall and irrigation water. The amount of storage is highly variable based on recharge. The aquifer is currently largely fresh water because it has not been pumped for years due to efforts by land owners to reverse seawater intrusion and the County prohibition on wells in the coastal area in question. The SWRCB staff conclusion that the so-called aquifer is a contaminated water source does not change the fact that the proposed project would wrongfully allow Cal-Am to intentionally induce seawater into a recovering potable water formation and compromise many years of efforts of local land owners to reverse seawater intrusion in the Salinas Valley.

At pages 8 and 18, the draft SWRCB staff document refers to the "Deep Aquifer." The SWRCB staff may not be aware that the preferred reference is to the "Deep Aquifers" because there are more than one. The Deep Aquifers provide the sole potable water supply for the City of Marina and most of the former Fort Ord. The technical studies report that the volume of storage in the Deep Aquifers is small, the

Deep Aquifers are not sustainable, and the recharge to the Deep Aquifers is insignificant.

> "The 180-Foot Aquifer is generally confined by the overlying Salinas Valley Aquitard (SVA). The SVA is a well-defined clay formation with low permeability that retards the vertical movement of water to the underlying 180-Foot Aquifer." (p. 9.)

The draft report fails to acknowledge the existence of old, largely hand-dug wells into the shallow aquifer, which were closed some fifty or more years ago. The wells were closed with dirt, instead of with a solid impermeable material like concrete. The dirt allows seawater-intruded water in the shallow aquifer to flow down the well casing to the 180-foot aquifer. There is transference between the shallow aquifer and the 180-foot aquifer and the 400-foot aquifer. To the extent that the proposed Cal-Am wells will cause further seawater intrusion of the shallow aquifer, seawater will exacerbate seawater intrusion into the 180-foot aquifer. The 180-foot aquifer is currently widely used for potable and agricultural uses.

> "Based on information from logs of two wells located approximately ½ mile south and ½ mile northeast from the proposed MPWSP slant wells, the top of the SVA is between 150 to 180 feet below msl. The well logs show the top of the underlying 180-Foot Aquifer at approximately 190 to 220 feet below msl." (p. 9.)

Please reveal the sources of the information, so the public can comment meaningfully. To the extent that the SWRCB staff is relying on information provided by Cal-Am or in the EIR, those sources may not be accurate. The SWRCB staff should consider all necessary information. The presence of old wells and gaps in the aquitard would affect the analysis.

> "Studies have shown that in some areas the SVA thins enough to create unconfined conditions in the 180-Foot Aquifer. It is unknown if these unconfined conditions exist in the proposed MPWSP well area. Determination of the existence of the SVA, and thus the conditions of the aquifer at the location of the proposed MPWSP wells will be very important in determining the area of impact of the project as discussed at greater length in Section 5 of this report." (p.9.)

> "The amount of 500 mg/L chloride water that enters the Basin was reported to be as high as 14,000 acre-feet per annum (afa) or 4.5 billion gallons." (p. 13.)

These claims further demonstrate that comprehensive modeling must be performed to provide accurate information.

> "The MRWRA and the Central Coast Regional Water Quality Control Board show impairment to the water in the intruded area for drinking and agricultural uses. Since this groundwater is impaired, it is unlikely that this water is or will be put to beneficial use." (p. 14.)

The conclusion is not accurate. One example of this is the beneficial use to which Ag Land Trust is putting groundwater from and on its Armstrong Ranch site, adjacent to the Cemex site. Separately, we are not familiar with an agency called "MRWRA." Please clarify if the State means MCWRA, which is the Monterey County Water Resources Agency.

> "Local agencies have taken steps to reduce the rate of seawater intrusion and enhance groundwater recharge in the SVGB. To address the seawater intrusion problem, the MCWRA passed and adopted Ordinance No. 3709 in September 1993." (p. 14.)

Cal-Am's proposed project would violate both state statutes and the mandates of the California Constitution, and unlawfully interfere with and compromise the express intent, purpose, and financing of the Salinas Valley Water Project (including the Rubber Dam) that was voted upon by land owners of the Salinas Valley Groundwater Basin over a decade ago. The multi-million dollar "Rubber Dam" project and its voter-approved assessment district were proposed and placed on the ballot in Monterey County for the purpose of reversing and curing the seawater intrusion issues in the basin. This assessment district for this public funded capital project was placed on the ballot pursuant to article XIIID of the California Constitution (Prop. 218). The purpose of the project (the property related service) was and remains the provision of potable water, in part, to reverse seawater intrusion and restore the damaged but still viable potable aquifers near the coast and throughout the lower basin.

Article XIIID, section 6(b)(1), requires that "Revenues derived from the fee or charge shall not exceed the funds required to provide the property related service." Article XIIID section 6(b)(4) prohibits a fee or charge except where the property related service is actually used by the parcel owner. The SVWP Rubber Dam is a publicly owned and publicly funded capital project to which Cal-Am has contributed nothing. Cal-Am has no right or entitlement to water from the overdrafted Salinas aquifers and the SVWP Rubber Dam. The assessments levied only upon in-basin property owners and overlying water rights holders are expressly for the benefit of overlying properties (and the beneficial uses of water thereon) that receive the paid-for "service" of that project. Neither the SWRCB nor the CPUC has demonstrated the authority or right to

interfere with that provision of these constitutionally mandated services, nor may they support any action that would undermine or interfere with the repayment of the public funding sources (certificates of participation and loans) that have been used to construct these publicly owned capital facilities. Cal-Am's project would directly interfere with this multi-million dollar project intended to restore the aquifers that Cal-Am wants to pollute and exploit in violation of the SWRCB Non-Degradation Policy. The CPUC and Cal-Am have ignored this insurmountable impediment to Cal-Am's intention to illegally and wrongfully "take" water from the overdrafted Salinas basin to which Cal-Am has no claim of right.

The CPUC and Cal-Am have failed to explain how they also intend to ignore or circumvent the MCWRA statutory prohibition on the export of "any" groundwater from the Salinas Valley basin. The offer to somehow "return the fresh groundwater" that Cal-Am would be illegally and wrongfully "taking" through their slant wells ignores the injury and is legally insufficient.

In spite of repeated objections and a lawsuit by the Ag Land Trust, the CPUC and Cal-Am have failed to address how they can "whitewash" Cal-Am's proposed illegal taking of water from the aquifers of the Salinas Valley so as to cure Cal-Am's illegal taking of underflow from the Carmel River.

> "The CSIP is a program operated by the Monterey County Water Pollution Control Agency that reduces groundwater pumping from seawater intruded areas and distributes recycled water to agricultural users within the SVGB."
>
> "The program provides a form of groundwater recharge by effectively reducing groundwater extraction in those areas of the Basin that are part of the CSIP area." (p. 14.)

Using funds of the local farmers, the CSIP has recharged the Sand Dune Aquifer. Cal-Am was not the intended beneficiary of that action.

> "Despite these and other efforts, seawater intrusion continues its inland trend into the Basin." (p. 14.)

The SWRCB staff conclusion is inconsistent with the position taken by the MCWRA and its legal counsel. The MCWRA position, affirmed recently, is that seawater intrusion has not worsened. Please respond, clearly state the SWRCB position, and address the inconsistency with the MCWRA position.

> "Additionally the past data provides insight into future conditions which could be expected absent the MPWSP." (p. 14.)

The conclusion is not supported. As one example, past data does not include the results of the Salinas Valley Water Project, a Proposition 218 project funded by Salinas Valley property owners. MCWRA is the project sponsor. All components of the Salinas Valley Water Project (SVWP) only recently became operable. The MCWRA has repeatedly stated that it will take at least ten years – after full operations began – before results of the SVWP can start to be known. The SVWP may significantly change future conditions.

> "Groundwater recharge in the lower portion of the Salinas Valley is largely by infiltration along the channel of the Salinas River and its tributaries. This accounts for approximately 50 percent of the total recharge within the SVGB. Approximately 40 percent of the total recharge is from irrigation return water with the remaining 10 percent due to precipitation, subsurface inflow and seawater intrusion." (p. 16.)

The Salinas Valley Water Project may materially affect the unsupported groundwater recharge conclusions made by SWRCB staff. A comprehensive hydrologic model is needed, and would include the Salinas Valley Water Project operations.

> "Based on the occurrence of large pumping depressions in inland areas, it can be reasonably assumed that there is a strong landward gradient (slope) of groundwater flow, at least within the 180-Foot Aquifer. However, because the degree of confinement of the 180-Foot Aquifer and the degree of connection between this aquifer and the overlying Dune Sand Aquifer are not known it is not possible to accurately predict what the effects of the landward gradient of groundwater flow will be for various extraction scenarios." (p. 17.)

These statements are largely speculation. They fail to adequately account for recharge from the operation of the dams (Nacimiento and San Antonio) and publicly funded projects (Castroville Seawater Intrusion Program and Salinas Valley Water Project). The conclusions are based on outdated information that was produced prior to the Salinas Valley Water Project.

> "A groundwater model that accurately reflects the hydrogeologic characteristics of the Basin is critical in providing insight to the effects the MPWSP would have on the Basin. As part of the FEIR for the Coastal Water Project, a local groundwater flow and solute transport model

> (Model) was developed to determine the effects that pumping would have on groundwater levels and seawater intrusion in the area." (p. 18.)

The EIR was found to be inadequate by the Superior Court. Among the issues raised by Ag Land Trust were assumptions made about the EIR model, including the effects of pumping, the nature of pumping, and the percentage of seawater in the water to be pumped. Ag Land Trust pointed out material inconsistencies in the EIR analysis. Ag Land Trust also raised concerns about the inconsistencies between the EIR model and the known causes of seawater intrusion.

> "The gravity well design is a new alternative presented to the State Water Board for evaluation at the CEMEX owned property. State Water Board staff previously evaluated a pumping well alternative at the CEMEX site and found that the pumped wells would have an impact to groundwater users within a 2–mile radius of the wells. Since modeling has not been done for the gravity well alternative, State Water Board staff is unable to accurately predict impact to existing users from the gravity wells." (p. 20.)

What can be accurately predicted is that the well would result in permanent contamination of Ag Land Trust's well, the loss of groundwater rights, and the permanent loss of potable water supply.

> "The potential impacts from the pumping wells at this site cannot be yet be determined since groundwater modeling has not been done. Until an accurate groundwater model is developed for this area, State Water Board staff is unable to determine the extent of impacts to existing water users." (pp. 20-21.)

Ag Land Trust agrees that the full severity of impacts cannot be predicted without an accurate and comprehensive groundwater model. Ag Land Trust's position is that the proposed wells would cause the permanent contamination of the Ag Land Trust well and groundwater on Ag Land Trust property adjacent to the Cemex site, and that injury can be accurately predicted now, at this stage. New slant wells being pumped continuously by Cal-Am predictably will reverse progress made toward protecting and improving the water quality of the Salinas Valley aquifers.

The Draft Review relies extensively on vague references to the EIR documents, including modeling done for the EIR, which is largely unsupported by reference to any document and page (e.g., Draft Review, p. 35). For example, the Draft Review section "5.3 Groundwater Capture Zone Delineation" (pp. 21-22) is unsupported by any

reference to specific documents and pages. The sole reference in the text is a general reference to "the FEIR groundwater modeling studies" without any specific citation. The studies were prepared by the applicant, and have not been adequately peer reviewed.

The Ag Land Trust litigation challenged assumptions made in the EIR modeling, including assumptions of continuous pumping for 56 years, and the percentages of seawater and fresh water that would be in the groundwater. The Superior Court overturned the EIR and ordered that the environmental analysis be redone. Before the SWRCB relies on the FEIR or any studies done by the applicant, the SWRCB first should require expert peer review and provide the results to the public. Separately, as the Draft Review acknowledges, the EIR modeling did not explore some proposed scenarios. (E.g., p. 27 ["Modeling in the FEIR did not predict the effects of pumping from a confined condition, so there are no estimates on the extent of potential impacts."].) The proposed conclusions are unsupported and inconsistent with hydrogeologic evidence and with the actions of local agencies. To the extent that the conclusions are predicated on a continuing increase of the cone of depression, they are unsupported.

To the extent that Section 5.3 assumes certain gradients and what the proposed wells will or will not capture (e.g., p. 21), those assumptions are unproven and unsupported, and contradict many years of hydrologic research.

The Draft Review section "5.4 Extraction Scenarios" (pp. 22-27) is conclusory and unsupported. The section is speculative, and it fails to acknowledge the limited authority of the SWRCB in these matters. The section lacks citation to evidence, except for a couple of references to the discredited EIR, and a couple of references to a general groundwater treatise that is not helpful in light of the facts here, which include a well in an overdrafted basin immediately adjacent to an ocean, where the pressure from the ocean water exceeds the pressure from the inland fresh groundwater. This section is another example of inappropriate reliance on the discredited EIR.

> "The lowering of groundwater levels approximately 2 miles from the slant wells likely would be negligible." (p. 24)

The conclusion is not accurate or supported. The proposed pumping of some 25,000 AFA would remove a very large volume of groundwater from the aquifer. That would cause a change in the water quality and water levels. The EIR models did not adequately take the volume of water into account.

> "According to information from the State Water Board's GAMA database, approximately 14 wells are within 2 miles of the proposed MPWSP (Figure SWRCB 8). All of these wells are within the seawater-intruded portion of the Basin. The MPWSP drawdown would change the groundwater

> gradient within the zone of influence causing a radial flow of groundwater toward the extraction wells. Currently, the predominant groundwater flow direction in the 180-Foot Aquifer is toward the northeast. Project pumping would likely change the flow direction to more of a southwest to westerly direction within the zone of influence. Outside the zone of influence there would be little if any change to groundwater flow direction; however, the rate of flow in the original direction (northeast) would be reduced. Therefore, the MPWSP would slow the rate of seawater intrusion in a landward direction from the wells." (p. 24)

The Draft Review's conclusion that pumping the slant wells "would slow the rate seawater intrusion in a landward direction" is inconsistent with the fact that pumping is what has caused seawater intrusion. It is not clear why the Draft Review thinks the Cal-Am wells would have a different result from what has been proven to be true in the Salinas Valley and elsewhere.

As a separate problem, the Draft Review does not identify the depth of the wells within a 2-mile radius. The conclusion that "All of these wells are within the seawater-intruded portion of the Basin" is not supported. Some of the wells may be in non-intruded aquifers.

As a separate problem, the Draft Review's conclusions are inconsistent with the Monterey County Board of Supervisors' recent adoption of revised General Plan policy PS-3.1 which provides the assumption that all development within Zone 2C has a long term sustainable water supply. Zone 2C includes much of the Salinas Valley floor, including the coastal areas that would be affected by the proposed wells. In other words, Monterey County has taken the position that the aquifers provide potable and usable water. Monterey County made that conclusion on the basis of the new Salinas Valley Water Project. Zone 2C is an assessment district to which landowners are paying millions of dollars. Zone 2C assessments fund the SVWP which is purportedly a remedy for seawater intrusion now and in the future.

> "While a portion of the water flowing to the well does come from the less saline water on the shoreward side, the relative percentage of water drawn from the shoreward side of the wells will depend on various factors, including the gradient of groundwater flow toward inland pumping depressions." (p. 26.)

Cal-Am does not have a right to this groundwater. The Draft Review's reliance on a 87% seawater/13% fresh water proportion is not appropriate. The unreliable EIR data is from the 180-aquifer, and showed that the proportion changed over time to 60%

seawater/40% fresh water. The mention of 3,250 AFA of fresh water (assumed to be 13%) improperly minimizes the impact of that pumping. It would be a huge illegal appropriation.

> "It is unlikely that pumping from an unconfined aquifer would extract fresh groundwater since the seawater intrusion front is approximately 5 miles landward from the proposed pumps." (p. 26.)

The Draft Review's implied conclusion that the unconfined Dunes aquifer is intruded is not supported. Other than Cemex, it is believed that the local landowners have refrained from pumping the Dunes Aquifer. The SWRCB should research the facts on the ground.

> "the inland groundwater users may experience a reduction in groundwater levels in their wells, with associated increases in pumping costs." (p. 27.)

The first paragraph of section 5.5 shows that there would be an illegal taking of groundwater. The paragraph fails to acknowledge that increased coastal pumping causes increased seawater intrusion.

> "This effect would not be felt immediately and would depend on a variety of factors. Since the capture zone for the extraction well system will likely be limited to areas already heavily impacted by seawater intrusion, it would not be appropriate to inject or percolate desalinated water in this intruded area, as the water would essentially be wasted." (pp. 27-28.)

The statements are inaccurate. The effects would be felt immediately by the nearby Ag Land Trust well, from which water is being used for overlying beneficial uses. The Ag Land Trust groundwater would be impacted, the Ag Land Trust water rights would be taken, and the Ag Land Trust storage would be taken. The Draft Review has not cited to proof that the Dunes Aquifer is heavily impacted. The increased pumping foreseeably could counteract or eliminate any benefits from the SVWP (Rubber Dam) for the assessed property owners who are paying for the SVWP. Injected water would not be wasted unless the overlying landowners had been deprived of their groundwater rights by adjudication.

> "The reduction in the availability of fresh water would not be felt immediately." (p. 28)

The statement is inaccurate. The effects would be felt immediately by the nearby Ag Land Trust well, from which water is being used for overlying beneficial uses.

> "the proposed MPWSP could extract some fresh water from within the Basin." (p. 28.)

It is misleading to say "could" when the whole point of the Cal-Am wells is to extract fresh water. The SWRCB should say "will extract" instead of "could extract."

> "To appropriate groundwater from the Basin, Cal-Am will have to demonstrate that the MPWSP will extract water that is surplus to the needs of groundwater users in the Basin and injury to those users will not result. Because the Basin is in a condition of overdraft, to appropriate water for non-overlying uses, any fresh water that Cal-Am pumps will have to be replaced." (p. 28; similar comments at p. 33.)

The second sentence has no support, and is inconsistent with California law. As stated above, in an overdrafted basin, there is no water available for Cal-Am, as a junior appropriator, to appropriate. (*Pasadena v. Alhambra* (1949) 33 Cal.2d 908.) Any groundwater extraction by Cal-Am would constitute a violation of the groundwater rights of existing water rights holders. There is no law that allows Cal-Am to pump water illegally, and then to remedy that violation by "replacing" the water, in a post-injury effort to make other users "whole" (p. 33). Further, the sentence in question makes a distinction between groundwater and fresh water. The distinction is not appropriate and it not supported. Under the circumstances, withdrawal of water from the groundwater basin will cause further seawater intrusion that harms existing users. Replacement of only the "fresh water" portion of the withdrawn volume of water would not reverse the harm. Exportation of groundwater from the Salinas Valley Groundwater Basin is prohibited under State legislation (the MCWRA Act) and case law.

> "An appropriative groundwater right is not necessary to recover water injected or otherwise used to recharge the aquifer, where the water used for recharge would not recharge the aquifer naturally." (p. 28, fn. 31.)

The claim is not supported by citation. The claim is not accurate unless the basin is adjudicated.

> "No permit is required by the State Water Board to acquire or utilize appropriative groundwater rights." (p. 29.)

The statement is misleading. The State Water Resources Control Board has no right to require any permit for an appropriative right.

> "Cal-Am's proposed MPWSP would pump brackish water." (p. 30.)

The statement is misleading. The water would only be brackish because the pumping will illegally take fresh water supplies.

> "Estimates based on the North Marina Project description are that 13 percent of the total water pumped through the proposed wells could be attributed to the landward portion of the Basin and 87 percent could come from the seaward direction relative to the pump locations." (p. 30.)

These estimates were challenged by the Ag Land Trust, because the EIR technical appendices showed that up to 40% of the water would be fresh water, which is more than three times the claimed 13%. The EIR that relied on the 13% estimate was rejected by the Superior Court.

> "It is unknown whether seawater has intruded the Dune Sand Aquifer, but the reported poor water quality of the Dune Sand Aquifer likely limits beneficial uses of its water." (p. 30.)

The statement is inconsistent with the statements elsewhere in the Draft Review that the water to be pumped by Cal-Am is brackish (see, e.g, p. 30). If the Dunes Aquifer is not intruded, then the proposed pumping would deliberately cause intrusion. The Draft Review should state who "reported" the "poor quality," when, and exactly what was "reported." The term "poor quality" should be clarified. Poor quality is not the same as marginally degraded, recovering, or unusable.

> "Water an appropriator pumps that was not previously available to other legal users can be classified as developed or salvaged water." (p. 31.)

There is no salvage water here, and the doctrines of salvage and developed water have no place here. Groundwater is being used for beneficial purposes by Ag Land Trust on the property adjacent to the proposed well site.

> "if water would never reach or be used by others there can be no injury." (pp. 31-32.)

Water is being pumped and put to beneficial use by Ag Land Trust on the property adjacent to the proposed well site. The proposed project would injure Ag Land Trust in multiple ways.

> "If Cal-Am can show all users are uninjured because they are made whole by the replacement water supply and method of replacement, export of the desalinated source water would be permissible and qualify as developed water." (p. 33.)

The statement is not accurate. Exportation of groundwater is prohibited by state law and case law. There is no provision for this "replacement and export" scheme absent adjudication.

> "This could require implementation of a 'physical solution.'" (p. 33.)

There is no "physical solution" necessary if Cal-Am does not take Salinas Valley groundwater.

> "A physical solution is one that assures all water right holders have their rights protected" (p. 34.)

This is misleading. Cal-Am does not hold any water rights. There are no available groundwater rights to be appropriated in an overdrafted basin. (*Katz v. Walkinshaw* (1902) 141 Cal. 116.) A "judicially imposed resolution of conflicting claims" (p. 34) requires adjudication.

> "One important characteristic of a physical solution is that it may not adversely impact a party's existing water right. *(Mojave, supra*, 23 Cal.4th 1224, 1251.)" (p. 34.)

This is correct. Cal-Am's project would adversely affect the water rights held by Ag Land Trust. Ag Land Trust is using its groundwater for beneficial uses on the prime agricultural land adjacent to the proposed well site.

> "Under the physical solution doctrine, although the Basin continues to be in a condition of overdraft, to maximize beneficial use of the state's waters Cal-Am may be allowed to pump a mixture of seawater and fresh water and export the desalinated water to non-overlying parcels. To avoid injury to other users and protect beneficial uses of the Basin's waters, Cal-Am would be required to return its fresh water component to the Basin in such a way that existing users are not harmed and foreseeable uses of the Basin water are protected." (p. 35.)

The suggested approach would require adjudication of the Basin. The first sentence is not accurate and is not supported by reference to legal authority. Please state who would "require" Cal-Am to "return" fresh water, who would enforce the requirement, and who would pay for Cal-Am's production of fresh water that would be returned to the Salinas Valley Groundwater Basin.

> "According to information from the State Water Board's GAMA database, approximately 14 wells are within 2 miles of the proposed MPWSP (Figure SWRCB 8)." (p. 24.)

Figure SWRCB 8 (p. 25) does not appear to be accurate or complete. As one example, Figure SWRCB 8 does not show the 14 wells that Draft Review claims are within a 2-mile radius of the proposed wells. Only one well is shown within the 2-mile radius. The SWRCB should show or otherwise identify the 14 wells that the SWRCB claims are within the 2-mile radius. Without that information, the public cannot meaningfully comment on the figure or SWRCB's discussion of the data. Ag Land Trust reports that at least three wells in the 2-mile radius, including the Ag Land Trust well, are not shown on Figure SWRCB 8. There are likely other inaccuracies in the figure. To the extent that the Geotracker GAMA database has limitations and infirmities, those should be disclosed. Similarly, the water well information in the EIR (see, e.g., p. 38 of the Draft Review) may also be materially unreliable.

To the extent that the "Draft Review" attempts to rely on seawater intrusion data from the MCWRA, as the "Draft Review" currently does throughout the document, the SWRCB should diligently research the location of the monitoring wells from which the MCWRA data is gathered, because that information affects the reliability of the claims about the intrusion in general and as to this project in particular.

The Draft Review's reference to "the parties" (e.g., p. 36) is unclear. Please identify which "parties" the SWRCB is referring to, and in what context. The SWRCB does not have a proceeding for this Cal-Am project.

> "If pumping within the Basin remains unchanged, it is projected that the MPWSP would not pump fresh water within a 56-year period if pumping occurred in an unconfined aquifer." (p. 36.)

The statement is not accurate. The premise of the proposed project is that the wells would pump groundwater that includes fresh water. The overturned EIR stated that up to 40% fresh water would be pumped. The EIR assumptions – including the assumption that pumping would last for 56 years continuously, without stopping – are deeply flawed, and render the studies unreliable.

> "but-for the MPWSP, new fresh water would not be available in the Basin," (p. 36.)

This possible scenario contradicts the premise of the Salinas Valley Water Project Rubber Dam component, which is to make new fresh water available in the Basin. The SWRCB Draft Review's discussion of this and other scenarios shows that the SWRCB is arguing for Cal-Am and its project, despite inadequate information and inadequate investigation of the issues.

> "Based on historical uses of water in the Basin and despite efforts to reduce groundwater pumping in seawater intruded areas through enactment of Ordinance 3709 and efforts to increase recharge through the CSIP, there is no evidence to suggest that Basin conditions will improve independent of the MPWSP without a comprehensive solution to the overdraft conditions." (p. 37)

The statement is not supported. The SWRCB staff lacks information on existing uses and activities in the Basin. This statement fails to consider the Salinas Valley Water Project (SVWP), which had as its purpose the halting of seawater intrusion. The SVWP was a Proposition 218 project funded by Salinas Valley property owners. The SVWP EIR stated that the SVWP would not have effect until all components of the SVWP were fully operational. That was achieved in approximately 2012.

> "Both near- and long-term, 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." (p. 39.)

How? Please explain a physical solution that meets that description.

> "a conclusive showing that there is no water available for export does not appear to be the case here." (p. 39, fn. 41)

Please provide the evidence that there is water available for export. Please explain whether it is the SWRCB's position that intruded groundwater can be exported from the Basin in violation of the State legislation (MCWRA Act). Please explain what water the SWRCB considers "currently unusable" (p. 39, fn. 41).

As to various comments in the Draft Review about the impacts of the proposed extraction, the SWRCB may not be aware of the North County Land Use Plan, which contains policies that affect and protect the water quality and water supply. This project is within the boundaries of the North County Land Use Plan. The North County Land Use Plan is part of the Local Coastal Program certified by the California Coastal

Commission. The SWRCB should honor and consider the state-certified plan if the SWRCB seeks to proceed with the CPUC-requested "assessment."

The proposed project violates several policies of that plan. The plan designates the land use of the local property, including Ag Land Trust property, as Agricultural Preservation. Under the plan policies, such land shall be preserved for agricultural use to the fullest extent possible. Development of Agricultural Preservation lands is limited to accessory buildings for farm uses and other uses required for agricultural activities on that parcel. The lack of water rights for the proposed project may threaten the agricultural viability of the protected agricultural lands. Further, the project violates Land Use Plan policies on water supply and water quality, including policies 2.5.3.A.1 though 2.5.3.A.3, and policy 2.5.3.B.6. For example, by using coastal groundwater supplies for uses other than coastal priority agricultural uses, the project would violate policy 2.5.3.A.1. The County has failed to determine the long term safe yield of the area aquifers. We urge you to review the Coastal Commission comments on the draft EIR.

Conclusion

For each and every of the reasons described above, the "assessment" requested by the CPUC would be premature at this stage. At the very least, if the SWRCB staff chooses to pursue its effort to provide the CPUC with a document, the SWRCB staff should revisit the approach used in the Draft Review, and make a diligent investigation of the current facts. The EIR should not be relied upon. The Draft Review should be rewritten with more complete information due to the factual inaccuracies. The revised document should be circulated for public comment for at least 30 days.

Thank you for the opportunity to provide comments on the Draft Review.

Request

Please put this Office on the distribution list for future reports, letters, and notices for this project. For email distribution, please send materials to me at Erickson@stamplaw.us.

Very truly yours,

LAW OFFICES OF MICHAEL W. STAMP

Molly Erickson

Exhibits:

A. Ag Land Trust letters to CPUC (November 6, 2006 and April 15, 2009).
B. Herald Article (February 4, 2012).
C. Final Judgment in *Ag Land Trust v. Marina Coast Water District* (Monterey Superior Court Case No. M105019).

EXHIBIT A

'MONTEREY COUNTY AGRICULTURAL AND HISTORICAL LAND CONSERVANCY
P.O. Box 1731, Salinas CA 93902

November 6, 2006

Jensen Uchida
c/o California Public Utilities Commission
Energy and Water Division
505 Van Ness Avenue, Room 4A
San Francisco, Ca. 94102
FAX 415-703-2200
JMU@cpuc.ca.gov

SUBJECT: California-American Water Company's Coastal Water Project EIR

Dear Mr. Uchida:

I am writing to you on behalf of the Monterey County Agricultural and Historic Lands Conservancy (MCAHLC), a farmland preservation trust located in Monterey County, California. Our Conservancy, which was formed in 1984 with the assistance of funds from the California Department of Conservation, owns over 15,000 acres of prime farmlands and agricultural conservation easements, including our overlying groundwater rights, in the Salinas Valley. We have large holdings in the Moss Landing/Castroville/Marina areas. Many of these acres of land and easements, and their attendant overlying groundwater rights, have been acquired with grant funds from the State of California as part of the state's long-term program to permanently preserve our state's productive agricultural lands.

We understand that the California-American Water Company is proposing to build a desalination plant somewhere (the location is unclear) in the vicinity of Moss Landing or Marina as a proposed remedy for their illegal over-drafting of the Carmel River. On behalf of our Conservancy and the farmers and agricultural interests that we represent, I wish to express our grave concerns and objections regarding the proposal by the California-American Water Company to install and pump beach wells for the purposes of exporting groundwater from our Salinas Valley groundwater aquifers to the Monterey Peninsula, which is outside our over-drafted groundwater basin. This proposal will adversely affect and damage our groundwater rights and supplies, and worsen seawater intrusion beneath our protected farmlands. We object to any action by the California Public Utilities Commission (CPUC) to allow, authorize, or approve the use of such beach wells to take groundwater from beneath our lands and out of our basin, as this

would be an "ultra-vires" act by the CPUC because the CPUC is not authorized by any law or statute to grant water rights, and because this would constitute the wrongful approval and authorization of the illegal taking of our groundwater and overlying groundwater rights. Further, we are distressed that, since this project directly and adversely affects our property rights, the CPUC failed to mail actual notice to us, and all other superior water rights holders in the Salinas Valley that will be affected, as is required by the California Environmental Quality Act (CEQA). The CPUC must provide such actual mailed notice of the project and the preparation of the EIR to all affected water rights holders because California-American has no water rights in our basin.

Any EIR that is prepared by the CPUC on the proposed Cal-Am project must included a full analysis of the legal rights to Salinas Valley groundwater that Cal-Am claims. The Salinas Valley percolated groundwater basin has been in overdraft for over five decades according to the U.S. Army Corps of Engineers and the California Department of Water Resources. Cal-Am, by definition in California law, is an appropriator of water. No water is available to new appropriators from overdrafted groundwater basins. The law on this issue in California was established over 100 years ago in the case of Katz v. Walkinshaw (141 Calif. 116), it was repeated in Pasadena v. Alhambra (33 Calif.2nd 908), and reaffirmed in the Barstow v. Mojave Water Agency case in 2000. Cal-Am has no groundwater rights in our basin and the CPUC has no authority to grant approval of a project that relies on water that belongs to the overlying landowners of the Marina/Castroville/Moss Landing areas.

Further, the EIR must fully and completely evaluate in detail each of the following issues, or it will be flawed and subject to successful challenge:

1. Complete and detailed hydrology and hydrogeologic analyses of the impacts of "beach well" pumping on groundwater wells on adjacent farmlands and properties. This must include the installation of monitoring wells on the potentially affected lands to evaluate well "drawdown", loss of groundwater storage capacity, loss of groundwater quality, loss of farmland and coastal agricultural resources that are protected by the California Coastal Act, and the potential for increased and potentially irreversible seawater intrusion.
2. A full analysis of potential land subsidence on adjacent properties due to increased (365 days per year) pumping of groundwater for Cal-Am's desalination plant.
3. A full, detailed, and complete environmental analysis of all other proposed desalination projects in Moss Landing.

On behalf of MCAHLC, I request that the CPUC include and fully address in detail all of the issues and adverse impacts raised in this letter in the proposed Cal-Am EIR. Moreover, I request that before the EIR process is initiated that the CPUC mail actual notice to all of the potentially overlying groundwater rights holders and property owners in the areas that will be affected by Cal-Am's proposed pumping and the cones of depression that will be permanently created by Cal-Am's wells. **The CPUC has an absolute obligation to property owners and the public to fully evaluate every**

reasonable alternative to identify the environmentally superior alternative that does not result in an illegal taking of third party groundwater rights. We ask that the CPUC satisfy its obligation.

Respectfully,

Brian Rianda

Brian Rianda, Managing Director

Ag Land Trust
P.O. Box 1731
Salinas, CA 93902
tel. 831.422.5868
fax. 831.758.6053

To: California Public Utilities Commission
C/O CPUC Public Advisor
505 Van Ness Avenue, Room 2103,
San Francisco, CA 94102
Fax: 415.703.1758
Email: public.advisor@cpuc.ca.gov.

April 15, 2009

Comments on Coastal Water Project Draft EIR

Dear Commissioners:

On behalf of the Monterey County Ag Land Trust, we hereby submit this comment letter and criticisms of the draft EIR that your staff has prepared for the Coastal Water Project located in Monterey County. Herewith attached is our letter to your commission dated November 6th, 2006. We hereby reiterate all of our comments and assertions found in that letter as comments on the Draft Environmental Impact Report.

The Draft EIR is fatally flawed because of your staff's intentional failure to address the significant environmental and legal issues raised in our November 6th 2006 letter. The project as proposed violates and will results in a taking of our Trust's groundwater rights. Further, although we have requested that these issues be addressed, it appears that they have been ignored and it further appears that the CPUC is now advancing a project (preferred alternative) that constitutes an illegal taking of groundwater rights as well as violations of existing Monterey County General Plan policies, existing certified Local Coastal Plan policies and Monterey County Environmental Health code.

The EIR must be amended to fully address these issues that have been intentionally excluded from the draft. Further, the EIR must state that the preferred alternative as proposed violates numerous Monterey County ordinances, and California State Groundwater law. Failure to include these comments in the EIR will result in a successful challenge to the document.

Respectfully,

Virginia Jameson
Ag Land Trust

EXHIBIT B

SATURDAY SERVING THE MONTEREY PENINSULA AND SALINAS VALL

Monterey County The Herald

A MediaNews Group NEWSPAPER

Saturday, February 4, 2012

www.montereyherald.com

Review failed to consider
water rights, judge rules

Desal EIR dealt blow

By JIM JOHNSON
Herald Staff Writer

In an amended ruling, a Monterey County Superior Court judge found the environmental review for the failed regional desalination project neglected to properly consider a number of issues, including water rights.

The revised ruling, which amends a tentative decision issued by Judge Lydia Villarreal in December, deals a severe blow to any thoughts California American Water may have had about using the project's environmental impact report on an alternative desal project.

It could raise questions about whether the EIR is adequate under the California Environmental Quality Act for Cal Am to go ahead with its portion of the regional project.

The revision was released Thursday, about six weeks after Villarreal ruled Marina Coast Water District should have prepared

Please see **Desal page A9**

Desal

From **page A1**

the EIR as the lead agency under state environmental law. The revision did not change that stance.

Ag Land Trust sued Marina Coast in March 2010, arguing Marina Coast should have been the lead agency on the project instead of the state Public Utilities Commission.

Attorney Molly Erickson, representing Ag Land Trust, said Villarreal's amended ruling found in favor of all of the organization's environmental claims, in particular its argument the EIR contained an inadequate discussion of water rights.

"Ag Land Trust has been raising the issue of water rights since at least 2006," Erickson said. "For more than five years, the Marina Coast Water District and the Monterey County Water Resources Agency ignored Ag Land Trust. In the end, the rule of law was more powerful than the backroom deals.

"This issue is particularly important because the regional project proposed to pump water from the overdrafted Salinas Valley groundwater basin," she said.

Cal Am spokeswoman Catherine Bowie said company officials hadn't seen the ruling and couldn't comment on it.

She said the exact nature of an alternative water supply project, and any environmental review, has yet to be determined. She said Cal Am's bid to construct its part of the regional project will be decided by the PUC, and the company will rely on the commission to decide how to comply with state environmental law.

When Cal Am announced last month that it was withdrawing support from the regional project, it pointed to a lack of progress on the work because of unresolved issues, including conflict of interest charges and permitting and financing challenges. Villarreal's tentative ruling on the EIR was considered a source of delay.

The company must find a replacement source of water for the Peninsula by 2016 because of a state order to reduce pumping from the Carmel River.

Despite its complaints, Cal Am suggested that "a lot of valuable work" was accomplished that could be applicable to an alternative desal project.

Late last month, at a PUC conference, Cal Am announced its intention to submit an application for an alternative water supply project within 90 days. The company indicated it would seek a modification of the regional project permit to capitalize on the efforts so far, presumably including the completion and PUC approval of the environmental impact report.

In her revised ruling, Villarreal found the EIR failed to address issues surrounding availability of groundwater for the desal project and the potential environmental impact, especially after the county Water Resources Agency admitted it still needed to acquire groundwater rights for the project.

The EIR's assumption that those rights didn't need to be addressed, because they would be "perfected" in the future, was impermissible because it did not meet the goal of allowing full public review of potential consequences, according to the ruling.

The ruling found that Marina Coast, as lead agency on the EIR, would need to address water rights, a contingency plan, the assumption of constant pumping, the exportation of groundwater from the Salinas Valley basin, brine impacts, effects on adjacent properties and water quality.

Jim Heitzman, general manager of the Marina Coast Water District, did not return a phone call from The Herald.

But the district's outside legal counsel, Mark Fogelman, argued at the PUC conference last month that Villarreal's tentative ruling in December did not represent a major impediment to moving forward with the regional project. He urged the commission to order Cal Am to meet its obligations under the project agreements.

Fogelman said the district would appeal if the final ruling remained unchanged from the tentative decision.

County Counsel Charles McKee said he hadn't seen the amended ruling and couldn't comment, but the county's outside legal counsel, Dan Carroll, cited the December ruling in arguing at the PUC conference that the project was subject to considerable uncertainty.

Jim Johnson can be reached at jjohnson@monterey herald.com or 753-6753.

EXHIBIT C

Michael W. Stamp, State Bar No. 72785
Molly E. Erickson, State Bar No. 253198
LAW OFFICES OF MICHAEL W. STAMP
479 Pacific Street, Suite One
Monterey, California 93940
Telephone: (831) 373-1214
Facsimile: (831) 373-0242

Attorneys for Petitioner and Plaintiff
Ag Land Trust

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF MONTEREY

AG LAND TRUST,

Petitioner and Plaintiff,

v.

MARINA COAST WATER DISTRICT, and DOES 1 to 100,

Respondents and Defendants.

_____/

Case No. M105019
Filed April 5, 2010
First Amended Petition and Complaint filed April 6, 2010
CEQA Hearing: October 27, 2011
Intended Decision: December 19, 2011
Amended Intended Decision: February 2, 2012

~~[PROPOSED]~~
JUDGMENT GRANTING FIRST AMENDED PETITION FOR WRIT OF MANDATE (CALIFORNIA ENVIRONMENTAL QUALITY ACT) AND ORDERING ISSUANCE OF PEREMPTORY WRIT OF MANDATE

Dept: 15
Judge: Hon. Lydia M. Villarreal

The First Amended Petition for Writ of Mandate (California Environmental Quality Act) came on regularly for hearing on October 27, 2011, in Department 15 of this Court, located at 1200 Aguajito Road, Monterey, California 93940. Michael W. Stamp and Molly Erickson appeared on behalf of petitioner Ag Land Trust. Mark Fogelman and Ruth Muzzin appeared on behalf of respondent Marina Coast Water District.

The Court has reviewed and considered the record of proceedings in this matter, the briefs submitted by the parties, the arguments of counsel, and the post-hearing briefs of the parties. The First Amended Petition for Writ of Mandate (California

Environmental Quality Act) was submitted for decision on October 27, 2011. On December 19, 2011, the Court issued its Intended Decision. On February 2, 2012, the Court issued its Amended Intended Decision. On February 29, 2012, the Court issued its Order denying Marina Coast Water District's objections and adopting the Amended Intended Decision as the Statement of Decision, final for all purposes.

IT IS ORDERED, ADJUDGED, and DECREED that:

1. The First Amended Petition for Writ of Mandate (California Environmental Quality Act) brought by petitioner Ag Land Trust against respondent Marina Coast Water District is GRANTED in favor of Ag Land Trust and against Marina Coast Water District.

2. A peremptory writ of mandate directed to respondent shall issue under seal of this Court, in the form specified in Exhibit A. The Court FINDS AND DETERMINES that Marina Coast Water District prejudicially abused its discretion and failed to proceed in the manner required by law in making its approvals of the Regional Desalination Project on March 16, 2010 and April 5, 2010, by proceeding as a responsible agency rather than as a lead agency, by failing to properly analyze the environmental impact report as a lead agency under CEQA, and by failing to properly and adequately identify, discuss, and address the environmental impacts of the project, including but not limited to water rights, contingency plan, assumption of constant pumping, exportation of groundwater from the Salinas Valley Groundwater Basin, brine impacts, impacts on overlying and adjacent properties, and water quality, as required here for a lead agency under CEQA.

3. The Court's final statement of decision (the Amended Intended Decision) is attached hereto as Exhibit B and is incorporated herein.

4. Respondent Marina Coast Water District shall set aside its approvals of the Regional Desalination Project, and is restrained from taking further actions to approve the project until respondent fully complies with CEQA.

5. The Court reserves jurisdiction over Ag Land Trust's claim for an award of private attorney general fees and costs pursuant to Code of Civil Procedure section 1021.5. Any motion for said fees and costs shall be filed and served within 60 days of the filing of the notice of entry of this Judgment.

6. Petitioner is awarded its costs of suit.

Dated: APR 17 2012

LYDIA M. VILLARREAL

Hon. Lydia M. Villarreal
Judge of the Superior Court

EXHIBIT A

Michael W. Stamp, State Bar No. 72785
Molly E. Erickson, State Bar No. 253198
LAW OFFICES OF MICHAEL W. STAMP
479 Pacific Street, Suite One
Monterey, California 93940
Telephone: (831) 373-1214
Facsimile: (831) 373-0242

Attorneys for Petitioner and Plaintiff
Ag Land Trust

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF MONTEREY

AG LAND TRUST,

Petitioner and Plaintiff,

v.

MARINA COAST WATER DISTRICT, and DOES 1 to 100,

Respondents and Defendants.

_____/

Case No. M105019
Filed April 5, 2010
First Amended Petition and Complaint filed April 6, 2010
CEQA Hearing: October 27, 2011
Intended Decision: December 19, 2011
Amended Intended Decision: February 2, 2012

[PROPOSED]
PEREMPTORY WRIT OF MANDATE

A Judgment Granting First Amended Petition for Writ of Mandate (California Environmental Quality Act) and Ordering Issuance of Peremptory Writ of Mandate having been entered in this proceeding, ordering that a peremptory writ of mandate be issued from this Court,

IT IS ORDERED that, immediately on service of this writ, respondent Marina Coast Water District shall:

1. Vacate and set aside its March 16, 2010 and April 5, 2010 approvals of the Regional Desalination Project, and each step approved by respondent pursuant to Public Resources Code section 21168.9, subdivision (a). Further action to approve the project beyond setting aside and vacating these approvals by respondent shall not be taken, except in accordance with the Judgment Granting First Amended Petition for

Writ of Mandate (California Environmental Quality Act) and Ordering Issuance of Peremptory Writ of Mandate.

Having found in petitioner's favor on the issues raised in the first amended petition, the Court finds that the following action is necessary under Public Resources Code section 21168.9, subdivision (b) to comply with the provisions of CEQA: respondent to set aside and vacate its approvals, and to prepare, circulate and consider a legally adequate environmental impact report and otherwise to comply with the California Environmental Quality Act in any subsequent action taken to consider approval of the project and/or approve the project. Under Public Resources Code section 21168.9, subdivision (c), this Court does not direct respondent to exercise its lawful discretion in any particular way.

Under Public Resources Code section 21168.9, subdivision (b), this Court retains jurisdiction over respondent's proceedings by way of a return to this peremptory writ of mandate until the Court has determined that respondent has complied with the provisions of CEQA.

The return date on the writ in this action shall be 60 days, subject to extension by the Court for cause.

Dated:_____

_____

Hon. Lydia M. Villarreal
Judge of the Superior Court

EXHIBIT B

SUPERIOR COURT OF CALIFORNIA

COUNTY OF MONTEREY

AG LAND TRUST,

Plaintiff/Petitioner,

vs.

MARINA COAST WATER DISTRICT,

Defendant/Respondent

Case No.: M105019

Amended Intended Decision

Ag Land Trust's (Ag Land) petition for a writ of mandamus came on for court trial on October 27, 2011. All sides were represented through their respective attorneys. The matter was argued and taken under submission. This amended intended decision resolves factual and legal disputes, and shall suffice as a statement of decision as to all matters contained herein.

Background

Ag Land's petition challenges respondent Marina Coast Water District's (Marina Coast) March and April 2010 actions taken on behalf of the Regional Desalination Project (Regional Project).

California American Water Company pumps water from the Carmel River and in 1995 was ordered by the State Water Resources Control Board to find an alternative source of water. In 2008, an adjudication of water rights ordered California American Water Company to reduce its pumping from the Seaside Basin.

California American Water Company applied to the California Public Utilities Commission (Cal PUC) in February 2003 for a certification of Public Convenience and Necessity for a desalination plant in Moss Landing (Moss Landing Project or Coastal Water Project), and also concurrently proposed an alternative project in an unincorporated area north of the City of Marina (North Marina Project), in response to the 1995 order.

The Cal PUC decided that it would be the lead agency for the two projects and would prepare an environmental impact report (EIR) in compliance with the California Environmental Quality Act (CEQA). (Public Resources Code, § 21000 et seq.) The Cal PUC released a Notice of Preparation for an EIR in September 2006 for the two projects.

The Regional Project was proposed in 2008 by Marina Coast and the Monterey County Water Resources Agency (Water Resources Agency). California American Water Company would distribute the water from the Regional Project.

The Cal PUC thereafter included the Regional Project in the EIR and on December 17, 2009, certified a Final EIR that looked at all three projects, but did not identify a preferred project.

Marina Coast issued a notice of intent to prepare an EIR in September 2009 to acquire and annex the East Armstrong Ranch (Ranch) property for the siting of the Regional Project, and approved and annexed the Ranch on March 16, 2010. Marina Coast filed a Notice of Determination on March 17, 2010. (California Code of Regulations, title 14, § 15094 (Guidelines).)

On April 5, 2010, Marina Coast approved the Regional Project relying on the Cal PUC Final EIR and an addendum dated March 24, 2010. Marina Coast's resolution included findings, a mitigation monitoring program and a statement of overriding considerations.

Ag Land contends that (1) Marina Coast is the CEQA lead agency for the Regional Project; (2) Marina Coast did not proceed in a manner required by law because (a) there is no discussion in the EIR of the reliability of desalination plants; (b) the EIR did not include a contingency plan; (c) the discussion of water rights is inadequate; (d) the assumption of constant pumping is unreasonable, (e) the Regional Project will illegally export groundwater from the Salinas Valley Groundwater Basin; (f) the EIR did not adequately investigate and disclose impacts to overlying and adjacent property, and (g) failed to adequately investigate and disclose the project's violation of the State Water Resources Control Board's Anti-Degradation Policy; and (3) the statement of overriding consideration is not supported by substantial evidence.

Administrative Record

The administrative record (AR) was admitted into evidence.

Judicial Notice

Marina Coast makes reference in its opposition brief to Marina Coast's request for judicial notice that was filed with a demurrer, and asks this Court to take judicial notice of multiple documents. The Court denies the request for judicial notice of the duplicative, extra-record and irrelevant evidence. (Evid. Code, §§ 452, subd. (c), 459; Code Civ. Proc., §§ 909, 1094.5, subd. (e); *Sierra Club v. California Coastal Com.* (2005) 35 Cal.4th 839, 863; *Western States Petroleum Assn. v. Superior Court* (1995) 9 Cal.4th 559, 573, fn.4; *In re Zeth S.* (2003) 31 Cal.4th 396, 405.)

Discussion

(I). Lead agency issue

Ag Land contends that Marina Coast became the lead agency with the "principal responsibility for carrying out or approving a project" when Marina Coast acted to approve the Regional Project. (Pub. Resources Code, § 21067; Guidelines, § 15051; *Citizens Task Force on Sohio v. Board of Harbor Commissioners* (1979) 23 Cal.3d 812 (*Sohio*).)

Marina Coast argues that the Cal PUC is the lead agency because Cal PUC (1) determined it was the lead agency; (2) prepared the Final EIR; (3) is the agency with the greatest responsibility for the Regional Project; (4) was the first agency to act; and (5) the criteria for a change in lead agency is not met.

Guidelines section 15015 provides:

"Criteria for Identifying the Lead Agency[.] Where two or more public agencies will be involved with a project, the determination of which agency will be the lead agency shall be governed by the following criteria:

(a) If the project will be carried out by a public agency, that agency shall be the lead agency even if the project would be located within the jurisdiction of another public agency.

(b) If the project is to be carried out by a nongovernmental person or entity, the lead agency shall

be the public agency with the greatest responsibility for supervising or approving the project as a whole.

(1) The lead agency will normally be the agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose such as an air pollution control district or a district which will provide a public service or public utility to the project.

(2) Where a city prezones an area, the city will be the appropriate lead agency for any subsequent annexation of the area and should prepare the appropriate environmental document at the time of the prezoning. The local agency formation commission shall act as a responsible agency.

(c) Where more than one public agency equally meet the criteria in subdivision (b), the agency which will act first on the project in question shall be the lead agency.

(d) Where the provisions of subdivisions (a), (b), and (c) leave two or more public agencies with a substantial claim to be the lead agency, the public agencies may by agreement designate an agency as the lead agency. An agreement may also provide for cooperative efforts by two or more agencies by contract, joint exercise of powers, or similar devices."

(A). Marina Coast's April 5, 2010 Resolution.

Marina Coast's April 5, 2010 Resolution No. 2010-20s purpose was to "conditionally" approve Marina Coast's "participation in a Regional Desalination Project through a Water Purchase Agreement by and among" Marina Coast, the Water Resources Agency, and California American Water Company. The Resolution also would approve a Settlement Agreement in Cal PUC proceeding A.04-09-019. (AR 1.)

"Under the Water Purchase Agreement, [the Water Resources Agency] would construct, own, and operate a series of wells that would extract brackish water and a portion of a pipeline and appurtenant facilities [] that would convey the brackish water to a desalination plant and related facilities that would be owned and operated by [Marina Coast]." (AR 2.)

"The [Marina Coast] Facilities would include a pipeline and connection to discharge brine from the desalination plant to connect the regional outfall facilities owned and operated by the Monterey

Regional Water Pollution Control Agency [Pollution Control Agency] [], pursuant to an 'Outfall Agreement' dated January 20, 2010, between [Marina Coast and the Pollution Control Agency]." (AR 2.)

"In Decision D.03-09-22, the [Cal PUC] designated itself as the lead agency for environmental review of the Coastal Water Project under CEQA." (AR 4.)

"On January 30, 2009, the [Cal PUC], acting as Lead Agency under CEQA in A.04-09-019, issued a Draft [EIR] [] analyzing the potential environmental impacts of project designated the 'Coastal Water Project' and alternatives to it. The [Cal PUC] duly received and analyzed extensive public comment on the [Draft EIR]. [Marina Coast, the Water Resources Agency, and California American Water Company] provided comments on the [Draft EIR]." (AR 4.)

"On December 17, 2009, in Decision No. 09-12-017 which was issued in Application 04-09-019, the [Cal PUC], as Lead Agency, duly certified a Final [EIR] which includes a description and analyzes the environmental impacts of an alternative project variously referred to in that Final [EIR] as the 'Regional Alternative' and the 'Regional Project' and 'Phase I of the Regional Project.' The principal element of that alternative project is a regional desalination water supply project, with other smaller elements." (AR 4.)

"On March 24, 2010, an addendum to the Final [EIR] [] was released, which responds to comment letters that had been inadvertently omitted from the Final EIR and includes an errata to the Final EIR. The term 'Final EIR' as used in this resolution includes the addendum." (AR 4.)

"The Final EIR designates [Marina Coast] as a responsible agency under CEQA." (AR 4.)

"The Directors [of Marina Coast] have reviewed and considered the Final EIR and Addendum in their entirety and the entire record of proceedings before [Marina Coast], as defined in the Findings attached hereto as Attachment A, and find that the Final EIR and Addendum are adequate for the purpose of approving [Marina Coast's] approval and implementation of the Regional Desalination Project pursuant to the Water Purchase Agreement and Settlement Agreement, and [Marina Coast] hereby relies upon the contents of those documents and the CEQA process for its CEQA compliance." (AR4-5)

"[Marina Coast] intends to conduct all future activities under the Water Purchase Agreement and the Settlement Agreement in accordance with the Final EIR; or alternatively, and if needed to comply with CEQA, [Marina Coast] would amend, supplement or otherwise conduct new environmental review prior to directly or indirectly committing to undertake any specific project or action involving a physical change to the environment related to the implementation of the Regional Desalination Project pursuant to the Water Purchase Agreement and the Settlement Agreement." (AR 5.)

"At the direction of the Directors, [Marina Coast] has made written findings for each significant effect associated with the [Marina Coast] Facilities and prepared a Statement of Overriding Considerations, which explains that the benefits of the [Regional] Project outweigh any significant and unavoidable impacts on the environment and has prepared a Mitigation Monitoring and Reporting Plan [Mitigation Plan], which includes all mitigation measures designed to substantially lessen or eliminate the adverse impact on the environment associated with construction and operation of the [Marina Coast] Facilities, as well as a plan for reporting obligations and procedures by parties responsible for implementation of the mitigation measures. A copy of the Findings and Statement of Overriding Considerations is attached to this resolution as Attachment A. A copy of the [Mitigation Plan] is attached to the Findings." (Boldface omitted.) (AR 5.)

"By this resolution, the Directors make and adopt appropriate Findings, Statement of Overriding Considerations and a Mitigation Monitoring and Reporting Plan and conditionally approve [Marina Coast's] participation in the Regional Desalination Project pursuant to a Water Purchase Agreement between [Marina Coast, the Water Resources Agency, and California American Water Company], and a Settlement Agreement between [Marina Coast, the Water Resources Agency, and California American Water Company] and various other interested parties to settle California Public Utilities Commission Proceeding A.04-09-019, 'In the Matter of the Application of California American Water Company (U 210 W) for a Certificate of Public Convenience and Necessity to Construct and Operate its Coastal Water Project to Resolve the Long-Term Water Supply Deficit in its Monterey District and to Recover All Present and Future Costs in Connection Therewith in Rates.'" (AR 5-6.)

"NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of the Marina Coast Water District adopt the foregoing findings; and

1. The Directors hereby certify, pursuant to CEQA Guidelines §§ 15050(b) and 15096(f), that they have reviewed and considered the Final EIR as certified by the [Cal PUC] on December 17, 2009 in Decision D.09-12-017 and the Addendum that was released on March 24, 2010.

2. The Directors hereby approve and adopt the Findings attached hereto as Attachment A, which are incorporated herein, pursuant to CEQA Guidelines §§ 15091 and 15096(h).

3. The Directors hereby approve and adopt the Mitigation Monitoring and Reporting Plan identified in the Findings and attached to the Findings, pursuant to CEQA Guidelines § 15096(g).

4. The Directors hereby conditionally approve [Marina Coast's] participation in the Regional Desalination Project pursuant to the Water Purchase Agreement and the Settlement Agreement, contingent on final approval by the [Cal PUC].

5. The Directors hereby authorize the President and the General Manager and Secretary to execute the Water Purchase Agreement and the Settlement Agreement pursuant to this resolution and conditional approval substantially in the form presented to the Board at the April 5, 2010, meeting, and direct the General Manager and staff to take all other actions that may be necessary to effectuate and implement this resolution and Conditional Project Approval.

PASSED AND ADOPTED on April 5, 2010, by the Board of Directors of the Marina Coast Water District...." (AR 6.)

(B). Marina Coast's April 5, 2010 Resolution Attachment A: Findings for Marina Coast Facilities for Phase I of the Regional Project.

"As described in the Final EIR, Phase I of the Regional Project contemplates the development, construction, and a regional desalination water supply project. The Final EIR envisions that [Marina Coast, the Water Resources Agency, and California American Water Company], would own and operate various project components. [Marina Coast, the Water Resources Agency, and California American

Water Company], have negotiated terms and conditions, as set forth in a proposed 'Water Purchase Agreement,' to implement the regional desalination project element of the project described and analyzed as Phase I of the Regional Project in the Final EIR. The other elements of Phase I, including recycled water and aquifer storage and recovery, will be coordinated with the desalination element but are not part of the Water Purchase Agreement. The project which is the subject of the Water Purchase Agreement and the focus of these findings is referred to as the 'Regional Desalination Project.' Under the Water Purchase Agreement, [the Water Resources Agency] would design, construct, own and operate, in consultation with [Marina Coast and California American Water Company], a series of wells ('Source Water Wells') that would extract brackish source water for conveyance to the desalination plant and a portion of the pipeline and appurtenant facilities (collectively, 'Intake Facilities') that would convey the brackish water to a desalination plant that would be owned and operated by [Marina Coast]. [Marina Coast] would own and operate the Brackish Source Water Receipt Point Meter and a portion of the Brackish Source Water Pipeline, the Desalination Plant, the [Marina Coast] Meter, the [California American Water Company] Meter, the [Marina Coast] pipeline, the [Marina Coast] Product Water Pipeline, the [Marina Coast] Outfall Facilities [] and any related facilities. The components of the Regional Desalination Project that would be owned and operated by [Marina Coast] are herein after referred to as the '[Marina Coast] Facilities'. The remainder of the project components would be constructed by [California American Water Company]." (AR 8-9.)

"The [Regional] Project Facilities include components owned by three public agencies; [Marina Coast, the Water Resources Agency, and the Pollution Control Agency]. In addition to the Project Facilities, the [California American Water Company] facilities shall serve as distribution facilities to serve the [California American Water Company] Service Area and be owned by [California American Water Company]." (AR 12.)

"[Marina Coast]-Owned Facilities. The [Marina Coast]-Owned Facilities include the Brackish Source Water Receipt Point Meter and a portion of the Brackish Source Water Pipeline, the Desalination Plant, the [Water Resources Agency] Meter, the [California American Water Company] Meter, the

[Marina Coast] Product Water Pipeline, the [Marina Coast] Outfall Facilities, and any related facilities." (Underscoring omitted.) (AR 13.)

"[California American Water Company]-Owned Facilities. The [California American Water Company] Facilities include the distribution system needed to convey the Product Water from the Delivery Point downstream of the [California American Water Company] Meter to the [California American Water Company] distribution system, plus other in-system improvements. None of the facilities owned by [California American Water Company] and downstream of the [California American Water Company] Meter are part of the Project Facilities." (Underscoring omitted.) (AR 16-17.)

"As a responsible agency under the Coastal Water Project Final EIR, [Marina Coast] intends to rely upon the Final EIR in its decision whether or not to approve a Settlement Agreement and certain other agreements from the proceedings of the [Cal PUC] consideration of Application A.04-09-019. Pursuant to Section 15096 of the CEQA Guidelines, the process for a responsible agency does not require certification of the Final EIR. [Marina Coast] has chosen to rely on the Final EIR as the basis of the findings, herein." (AR 17.)

"IX. Findings Regarding Alternatives [.] [Marina Coast] is a responsible agency and, as such, only has approval authority over a portion of the [Regional] Project. [Marina Coast] does not have approval authority over an aspect of the Moss Landing Power Plant or the North Marina Alternative. Thus, these Findings are limited to those aspects of the Project over which [Marina Cost] has approval authority and do not evaluate the various alternatives indentified in the Final EIR." (Boldface and some capitalization omitted.) (AR 83.)

(C). Marina Coast's April 5, 2010 Resolution: Settlement Agreement

"On April 5, 2010, [Marina Coast], and on April 6, 2010, [Water Resources Agency], each acting as a Responsible Agency under CEQA, and having fully considered all relevant environmental documents, including the [Final] EIR, approved the regional desalination project that is described in the Water Purchase Agreement ('WPA'), which is attached hereto as Attachment 1, subject to Commission approval. That project is referred to as the 'Regional Desalination Project.'" (AR 119.)

"The Parties to this Settlement Agreement, subject to the Approval Condition Precedent hereinafter discussed, have agreed to the development of the Regional Desalination Project. The Regional Desalination Project will consist of three primary elements. [The Water Resources Agency] will own, install, operate, and maintain wells through which brackish source water will be extracted and transported to a desalination plant. [Marina Coast] will own, construct and operate the desalination plant and transport desalinated Product Water to a delivery point, where some of the Product Water will be received by [California American Water Company] and some will be received by [Marina Coast]. [Marina Coast will utilize the Product Water delivered to it for its existing customers, and in the future may utilize some of the Product Water to serve customers in the former Ford Ord. [California American Water Company] will distribute its portion of the Product Water through facilities it owns for which the Commission should grant a CPCN. Operations of all project facilities shall be conducted so that all Legal Requirements are met, including but not limited to the requirements of the Agency Act. Greater detail regarding the design, construction, and operation of the Regional Desalination Project is found in two agreements, the [Water Purchase Agreement] and the Outfall Agreement (together referred to as the 'Implementing Agreements') discussed in Article 7 of this Settlement Agreement. Greater detail regarding the cost and ratemaking treatment of the Regional Desalination Project and the facilities that [California American Water Company] will own in connection with the Regional Desalination Project is contained in this Settlement Agreement and the Attachments hereto." (Underscoring omitted.) (AR 119.)

"The Parties to this Settlement Agreement believe that the development, construction, and operation of the Regional Desalination Project does and will serve the present and future public convenience and necessity, and that the Commission should grant [California American Water Company] a CPCN [certificate of public convenience and necessity] to construct and operate the distribution pipeline and aquifer storage and recovery facilities portion of the Regional Desalination Project that [California American Water Company] proposes to own []." (AR 120.)

"The Parties acknowledge the legal requirement that [California American Water Company] customers be charged rates that are just and reasonable. In light of that acknowledgement, with respect to

the ratemaking treatment for the [California American Water Company] Facilities set forth in Article 9 of this Settlement Agreement, the cost recovery mechanism set forth in Article 9 represents an effort to strike a balance between minimizing costs of the [California American Water Company] Facilities and assuring [California American Water Company] ratepayers only pay for actual necessary expended capital investment...." (AR 120.)

(D). Marina Coast's April 5, 2010 Resolution: Water Purchase Agreement

"On January 30, 2009, the [Cal PUC], acting as Lead Agency under CEQA, issued a Draft [EIR] analyzing the potential environmental impacts of a project designated the 'Coastal Water Project' and alternatives to it. The [Cal PUC] duly received and analyzed extensive public comment on the [Draft] EIR. [Marina Coast, the Water Resources Agency, and California American Water Company] provided comments on the [Draft] EIR." (AR 140-141.)

"On December 17, 2009, in Decision No. 09-12-017 which was issued in Application 04-09-019, the [Cal PUC], as Lead Agency, after considering all relevant environmental documents, duly certified a Final [EIR]. The Final [EIR] described and studied three alternative projects which are being considered for approval by the Commission in the proceeding - the Moss Landing Project, the North Marina Project, and a third alternative project variously referred to as the 'Regional Alternative' and the 'Regional Project' and 'Phase I of the Regional Project.' The principal element of that latter alternative project is a regional desalination water supply project, with other smaller elements. This Agreement does not contemplate or address any elements other than 'Phase I of the Regional Project.'" (AR 141.)

"On April 5, 2010, [Marina Coast], and on April 6, 2010, [Water Resources Agency], each acting as a Responsible Agency under CEQA, and having fully considered all relevant environmental documents, including the Final [EIR], approved this Agreement for a regional desalination project subject to [Cal PUC] approval, as more specifically described in Article 3 (the 'Regional Desalination Project')." (Underscoring omitted.) (AR 141.)

"The Regional Desalination Project contemplates the development, construction and operation of a regional desalination water supply project as described and analyzed in the [Final] EIR. (AR 141.)

[Marina Coast, the Water Resources Agency, and California American Water Company], individually and collectively, have determined and found that the Regional Desalination Project is the least costly of the proposed alternative projects, the most feasible of those projects, and is in the best interests of the customers served by each of [Marina Coast and California American Water Company] and that the Regional Desalination Project as implemented by this Agreement serves the public interest and is consistent with the Agency Act. The Parties have also determined that the Regional Desalination Project best conserves and protects public trust assets, resources and values impacted by providing a water supply." (AR 141.)

[California American Water Company] has determined that purchasing Product Water from [Marina Coast] will allow [California American Water Company] to provide its customers in [California American Water Company's] Service Area with Product Water at a significantly lower cost than by means of any of the other proposed alternative projects described in the [Final] EIR." (AR 141.)

[Marina Coast, the Water Resources Agency, and California American Water Company], as part of a settlement of issues pending in Application 04-09-019, as set forth in that certain Settlement Agreement to be filed with the [Cal PUC] in Application 04-09-019 (the 'Settlement Agreement'), have negotiated this Agreement and certain other agreements contemplated by the Settlement Agreement." (Underscoring omitted.) (AR 141)

"The Parties intend that the development, construction and operation of the Regional Desalination Project occur in accordance with the [Final] EIR and that [Marina Coast and the Water Resources Agency] each act as a Responsible Agency in accordance with CEQA to implement the Regional Desalination Project." (AR 141.)

(E). Notice of Determination Filed with County Clerk on March 17, 2010

"Project Title: Acquisition of 224-acres (+/-) of Armstrong Ranch Land and Appurtenant Easements relying upon the California Public Utilities Commission, California American Water Company, Coastal Water Project Final EIR (certified December 17, 2009) []." (Boldface omitted.) (AR 1083.)

"Project Description: The project consists of the acquisition of the Site by [Marina Coast], pursuant to an agreement between [Marina Coast] and the Armstrong Family entered into in 1996 and subsequently supplemented and amended (1996 Agreement). The 1996 Agreement limits use of the Site to the production, storage, or distribution of treated water (tertiary treatment or its equivalent) or potable water. The acquisition of the Site and appurtenant easements are intended to potentially allow development of infrastructure for water production and treatment, storage and distribution in accordance with the 1996 Agreement, and for future annexation of the Site to [Marina Coast]. Only the property acquisition is proposed. Future projects at the Site proposed by [Marina Coast] for water supply and other public facility infrastructure are conditioned upon CEQA compliance. [¶] The California Public Utilities Commission certified a relevant Final EIR for the California American Water Company, Coastal Water Project on December 17, 2009; however, have (sic) not taken action on the Coastal Water Project or alternatives. [¶] This notice is to advise that on March 16, 2010, the Board of Directors of the [Marina Coast] (Board) approved Resolution No. 2010-18 to Make CEQA Findings, Approve and Adopt Addendum to the Final EIR and Approve the Acquisition of 224-acres (+/-) of Armstrong Ranch Land and Appurtenant Easements. Resolution No. 2010-18, including attachments, made the following determinations regarding the Armstrong Ranch Property Acquisition and appurtenance Easements:" (Boldface omitted.) (AR 1084.)

(F). Resolution No. 2010-18

"... [Marina Coast] desires to own property in the area north of the City of Marina and south of land owned by the [Pollution Control Agency] (and the Monterey Regional Waste Management District [] to provide land for future construction, operation and maintenance of water supply infrastructure to produce, treat, store, and distribute water; and," (AR 1726.)

"WHEREAS, CEQA Guidelines Sections 15004 (b)(2)(A) provides that "agencies may designate a preferred site for CEQA review and may enter into land acquisition agreements when the agency has conditioned the agency's future use of the site on CEQA compliance," and the California Supreme Court's

decision in *Save Tara v. City of West Hollywood* (2008) 45 Cal.4th 116, at 134, states that the Guidelines' exception for land purchases is a reasonable interpretation of CEQA; and,

"WHEREAS, this Resolution conditions the District's future use of the Site on CEQA compliance; and,

"WHEREAS, in accordance with CEQA Guidelines Section 15050(b) and 15096, [Marina Coast] has reviewed, considered, and relies upon the information in two existing, certified EIRs, the [Cal PUC] EIR and the [Regional Urban Water Augmentation Project] EIR as discussed in the [Cal PUC] EIR as hereinafter described, and related entitlements and approvals, to (1) thoroughly disclose and consider all relevant publicly available information on potential future activities that could occur at the Site and that may be indirectly enabled by the Acquisition, and (2) comprehensively identify all indirect environmental impacts of the Acquisition, thereby, evaluating the 'whole of the action' and avoiding piece-mealing or segmenting the analysis; and" (AR 1728.)

" WHEREAS, the [Cal PUC] EIR identified significant impacts of the [California American Water Company] Coastal Water Project alternatives and provided mitigation to reduce most of the significant impacts to a less-than-significant level with several environmental impacts remaining significant with mitigation, as summarized in the Executive Summary in Attachment A to this resolution; and,

"WHEREAS, pursuant to CEQA Guidelines Sections 15096, 15162, 15164 and 15063, and in consultation with other affected agencies and entities, [Marina Coast], as a responsible agency for approval of the Coastal Water Project alternatives, has prepared an Addendum to the [Cal PUC] EIR supported by an Initial Study (the Armstrong Ranch Property Acquisition Addendum in Attachment B) and finds the following related to the required CEQA compliance for the Acquisition:

• Acquisition of the Site, in and of itself, is merely a property transfer that would not directly have any significant effects on the environment,

• Future potential projects with components proposed to be located at the Site were described and evaluated previously in certified EIRs and those projects would result in significant environmental effects, including significant but potentially mitigable impacts,

• Although the decision to acquire the Site is not approval of a project under CEQA, [Marina Coast] is choosing to act as a responsible agency and to use a previously prepared and certified EIR, specifically the [Cal PUC] EIR, to support acquisition of the Site; and,

"WHEREAS, the action under consideration is approval of the Acquisition of the Site, which approval constitutes one of many actions necessary to implement the Coastal Water Project alternatives and would not by itself result in any significant impacts as described in the Armstrong Ranch Property Acquisition Addendum (Attachment B to this resolution); and,

"WHEREAS, the Directors have reviewed and considered the [Cal PUC] EIR and the Armstrong Ranch Property Acquisition Addendum (Attachment B) in their entirety and find that the [Cal PUC] EIR and the Armstrong Ranch Property Acquisition Addendum are adequate for the purpose of approving the [Marina Coast's] Acquisition of the Site, and [Marina Coast] hereby relies upon the contents of those documents and the CEQA process for its CEQA compliance; and,

"WHEREAS, [Marina Coast] intends to conduct all future activities at the Site in accordance with the [Cal PUC] EIR and with the [Regional Urban Water Augmentation Project] EIR as amended as discussed in the [Cal PUC] EIR; or, alternatively, and if needed to comply with CEQA, [Marina Coast] would amend, supplement or otherwise conduct new environmental review subsequent to approval of a project and adoption of findings by the [Cal PUC] and prior to directly or indirectly committing to undertake any specific project or action involving a physical change to the environment related to the Acquisition of the Site, including but not limited to a project or action involving any element of Phase I of the [Moss Landing] Alternative or the North Marina Alternative; and,

"WHEREAS, [Marina Coast's] General Manager, as [Marina Coast's] designated negotiator, recommends that the Board approve the Acquisition for execution in the form presented to the Board in open session on March 16, 2010.

"NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of the Marina Coast Water District adopt the foregoing findings; and,

"BE IT FURTHER RESOLVED, that the Board of Directors of the Marina Coast Water District certify, pursuant to CEQA Guidelines §§ 15050(b) and 15096(t), that they have reviewed and considered the Final EIR as certified by the [Cal PUC] on December 17, 2009 in Decision D.09-12-017; and,

"BE IT FURTHER RESOLVED, that the Board of Directors of the Marina Coast Water District approve and adopt the Armstrong Ranch Property Acquisition Addendum to the [Cal PUC] EIR; and,

"BE IF FURTHER RESOLVED, that the Board of Directors of the Marina Coast Water District hereby approve the Acquisition and authorize the General Manager and Secretary and the President to take the actions and execute the documents necessary or appropriate to exercise [Marina Coast's] right to acquire the Site in accordance with the 1996 Agreement, as supplemented and amended, and this Resolution, and to accept the Site; and,

"BE IT FURTHER RESOLVED, that the General Manager is authorized and directed to prepare and file an appropriate Notice of Determination for approval of the Acquisition; and,

"BE IT FURTHER RESOLVED, that [Marina Coast's] use of the Site after acquisition is conditioned upon CEQA compliance and that [Marina Coast] by determining to acquire and acquiring the Site does not foreclose analysis of any alternative or any mitigation measure in considering uses of the Site.

"PASSED AND ADOPTED on March 16, 2010, by the Board of Directors of the Marina Coast Water District by the following roll call vote: ..." (AR 1731-1732.)

(G). Cal PUC EIR

"Both the Moss Landing and North Marina Projects are analyzed in Chapter 4 of the EIR. [California American Water Company] would be the owner and operator of either of these two projects, and the [Cal PUC], as the Lead Agency under [CEQA], will use this document to approve one of the two projects to be implemented in the in the [Coastal Water Project]." (AR 2788-2789.)

"As proposed in the Regional Project, [Marina Coast] would be the owner of the regional desalination facility and the surface water treatment plant. In order for the Regional Project to be implemented, it is assumed in this EIR that [Marina Coast] would use this EIR in considering approval of some of the Regional Project facilities." (AR 2789.)

"The [Cal PUC] has no jurisdiction over [Marina Coast]. Thus as discussed below, the [Cal PUC] would not have authority over any element of the [Coastal Water Project] that ultimately is undertaken by [Marina Coast]...." (AR 4532.)

"... [Marina Coast] would permit, construct, own and operate the regional desalination facility and would sell water to [California American Water Company]; [California American Water Company] would construct, own and operate the proposed storage and conveyance facilities. Thus, for the Regional Project, the [Cal PUC] would have jurisdiction over [California America Water Company's] portion, but not [Marina Coast]." (AR 4534-4535.)

"For the Regional Project to be implemented, the EIR assumes that [Marina Coast] would rely on the EIR in acting on the regional desalination facility over which it has jurisdiction ... the [Cal PUC] would rely on the EIR before approving a [Certificate of Public Convenience and Necessity] for the storage and conveyance facilities proposed by [Californian American Water Company] and before approving a rate increase to allow [California American Water Company] to recover its costs." (AR 4335.)

"If the Phase 1 Regional Project is selected, [Marina Coast], as owner and operator of the desalination plant, would approve the plant itself (and any associated facilities that it would own) and would apply the EIR to that decision, including adopting findings and imposing mitigation measures. From a CEQA standpoint, it is immaterial which option is selected and which agency or agencies have primary authority or act first since each body must consider the EIR prior to acting on the project, adopt appropriate CEQA findings applying the EIR and impose relevant mitigation measures. Further, approval of a desalinate option by any agency would not commit that agency or any other agency to approval of any other component of the Phase 1 Regional Project, or of the Phase 2 Regional Project." (AR 4537.)

"The Regional Project examines a broad array of projects that could satisfy regional water supply needs in the near term and longer term. While this analysis will inform the [Cal PUC] decision-making process with respect to a potential desalination plant and how such plant could function in concert with other water supply components within the region, the [Cal PUC] would have jurisdiction over, and thus formally act on, only elements of the desalination plant requiring a [Certificate of Public Convenience and Necessity], and rate-making for [California American Water Company] actions. Thus, contrary to the suggestion of some commenters, the [Cal PUC] will neither consider adoption of the Regional Project in its entirety nor consider adoption of all projects composing the Phase 1 Regional Project. (AR 4537-4538.)

(H). This Court's lead agency determination

Guidelines section 15051 subdivision (a): "If the project will be carried out by a public agency, that agency shall be the lead agency even if the project would be located within the jurisdiction of another public agency."

From the evidence set forth above, Marina Coast choose to purchase property for siting their desalination plant, made CEQA findings concurrent with a statement of overriding considerations and including mitigation measures to carry out the Regional Project.

Marina Coast's argument is that the 2010 Regional Project decision was conditional, because it was part of Resolution 2010-20 that included the Settlement Agreement and Water Purchase Agreement, and Guidelines section 15051 is not applicable.

"Under CEQA, when a project involves two or more public agencies, ordinarily only one agency can serve as the lead agency. (Guidelines, §§ 15050, 15051.) CEQA thus distinguishes lead agencies from responsible agencies: whereas the lead agency has "principal responsibility" for the project, a responsible agency is "a public agency, other than the lead agency, which has responsibility for carrying out or approving a project." (Pub. Resources Code, §§ 21067, 21069.) Regarding this distinction, the CEQA guidelines provide that when a project involves two or more public agencies, the agency "carr[ying] out" the project "shall be the lead agency even if the project [is] located within the jurisdiction of another

public agency." (Guidelines, § 15051, subd. (a).) [¶] Under these principles, courts have concluded that the public agency that shoulders primary responsibility for creating and implementing a project is the lead agency, even though other public agencies have a role in approving or realizing it. (*Eller Media Co. v Community Redevelopment Agency* (2003) 108 Cal.App.4th 25, 45–46 [133 Cal. Rptr. 2d 324] [community agency charged with responsibility for redevelopment measures within designated area was lead agency regarding billboard placement, even though city issued building permits for billboards]; *Friends of Cuyamaca Valley v. Lake Cuyumaca Recreation & Park Dist.* (1994) 28 Cal.App.4th 419, 426–429 [33 Cal. Rptr. 2d 635] [state agency that determined duck hunting policy, rather than wildlife district that enforced it, was lead agency regarding duck hunting policy]; *City of Sacramento v. State Water Resources Control Bd.* (1992) 2 Cal.App.4th 960, 971–973 [3 Cal. Rptr. 2d 643] [state agency that created pesticide pollution control plan, rather than water district that enforced it, was lead agency regarding plan].)" (*Planning and Conservation League v. Castaic Lake Water Agency* (2009) 180 Cal.App.4th 210, 239.)

Cal PUC was the lead agency for the Coastal Water Project. However, the Regional Project was proposed by the various public entities and Marina Coast was the first to approve the Regional Project by its actions of March 16 and 17, 2010, and April 5, 2010, and Marina Coast became the lead agency for the Regional Project. (*Sohio, supra,* 23 Cal.3d 812.)

"'Approval' means the decision by a public agency which commits the agency to a definite course of action in regard to a project intended to be carried out by any person." (*Save Tara v. City of West Hollywood* (2008) 45 Cal.4th 116, 129.)

The argument that Marina Coast could conditionally approve the Regional Project is belied by the approval of the resolution, the findings of approval with mitigation measures, a statement of overriding considerations, and the filing of a Notice of Determination. These actions clearly demonstrate that Marina Coast is responsible for carrying out the project. (Pub. Resources Code, § 21067; Guidelines, § 15352.)

The fact is, the Cal PUC could approve a different project, or none at all, and the Regional Project could go forward with Cal PUC's limited approval of a Certificate of Public Convenience and Necessity for California American Water Company's limited role in the Regional Project.

CEQA does not provide for a "conditional" Notice of Determination. If Ag Land had not challenged Marina Coast's approvals, the 30-day limitations period to challenge Marina Coast's Notice of Determination would have foreclosed a challenge to the Regional Project.

Any CEQA compliance by Marina Coast must be done under the auspices of its role as the lead agency.

Ag Land contends that the EIR was deficient in its discussion of 1) water rights; 2) contingency plan; 3) the assumption of constant pumping; 4) the exportation of groundwater from the Salinas Valley Groundwater Basin; 5) brine impacts on the outfall; 6) impacts on overlying an adjacent properties; and 7) water quality.

As noted in *Planning and Conservation League v. Department of Water Resources* (2000) 83 Cal.App.4th 892, 920, once Marina Coast has been found to be the lead agency, this Court "need not ... address [all] the other alleged deficiencies in [the] EIR[] (Pub. Resources Code, § 21005, subd. (c))[, because Marina Coast] ... may choose to address those issues in a completely different and more comprehensive manner."

(II). CEQA issues

Administrative mandamus is the appropriate avenue of review because the decision came after a hearing during which evidence was taken (Code Civ. Proc., § 1095.5, subd. (a).) A trial court may issue a writ of administrative mandate if: (1) the agency acted in excess of its jurisdiction; (2) the petitioner was denied a fair hearing; or (3) the agency prejudicially abused its discretion. (Code Civ. Proc., § 1094.5, subd. (b).) "A prejudicial abuse of discretion is established if the agency has not proceeded in a manner required by law, if its decision is not supported by findings, or if its findings are not supported by substantial evidence in the record. [This Court] may neither substitute [its] views for those of the agency whose determination is being reviewed, nor reweigh conflicting evidence presented to that body." (*San*

Franciscans Upholding the Downtown Plan v. City and County of San Francisco (2002) 102 Cal.App.4th 656, 674, citations omitted.)

The "failure to comply with the law subverts the purposes of CEQA if it omits material necessary to informed decisionmaking and informed public participation. Case law is clear that, in such cases, the error is prejudicial." *(Sunnyvale West Neighborhood Association v. City of Sunnyvale City Council* (2012) 190 Cal.App.4th 1351, 1392.)

(A). Water Rights

Ag Land argues that CEQA requires details of water rights, including ownership if it affects the water supply, and the EIR must address foreseeable impacts of supplying water to the project. (*Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 421, 431, 434.) Ag Land contends that the Salinas Valley basin is overdrafted and California groundwater law holds that the doctrine of correlative overlying water rights applies when no surplus water is available for new appropriators except by prescription, and Marina Coast had to address this issue. (AR 2257.) Ag Land states that Monterey County admitted that it does not have water rights for the wells that are projected to be used for the Regional Project and it is possible that Monterey County may have to initiate groundwater adjudication of the entire Salinas Valley. (AR 817-819.) Ag Land contends that the Cal PUC has no authority over water rights or public water agencies and cannot grant or approve such rights and Marina Coast was required to address the claims and issues under a CEQA analysis, including the extraction of water from the basin.

Marina Coast argues that 1) Monterey County has never admitted it does not have water rights; 2) Mr. Weeks, Monterey County Water Resources Agency, said that the Water Agency and the County are organizations that can pump from the Salinas Basin and that every drop will stay in the Basin, and 3) as a responsible agency, Marina Coast is not required to analyze water right claims over which Marina Coast has no authority.

(B). Excerpts from Administrative Record regarding water rights

(1). Ag Land letter, in part, to Marina Coast dated April 5, 2010.

"The Regional Project would require the use of water rights which the project proponents do not own. The Salinas Valley Groundwater Basin is in very serious overdraft, and has been acknowledged to be in serious overdraft since the 1950s. The proposed Salinas Valley Water Project [SVWP] is not operational. All of the various components of the Salinas Valley Water Project must be fully operational for years before it can be effective or before its early results are known with any reliability. The SVWP is not operational. Even after its operations begin, it will take years before it would have any effect on the tens of thousands of acre feet of annual overpumping in the Salinas Valley Groundwater Basin. Further, even if in the future the Basin's recharge is ever in balance with the pumping from the Basin, which is highly in doubt and cannot be accurately measured, the seawater intrusion would remain. Technical experts agree that seawater intrusion is generally not reversed. Further, the SVWP under construction is significantly smaller than the project evaluated in the SVWP EIR. The project was significantly downsized after the cost projections from the original project came in far over budget. [¶] The County Water Resources Agency does not measure or maintain accurate or detailed records of cumulative basin pumping, cumulative basin water usage, or overpumping. At best, the Agency merely estimates amounts of recharge, pumping and seawater intrusion. The Agency records are vague on these important issues." (AR 596-597.)

"The environmental review to date does not include any consideration of the potential use of eminent domain to acquire any property interests for the Regional Project. Such use is clearly contemplated by the project proponents, because, for example, the proponents do not own and have not yet obtained water rights for the project or property rights for the proposed wells. The staff report for the Monterey County Water Resources Agency Board of Supervisors' meeting of April 6, 2010, states that project proponents 'will obtain, through purchase or other legal means, all easements or other real property interests necessary to build, operate and maintain' the proposed wells. The contemplated use of 'other legal means' includes eminent domain, which is a project under CEQA and which must be evaluated in the environmental review." (AR 601.)

(2). November 2, 2009 letter, in part, from Ag Land to Marina Coast in response to the Notice of Preparation of an EIR for the Armstrong Ranch acquisition and annexation.

"These comments are intended to help Marina Coast Water District determine the scope of the EIR and ensure an appropriate level of environmental review. The Ag Land Trust asks the Water District to review carefully the following potential environmental issues and impacts in the EIR.

- The water rights on the project site and water rights anticipated to be used for future projects involving the project site. Water rights are correctly researched at this EIR stage. *(Save Our Peninsula Committee v. County* of *Monterey* (2001) 87 Cal.App.4th 99,131-134.) The project site is in the overdrafted Salinas Valley groundwater basin.
- The EIR should acknowledge that, under California law, no new groundwater may be appropriated legally from the overdrafted Salinas basin, except by prescription. The EIR should include a discussion and analysis of the status of water rights in the basin, and the specific water rights held by [Marina Coast] and all other entities who could or would be involved in future water supply projects.
- As to each entity, the EIR should categorize the water rights as to type, identified as used or unused, the applicable seniority of the rights, and the supporting documentation for each claim should be provided.
- The EIR should investigate the legal justification for any groundwater rights claimed by [Marina Coast], because in an overdrafted basin new appropriative rights cannot be acquired except through prescription, which has not occurred here.
- The EIR should disregard any claimed groundwater rights held by [Monterey County Water Resources Agency], because [Monterey County Water Resources Agency], does not have such rights. If the EIR asserts otherwise, it should investigate and provide supporting documentation for its assertion.
- The water rights of the Monterey County Water Resources Agency (MCWRA) should be carefully reviewed, because [Marina Coast] and the [Monterey County Water Resources

Agency], have MOUs in place that indicate that [Monterey County Water Resources Agency], involvement on the project site for water supply purposes is foreseeable. The impacts on neighboring properties of the project and the future projects that would be enabled by the project. For example, the Ag Land Trust has large holdings in the areas of Moss Landing, Castroville, and Marina which would be affected directly by the various proposed water projects and alternatives of the proposed projects. Many of Ag Land Trust's acres of land and easements, and their attendant overlying groundwater rights, have been acquired with grant funds from the State of California as part of the State's long-term program to permanently preserve our state's productive agricultural lands. The Ag Land Trust believes that the agricultural operations, the agricultural potential, the water rights, the water systems, and the viability of its property in general would be negatively impacted by the project(s) being evaluated in the EIR." (AR 895-896.)

(3). Ag Land letter to Marina Coast dated March 16, 2010, in relevant part:

"On November 6, 2006, and again on April 15, 2009, the Ag Land Trust notified the Public Utilities Commission of certain key flaws in the Coastal Water Project EIR. Specifically, the first full paragraph on page two of the Trust's November 6, 2006 letter (identified as 'G_AgLTr-3' in the FEIR) states that Cal-Am, a water appropriator under California law, has no groundwater rights to appropriate water from the overdrafted Salinas Groundwater Basin. In an overdrafted, percolated groundwater basin, California groundwater law clearly and definitely holds that the doctrine of correlative overlying water rights applies *(Katz v. Walkinshaw* (1903) 141 Cal. 116), whereby no surplus water is available for new groundwater appropriators.

"The FEIR response claims that an analysis of water rights is not necessary because 'CalAm claims no rights to groundwater' and that 'no Salinas Valley groundwater will be exported from the Basin.' The FEIR attempts to bypass a central issue - the EIR's failure to analyze legal water rights - by claiming that the issue does not exist. On the contrary, the issue of legal water rights exists and should be analyzed.

"Because the extracted water would be composed of both saltwater and groundwater, Cal-Am (under the North Marina project) or Monterey County (under the Regional Project) would be extracting groundwater from the overdrafted Salinas Valley Groundwater Basin. Those actions would represent an illegal appropriation of water. The EIR claims that water can be appropriated from under privately owned land in the overdrafted basin, so long as it promises to return the same amount of pumped groundwater to the basin. That claim is not enforceable, not subject to oversight and does not change the fact that the extraction of the water would be an illegal appropriation. In essence, the Cal Am North Marina desalination project and the Regional Project would rely on illegal extraction and appropriation of groundwater from the basin. The EIR does not analyze the significant impact of an illegal taking of groundwater from overlying landowners. Instead, the FEIR accepts as unquestionably true the flawed rationale that a purported return of a portion of the water somehow allows the illegal extraction of groundwater from the overdrafted basin. This deficiency in the EIR must be addressed, and the EIR should identify mitigations for the adverse impacts and proposed illegal actions and takings.

"The principle is established that the water supply in a source may be augmented by artificial means. (See *Pomona Land & Water* Co. *v. San Antonio Water Co. (1908)* 152 Cal. 618.) We do not question that general statement of law. However, when getting to the specifics of the abilities and limitations in regard to the augmented or developed water proposed for the Project, the EIR defaults on the necessary discussion. Instead of addressing the entire doctrine of water rights applicable here, the FEIR (14.1-94, n. 4) defers entirely to the MCWD's legal counsel for the discussion of the essential factors. From page 14.1-94 to 14.1-96, MCWD's legal argument is presented without critical analysis or further comment as the FEIR's discussion. There is no independent review or investigation of the legal argument, as required under CEQA.

"California law on the ability of an agency to claim the right to salvage any or all of any developed water in the circumstances here, and any limits on that claim, has not yet been defined by the Courts. The citations in the FEIR overstate the situation, and do not point to any California court case where the analysis presented in the FEIR has been upheld by the Court. The two cases relied upon by the

MCWD's counsel (and therefore the FEIR) are cited in footnote 10 of FEIR page 14.1-96: *Pajaro Valley Water Mgt. Agency v. Amrhein* (2007) 150 Cal.App.4th 1364, 1370 and *Lanai Company, Inc. v. Land Use Commission* (S. Ct. Ha. 2004) 97 P.2d 372,376. The citations in both cases are to portions of the introductory factual recitations in the cases, and not to Court holdings or legal analysis, and thus are not fairly considered precedents or statements of settled law. Other FEIR citations are to legal claims asserted in a staff report by the head of the Monterey County Water Resources Agency, who is not an attorney.

"Here, the CPUC's EIR defined the project too narrowly. The EIR never evaluated the existence or nonexistence of water rights on which the Regional Project would rely. At the very least, the FEIR was required to evaluate the claims of MCWD and MCWRA, test them analytically, and provide the decisionmakers and the public with the analysis. Without the reasoned good faith analysis, the EIR fails as an informational document. (See, e.g., *Santa Clarita Organization for Planning the Environment v. County of Los Angeles* (2003) 106 Cal.App.4th 715, 722.) 'It is not enough for the EIR simply to contain information submitted by the public and experts.' In particular, water 'is too important to receive such cursory treatment.' *(Id.)* CEQA requires a detailed analysis of water rights issues when such rights reasonably affect the project's supply. Assumptions about supply are simply not enough. *(id.,* at p. 721; *Save Our Peninsula Committee v. County of Monterey* (2001) 87 Cal.App.4th 99, 131- 134, 143 [EIR inadequate when it fails to discuss pertinent water rights claims and overdraft impacts]; see also, *Cadiz Land* Co. *v. Rail Cycle* (2000) 83 Cal.App.4th 74, 94-95 [groundwater contamination issues].) The reasoning of the Court in *Cadiz* would also apply to the proper analysis of the rights associated with the overdraft here.

"At the very least, the determinations of safe yield, surplus, the rights of the MCWRA, and of 'persons with land in the zones of benefit for the projects' must be identified, discussed and analyzed. The analysis must be independent, and cannot simply be 'extracted' (FEIR, p. 14.1-94, n. 4) from the argument of the attorney for the MCWD, a proponent of the Regional Project and potential owner of the desalination plant component of that project. Whether the project may take salvaged or developed water originating from onsite supplies depends on whether injury will result to existing lawful users or those

who hold vested rights. The FEIR response to comments does not fairly consider or investigate the actual on-the-ground issues.

"Neither the MCWD nor the MCWRA has groundwater rights that would support the drilling of the proposed intake wells for the Regional Project. On March 3, 2010, this Office made a California Public Records Act request to the County of Monterey and Monterey County Water Resources Agency seeking the records that support a MCWRA claim that the MCWRA or the MCWD have water rights for the proposed Regional Project. To date, the County has not provided any documents that support those claims." (AR 1127-1129.)

(4). Salinas Valley Water Coalition letter dated April 15, 2009 addressed to Mr. Barnsdale regarding the Coastal Water Project.

The Salinas Valley Water Coalition asked about water rights for groundwater pumping and surface diversion. (AR 4413.)

The EIR contains a response to these concerns. In part, the EIR refers to Master Response 13.6 and states that because "[i]t is CEQAs intent to identify and analyze potential impacts of the project on the environment; water rights are not considered an environmental issue. Groundwater extracted for the Coastal Water Project would be covered under the right held by the entity that owns and operates the wells ... Details of the water rights is beyond the scope of CEQA because the acquisition of water rights does not determine the feasibility of this project." (AR 4973, 4974.)

Master Response 13.6 noted that some "comments asserted that the project could not legally withdraw and export water from the [Salinas Valley Groundwater Basin] to other areas on the Monterey Peninsula." Master Response 13.6 was "intended to clarify and enhance information brought to light in the Draft EIR regarding the quantity, use of, and replacement of water that would be drawn from the [Salinas Valley Groundwater Basin] and used by the proposed project." (AR 4547.) The Master Response notes in passing that "hydrologic modeling analyses undertaken to date indicate that extraction of brackish water at the coast will cause no injury to the rights of overlying landowners or other water users." (Footnote omitted.) (AR 4550.) The Master Response concludes that "the Regional Project would

extract intruded groundwater that would otherwise be of no use to municipal or agricultural users and would treat that water for potable uses. The source of this water is the 180-foot aquifer that has been intruded by seawater since the 1940s. The proposed extraction wells would be located along the coast and, depending on whether they are slant wells at the coast or vertical wells slightly inland, both configurations would withdraw ocean water with some lesser fraction of intruded groundwater from within the [Salinas Valley Groundwater Basin].... The fraction of feedwater determined to be [Salinas Valley Groundwater Basin] water, which is extracted from the wells, would not be exported out of the basin, rather, it would be conveyed for agricultural proposes (North Marina Project) or delivered to the Marina Coast Water District for municipal supply (Regional Project)." (AR 4556-7.)

(5). The Open Monterey Project sent a letter to Mr. Barnsdale on April 15, 2009 with comments on the Draft EIR.

The Open Monterey Project comments are very similar to those made by Ag Land. In general, The Open Monterey Project notes that specific water rights are not indentified or discussed, that using water without water rights has an environmental impact, and provides at length and in some detail the rational for the questions about water rights. (AR 4415.)

The response to these comments provided in the Final EIR provides "refer to comment rezones G_SVWC-10 and PSMCSD-2." (AR 4978.)

(6). Pajaro/Sunny Mesa Community Services District sent a letter to the Cal PUC on April 15, 2009 with comments on the Draft EIR.

Pajaro/Sunny Mesa Community Services District noted that California American Water Company, the Cal PUC, and any potential public agency partner lacked any appropriative percolated groundwater rights in the Salinas Valley Groundwater Basin and it would be illegal to take water, and the Draft EIR's failure to acknowledge this deficiency must be addressed. (AR 4125-4126.)

The specific issue of water rights is never addressed in the response to this comment. (AR 4729-4731.)

(7). Letter from David Kimbrough (Chief of Administrative Services, Finance Manager for Monterey County) dated March 24, 2010 to Ms. Molly Erickson.

In relevant part: "Further, [Monterey County Water Resources Agency] intends to acquire an easement, including rights to ground water, from the necessary property owner(s)to install the desalination wells. These rights have not been perfected to date, hence no records can be produced. [¶] As to [Marina Coast Water District], it was previously annexed into Zones 2 & 2A and as such has right to ground water." (AR 817.)

(C). Analysis

"It has been held that an EIR is inadequate if it fails to identify at least a potential source for water. In *Stanislaus Natural Heritage Project v. County of Stanislaus* (1996) 48 Cal. App. 4th 182 [55 Cal. Rptr. 2d 625], for example, the failure to identify a source of water beyond the first five years of development rendered the EIR inadequate, although the developer was pursuing several possible sources. It also has been held that an EIR is inadequate if the project intends to use water from an existing source, but it is not shown that the existing source has enough water to serve the project and the current users. (*Santiago County Water Dist. v. County of Orange* (1981) 118 Cal. App. 3d 818 [173 Cal. Rptr. 602].) On the other hand, it has been held that an EIR is not required to engage in speculation in order to analyze a 'worst case scenario.' (*Towards Responsibility in Planning v. City Council* (1988) 200 Cal. App. 3d 671 [246 Cal. Rptr. 317] (hereafter *TRIP*).) In that case, the court held that an EIR was not required to analyze the effects that would result from the construction of a sewage treatment facility, when (1) all indications suggested that the facility would never be needed, and (2) the facility--if it was constructed--would be subjected to its own environmental review." (*Napa Citizens for Honest Government v. Board of Supervisors* (2001) 92 Cal.App.4th 342, 372-373.)

Not until the day of trial did Marina Coast assert that the EIR addressed the issue of water rights.

There is no dispute that the water that will be pumped from the wells will contain some proportion of groundwater from the 180-foot aquifer.

As set forth above, the final EIR does not contain a discussion of the issues surrounding the availability of groundwater for the Regional Project and the impacts on the physical environment in light of Monterey County Water Resources Agency's admission in March 2012 that it "intends to acquire an easement, including rights to ground water, from the necessary property owner(s)to install the desalination wells [and t]hese rights have not been perfected to date."

The EIR assumes that groundwater rights will be perfected in the future and that such rights do not need to be addressed in an EIR.

"Such an assumption, however, is impermissible, as it is antithetical to the purpose of an EIR, which is to reveal to the public 'the basis on which its responsible officials either approve or reject environmentally significant action,' so that the public, 'being duly informed, can respond accordingly to action with which it disagrees.' (*Laurel Heights, supra*, 47 Cal.3d at p. 392.) As another court observed, '[t]o be adequate, the EIR must include sufficient detail to enable those who did not participate in its preparation to understand and 'meaningfully' consider the issues raised by the proposed project.' (*SCOPE, supra*, 106 Cal.App.4th at p. 721; see also *Concerned Citizens of Costa Mesa, Inc. v. 32nd Dist. Agricultural Assn.* (1986) 42 Cal.3d 929, 935 [231 Cal. Rptr. 748, 727 P.2d 1029] (*Concerned Citizens*) ['[t]o facilitate CEQA's informational role, the EIR must contain facts and analysis, not just the agency's bare conclusions or opinions'].) This standard is not met in the absence of a forthright discussion of a significant factor that could affect water supplies. The EIR is devoid of any such discussion." (*California Oak Foundation v. City of Santa Clarita* (2005) 133 Cal.App.4th 1219, 1237.)

As the lead agency, Marina Coast will need to address this prejudicial abuse of discretion including, but not limited to, 1) water rights; 2) contingency plan; 3) the assumption of constant pumping; 4) the exportation of groundwater from the Salinas Valley Groundwater Basin; 5) brine impacts on the outfall; 6) impacts on overlying an adjacent properties; and 7) water quality.

(III). Marina Coast's defenses

Marina Coast raises a number of defenses that are predicated, in part, on the issue of lead agency which was resolved above.

Marina Coast contends that this Court is without jurisdiction because (1) the relief sought by Ag Land is preempted by the Public Utilities and Public Resources Codes; (2) the Petition is not ripe; (3) Ag Land has not exhausted its administrative remedies before the Cal PUC; and (4) Ag Land is precluded from challenging Cal PUC's orders because of res judicata. At trial, the Court permitted Marina Coast to amend its answer to include an affirmative defense of failure to join indispensible parties.

Marina Coast also argues that this Court lacks primary jurisdiction and must apply the three-part test set out in *San Diego Gas & Electric Co. v. Superior Court* (1996) 13 Cal.4th 893 (*Covalt*).

(A). Preemption

There is no preemption issue. The issue is one of jurisdiction and is addressed below.

(B). Ripeness

The Court has found that the Petition is ripe for review to the extent that Marina Coast is the lead agency. (*Security National Guaranty, Inc. v. California Coastal Com.* (2008) 159 Cal.App.4th 402, 418.)

The fact that the Cal PUC might or might not approve the Regional Project does not change the fact that Marina Coast acted first and filed a Notice of Determination. Marina Coast must now comply with CEQA in its role as the lead agency for the Regional Project.

(C). Exhaustion

The Cal PUC is not a party to this action and Ag Land raised the lead agency issue, amongst others, in its letter with attached exhibits dated March 16, 2010 that was directed to Marina Coast. (AR 1106-1134.) Ag Land also sent a letter with numerous exhibits to Marina Coast on April 5, 2010, and spoke at the April 5, 2010 public hearing. (AR 595-601, 591-592.) (Pub. Resources Code, §21177.)

Ag Land has exhausted its administrative remedies before Marina Coast.

(D). Res judicata

There is no final litigated prior decision on the merits regarding what public entity is the lead agency for the Regional Project and res judicata does not apply. (*Mycogen Corp. v. Monsanto Co.* (2002) 28 Cal.4th 888, 896-897.)

Res judicata applies if "(1) the decision in the prior proceeding is final and on the merits; (2) the present proceeding is on the same cause of action as the prior proceeding; and (3) the parties in the present proceeding or parties in privity with them were parties in the prior proceeding." (*Federation of Hillside Canyon Assns. v. City of Los Angeles* (2004) 126 Cal.App.4th 1180, 1202.)

(E). *Covalt* – Jurisdiction

Public Utilities Code section 1759 provides: "Jurisdiction of courts to review orders or decisions of commission; Writ of mandamus[.] [¶] (a) No court of this state, except the Supreme Court and the Court of Appeal, to the extent specified in this article, shall have jurisdiction to review, reverse, correct, or annul any order or decision of the commission or to suspend or delay the execution or operation thereof, or to enjoin, restrain, or interfere with the commission in the performance of its official duties, as provided by law and the rules of court. [¶] (b) The writ of mandamus shall lie from the Supreme Court and from the Court of Appeal to the commission in all proper cases as prescribed in Section 1085 of the Code of Civil Procedure."

The *Covalt* "decision set forth a three-part inquiry for determining whether the action would interfere with the [Cal] PUC in the performance of its duties and thus was precluded by [Public Utilities Code] section 1759(a): (1) whether the [Cal] PUC possessed the authority to formulate a policy regarding any public health risk related to electric and magnetic fields arising from the powerlines of regulated utilities, or a policy regarding what actions, if any, the utilities should have taken to minimize any such risk; (2) whether the [Cal] PUC had exercised that authority to adopt such policies; and (3) whether the superior court action filed by private persons against the utility would hinder or interfere with those policies." (*People ex rel. Orloff v. Pacific Bell* (2003) 31 Cal.4th 1132, 1145.)

Here, the Cal PUC has authority to regulate California American Water Company. It has no authority to regulate or dictate to Marina Coast, or any other public agency, regarding the approval and development of the Regional Project. This action does not hinder the Cal PUC's ability to regulate California American Water Company, and this Court has jurisdiction.

(F). Indispensible parties

Marina Coast contends that Ag Land had to name the Water Resources Agency and California American Water Company as real parties in interest because they were parties to the Water Purchase Agreement and the Settlement Agreement.

The Water Purchase Agreement requires that the Water Resources Agency pump water that will be delivered to the Regional Project and after desalination at the Marina Coast facilities, the water will be distributed by California American Water Company to its customers. The Settlement Agreement determined the ownership of certain facilities, and the parties to the Settlement Agreement agreed to protect the Salinas Valley Groundwater Basin.

This action and the Court's decision do not interfere with either agreement, and if it could be construed that the decision touches on either agreement, the Court finds that the Water Resources Agency and California American Water Company do not qualify as indispensable parties.

"The determination of whether a party is indispensable is governed by Code of Civil Procedure section 389, which first sets out, in subdivision (a), a definition of persons who ought to be joined [in an action] if possible (sometimes referred to as 'necessary' parties). Then, subdivision (b) sets forth the factors to follow if such a person cannot be made a party in order to determine whether in equity and good conscience the action should proceed among the parties before it, or should be dismissed without prejudice, the absent person being thus regarded as *indispensable*. [] The subdivision (b) factors are not arranged in a hierarchical order, and no factor is determinative or necessarily more important than another. (*County of San Joaquin v. State Water Resources Control Bd.* (1997) 54 Cal.App.4th 1144, 1149.) [¶] In a CEQA action like the one before us, Public Resources Code section 21167.6.5 provides that any recipient of an approval that is the subject of [the] action must be named as a real party in

interest. (Pub. Resources Code, § 21167.6.5, subd. (a) (section 21167.6.5(a)).) Thus, section 21167.6.5(a) makes any such recipient a necessary party in a CEQA action, just as those persons described in subdivision (a) of Code of Civil Procedure section 389 are necessary parties. But a recipient of an approval, while a necessary party, is not necessarily an indispensable party, such that the CEQA action must be dismissed in the absence of that party. Instead, if a court finds that unnamed parties received approvals, [the court must] then consider whether under Code of Civil Procedure section 389, subdivision (b) [the unnamed parties] qualify as indispensable parties, requiring dismissal of the action. (*County of Imperial v. Superior Court, supra*, 152 Cal.App.4th at p. 31.)." (*Quantification Settlement Agreement Cases* (2011) 201 Cal.App.4th 758, 848, some quotation marks omitted, italics in original.)

The Court has found Marina Coast to be the lead agency and that finding does not "impair or impede" the Water Resources Agency or California American Water Company's ability to protect their interests, nor will either entity suffer prejudice by the Court's lead agency determination and any resolution of CEQA issues (see Section III below), the judgment here is adequate, and Ag Land would not have an adequate remedy if the action were dismissed. (Code Civ. Proc., § 389 subd. (a) and (b); Pub. Res. Code, § 21167.6.5 subd. (a).)

Disposition

Ag Land's request for relief is granted as set forth above.[1]

Lydia M. Villarreal

Dated: FEB 0 2 2012

HON. LYDIA M. VILLARREAL

Judge of the Superior Court

[1] Marina Coast counsel has argued the importance and dire need of procuring a reliable water source for the Monterey Peninsula. The Court wishes to point out to counsel that the Court's authority is limited to reviewing compliance with CEQA by those agencies responsible for procuring a reliable water source.

CERTIFICATE OF MAILING

C.C.P. SEC. 1013A

I do hereby certify that I am not a party to the within stated cause and that on FEB 0 2 2012 I deposited true and correct copies of the following documents: ORDER in sealed envelopes with postage thereon fully prepaid, in the mail at Salinas, California, directed to each of the following named persons at their respective addresses, as hereinafter set forth:

Michael Stamp, Esq.
479 Pacific Street Suite 1
Monterey, CA 93940

Mark Fogelman, Esq.
33 New Montgomery Street Suite 290
San Francisco, CA 94105

Michael Masuda, Esq.
P.O. Box 2510
Salinas, CA 93902-2510

Dated:
FEB 0 2 2012

CONNIE MAZZEI Clerk of the

Monterey County Superior Court

Sally Lopez

By_____

, Deputy Clerk

ELLISON, SCHNEIDER & HARRIS L.L.P.

ANNE J. SCHNEIDER
1947-2010

CHRISTOPHER T. ELLISON
JEFFERY D. HARRIS
DOUGLAS K. KERNER
ROBERT E. DONLAN
ANDREW B. BROWN
PETER J. KIEL
LYNN M. HAUG
CHRISTOPHER M. SANDERS
GREGGORY L. WHEATLAND
ELIZABETH P. EWENS

ATTORNEYS AT LAW
2600 CAPITOL AVENUE, SUITE 400
SACRAMENTO, CALIFORNIA 95816
TELEPHONE: (916) 447-2166
FACSIMILE: (916) 447-3512
http://www.eslawfirm.com

BRIAN S. BIERING
CRAIG A. CARNES, JR.
JEDEDIAH J. GIBSON
CHASE B. KAPPEL
SHANE E. C. McCOIN
SAMANTHA G. POTTENGER

OF COUNSEL:
RONALD LIEBERT

May 3, 2013

Mr. Paul Murphey
Division of Water Rights
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812-2000

RE: **Comments on MPWSP Draft Report**

Dear Mr. Murphey:

On behalf of the California American Water Company (Cal-Am), we would like to thank you and your colleagues for preparing the detailed and thoughtful *Draft Review of California American Water Company's Monterey Peninsula Water Supply Project*, dated April 3, 2013 ("Draft Review"). Overall, the Draft Review is consistent with Cal-Am's water rights position for the Monterey Peninsula Water Supply Project ("Project" or "MPWSP"), and comports with Cal-Am's understanding of the initial technical information concerning the potential effects of the Project. Cal-Am agrees that additional technical information, to be developed through the proposed test well and related study and monitoring program, is necessary to confirm and verify existing analysis and increase the certainty that the slant wells are not likely to adversely impact the Salinas Valley Groundwater Basin (SVGB) or cause injury to SVGB pumpers. This letter provides Cal-Am's comments on the Draft Review for your consideration. Our comments are intended to amplify or clarify points raised in the Draft Review.

General Comments:

- The primary recommendations in the Draft Review are for a robust study and monitoring program to determine aquifer conditions in the vicinity of the MPWSP, aquifer testing and hydrogeologic analysis, groundwater modeling, and monitoring. See Draft Review, pp. iii and 42-43. Cal-Am is proposing to undertake all of these analyses and investigations, and is currently in the process of obtaining permits and authorizations to complete this necessary work. Cal-Am also has an agreement with the Monterey County Water Resources Agency to implement and carry out a long-term monitoring plan associated with the MPWSP.

- The Draft Review notes that the "Dune Sand Aquifer" is a "near-surface water-bearing zone" that is "not regionally extensive" and is "poor quality" (due primarily to its direct influence

from Monterey Bay). See Draft Review, p. 8. For these reasons, and in response to requests from certain stakeholders, Cal-Am is evaluating the feasibility and cost of completing the slant wells in the Dune Sand Aquifer, either partially or completely. This evaluation will be performed as part of Cal-Am's testing and monitoring program.

- The Draft Review (page 21) discusses the important distinction between the cone of depression (or zone of influence) and the capture zone that contributes water to a pumping well: "…not all the water in the cone of depression flows to the pumping well…." In particular, where significant boundary conditions exist – such as horizontal flow from a subsea aquifer outcropping and/or vertical leakage from the seabed – the boundary condition may provide an overriding factor relative to direction of groundwater flow in determining the dimensions of a capture zone and source(s) of water flowing to a well. (See also, Draft Review pp. 17-18). The recharge boundary conditions would also tend to affect (in this case, significantly increase) the proportion of seawater flowing to the project wells under existing landward gradients.

- The Draft Review (page 24) makes the point that the MPWSP project would appear to have the consequence of reducing the flow of seawater intrusion into the Salinas Valley. Related to this point, the term "capture zone" may be more accurate than "zone of influence" in describing the anticipated hydrogeologic effects of the MPWSP in the following sentence: "The MPWSP drawdown would change the groundwater gradient within the zone of influence causing a radial flow of groundwater toward the extraction wells."

- The Draft Review (page 26) does a good job of explaining one of the key and fundamental hydrogeologic concepts pertaining to the proposed MPWSP: "Because the ocean provides a constant source of nearby recharge to the extraction wells, the zone of influence for the extraction wells cannot expand much farther than the distance between the extraction wells and the ocean, or in the case of confined aquifer conditions, the distance between the extraction wells and the undersea outcrop of the confined aquifer."

- The Draft Review (page 28) states: "The reduction in the availability of fresh water would not be felt immediately; thus, replacement water could be provided after the MPWSP has been in operation and modeling information becomes available to evaluate the actual quantity of fresh water that needs to be returned to the system." The above concept is further discussed and developed on page 37 of the Draft Review. This is an important observation and the concept informs Cal-Am's commitment to return to the SVGB, through the Castroville Seawater Intrusion Project, any fresh water that is extracted by the MPWSP slant wells. This concept will also inform the development of Cal-Am's testing and monitoring plan.

- The Draft Review (page 38) states with respect to existing groundwater wells that have been identified in the general vicinity of the Project: "…it is unlikely the MPWSP would injure users of these wells as the wells are within a zone where water quality is significantly

impacted from seawater intrusion." This is another key observation in the Draft Review and will help design the development of the study and monitoring plan and any mitigation measures that may be required for the MPWSP.

- The Draft Review mentions potential groundwater level "impacts" that may result from the MPWSP: "…pumped wells would have an impact to groundwater users within a 2-mile radius of the wells." (Draft Review, p. 20; see also, Draft Review, p. 24: "Once the zone of influence is estimated for each location and each pumping scenario then any wells within the zone of influence would be affected by project pumping and possibly cause injury"). The groundwater level effect described in this section of the Draft Report refers to the modeled drawdown estimates from the MPWSP; approximately 2.0 feet within one mile of the slant wells, less than 0.5 feet 1.5 miles from the well, and negligible influence at 2.0 miles and beyond. Elsewhere, the Draft Review acknowledges that the seawater intrusion front has extended more than five miles inland in the 180 foot aquifer (e.g., Draft Review p. 13), and that only 14 groundwater wells exist within a two mile radius of the proposed slant well location. The Draft Review further states that all of these wells are located within the seawater intruded zone, and on that basis concludes that "it is unlikely that the MPWSP would injure users of these wells…." (Draft Review, p. 38) Thus, Cal-Am interprets the Draft Review to conclude that groundwater level drawdown within the zone of influence attributable to the MPWSP wells may "affect" wells within that zone of influence, but such affects will not likely rise to the level of "legal injury" requiring remedial action or a physical solution unless there is a substantial impact to the use of those wells for beneficial purposes. See *Lodi v. East Bay Municipal Utilities District* (1936) 7 Cal.2d 316, 341. This is particularly true as it relates to wells that may be completed in the long-existing seawater intruded area of the SVGB.

- The Draft Review makes use of several terms to describe the water quality characteristics of the feed water that may be developed by the MPWSP, but does not provide precise definitions of those terms. In particular, the Draft Review uses the terms "seawater," "brackish" water, and "fresh" water. Based on the context in which these terms are used in the Draft Review, Cal-Am has discerned the following meanings:

    - "Seawater" appears to mean water that originates from the Pacific Ocean and Monterey Bay, and having the same general constituency of ocean waters found in Monterey Bay. See, e.g., Draft Review p. 28.
    - "Fresh" water appears to mean groundwater inland of the seawater intrusion front, which the Monterey County Water Resources Agency defines as the upper limit of the Secondary Drinking Water Standard, or 500 milligrams per liter (mg/L) concentration for chloride.[1] See, e.g., Draft Review, pp. 13-14 for definitional guidance, and e.g., pp. 28, 30, and 36-37 for usage.

[1] The Draft Review further cites to the Central Coast Regional Water Quality Control Board's Basin Plan, which states that water for agricultural use shall not contain concentrations of chemical constituents in amounts adversely

- "Brackish" water appears to mean (and include) all groundwater in the SVGB having a chloride level higher than "fresh" water (i.e., >500 mg/L concentration for chloride), and lower than the chloride and salinity levels in "seawater."

Based on these inferred definitions, Cal-Am questions the accuracy of the first part of the following statement on page 26 of the Draft Review (Cal-Am agrees with the second part of the statement): "Although this brackish water is of substantially better quality than seawater, it is likely degraded to the point that it is not suitable for any beneficial use other than feed water for desalination purposes." It is likely that brackish water in close enough proximity to be drawn into the proposed MPWSP slant wells would have salinity and chloride levels very similar to those levels found in "seawater." See also, Geoscience, September, 2008, attached. Conversely, brackish waters closer to the "fresh" water line in the SVGB are likely to have constituencies more similar to fresh waters.

- Page 38 of the Draft Review states: "If the MPWSP wells are located where unconfined aquifer conditions exist, project pumping likely would extract brackish groundwater. The majority of the source water would be from within the seawater-intruded portion of the Basin as the seawater intrusion front extends approximately 5 miles landward from the proposed well locations." Cal-Am interprets this statement to mean that, if the MPWSP source wells are located in an "unconfined" area of 180-foot aquifer of the SVGB, then the inland source of water, if any (because the vast majority of water would be sourced from the ocean), is likely to be "brackish" groundwater as opposed to "fresh" groundwater. Elsewhere the Draft Review acknowledges that in an "unconfined" aquifer – and Cal-Am submits the same would be true in a "semi-confined" aquifer – the vast majority of the source water to the proposed MPWSP will come from Monterey Bay/seawater. See Draft Review, p. 26. Under these conditions, "[i]t is unlikely that pumping from an unconfined aquifer would extract fresh groundwater since the seawater intrusion front is approximately 5 miles landward from the proposed pumps." See Draft Review, p. 26.

- Conversely, the Draft Review states that the inland groundwater level drawdown caused by the MPWSP is likely to be greater in a "confined" aquifer. See Draft Review, pp. 26-27. Cal-Am agrees with this basic hydrogeologic principle, but points out that even in a confined aquifer, "the zone of influence for the [slant] wells cannot expand much farther [inland] than the distance between…the extraction wells and the undersea outcrop of the confined aquifer." The distance between the undersea outcrop and the proposed MPWSP wells is 1.5 to 2 miles. See Draft Review, p. 26.

- The Draft Review cites a July 2008 Geoscience Report for the proposition that 87% of the water developed by the slant wells will come "from the ocean side wells," and 13% from the landward side. There is some uncertainty about the precise ratio of seawater that will be

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affecting the agricultural beneficial use. This standard is interpreted to exclude irrigation waters with chloride levels above 355 mg/L. (See Draft Review, pp. 13-14).

extracted by the MPWSP, as compared to brackish water. For example, a subsequent Geoscience report, dated September, 2008, concludes that approximately 96-97% of the water developed by the slant wells is seawater, and only 3-4% brackish water (see attached report, p. 23). The ratio of seawater vs. brackish water (vs. fresh water) that may be extracted by the proposed MPWSP will be better understood through the proposed aquifer testing and hydrogeologic analyses, groundwater modeling, and monitoring program that is described herein.

- Cal-Am believes that the MPWSP, as proposed, will not cause or result in injury to users of groundwater from the SVGB. As noted above, Cal-Am is developing and will implement an extensive study, testing, modeling and monitoring program for the proposed MPWSP wells, as recommended in the Draft Review. This information, together with the information developed by the California Public Utilities Commission in its comprehensive Environmental Impact Report for the MPWSP, will address the anticipated effects of the MPWSP on pumpers in the SVGB, and will provide substantial evidence to support the CPUC's approval of the Project. Cal-Am fully expects that the results of these analyses will confirm no significant unmitigated impact to the SVGB and SVGB pumpers; to the extent impacts may result to legal users of the SVGB from the MPWSP, such impacts will be addressed consistent with the physical solution principles discussed in the Draft Review. Any party that might challenge the MPWSP on the basis of injury to water rights in the SVGB would then have the burden of proving how such rights will be injured. See *City of Lodi v. East Bay Mun. Util. Dist*. (1936) 7 Cal.2d 316, 339; *Tulare Irr. Dist. v. Lindsay-Strathmore Irr. Dist*. (1935) 3 Cal.2d 489, 535.

- Several parties have suggested that the MPWSP is inconsistent with Section 21 of the Monterey County Water Resources Agency Act. These comments misinterpret the Agency Act. The MPWSP has been proposed consistent with the Agency Act. The "anti-export" language in Section 21 of the Agency Act is qualified by the statement "for the purpose of preserving [the] balance [in the SVGB resulting from the Agency's projects to balance extraction and recharge]." The MPWSP would, in a worst case scenario, incidentally extract relatively small quantities of contaminated brackish water from the SVGB without negatively affecting the balance of recharge and extraction of basin groundwater (and possibly it will improve that balance). To the extent the Project may in the future affect fresh groundwater resources, Cal-Am has proposed to return such water to the SVGB through the Castroville Seawater Intrusion Project, as noted in the Draft Review. Moreover, to the extent the statute may apply to the Project, the Agency Act vests sole discretion in the Monterey County Water Resources Agency to pursue appropriate remedies. Contrary to the assertions of several parties, the statute does not operate as an affirmative bar to the export of SVGB groundwater that may be enforced by third parties. Rather, the Agency would need to exercise its judgment and discretion to bring an action for injunctive relief, and only if the conditions for such injunction are present (i.e., a proposed export of groundwater upsetting the balance of recharge and extraction resulting from the Agency's projects).

Conclusion

On behalf of the California American Water Company, we thank the State Water Board for its thorough and thoughtful review of the technical and legal considerations concerning the proposed source water plan for the Monterey Peninsula Water Supply Project. As noted herein, Cal-Am fundamentally agrees with the overall conclusions reached in this Draft Review, and hopes that the above information assists the State Water Board in its efforts to finalize the Draft Review report. We would be pleased to provide the State Water Board with additional information, and certainly will keep the Board apprised of the development of the MPWSP.

Sincerely,

Robert E. Donlan

cc: Felicia Marcus, Chair, SWRCB
Fran Spivey-Weber, Vice Chair, SWRCB
Tam Dudoc, SWRCB
Steven Moore, SWRCB
Dorene D'Adamo, SWRCB
Tom Howard, Executive Director, SWRCB
Caren Trgovcich, Chief Deputy Director, SWRCB
Michael Lauffer, Chief Counsel, SWRCB
Paul Clanon, Executive Director, CPUC
Robert MacLean, President, California American Water
Anthony Cerasuolo, Vice-President, Legal, California American Water
Richard Svindland, Vice-President, Engineering, California American Water

Exhibit SV-6

North Marina Groundwater Model

Evaluation of Potential Projects

Prepared for: California American Water

CALIFORNIA
AMERICAN WATER

September 26, 2008

GEOSCIENCE Support Services, Inc.
Tel: (909) 920-0707
Fax: (909) 920-0403
Mailing: P. O. Box 220, Claremont, CA 91711
1326 Monte Vista Ave., Suite 3, Upland, CA 91786
http://www.gssiwater.com

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS

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(Continued)

FIGURES

FIGURES

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS

1.0 INTRODUCTION

California American Water (CAW) faces a regulatory-driven need to replace most of its existing water supply, in order to meet long-term water demands of its Monterey Peninsula customers. The Monterey County Water Resources Agency (MCWRA) has a statutory obligation to reduce seawater intrusion in the lower Salinas Valley (see Figure 1). Thus, in order to respond to these water resource challenges, three potential projects have been proposed, the second and third of which are being jointly evaluated by CAW, MCWRA, Marina Coast Water District and Monterey Regional Water Pollution Control Agency, as alternatives to be included in CAW's Coastal Water Project (CWP) environmental impact report (EIR). The first CWP alternative is CAW's North Marina slant-well seawater desalination project. The second alternative is the Monterey Regional Water Supply Project Scenario 3a. The third alternative is the Monterey Regional Water Supply Project Scenario 4b. As part of assessing the feasibility and potential impacts of these three projects on groundwater levels and groundwater quality (i.e., seawater intrusion), groundwater modeling has been conducted. GEOSCIENCE was contracted by CAW to develop a groundwater flow and solute transport model to evaluate the various projects. The results of the modeling work will provide technical input for the CWP environmental impact report being prepared by ESA for the California Public Utilities Commission (CPUC), which is scheduled to be completed by December 2008.

In summary, the three CWP alternative projects evaluated in this modeling analysis are:

1. CAW's Coastal Water Project (CWP) is a plan to develop new water supplies to replace approximately three-fourths of its historical diversions from the Carmel River and Seaside Groundwater Basin. A central feature of the CWP is a proposed desalination

plant co-located at the Moss Landing electric power generation station that would use reverse osmosis (RO) to convert seawater into potable water. Because the California Environmental Quality Act (CEQA) requires that project alternatives be studied for inclusion in EIRs, CAW has also proposed for CPUC's consideration a seawater desalination facility with the feedwater intake system being six slant wells constructed at the Marina Coast Water District's former desalination well site on the north side of the Marina State Beach (see Figure 2).

2. The Monterey Regional Water Supply Project Scenario 3a is proposed to meet CAW's regulatory replacement and long-term regional water needs, improve seawater-intruded Salinas Basin groundwater, and expand agricultural deliveries. One component of the project would be a well field extraction system that pumps both saline and brackish water from the 180-Foot aquifer. The saline water wells will be located in a line approximately 1,000 ft away from and parallel to the coast, with the brackish water wells located approximately 2,600 ft inland of the saline water wells (see Figure 2).

3. The Monterey Regional Water Supply Project Scenario 4b is also proposed to meet CAW's regulatory replacement and long-term regional water needs, improve seawater-intruded Salinas Basin groundwater, and expand agricultural deliveries. The Monterey Regional Project Scenario 4b is a coastal well field extraction system (see Figure 2) as a source of both saline and brackish water from the 180-Foot Aquifer of the Salinas Valley Groundwater Basin for a regional desalination facility.

2.0 PURPOSE AND SCOPE

The purpose of this investigation was to evaluate impacts of potential water supply projects on groundwater levels and groundwater quality (i.e., seawater intrusion) using a calibrated groundwater flow and solute transport model. The effort included integrating the aquifer parameters, recharge and discharge terms, boundary conditions and predictive scenarios from the regional Salinas Valley Integrated Ground Water and Surface Model (SVIGSM) with the focused model. This method ensured that both regional impacts (using the SVIGSM) as well as detailed impacts (using the North Marina Model) could be evaluated.

To accomplish this, GEOSCIENCE worked closely with Water Resources & Information Management Engineering, Inc. (WRIME), RBF and RMC to ensure that the North Marina model mirrored the SVIGSM and provided the same overall results. However, the focused model included improved simulation of groundwater level changes (due to the finer model cell size), and capability for solute transport modeling (i.e., modeling of seawater intrusion). Specifically, the work included:

- Development of a focused, 100 ft square cell size MODFLOW groundwater flow and MT3D solute transport model based on inputs from the SVIGSM model;
- Evaluation of impacts from pumping six low angled subsea slant wells as a desalination feedwater intake supply as part of CAW's Coastal Water Project (CWP); and
- Evaluation of impacts from the Monterey Regional Water Supply Project as source water for a desalination plant at Armstrong Ranch.

The purpose of this report is to document the construction of the focused groundwater flow model (North Marina model) which included input and compatibility with the SVIGSM, and to present results of various predictive scenarios.

3.0 GEOHYDROLOGY

The Salinas Valley is filled with Tertiary and Quaternary marine and terrestrial sediments that include up to 2,000 ft of saturated alluvium (DWR, 2003). Groundwater recharge of the lower Salinas Valley is primarily from underflow originating in the upper valley. This is due to the existence of the Salinas Valley Aquitard which limits areal recharge of aquifers beneath. Seawater intrusion is an additional and more recent source of recharge to the groundwater basin (DWR, 2003).

Historically, groundwater flow was towards the ocean and discharged in the walls of the Monterey Submarine Canyon (see Figure 2). With increased pumping in the groundwater basin since the 1970's, groundwater flow is dominantly northeastwards (DWR, 2003). Overpumping of the shallow aquifers, largely for agricultural use, has caused significant seawater intrusion.

3.1 Groundwater Basin Boundaries

The proposed projects are located at the northwestern boundary of the Salinas Valley Groundwater Basin (see Figure 1). The Salinas Valley Groundwater Basin extends approximately 100 miles from headwaters in the southeast to Monterey Bay in the northwest.

3.2 Aquifer Systems

Water-bearing materials in the vicinity of North Marina from oldest to youngest consist of:

- Pliocene marine Purisima Formation,
- Plio-Pleistocene Paso Robles Formation,
- Pleistocene Aromas Red Sands, and
- Holocene Valley Fill materials (Green, 1970).

In the Salinas Valley Groundwater Basin, the Valley Fill, Aromas Sands, and Paso Robles Formation comprise an upper aquifer system from 0 to 1,000 ft below ground level (bgs). The Pliocene Purisima Formation contains a deep aquifer system from approximately 1,000 to 2,000 ft bgs (Hanson et. al., 2002).

180-Foot, 400-Foot and Deeper Aquifers

Aquifers in the Salinas Valley Groundwater Basin have been named for the average depth at which they occur. The "180-Foot Aquifer" lies at an approximate depth of 50 to 250 ft, and has a thickness of 50 to 150 ft (Green, 1970). The 180-Foot Aquifer may correlate in part with older portions of Quaternary terrace deposits or the upper Aromas Red Sands, and underlies blue clay confining layer known as the Salinas Aquitard (DWR, 2003). The Salinas Aquitard varies in thickness from 25 ft to more than 100 ft thick near Nashua Road, 5 miles west of Salinas (DWR, 1973, Montgomery Watson, 1994). Zones of discontinuous aquifers and aquitards approximately 10 to 70 ft thick underlie the 180-Foot Aquifer (DWR, 1973). The 400-Foot Aquifer lies at an approximate depth of 270 to 470 ft bgs, has a thickness of 25 to 200 ft, and may correlate with the Aromas Red Sands and the upper part of the Paso Robles Formation (Green, 1970). The 400-Foot Aquifer is present as three beds near Castroville, two of which are 25 ft thick and one which is 100 ft thick (DWR, 1973). A deeper aquifer, also referred to as the "900-Foot Aquifer," is separated from the overlying 400-Foot Aquifer by a blue marine clay aquitard (DWR, 2003).

Existing published reports contain geohydrologic cross sections of varying detail and applicability to the proposed site – such as those available in Green (1970), DWR (1973), DWR (1977), Johnson (1983), Harding ESE (2001), Hanson (2003), Feeney and Rosenberg (2002), and Kennedy/Jenks Consultants (2004).

3.3 Water Quality and Seawater Intrusion

The 180-Foot aquifer, when not impacted by seawater, is a calcium sulfate to sodium bicarbonate sulfate groundwater (DWR, 2003). Where the aquifer has been intruded by seawater it typically changes to a sodium chloride to calcium chloride type water. Total dissolved solids (TDS) values range from 223 to 1,103 mg/L, with an average of 478 mg/L (DWR, 2003). TDS concentrations in the 400-Foot aquifer are generally lower than in the 180-Foot aquifer. The aquifers below the 180-Foot, 400-Foot and deeper aquifers can have high salinity that may be related to dissolution of salts from the saline marine clays (Hanson, et al., 2002).

In the North Marina area, seawater has intruded approximately 3 ¾ to 7 miles landward within the 180-Foot Aquifer, and ¼ to 3 ¼ miles landward within the 400-Foot Aquifer (see Figure 3)[1]. Seawater intrusion in the 180-Foot and 400-Foot Aquifers was estimated to be 8,900 acre-ft/yr in 1995 (MCWRA, 2001). It has been reported that between 1970 and 1992 the seawater intrusion was 11,300 acre-ft/yr in the 180-Foot Aquifer, 4,600 acre-ft/yr in the 400-Foot Aquifer, and 800 acre-ft/yr in the "Deep" Aquifer (Montgomery Watson, 1994).

The main sources of seawater intrusion are subsea outcrops of the 180-Foot and 400-Foot Aquifers on the bottom of Monterey Bay, discovered by the U.S. Geological Survey in 1970 (see Figure 2). There are also areas of active erosion along the south wall of the Monterey Submarine Canyon (see Figure 2) where the outcrops are located, representing new entrances for seawater intrusion (DWR, 1973; Green, 1970).

[1] http://www.mcwra.co.monterey.ca.us/SVWP/01swi180.pdf;
http://www.mcwra.co.monterey.ca.us/SVWP/01swi400.pdf , Accessed 6-Jun-08.

4.0 POTENTIAL PROJECTS

The three potential projects that are the subject of this report include CAW's Coastal Water Project (CWP) North Marina Alternative (NMA) seawater slant-wells project, and Monterey Regional Water Supply Project (RWSP) Scenario 3a, and Regional Water Supply Project Scenario 4b. The NMA and RWSP both involve extraction of saline water as feedwater for desalination plants. These projects are described in more detail in the following sections.

Summary of Potential Projects

Potential Project	Project Purpose	Agency	Primary Project Facilities	Project Location
CAW Slant Well Desalination Feedwater Supply Project	Develop new water supplies to replace historical diversions from Carmel River	California American Water Company	Desalination plant using RO. Six slant wells to provide a feedwater supply of 22 mgd	Marina Coast Water District Facility (north end of Marina State Beach)
Monterey Regional Water Supply Project Scenario 3a	Meet regional needs, improve salinated groundwater and expand agricultural deliveries	Consortium of Several Agencies	Desalination plant at Armstrong Ranch using ten vertical wells extracting both saline and brackish water from the 180 ft aquifer at a total rate of 23.4 mgd	North and south of the Salinas River adjacent to the coast
Monterey Regional Water Supply Project Scenario 4b	Meet regional needs, improve salinated groundwater and expand agricultural deliveries	Consortium of Several Agencies	Desalination plant at Armstrong Ranch using five vertical wells extracting both saline and brackish water from the 180 ft aquifer at a total rate of 17.8 mgd	North and south of the Salinas River adjacent to the coast

4.1 CAW Slant Well Desalination Feedwater Supply Project

CAW's NMA is a CWP alternative project proposed to develop new water supplies in order to replace most of CAW's historical diversions from the Carmel River and Seaside Basin. A central feature of the NMA is a proposed desalination plant that would use reverse osmosis (RO)

to convert seawater into potable water, with the feedwater intake system consisting of six slant wells[2] (RBF, 2008). The slant wells would be constructed on the site of Marina Coast Water District's former desalination intake wells on the north side of Marina State Beach at 11 Reservation Road, Marina, CA (see Figure 2). RBF's design for the CAW slant well project comprises six wells that would radiate out in three clusters of two wells per cluster towards and beneath the ocean (see Figure 4). The layout described above is a later refinement of the slant well layout that was modeled using the North Marina Model (see Section 6.0 for details of the modeled layout). Modeling results and impacts will not be expected to be much different between the two layouts. However, of the two layouts, the modeled layout represents a worst-case scenario due to shorter well lengths and steeper angle of the wells. The steeper angled wells and shorter lengths result in less ocean water extraction due to the greater distance between the ocean floor and screened interval. The combined amount of water that would be pumped by the slant wells for each layout would be the same, i.e., 22 mgd.

4.2 Monterey Regional Water Supply Project 3a

The RWSP Scenario 3a is designed to meet regional water supply needs, improve seawater intruded groundwater, and expand agricultural deliveries. There are a number of components that comprise the project, with regional desalination being one of them. Feedwater for a desalination plant at Armstrong Ranch will be obtained from a vertical well field extraction system that pumps both saline and brackish water from the 180-Foot aquifer. The saline water wells will be located in a line approximately 1,000 ft away from and parallel to the coast, with the brackish water wells located approximately 2,600 ft inland of the saline water wells (see Figure 2).

Initially, twelve wells were considered and modeled as Scenario 2e. These wells had variable pumping schedules that ranged from approximately 1.5 mgd to 3.1 mgd. Ultimately, based on

[2] Each well will be 20 degrees below horizontal, 700 lineal feet and completed with 12-inch diameter casing and perforated interval.

regional modeling by WRIME, a most likely scenario (3a) was developed. Under scenario 3a, the well field will produce saline water from five coastal or seaward wells, and brackish water from five inland wells. The five seaward wells would each pump constantly at 1,549 gpm, and the five inland wells each pump constantly at 1,697 gpm, for a combined total of 23.4 mgd

4.3 Monterey Regional Water Supply Project 4b

The RWSP Scenario 4b is also designed to meet regional water supply needs, improve seawater intruded groundwater, and expand agricultural deliveries. There are a number of components that comprise the project, with regional desalination being one of them. Feedwater for a desalination plant at Armstrong Ranch will be obtained from a vertical well field extraction system that pumps both saline and brackish water from the 180-Foot aquifer. Under Scenario 4b, five desalination (i.e., extraction) wells would each pump constantly at approximately 2,480 gallons per minute (gpm), for a combined total of approximately 17.8 million gallons per day (mgd).

5.0 NORTH MARINA GROUNDWATER FLOW AND SOLUTE TRANSPORT MODEL

5.1 General Description and Purpose of Model

The purpose of the North Marina groundwater flow and solute transport model (North Marina Model) was to evaluate impacts of various water supply projects on groundwater levels and seawater intrusion. Due to the established use of the regional model (SVIGSM) for groundwater management in the Salinas Valley, the focused North Marina Model was constructed by integrating the SVIGSM aquifer parameters, recharge and discharge terms, boundary conditions and predictive scenarios to ensure consistency between the two models. The North Marina model developed to specifically focus on the North Marina area has a much finer cell size to improve resolution in the vicinity of the proposed projects. It also includes a water quality component that the SVIGSM does not have.

5.2 Description of Model Codes

MODFLOW and MT3DMS are the model computer codes used for the North Marina Model. MODFLOW is a block-centered, three-dimensional, finite difference groundwater flow model developed by the USGS for the purpose of modeling groundwater flow. MT3DMS is a modular three-dimensional multispecies transport model for simulation of advection, dispersion, and chemical reactions of contaminants in groundwater systems (Zheng and Wang, 1998). The SEAWAT[3] program was also used to compare the results from the MODFLOW and MT3DMS. In general, MODFLOW and MT3DMS yield a very similar result compared to the SEAWAT with slight differences in water level elevation (approximately one foot).

[3] The SEAWAT program was developed by the United States Geologic Survey (Guo and Langevin, 2002) to simulate three-dimensional, variable density, groundwater flow and solute transport in porous media. The source code for SEAWAT was developed by combining MODFLOW and MT3DMS into a single program that solves the coupled flow and solute transport equations.

5.3 Use of the Salinas Valley Integrated Ground Water and Surface Water Model

The SVIGSM is a regional model encompassing the entire Salinas Valley (approximately 650 square miles). It is a finite element model, with an average element size of approximately 0.4 square miles (Montgomery Watson, 1994). The North Marina Model is a detailed model with cell size of 200 ft by 200 ft covering an area of approximately 149 square miles (see Figure 5). Since the SVIGSM encompasses the entire North Marina Model, calibrated SVIGSM model data including the aquifer parameters, recharge and discharge terms, and boundary conditions in the North Marina model area were used to construct the North Marina Model. This procedure is similar to the telescopic mesh refinement method (Anderson and Woessner, 1992). The SVIGSM with its coarse grid network is the "Regional Model" and is used to model a large problem domain bounded by the physical limits of the aquifer system. The SVIGSM solution is used to define the "Local Model" (i.e., North Marina Model) boundaries, which define the smaller (focused) problem domain.

The pre-processing software "Groundwater Vistas"[4] was used to construct the MODFLOW groundwater flow model based on SVIGSM groundwater model files, and MT3DMS solute transport model. The recharge and discharge terms and water level data used for the boundary conditions cover the period from October 1979 to September 1994 on a monthly basis. This same period was used for the North Marina Model transient model calibration. For the model predictive scenarios, the monthly data from the SVIGSM for the period from October 1948 through September 2004 was used for the North Marina Model predictive scenarios.

[4] Environmental Simulations, Inc., 2005. Groundwater Vistas, Version 5.

Comparison of Focused North Marina Groundwater Model with Regional Groundwater Model

Groundwater Model	Model Purpose	Type of Model	Model Area, sq. mi.	Cell or Element Size	No of Layers	Total Model Layer Thickness (Average, ft)
Focused North Marina Model	Evaluate detailed projects in the vicinity of the North Marina coastal area- groundwater levels and quality	Flow and Solute Transport Finite Difference MODFLOW 2000, MT3DMS, SEAWAT 2000	149	Cell Size = 200 ft x 200 ft	6	1,570
Regional Groundwater Model (SVIGSM)	Evaluate regional projects and impacts on regional groundwater levels in the entire Salinas Valley	Finite Element Groundwater Flow Model – Groundwater and Surface Water	650	Element Size = 0.4 sq. mi.	3	1,570

5.4 Conceptual Model

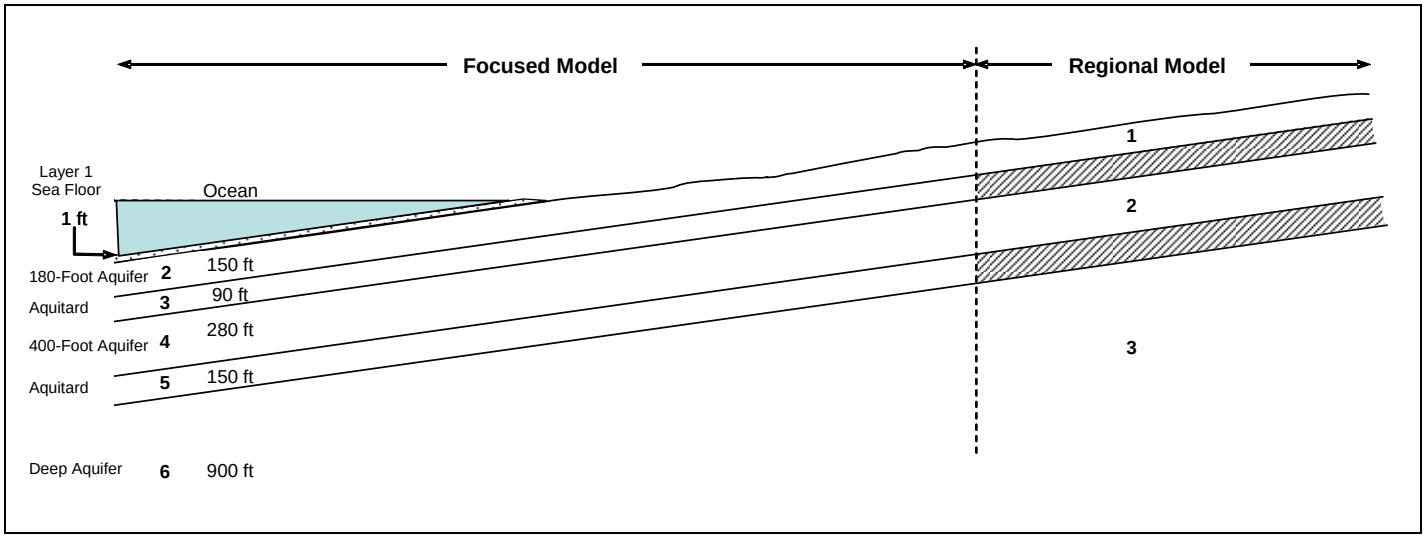
The North Marina Model was developed for the upper approximately 1,000 ft of unconsolidated to semi-consolidated sediments within the North Marina area of the Salinas Valley Groundwater Basin. This conceptual model is the same as that used for the SVIGSM (Montgomery Watson, 1994). The groundwater model consists of six model layers as summarized in the table below.

Summary of North Marina and SVIGSM Model Layers

Model Layer	North Marina Model	SVIGSM
1	Only active beneath the ocean and is assumed to be 1 ft thick[5]	Constant head boundary of Model Layer 1
2	180-Foot Aquifer	Model Layer 1
3	Aquitard	NA
4	400-Foot Aquifer	Model Layer 2
5	Aquitard	NA
6	Deep Aquifer	Model Layer 3

[5] The sole purpose of Model Layer 1 is to allow vertical leakage from the ocean into underlying aquifers.

Schematic Diagram Showing Focused and Regional Model Layers Showing Average Layer Thickness



By definition, a boundary condition is any external influence or effect that either acts as a source or sink, adding to or removing water from the groundwater flow system. The boundary conditions used in the model are no-flow, constant head, river and general head boundary. No-flow cells were assigned to the non-alluvial or bedrock portions and portions of the open water of the Pacific Ocean of the model area. The constant head boundary of 0 ft above mean sea level (amsl) and constant TDS concentration of 35,000 mg/L were specified only in Model Layer 1 between the shoreline and the exposure of 180-Foot aquifer to allow vertical leakage from the ocean into the 180-Foot Aquifer (Model Layer 2). Similarly, the River Package was used to simulate the vertical leakage from the ocean into 400-Foot Aquifer (Model Layer 4). The eastern, northern, and southern edges of the active model area represent subsurface underflow and were simulated using the general head boundary package with a specified head based on the model simulated groundwater elevation from the SVIGSM.

5.6 Aquifer Parameters

The top and bottom elevations for Model Layer 2 through 6 were based on data from the SVIGSM. The top elevations for Model Layer 1 were assumed to be 1 ft above the top elevation of Model Layer 1 to allow vertical leakage from the ocean into the 180-Foot Aquifer (Model Layer 2).

Horizontal hydraulic conductivity for Model Layers 2 (180-Foot Aquifer), 4 (400-Foot Aquifer) and 6 (Deep Aquifer) and vertical hydraulic conductivity for Model Layers 3 and 5 (aquiclude) were obtained from SVIGSM. The vertical hydraulic conductivity for Model Layers 2, 4 and 6 was estimated assuming 1/20 of the horizontal hydraulic conductivity for Model Layers 2, 4 and 6 (i.e., ratio of horizontal hydraulic conductivity/vertical hydraulic conductivity = 20). The horizontal hydraulic conductivity for Model Layers 3 and 5 was estimated assuming 500 of the vertical hydraulic conductivity for Model Layers 3 and 5 (i.e., ratio of horizontal hydraulic conductivity/vertical hydraulic conductivity = 500). Typically, the ratios of horizontal hydraulic conductivity/vertical hydraulic conductivity fall in the range of 2 to 10 for alluvium and up to 100 or more occur where clay layers are present (Todd, 1980). A horizontal hydraulic conductivity of 500 ft/day and a vertical hydraulic conductivity of 25 ft/day was used for Model Layer 1 based on model calibration results.

The specific storativity and effective porosity values for Model Layers 2 through 6 were based on the SVIGSM. A specific yield (i.e., effective porosity) of 0.25 was used for Model Layer 1 based on the model calibration results. During the transport model calibration, in order to match the observed seawater intrusion front, the effective porosity of 0.06 for Model Layer 4 was increased to 0.1.

Longitudinal dispersivity was estimated initially from the relationship between longitudinal dispersivity and scale of observation (Zheng and Bennett, 2002) and adjusted during model calibration. A longitudinal dispersivity of 20 ft results in a good match between model-calculated and the observed seawater intrusion front. The ratio of horizontal transverse dispersivity to longitudinal dispersivity was assumed to be 0.1, while the ratio of vertical transverse dispersivity to longitudinal dispersivity was assumed to be 0.01.

The following table summarizes aquifer parameters used in the North Marina model.

Summary of Aquifer Parameters Used in the North Marina Groundwater Model

Model Layer	Horizontal Hydraulic Conductivity [ft/day]	Vertical Hydraulic Conductivity [ft/day]	Specific Storativity [ft^{-1}]	Specific Yield (Effective Porosity)	Dispersivity		
					Horizontal		Vertical
					Longitu-dinal [ft]	Transverse [ft]	Transverse [ft]
1	500	25	-	0.25	20	2	0.2
2 (180-Foot Aquifer)	25 to 250	1.25 to 12.5	0.000008 to 0.00006	0.08 to 0.16	20	2	0.2
3 (Aquiclude)	0.02 to 6.8	0.00004 to 0.0136	0.0000001 to 0.00005	0.02	20	2	0.2
4 (400-Foot Aquifer)	5 to 100	0.25 to 5	0.000001 to 0.00007	0.1	20	2	0.2
5 (Aquiclude)	1.8	0.0036	0.00000006 to 0.00002	0.02	20	2	0.2
6 (Deep Aquifer)	20 to 25	1 to 1.25	0.00000002 to 0.000005	0.06	20	2	0.2

5.7 Recharge and Discharge

Monthly data for deep percolation from precipitation and applied water (including return flow), stream recharge and groundwater pumping in the North Marina Model area for the model calibration period October 1979 to September 1994 were obtained from the SVIGSM. In addition, model simulated groundwater elevations during the same period of time in the north, south and east North Marina Model boundaries were also obtained from the SVIGSM. This allowed for calculation of subsurface inflow and outflow across the North Marina Model boundaries using a General Head Boundary Package. Vertical leakage from the ocean into Model Layer 2 (180-Foot Aquifer) and Model Layer 4 (400-Foot Aquifer) was simulated using a constant head boundary in Model Layer 1 and a River Package in Model Layer 4, respectively.

5.8 Model Calibration

5.8.1 Calibration Methodology

Model calibration was performed in order to compare model-simulated water levels and TDS concentrations to field-measured values. The method of calibration used by the groundwater model was the industry standard "history matching" technique. In this method, a transient calibration period from October 1979 to September 1994 were used based on the data obtained from the SVIGSM. The transient model calibration was simulated with a monthly stress period[6] for a total of 180 stress periods (i.e., 15 years).

Since the North Marina Model was developed based on the calibrated SVIGSM, the model calibration mainly focused on matching the observed seawater intrusion front in the 180-Foot Aquifer and 400-Foot Aquifer over time. The trial-and-error method was used to calibrate aquifer parameters. These aquifer parameters included horizontal hydraulic conductivity, vertical hydraulic conductivity, effective porosity and dispersivity.

5.8.2 Initial Conditions

Initial conditions for the transient calibration of the North Marina Model include groundwater elevations and TDS concentrations for October 1979. Groundwater elevation in October 1979 generated from the SVIGSM was provided by WRIME and was imported into the model using Groundwater Vistas. The initial TDS concentrations were estimated based on the observed seawater intrusion (500 mg/L chloride contour from Monterey County Water Resources Agency maps) and measured TDS concentration in wells. TDS concentration of seawater was assumed to be 35,000 mg/L. An empirical relationship between chloride and TDS for seawater (GEOSCIENCE, 1993) was used to convert estimated chloride contours to initial TDS contours.

[6] Stress period is the time length used to change model parameters such as groundwater pumping and stream recharge.

5.8.3 Calibration Results

For the model calibration, historical groundwater level data for 14 wells within the North Marina Model area were obtained from WRIME and compared with model-generated groundwater levels. Of the 14 wells, two wells are screened in the 180-Foot Aquifer (Model Layer 2), eight wells are screened in the 400-Foot Aquifer (Model Layer 4), and four wells are screened in the Deep Aquifer (Model Layer 6). The same 14 wells were also used for the SVIGSM calibration. Figures 6 through 8 show hydrographs of model-generated water levels compared to measured levels for the wells screened in the 180-Foot Aquifer, 400-Foot Aquifer, and Deep Aquifer, respectively. In general, the pattern of the model-generated and measured water levels are similar in that the model appears to capture the long- and short-term temporal trends in groundwater levels in most parts of the North Marina Model area.

A histogram of water level residuals (measured water level less model-generated water level) is shown on Figure 9. The histogram shows a bell shape with most of the residual[7] water level being in the range of +/- 10 ft (68% of 2,152 water level measurements), indicating an acceptable model calibration.

In order to evaluate the solute transport model calibration, the model-generated seawater intrusion front for the 180-Foot Aquifer and 400-Foot Aquifer in years 1985 and 1994 were plotted and compared to the observed seawater intrusion front (see Figures 10 and 11). In general, the model-generated seawater intrusion front matches the observed seawater intrusion front. The model-generated migration rate of the seawater intrusion front agrees with the rate estimated from observed data as can be seen by comparing the movement of the seawater intrusion front between 1985 and 1994.

[7] The residual is the difference between measured water levels and model-generated levels.

6.0 MODEL PREDICTIVE SCENARIOS

Four model predictive scenarios were run for a 56-year period from October 1948 through September 2004 with monthly stress periods. This hydrologic period is also the model calibration period for the SVIGSM and has been previously used for predictive scenarios for purposes of basin management.

The three predictive scenarios that were run using the North Marina model included:

- Baseline (developed by WRIME),
- Slant Well Desalination Feedwater Supply,
- Regional Project Scenario 3a (developed by WRIME), and
- Regional Project Scenario 4b (developed by WRIME).

The Baseline and Regional Project scenarios 3a and 4b were developed and run using the SVIGSM by WRIME. The recharge and discharge terms and model simulated water level elevations from each of the SVIGSM predictive scenarios for the period from October 1948 through September 2004 were used for North Marina Model predictive scenarios.

Initial groundwater elevations for the model predictive scenarios were the same as the SVIGSM and were provided by WRIME. The initial TDS concentrations were estimated based on the observed seawater intrusion (500 mg/L chloride contour) and TDS concentrations in wells measured in 2005.

Summary of Groundwater Model Predictive Scenarios Run Using the North Marina Model

Predictive Scenario	Initial and Boundary Conditions	Project Facilities
Baseline Scenario (No Project)	Baseline Boundary Conditions provided by Regional Model	Land and water use reflect estimated 2030 conditions
Slant Well Desalination Feedwater Supply	Baseline Boundary Conditions provided by Regional Model	Five slant wells producing 2,696 gpm ea. One Test Well producing 1,797 gpm for a total production of 22 mgd.
Regional Project 3a	Scenario 3a Boundary Conditions provided by Regional Model	Five seaward wells in the 180-Foot aquifer pump at a constant rate of 1,549 gpm ea. Five inland wells pump at constant rate of 1,697 gpm ea.. Total production from the 10 wells = 23.4 mgd
Regional Project 4b	Scenario 4b Boundary Conditions provided by Regional Model	Five seaward wells in the 180-Foot aquifer pump at a constant rate of 2,480 gpm ea. Total production from the 5 wells = 17.8 mgd

Assumptions made for each of the model scenarios are provided below:

1. Baseline
   - Boundary conditions were provided by WRIME,
   - Land use and water use indicative of 2030 conditions (WRIME, 2008), and
   - Refined version of the Future Conditions Baseline utilized by the EIR/EIS for the Salinas Valley Water Project (WRIME, 2008).

2. CAW Slant Well Desalination Feedwater Supply Project
   - Boundary conditions were the same as those provided by WRIME for the Baseline,
   - Five slant wells are constructed at 22 degrees from horizontal with a length of 600 lineal ft, and one test well is constructed at 36 degrees from horizontal with a length of 360 lineal ft. The wells do not extend deeper than 180 ft below sea level,

- Five full scale wells would produce approximately 2,696 gpm (3.88 mgd each), and the one test well would produce approximately 1,797 gpm (2.59 mgd) for a total production of 22 mgd, and
- Given the angle of the slant wells from the land surface (22 degrees), the length of the slant wells was limited so that they would be completed in the dune sand deposits and would remain above the theoretical 180-Foot aquifer (i.e., above 180 ft below sea level). However, in the vicinity of the slant wells, Model Layer 2 (180-Foot aquifer) comprises both the dune sand deposit and the 180-Foot aquifer as there is no Salinas Aquitard above the 180-Foot Aquifer (see Harding ESE cross-section D-D', Plate 6). Although the slant wells are supposed to be pumping from above the theoretical 180-Foot aquifer, due to the vertical distribution of the model layers, lithology, and cross-sections (WRIME, 1994), the model has the wells extracting water from both the dune sand deposits and 180-Foot aquifer (i.e., Model Layer 2).

3. Regional Project Scenario 3a
   - Boundary conditions were provided by WRIME,
   - Five seaward wells each pump constantly at 1,549 gpm,
   - Five inland wells each pump constantly at 1,697 gpm,
   - The combined total production for the well field would be 23.4 mgd, and
   - Wells are screened completely in the 180-Foot aquifer. Note: as the 180-Foot aquifer is one complete model layer, there is no discretization that would allow for apportioning extraction from a specific portion of the aquifer, as such, the model allows for an even distribution of pumping throughout the depth of the aquifer.

4. Regional Project Scenario 4b
   - Boundary conditions were provided by WRIME,
   - Five extraction wells each pump constantly at 2,480 gpm,
   - The combined total production for the well field would be 17.8 mgd, and
   - Wells are screened completely in the 180-Foot Aquifer.

7.0 GROUNDWATER FLOW AND SOLUTE TRANSPORT MODEL RESULTS

7.1 CAW Slant Well Desalination Feedwater Supply Project

The Slant Well scenario shows that the six slant wells pumping continuously would cause a slight change in groundwater flow directions and hydraulic gradients compared to Baseline (or No Project) conditions. Figures 12 and 13 show the difference in groundwater levels between Baseline (No Project) and the Slant Well Project. The general differences between scenarios are summarized below:

- In normal hydrologic years (precipitation is close to the long-term average), groundwater flow caused by the Slant Well Project remains similar to if there was no project (southwest to northeast), with the exception of the flattening out the northeastwards flow of groundwater and the development of a localized cone of depression that is up to 15 ft below sea level in close proximity to the slant wells.

- Under wet hydrologic conditions (precipitation is well above average), the effects of the Slant Well Project causes a slight steepening of the hydraulic gradient towards the slant wells. However, flow directions generally remain the same as Baseline flow directions outside of the slant well cone of depression[8]. Increased recharge to the 180-Foot aquifer from infiltration of precipitation and streamflow percolation during wet years allows for more groundwater outflow to the ocean.

- In dry years (precipitation well below average), the groundwater elevations in the model area for the Slant Well Project are very similar to Baseline (No Project) conditions. Flow is from the west to the east, with a localized depression formed around the slant wells.

[8] Due to complex spatial variations of the ground water elevation contours in the model area, a quantitative description of the difference between scenarios cannot be provided. Figures 12 and 13, however, show a direct comparison of contours for each scenario.

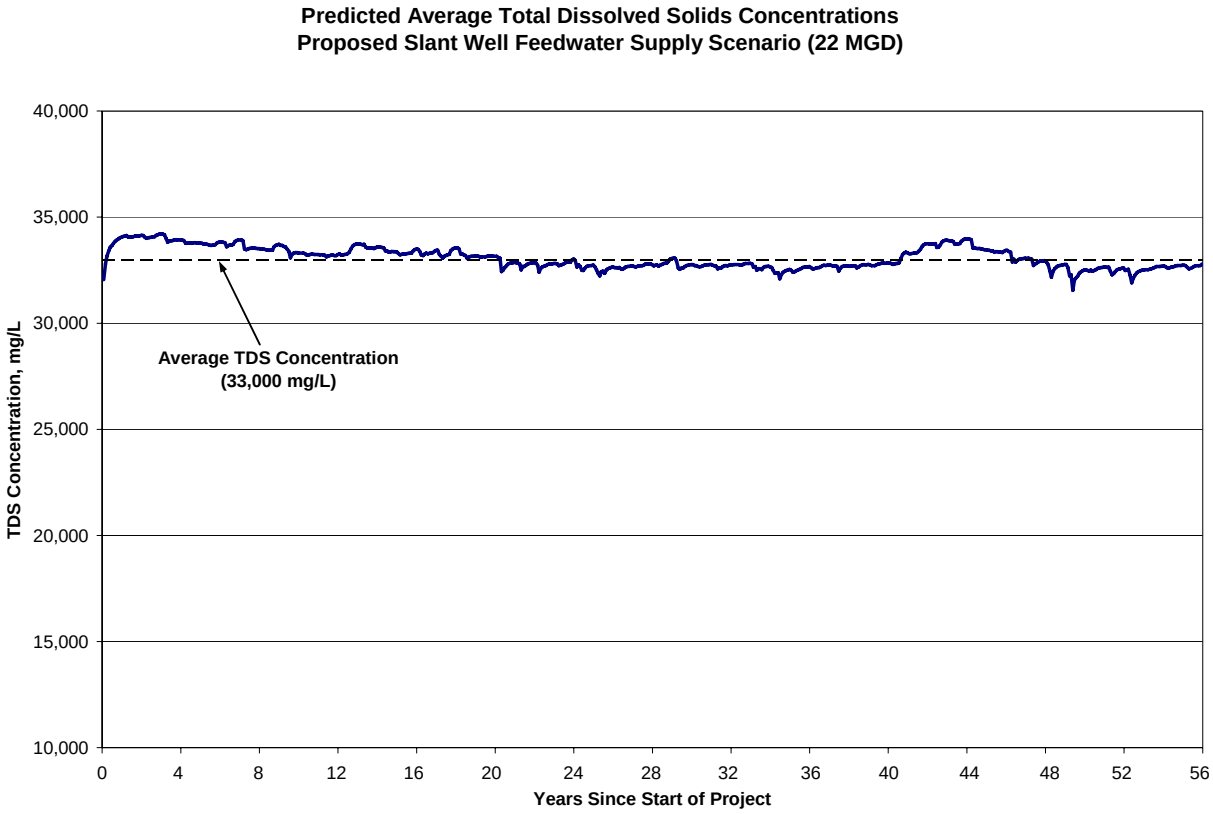
- After 56 years of operating the Slant Well Project, the inland groundwater elevations in the 180-Foot aquifer northeast of the slant wells would be slightly lower than under No Project conditions. For example, there is an approximate 1 ft lowering of groundwater levels in Marina Coast Water District Well 2 located one mile away from the slant wells after 56 years (see Figure 14). Groundwater flow directions would be similar to normal hydrologic year flow directions.

Selected hydrographs showing the Baseline (No Project) and Slant Well Project groundwater elevations over the 56 years of the predictive model are provided on Figure 14. It is shown that the decline in groundwater elevations at the slant well will be approximately 15 ft. The closest production well, Marina Coast Water District Well 2 would have just less than a 2 ft decline in levels due to the project (i.e., 5.3 ft amsl for baseline conditions less 3.4 ft amsl under project conditions). At 1.5 miles to the north, the impacts of water levels will cause less than a 0.5 ft decline (see location labeled 11 on Figure 14), with differences in water levels decreasing with distance from the slant wells.

Figure 15 shows the 500 mg/L chloride limit of the seawater intrusion in the 180-Foot aquifer at selected times over the 56 year model period. In general, the intrusion reduces at the same rate as No Project conditions, with the exception of the area in close proximity to the slant wells where the intrusion front reduces slightly slower than if the slant wells were not in operation.

The predicted TDS concentration for each of the six slant wells is shown on Figure 16. As can be seen, with the exception of the southernmost slant well and test slant well, the wells are extracting water with a concentration close to the assumed ocean water TDS of 35,000 mg/L. The test slant well has a lower TDS due to its larger angle from horizontal (i.e., 36 degrees) which results in more onshore groundwater being extracted because of its deeper depth below the sea floor. The southernmost slant well also has a lower TDS which indicates that it intercepts natural groundwater flow which moves from the southeast to the northwest (see Figure 12). In effect, this southernmost slant well protects the other wells from being recharged by onshore groundwater.

Over the 56 years, the blended TDS concentration of the feedwater extracted by the six slant wells will average approximately 33,000 mg/L. The chart below shows the modeled TDS concentrations over time.



The predicted TDS concentration of 33,000 mg/L for the feedwater extracted by the six slant wells is approximately 94 to 97 percent of the TDS concentration of seawater (34,000 to 35,000 mg/l). As the modeled layout represents a worse-case scenario (due to the steeper well angles), the most recent layout (six 700 ft wells with a 20 degree angle proposed by RBF, 2008) would most likely result in an even higher percentage of seawater in the extracted water.

The water budget presented in the table bellow shows all the model inflow and outflows as calculated using the model's cell-by-cell-budget. As can be seen in the table, operation of the slant wells as feedwater for the desalination plant generally increases the amount of ocean water

flowing into the model and reduces the amount of groundwater flowing out into the ocean. Along the inland model boundaries (second column of the table, i.e., general head boundary), there will be a 762 acre-ft increase in the amount of water flowing into the model area from inland areas. This amount represents approximately 1 percent of total inflow to the model area (columns 2 through 4 in the table below), and as such would not have much of an impact on surface or groundwater resources outside of the focused model area. The amount of 762 acre-ft also represents only 3 percent of the project slant well pumping (column 6 in table below), which supports the mass balance estimation of the amount of groundwater being extracted by the slant wells.

Summary of Water Budget – Baseline and Three Project Scenarios
Annual Average Values for Hydrologic Year 1949-2004

Scenario	INFLOW			OUTFLOW				Change in Groundwater Storage
	Northern, Eastern and Southern Model Boundary (Underflow) [acre-ft/yr]	Stream Recharge and Deep Percolation from Precipitation and Applied Water (Irrigation) [acre-ft/yr]	Ocean Inflow [acre-ft/yr]	Non-Project Groundwater Pumping [acre-ft/yr]	Project Groundwater Pumping [acre-ft/yr]	Stream Discharge [acre-ft/yr]	Ocean Outflow [acre-ft/yr]	[acre-ft/yr]
Baseline (No Project)	12,398	36,783	4,032	35,850	0	1,971	15,220	172
Slant Well Project	13,160	36,783	23,938	35,850	24,631	1,971	11,643	-214
Regional Project Scenario 3a	11,809	34,958	22,363	27,643	26,200	1,676	13,429	182
Regional Project Scenario	11,005	34,033	19,302	27,779	20,000	2,270	13,976	315

7.2 Regional Project Scenario 3a

The Regional Project Scenario 3a shows that the ten seaward and inland wells pumping continuously in the 180-Foot aquifer would create an extraction barrier or trough parallel to the coast. This feature is formed as a result of seawater flowing inland towards the seawater wells (the five wells closest to the ocean, see Figure 17), while brackish water from seawater intruded groundwater flows seaward towards the five inland wells. Operating the wells continuously in this manner will maintain a barrier that would prevent future seawater intrusion of the 180-Foot aquifer.

Other changes in groundwater levels between Baseline (No Project) and the Regional Project Scenario 3a within the focused model area are shown on Figure 17 and summarized below:

- In normal hydrologic years (precipitation is close to the long-term average), groundwater flow caused by the Regional Project Scenario 3a remains similar to if there was no project (south west to northeast), with the exception of the pumping trough developed around the Regional Project Scenario 3a desalination wells. This locally alters the groundwater flow by drawing down groundwater by 10 ft more than would have occurred under No Project conditions near the coast.

- Under wet hydrologic condition (precipitation is well above average), the effects of the Regional Project Scenario 3a are less than under normal hydrologic conditions. In general, groundwater flow direction for No Project and Project conditions are quite similar, flowing southwest to northeast with a component also flowing towards the ocean. Although the pumping trough is still present, it has less of an effect south and east of the desalination wells compared to No Project conditions. Increased recharge to the 180-Foot aquifer from infiltration of precipitation and streamflow percolation during wet years allows for more groundwater outflow to the ocean.

- In dry years (precipitation well below average), the groundwater elevations east of the Regional Project Scenario 3a wells are higher than under Baseline (No Project) conditions. There is a strong component of groundwater flow from west to east (i.e., inland flow), which is reversed from flow in wet conditions (i.e., towards the ocean). The pumping trough developed by the Regional Project Scenario 3a in dry years will reduce the hydraulic gradient towards the east compared to No Project conditions. In effect, the Regional Project Scenario 3a would reduce the rate of seawater intrusion which would normally be more prevalent during dry years under No Project conditions.

- After 56 years of operating the Regional Project Scenario 3a, the inland groundwater elevations in the 180-Foot aquifer would be higher than under No Project conditions. The area around the Project wells would have lower groundwater elevations due to the trough developed by continuous pumping. Groundwater flow directions would be similar to normal hydrologic year flow directions.

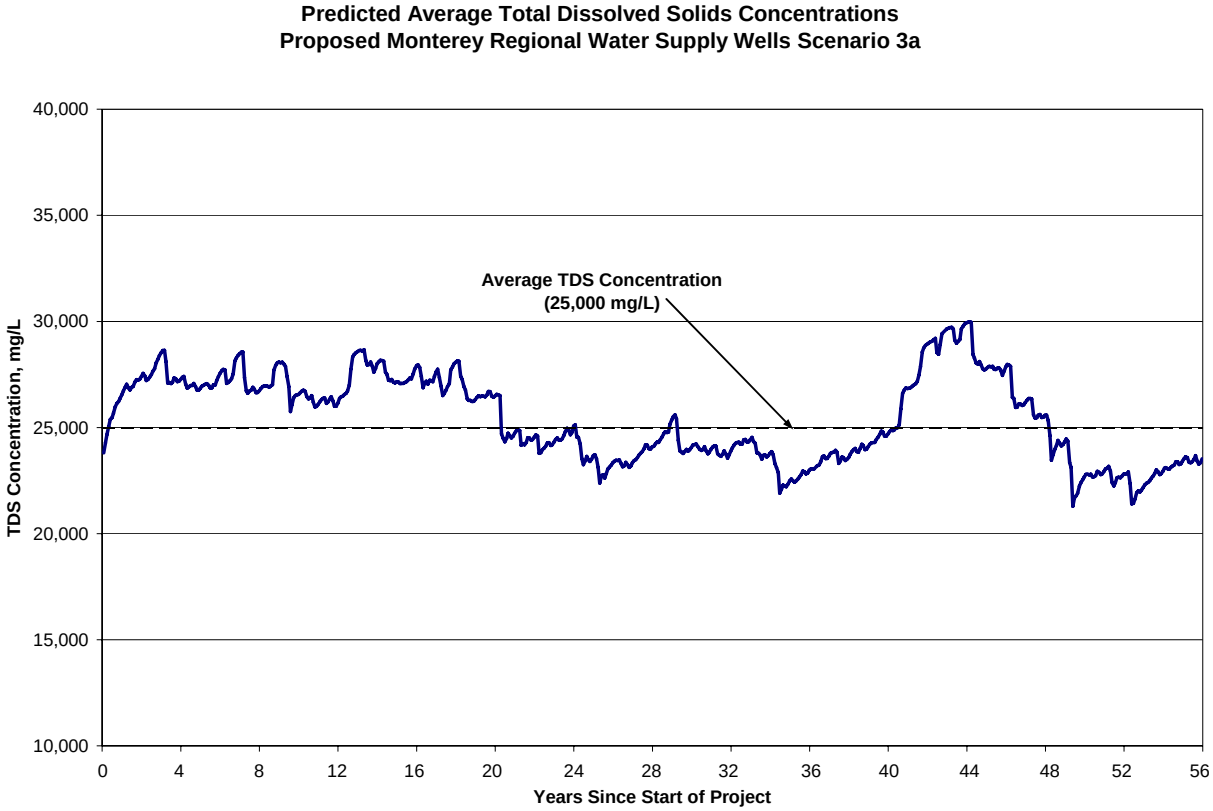
Selected hydrographs showing the Baseline (No Project) and Regional Project Scenario 3a groundwater elevations over the 56 years of the predictive model are provided on Figure 18. In general, the desalination wells of the Regional Project Scenario 3a show a decline in groundwater levels of approximately 10 ft or less. Inland of the Project wells, differences in groundwater levels between Baseline (No Project) and Project are minimal (less than 4 ft). This includes wells completed in the 400-Foot aquifer and Deep Aquifer underlying the 180-Foot aquifer. These deeper aquifers show almost no impacts from the Regional Project Scenario 3a pumping in the 180-Foot aquifer.

Figure 19 shows the 500 mg/L chloride limit of the seawater intrusion in the 180-Foot aquifer at selected times over the 56 year model period. In general, the intrusion is reduced at a faster rate when the Regional Project Scenario 3a is operating compared to Baseline (No Project) conditions. Only the area just south of the Salinas River mouth remains intruded longer than if

there was no project. This is due to the trough that is designed to extract mostly seawater from the seawater wells of the Regional Project Scenario 3a.

The predicted TDS concentration from the ten extraction wells is shown on Figure 20. As can be seen, the seaward wells (1, 3, 4 and 5) all produce water with a TDS close to the assumed seawater concentration of 35,000 mg/L. The southernmost seaward extraction well has more fluctuating TDS concentrations, but still produces close to the 35,000 mg/L concentration. The TDS concentration of the inland wells indicates that the wells are producing a mixture of seawater and onshore groundwater. This suggests that the inland wells are effectively forming a barrier to onshore groundwater flowing towards the ocean (i.e., they intercept before it gets to the seaward wells). Thus, the seaward wells are able to extract more seawater than if the inland wells were not there.

Over the 56 years, the blended TDS concentration of the feedwater extracted by the ten Regional Project Scenario 3a wells will average approximately 25,000 mg/L. The chart below shows the modeled TDS concentrations over time. The predicted TDS concentration of 25,000 mg/L for the feedwater extracted by the ten Project wells is approximately 70 to 73 percent of the TDS concentration of seawater (34,000 to 35,000 mg/L).



The water budget (see Table in Section 7.1) for the Regional Project Scenario 3a shows that similarly to the CAW slant well scenario, there will be increased ocean water inflow and decreased outflow of onshore water to the ocean compared to the No Project (Baseline) conditions. However, due to changes in regional pumping (non-project pumping) and use of surface water for this scenario there would be a 589 acre-ft/yr decrease in the amount of water flowing into the model from the northern, eastern and southern model boundary areas as compared to No the Project (see column 2 of table in Section 7.1). This decrease in groundwater inflow would have a beneficial impact on groundwater resources outside of the focused model area (i.e. less impact on groundwater elevations). Inside the focused model area, the change in groundwater storage for the Regional Project Scenario 3a would increase 10 acre-ft/yr as compared to the No Project Scenario (see column 9 of table in Section 7.1). This would be a beneficial impact to groundwater resources within the focused model area.

7.3 Regional Project Scenario 4b

The Regional Project Scenario 4b shows that the five extraction wells pumping continuously in the 180-Foot Aquifer would create an extraction barrier or trough parallel to the coast. This feature is formed as the extraction wells pull in seawater (inland flow direction) and brackish water from the seawater-intruded Salinas Valley aquifer (seaward flow direction) (see Figure 21). Operating the wells continuously in this manner will maintain a barrier that would prevent future seawater intrusion of the 180-Foot Aquifer.

Other changes in groundwater levels between Baseline (No Project) and the Regional Project Scenario 4b within the focused model area are shown on Figure 21 and are summarized below:

- In normal hydrologic years (precipitation is close to the long-term average), groundwater flow caused by the Regional Project Scenario 4b remains similar to if there was no project (southwest to northeast), with the exception of the pumping trough developed around the Project extraction wells. This locally alters the groundwater flow by drawing down groundwater by 7 ft more than would have occurred under No Project conditions near the coast.

- Under wet hydrologic condition (precipitation is well above average), the effects of the Regional Project Scenario 4b are less than under normal hydrologic conditions. In general, groundwater flow direction for No Project and Project conditions are quite similar, flowing northwest to northeast with a component also flowing towards the ocean. Although the pumping trough is still present, it has less of an effect south and east of the desalination wells compared to No Project conditions. Increased recharge to the 180-Foot Aquifer from infiltration of precipitation and streamflow percolation during wet years allows for more groundwater outflow to the ocean.

- In dry years (precipitation well below average), the groundwater elevations east of the Project wells are higher than under Baseline (No Project) conditions. There is a strong

component of groundwater flow from west to east (i.e., inland flow), which is reversed from flow in wet conditions (i.e., towards the ocean). The pumping trough developed by the Regional Project Scenario 4b in dry years will reduce the hydraulic gradient towards the east compared to No Project conditions. In effect, Scenario 4b would reduce the rate of seawater intrusion which would normally be more prevalent during dry years under No Project conditions.

- After 56 years of operating the Regional Project Scenario 4b, the inland groundwater elevations in the 180-Foot Aquifer would be higher than under No Project conditions. For example, there is an average 0.5 ft rising of groundwater levels in the Observation Well No. 9 located four miles east from the Project wells during the 56 years model simulation period (see Figure 22). The area around the Project wells would have lower groundwater elevations due to the trough developed by continuous pumping. Groundwater flow directions would be similar to normal hydrologic year flow directions.

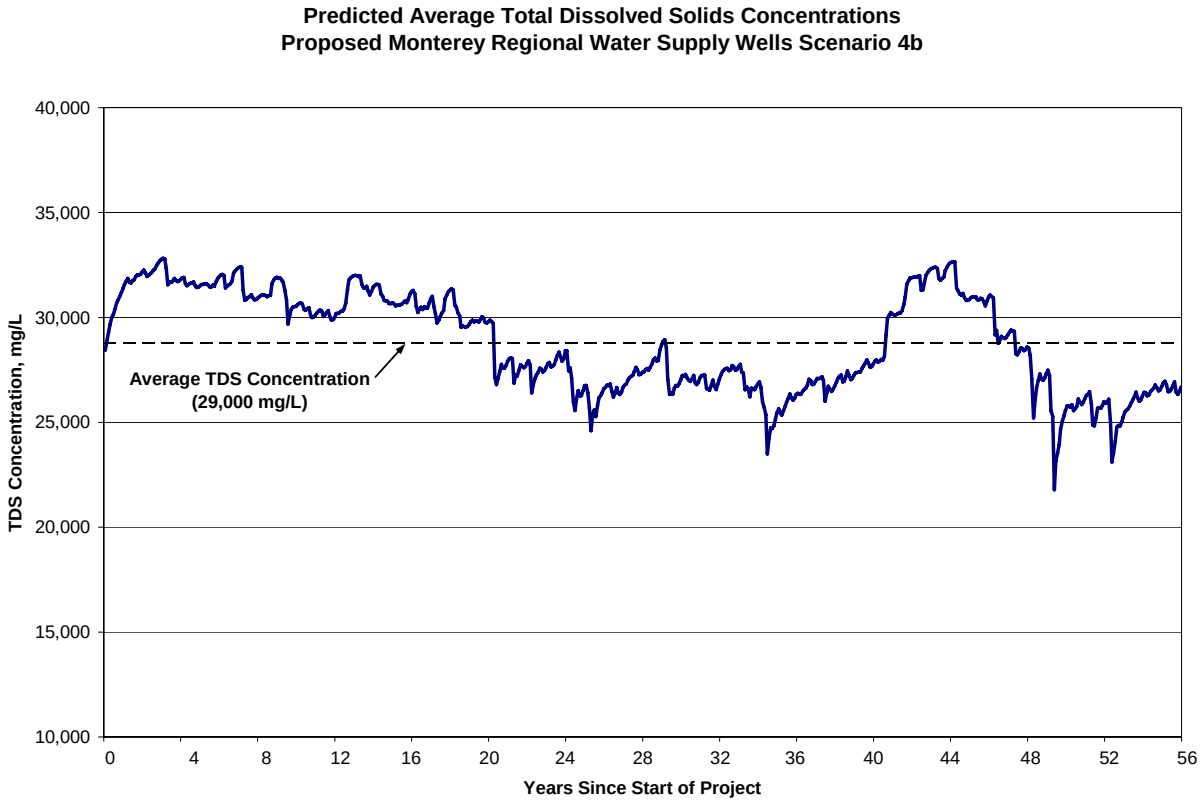
Selected hydrographs showing the Baseline (No Project) and Regional Project Scenario 4b groundwater elevations over the 56 years of the predictive model are provided on Figure 22. In general, the extraction wells of the Regional Project Scenario 4b show a decline in groundwater levels of approximately 10 ft or less. Inland of the Project desalination wells, differences in groundwater levels between Baseline (No Project) and Project are minimal (less than 7 ft). This includes wells completed in the 400-Foot Aquifer and Deep Aquifer underlying the 180-Foot Aquifer. Except for Observation Well 14, these deeper aquifers show almost no impacts from the Regional Project Scenario 4b pumping in the 180-Foot Aquifer.

Figure 23 shows the 500 mg/L chloride limit of the seawater intrusion in the 180-Foot Aquifer at selected times over the 56-year model period. In general, the intrusion is reduced at a faster rate when the Regional Project Scenario 4b is operating under Scenario 4b compared to Baseline (No Project) conditions. Only the area just south of the Salinas River mouth remains intruded longer

than if there was no project. This is due to the trough that is designed to extract mostly seawater from the desalination wells of the Regional Project Scenario 4b.

The predicted TDS concentration from the five extraction wells is shown on Figure 24. As can be seen, the wells all produce water with fluctuating TDS concentrations (ranging from approximately 22,000 milligrams per liter (mg/L) to 33,000 mg/L) throughout the 56-year period. However, the TDS concentration is closer to the assumed seawater concentration of 35,000 mg/L during both normal and dry years than during wet years. The southernmost extraction well (Well 11) has more fluctuating TDS concentrations, but at times still produces close to the 35,000 mg/L concentration. During wet years, the TDS concentration of the extraction wells indicates that the wells are producing a mixture of seawater and onshore groundwater. This is due to the increase of groundwater, derived from infiltration of precipitation and streamflow percolation, flowing towards the ocean.

Over the 56 years, the average TDS concentration of the desalination feedwater extracted by the five Regional Project Scenario 4b wells will average approximately 29,000 mg/L. The chart below shows the modeled TDS concentrations over time. The predicted TDS concentration of 29,000 mg/L for the feedwater extracted by the five Project wells is approximately 82 to 85 percent of the TDS concentration of seawater (34,000 to 35,000 mg/L).



The water budget (see Table in Section 7.1) for the Regional Project Scenario 4b shows that similarly to the CAW slant well scenario, there will be increased ocean water inflow and decreased outflow of onshore water to the ocean compared to the No Project (Baseline) conditions. However, due to changes in regional pumping (non-project pumping) and use of surface water for this scenario there would be a 1,393 acre-ft/yr decrease in the amount of water flowing into the model from the northern, eastern and southern model boundary areas as compared to No the Project (see column 2 of table in Section 7.1). This decrease in groundwater inflow would have a beneficial impact on groundwater resources outside of the focused model area (i.e. less impact on groundwater elevations). Inside the focused model area, the change in groundwater storage for the Regional Project Scenario 4b would increase 143 acre-ft/yr as compared to the No Project Scenario (see column 9 of table in Section 7.1). This would be a beneficial impact to groundwater resources within the focused model area.

8.0 REFERENCES

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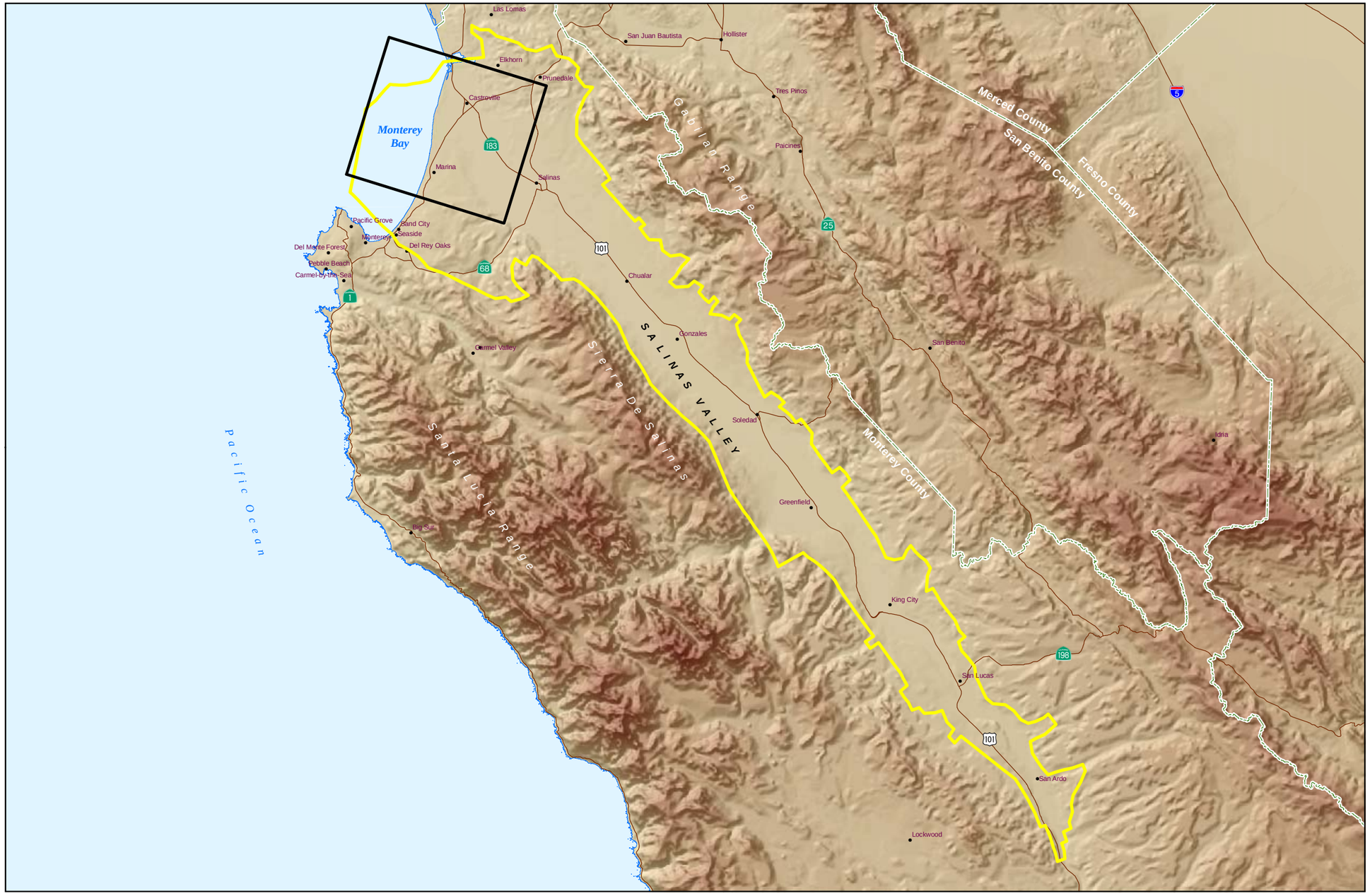
FIGURES

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS



GENERAL PROJECT LOCATION

EXPLANATION

- GEOSCIENCE Groundwater Model Boundary
- Salinas Valley Integrated Groundwater and Surface Water Model (SVIGSM) Boundary
- County Boundary
- Highway

26-Sep-08

Prepared by: DWB

Map Projection:
State Plane 1983, California Zone IV

NORTH

0 10 20 Miles

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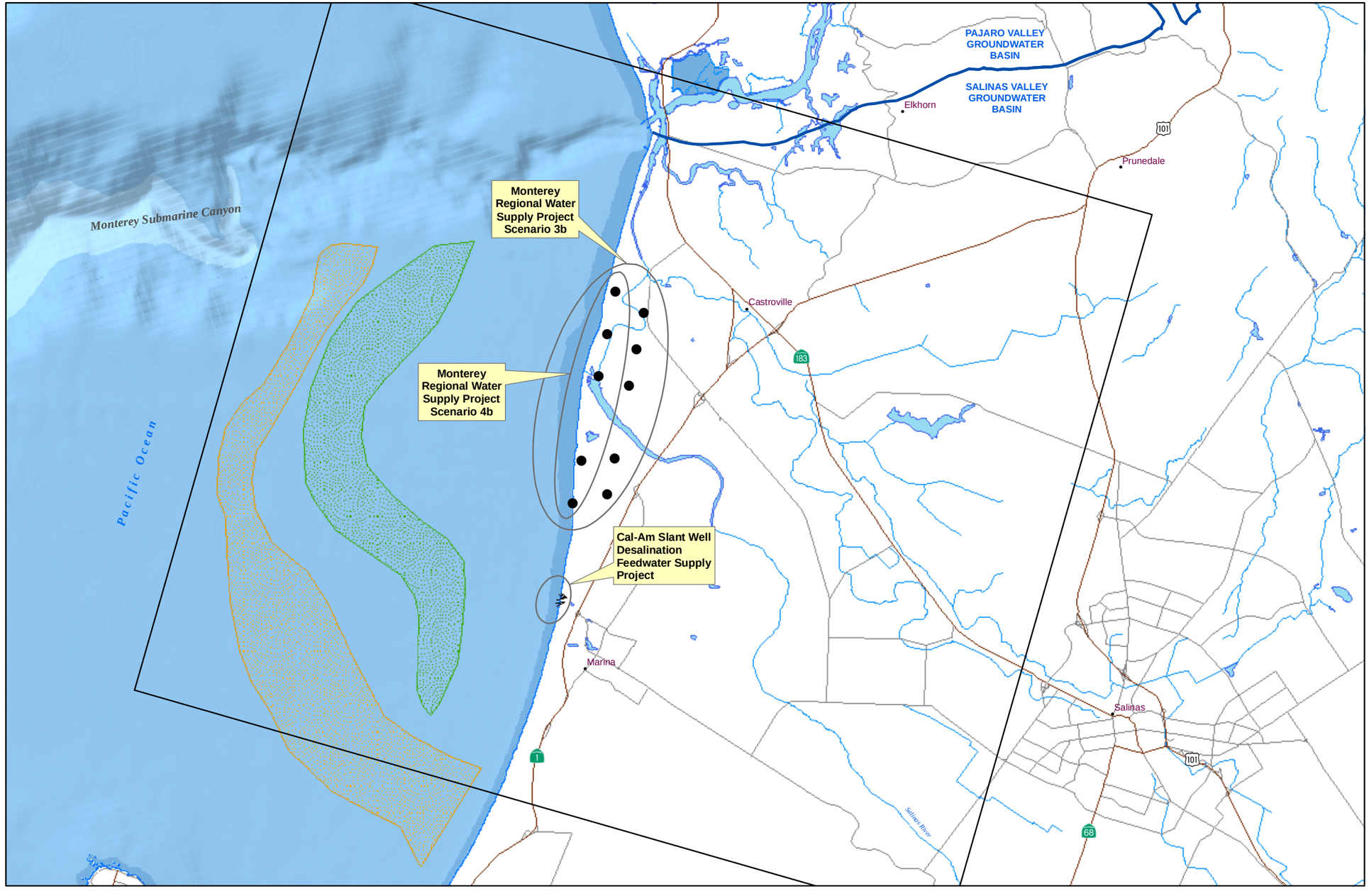
Figure 1

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_1_Slant_Wells_180ft_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS



POTENTIAL PROJECTS

EXPLANATION

- Monterey Regional Project Well
- GEOSCIENCE Groundwater Model Boundary
- Groundwater Basin Boundary (DWR, 2003)
- Offshore Aquifer Outcrop (Green, 1970; DWR, 1973)
- 180-Foot Aquifer
- 400-Foot Aquifer
- Slant Well
- Highway
- Major Roads
- Rivers and Creeks

NOTE:
Scenario 3b = 10 wells
Scenario 4b = 5 wells

26-Sep-08

Prepared by: DWB

Map Projection:
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NORTH

0 2 4 Miles

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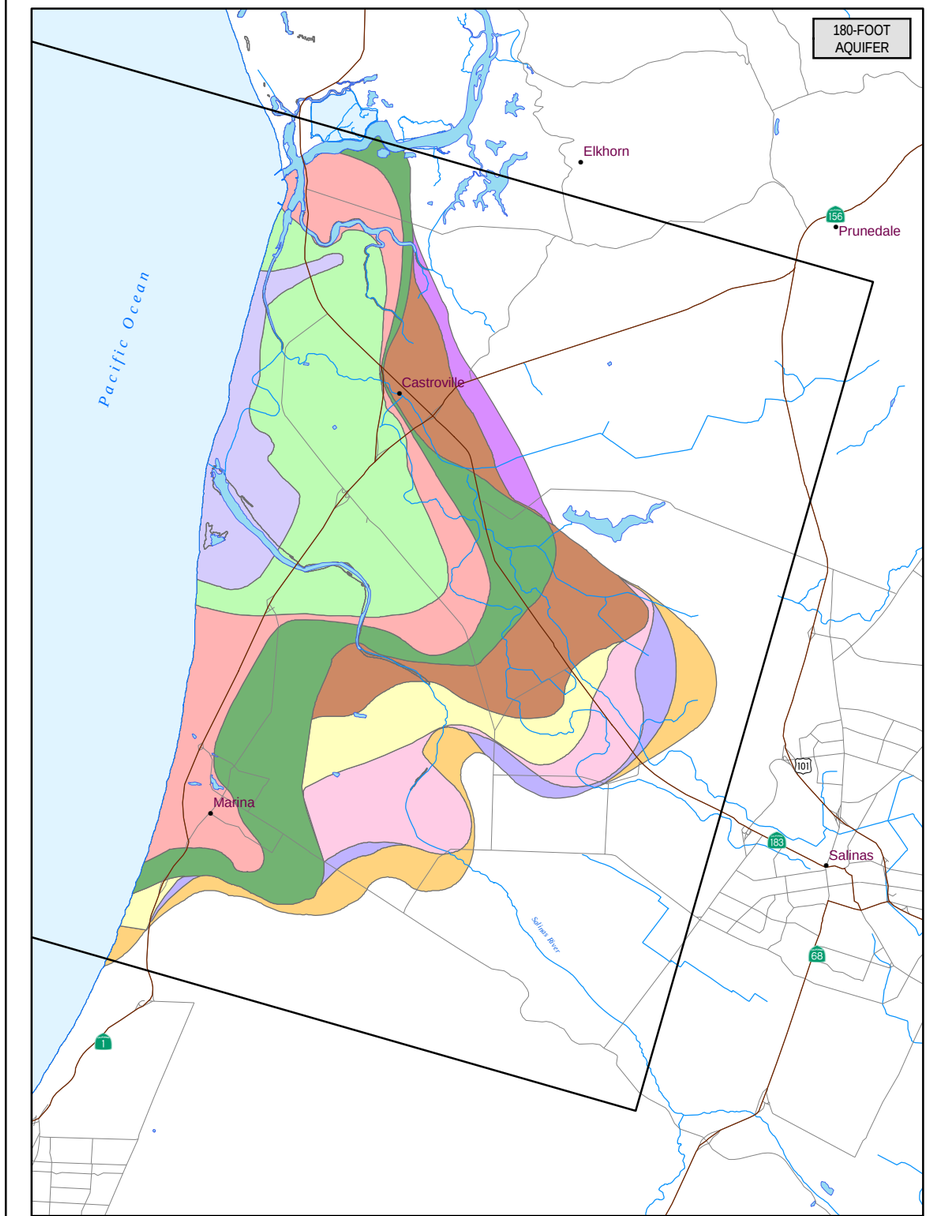
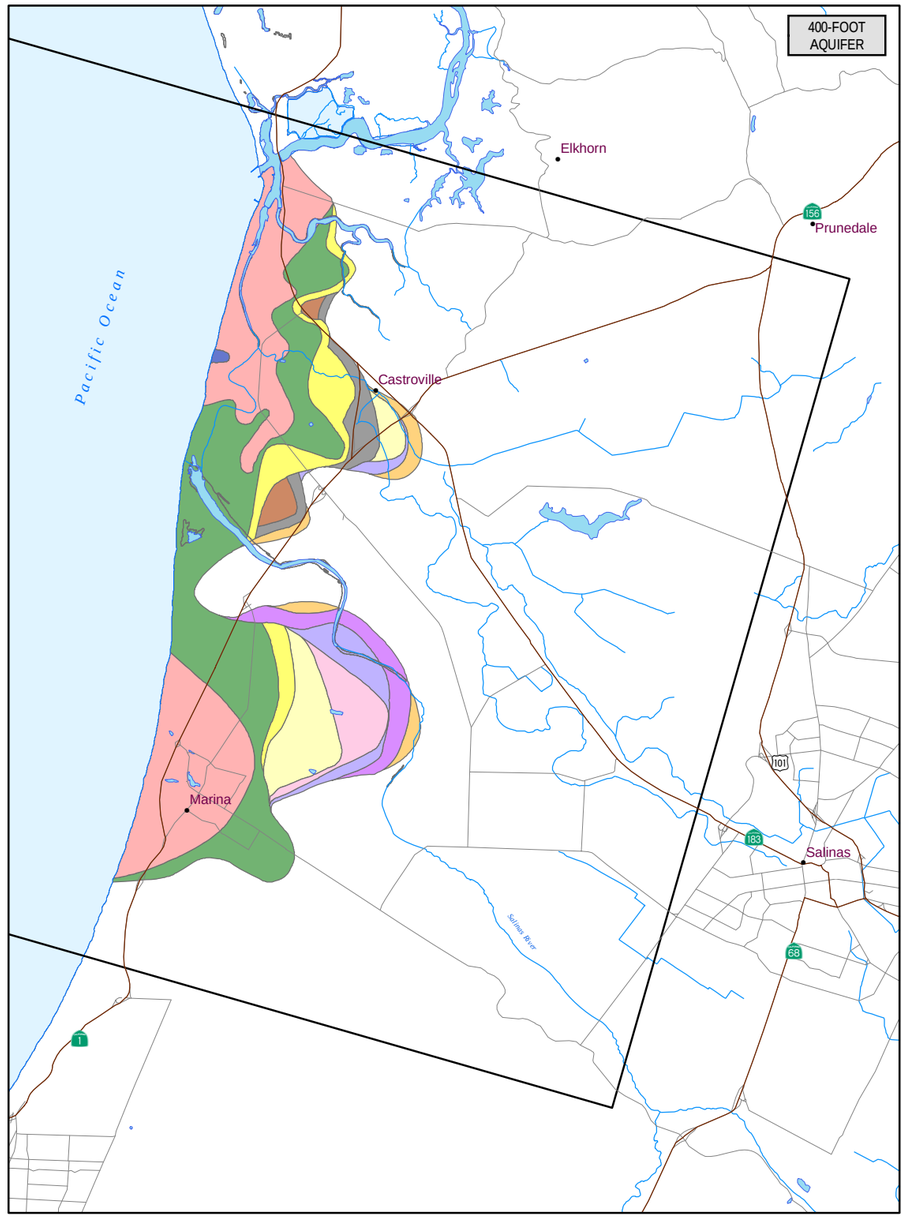
Figure 2

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_2_proposed_projects_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS





HISTORICAL SEAWATER INTRUSION 180-FOOT AND 400-FOOT AQUIFERS

EXPLANATION

- GEOSCIENCE Groundwater Model Boundary
- Highway
- Major Roads
- Rivers and Creeks

Seawater Intrusion by Year
(Source: MCWRA, 2005)

1944	1995
1959	1997
1965	1999
1975	2001
1985	2003
1990	2005
1993	

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Prepared by: DWB

Map Projection:
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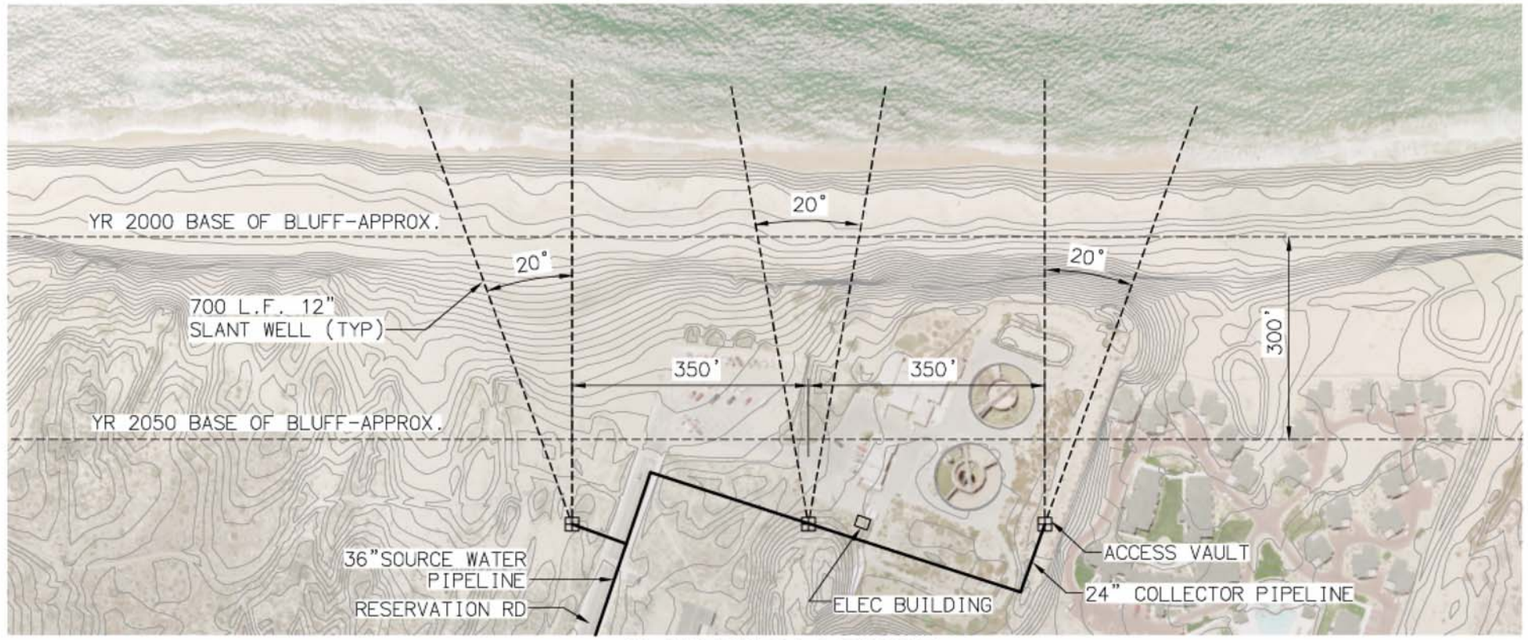
Figure 3

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_3_historic_swi_180ft_400ft_9-08.mxd

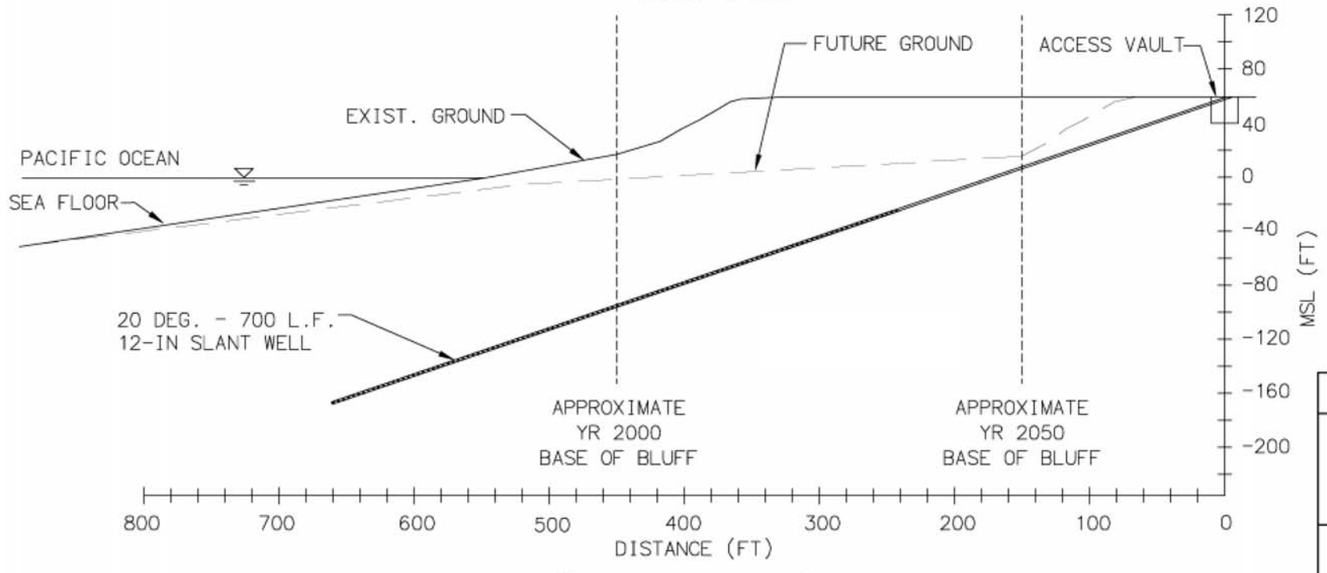
SCALE: 1"= 200'

This layout was developed after model runs were completed. However, groundwater impacts are not expected to be much different between this layout and the layout modeled.



SLANT WELL LAYOUT

SCALE: 1"=200'



SLANT WELL PROFILE

SCALE: 1"=100'

H:\PDATA\7910\0945\CAD\WATER\EXHIBITS\CPUC DR 2.4 TM FILES\FIGURE 3_NMA SLANT WELLS.DWG MSHATLA 7/7/08, 3:22 pm

COASTAL WATER PROJECT

FIGURE 3
SLANT WELL SITE LAYOUT
NORTH MARINA ALTERNATIVE

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CALIFORNIA AMERICAN WATER

SLANT WELL LAYOUT

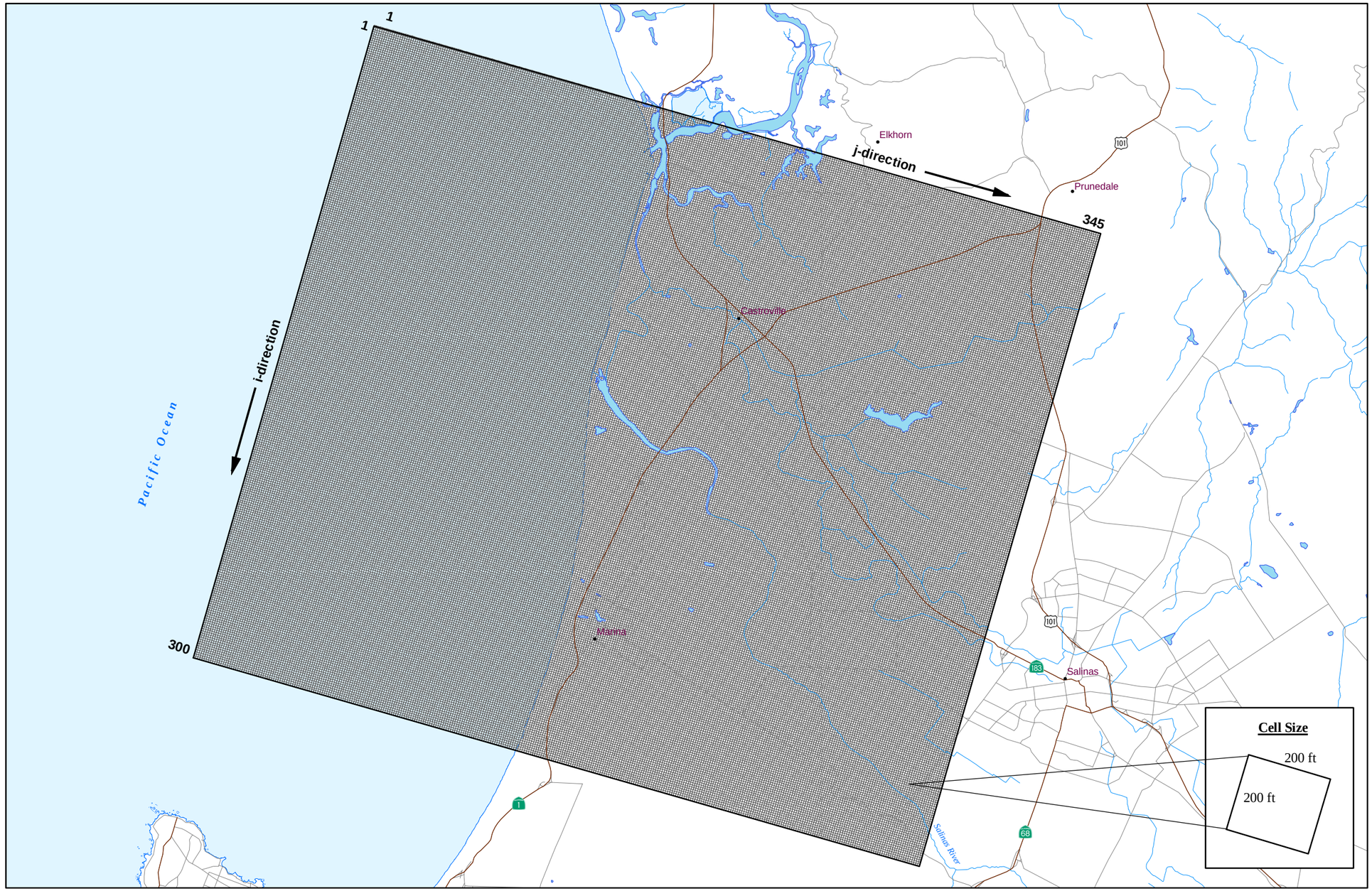
Drawn:
Checked:
Approved:
Date: 26-SEP-08

Figure 4

X:\Projects\Cal_American_Water_Co\North_Marina_Model-2008\Report\Figures

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS



NORTH MARINA GROUNDWATER MODEL BOUNDARY

EXPLANATION

- GEOSCIENCE Groundwater Model Boundary
- Model Cell Size (200 ft x 200 ft)
- Highway
- Major Roads
- Rivers and Creeks

26-Sep-08

Prepared by: DWB

Map Projection:
State Plane 1983, California Zone IV

NORTH

0 2 4 Miles

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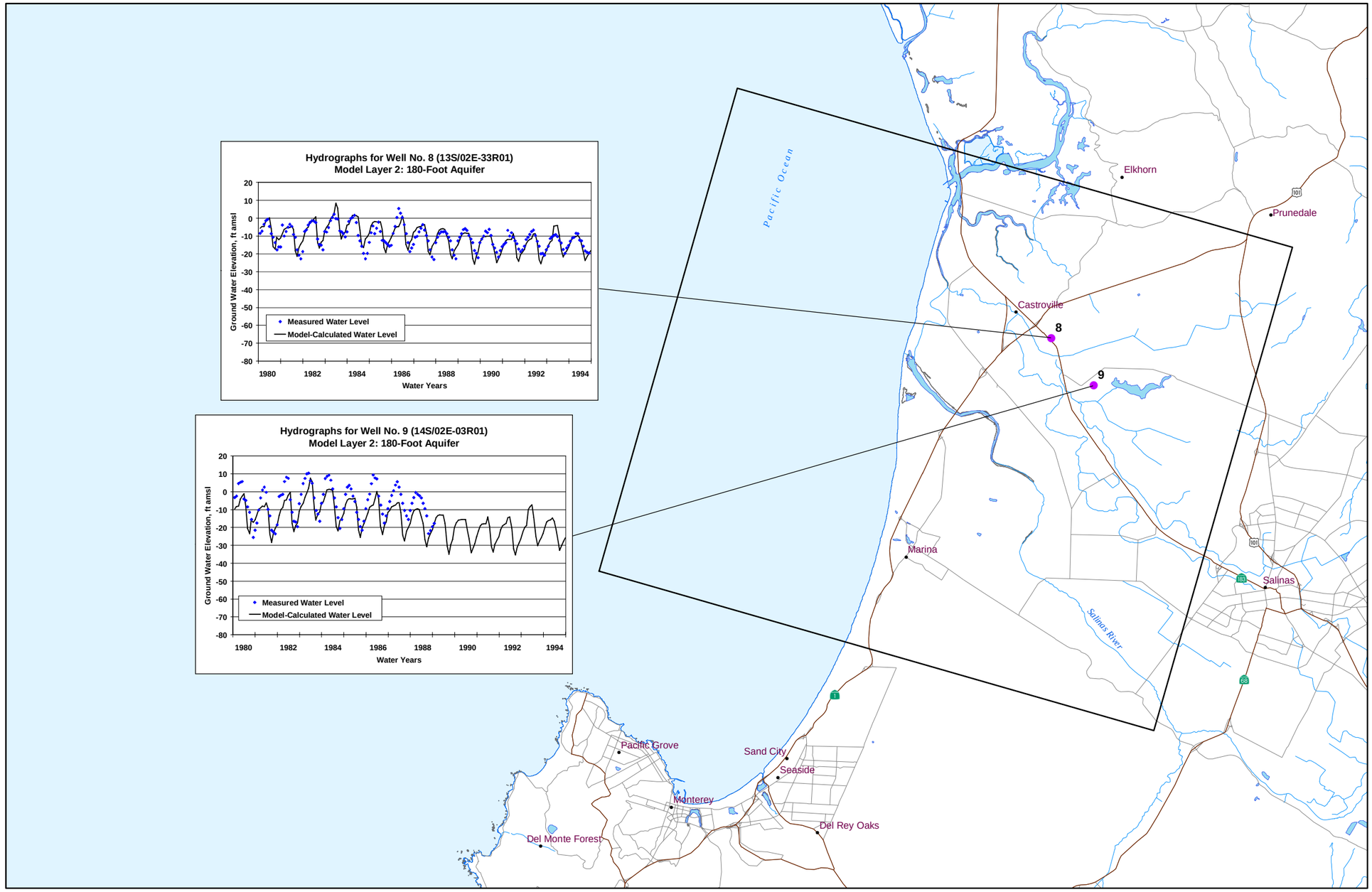
Figure 5

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_5_Model_Bouneary_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS

FLOW MODEL CALIBRATION HYDROGRAPHS 180-FOOT AQUIFER



EXPLANATION

- WRIME Calibration Well
- GEOSCIENCE Groundwater Model Boundary
- Highway
- Major Roads
- Rivers and Creeks

26-Sep-08

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Map Projection:
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NORTH

0 2 4 Miles

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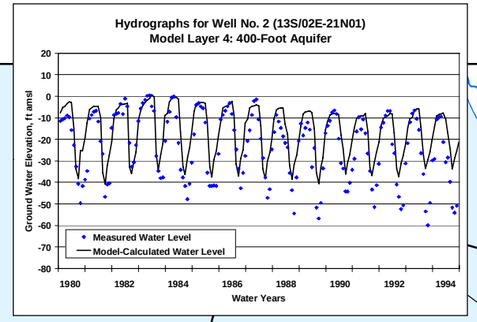
Figure 6

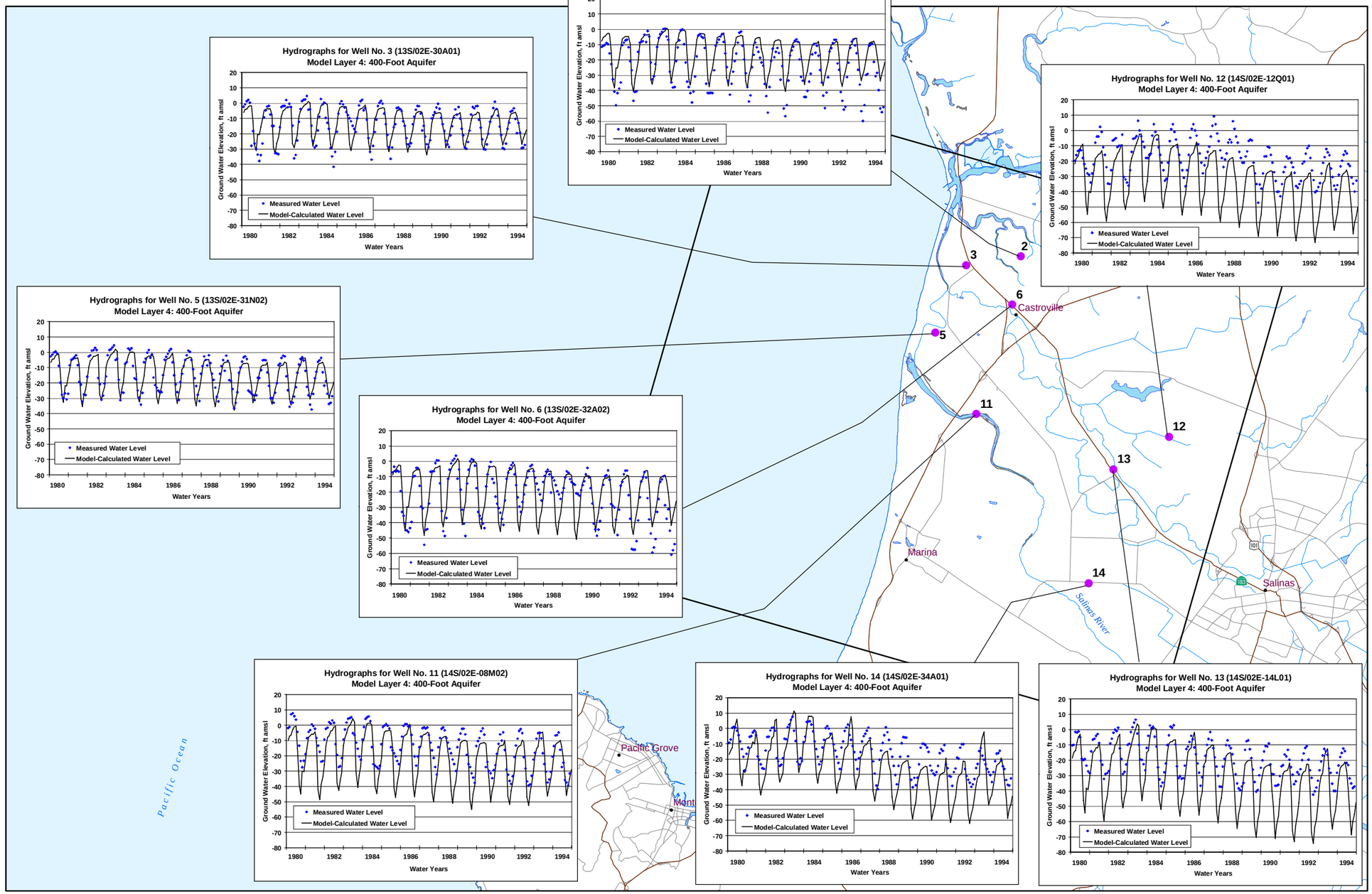
GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_6_Hydrographs_180ft_aquifer_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS

FLOW MODEL CALIBRATION HYDROGRAPHS 400-FOOT AQUIFER





EXPLANATION

- WRIME Calibration Well
- GEOSCIENCE Groundwater Model Boundary
- Highway
- Major Roads
- Rivers and Creeks

26-Sep-08

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Map Projection:
State Plane 1983, California Zone IV

NORTH

0 2 4 Miles

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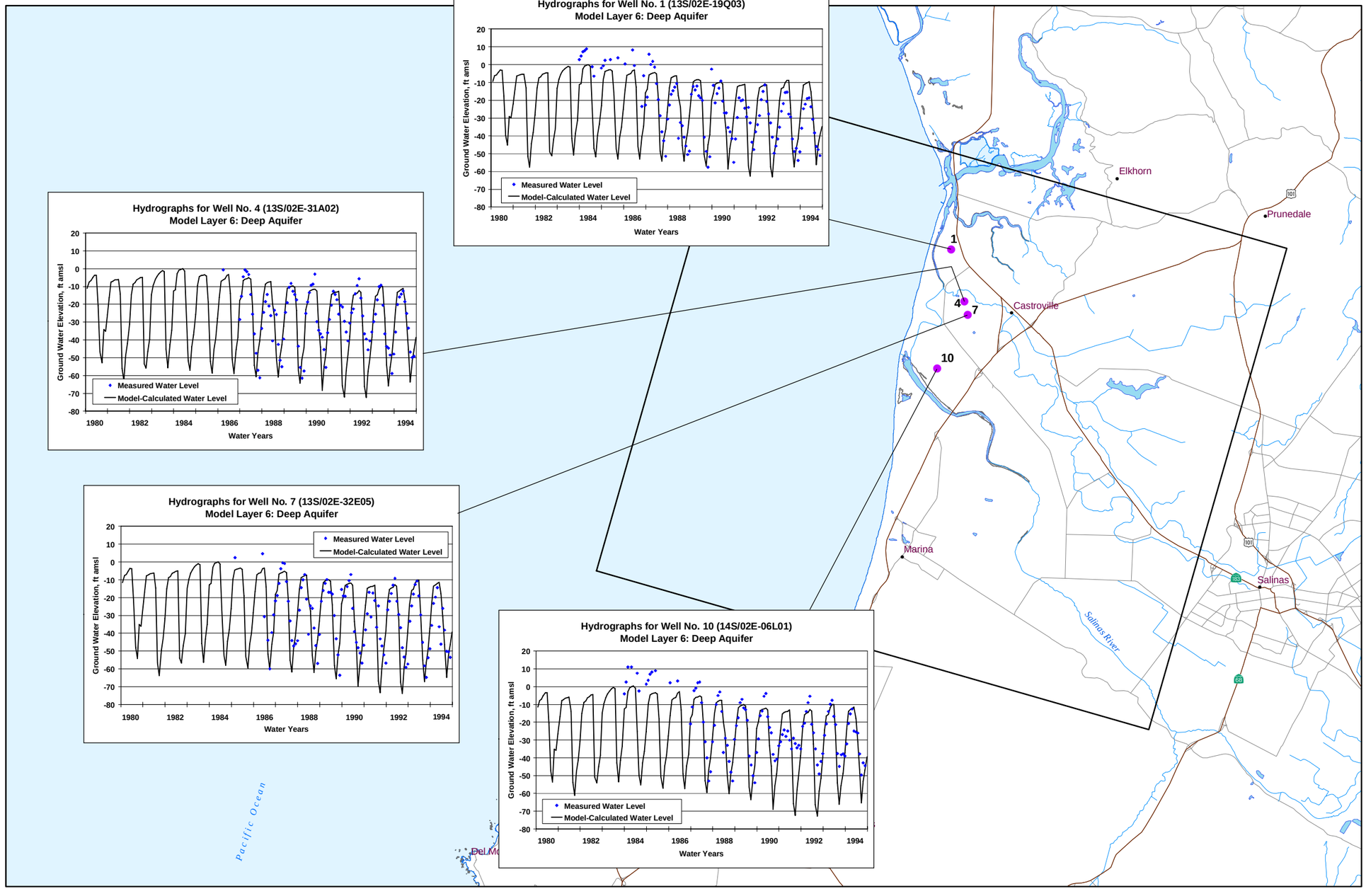
Figure 7

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_7_Hydrographs_400ft_aquifer_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS

FLOW MODEL CALIBRATION HYDROGRAPHS DEEP AQUIFER



EXPLANATION

- WRIME Calibration Well
- GEOSCIENCE Groundwater Model Boundary
- Highway
- Major Roads
- Rivers and Creeks

26-Sep-08

Prepared by: DWB

Map Projection:
State Plane 1983, California Zone IV

NORTH

0 2 4 Miles

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Figure 8

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_8_Hydrographs_deep_aquifer_9-08.mxd

Histogram of Groundwater Level Residuals* - Transient Model Calibration

(Model Calibration Period October 1979 Through September 1994)

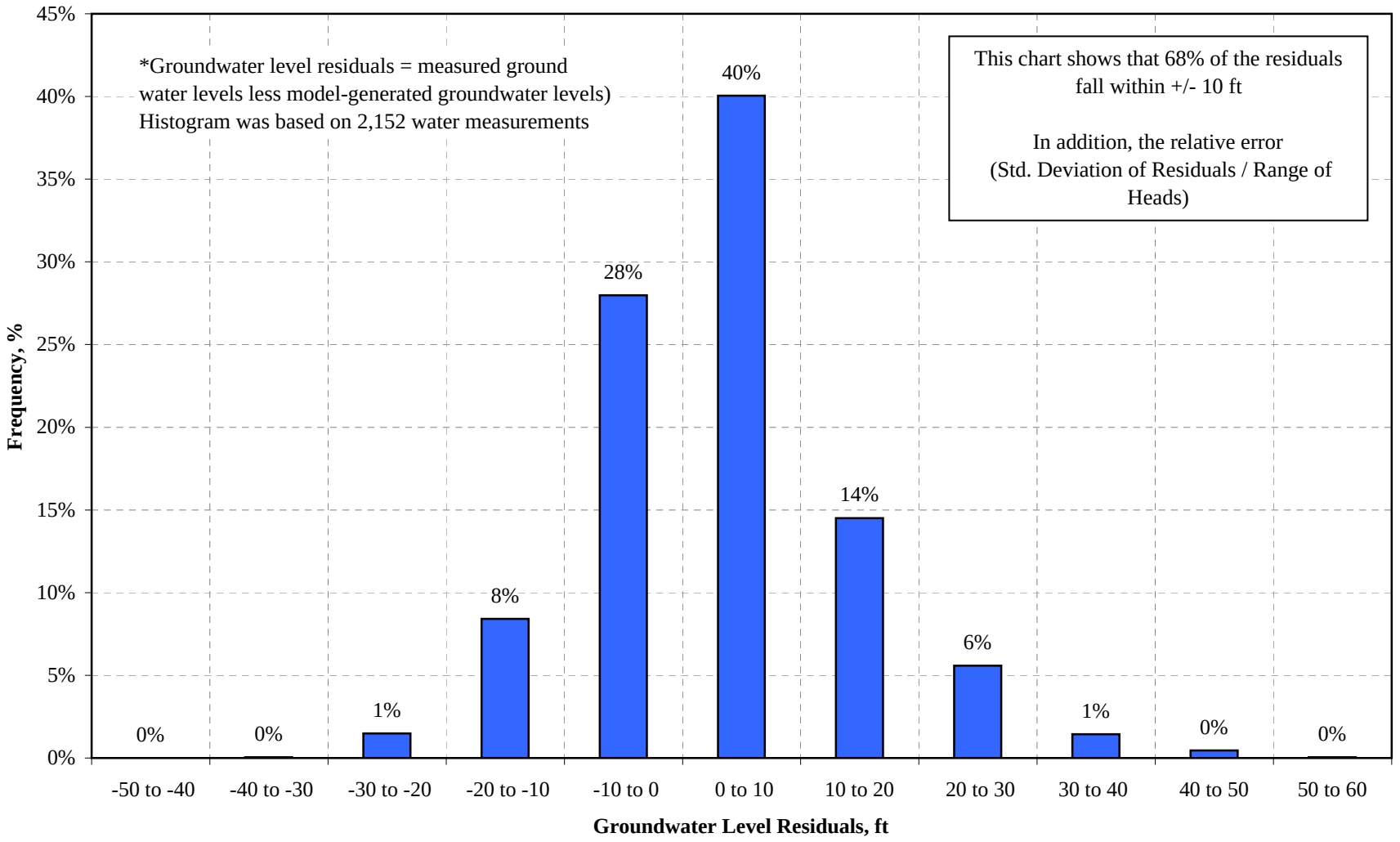
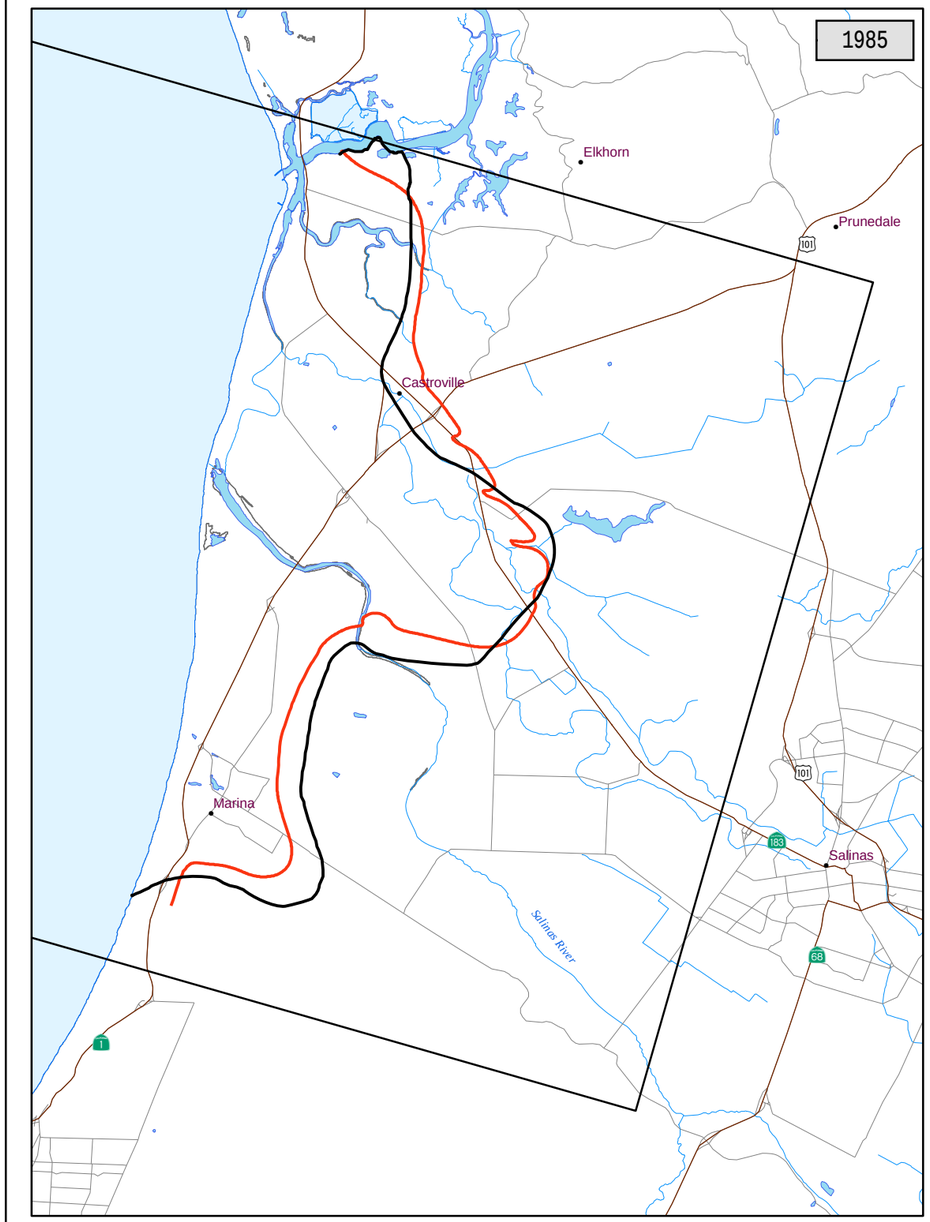
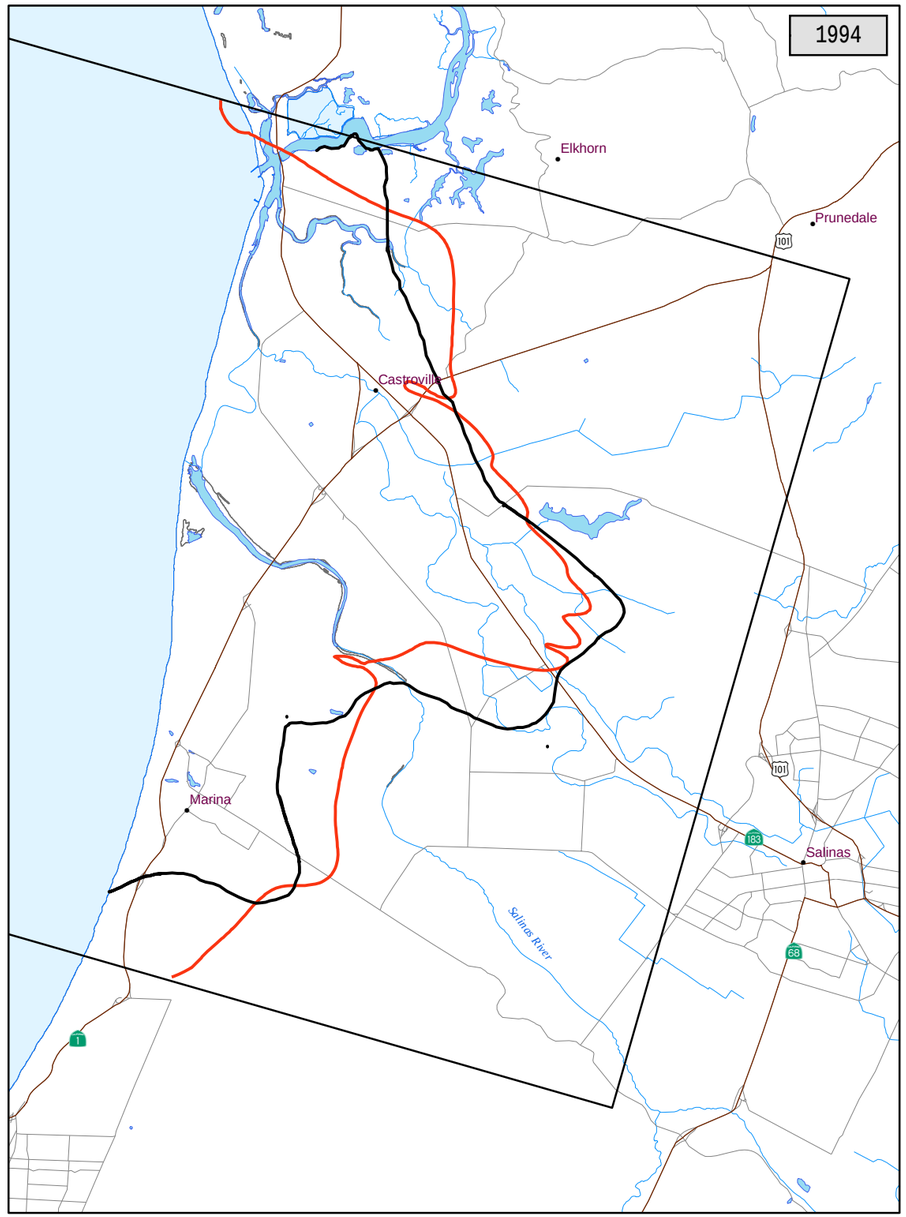


Figure 9

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS





TRANSPORT MODEL CALIBRATION OF SEAWATER INTRUSION 180-FOOT AQUIFER

EXPLANATION

- GEOSCIENCE Groundwater Model Boundary
- MCWRA Seawater Intrusion Line (Chloride = 500 mg/L) (MCWRA, 2005)
- Model-Generated Seawater Intrusion Line (Chloride = 500 mg/L)
- Highway
- Major Roads
- Rivers and Creeks

26-Sep-08

Prepared by: DWB

Map Projection:
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NORTH

0 2 4 Miles

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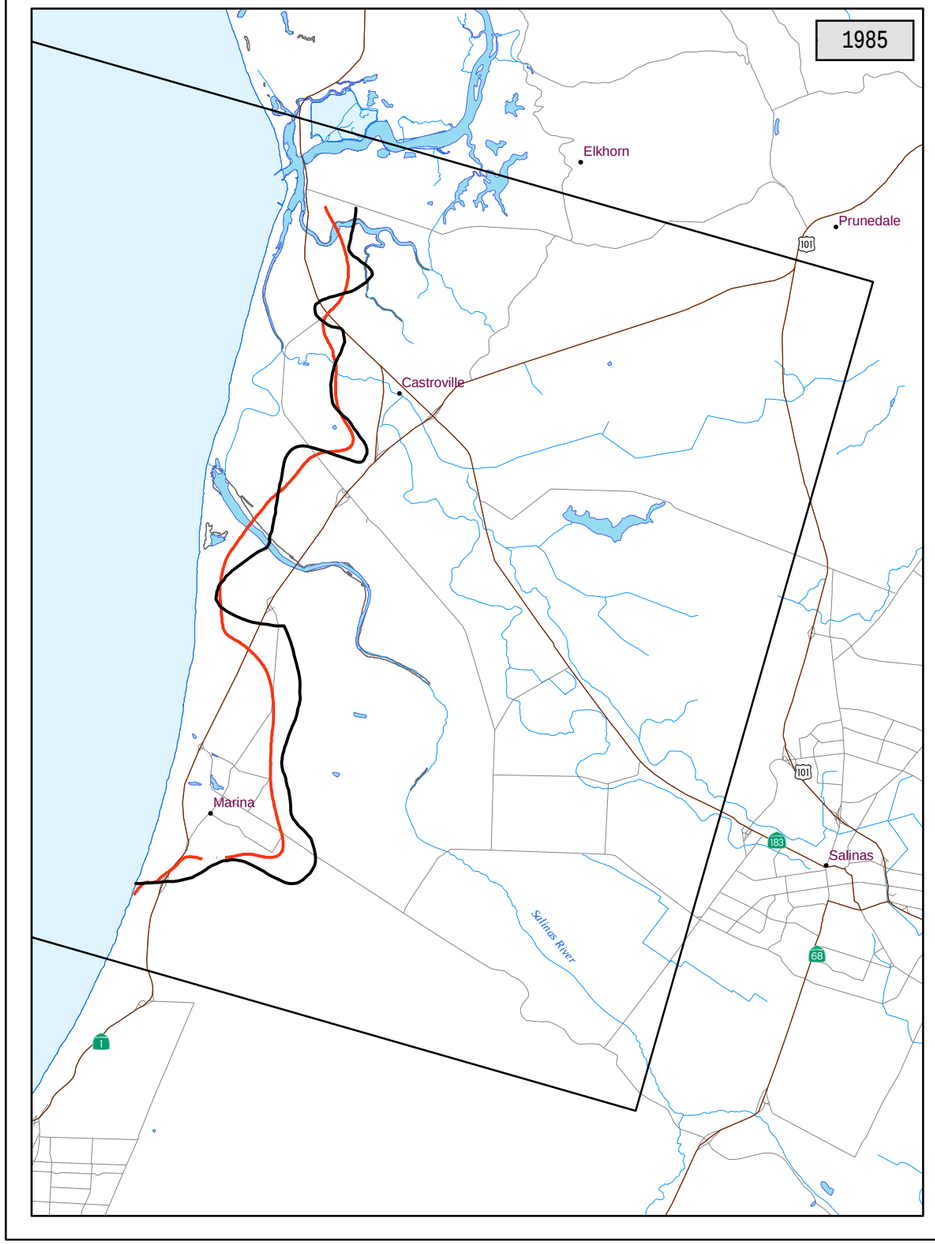
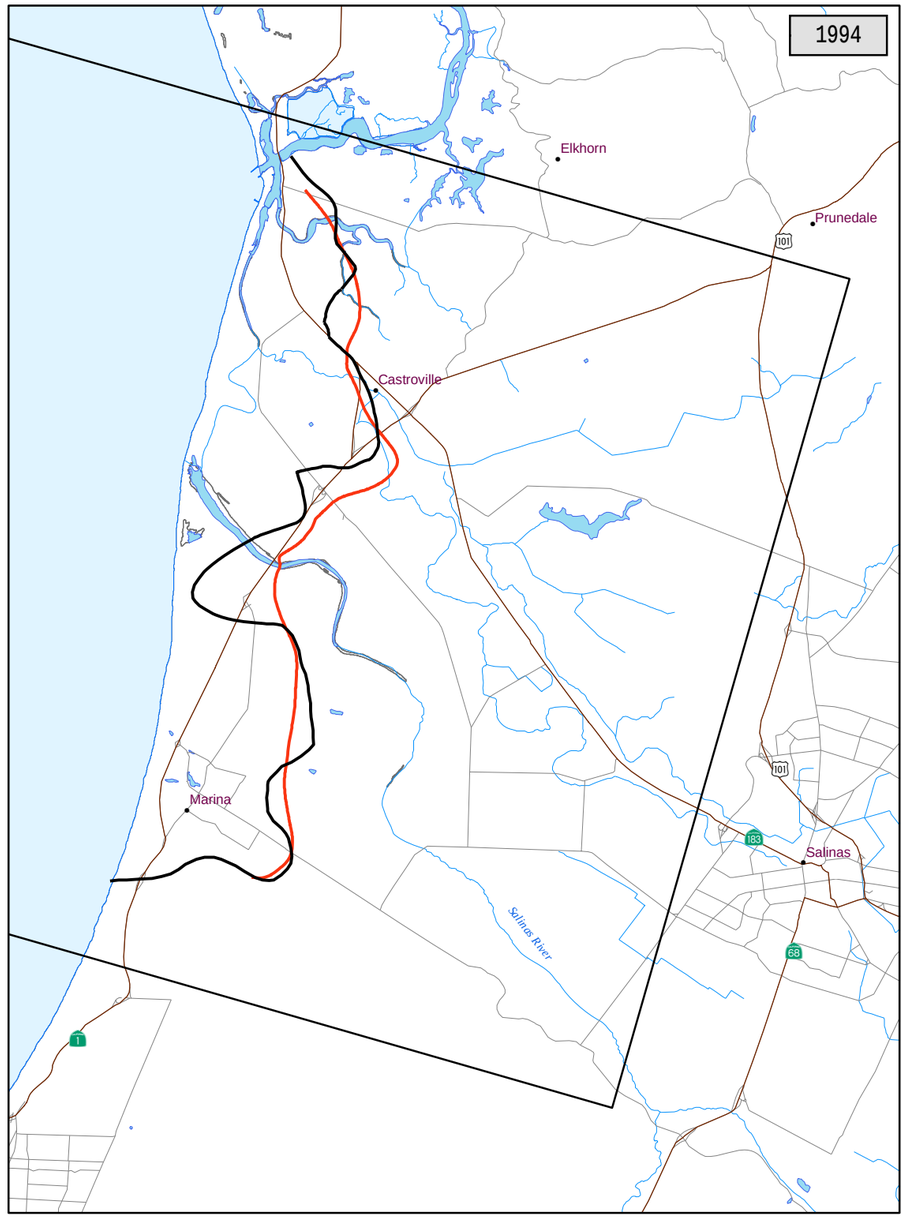
Figure 10

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_10_calibration_swi_180ft_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS





TRANSPORT MODEL CALIBRATION OF SEAWATER INTRUSION 400-FOOT AQUIFER

EXPLANATION

- GEOSCIENCE Groundwater Model Boundary
- MCWRA Seawater Intrusion Line (Chloride = 500 mg/L) (MCWRA, 2003)
- Model-Generated Seawater Intrusion Line (Chloride = 500 mg/L)
- Highway
- Major Roads
- Rivers and Creeks

26-Sep-08

Prepared by: DWB

Map Projection:
State Plane 1983, California Zone IV

NORTH

0 2 4 Miles

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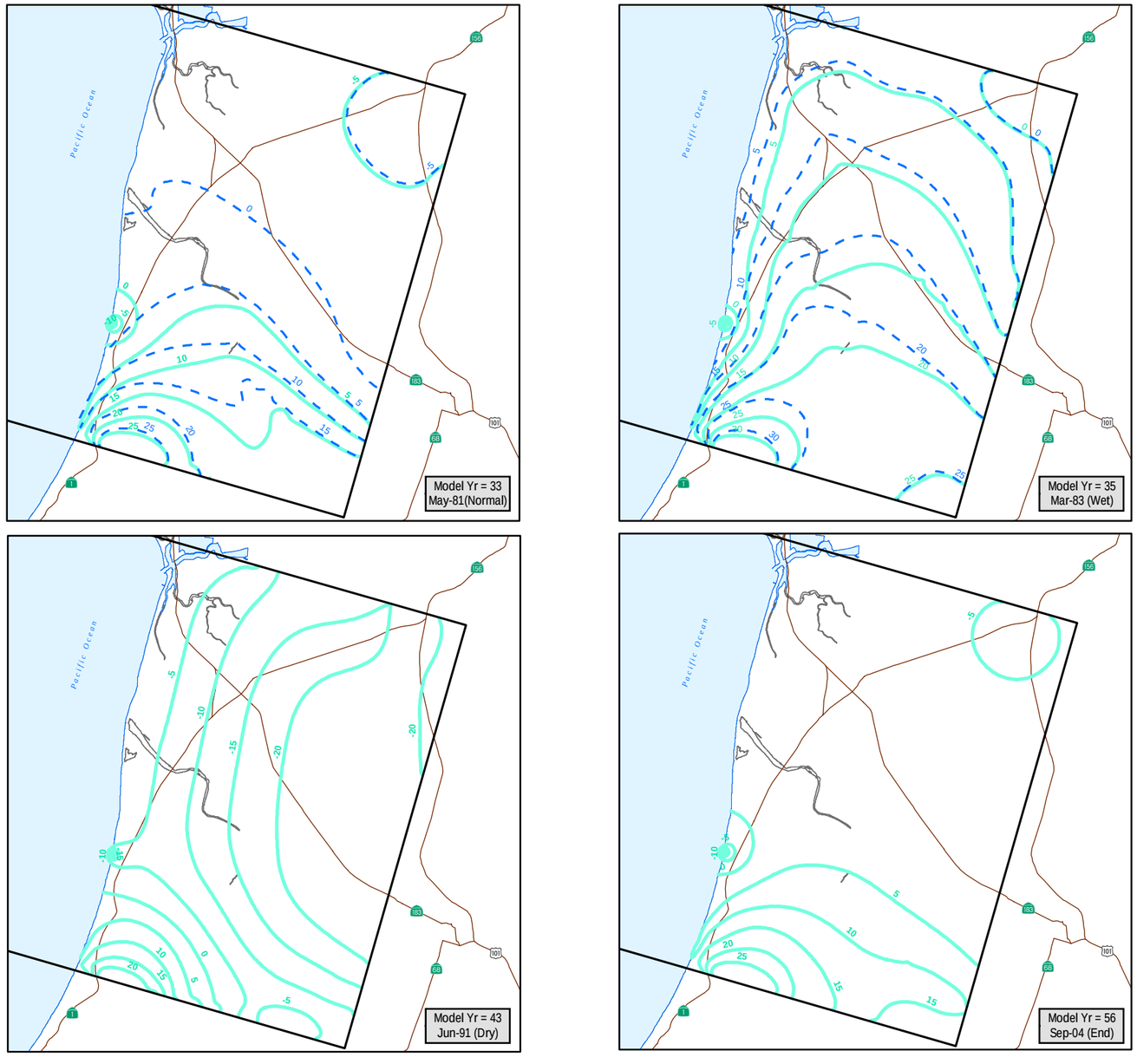
Figure 11

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_11_calibration_swi_400ft_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS



180-FOOT AQUIFER BASELINE vs. SLANT WELL FEEDWATER SUPPLY SCENARIO (22 MGD) GROUNDWATER ELEVATIONS

EXPLANATION

- GEOSCIENCE Groundwater Model Boundary
- Baseline Groundwater Elevation, ft amsl
- Slant Well Scenario Groundwater Elevation, ft amsl
- Highway

Model Yr = 13
Jun-1961 (Dry)
Predictive Model Year*
Hydrologic Year

* Years Since Start of Model Scenario

26-Sep-08

Prepared by: DWB

Map Projection:
State Plane 1983, California Zone IV

NORTH

0 2 4 Miles

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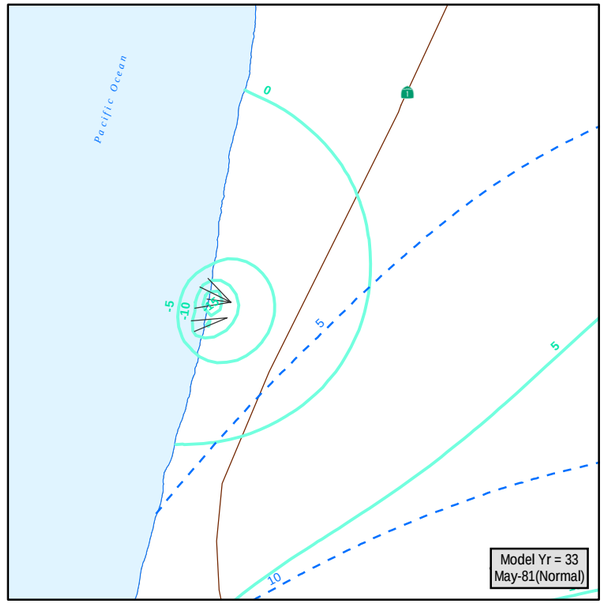
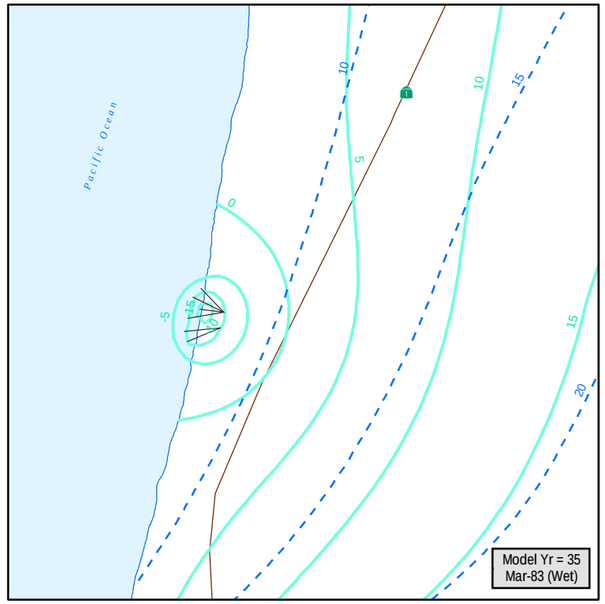
Figure 12

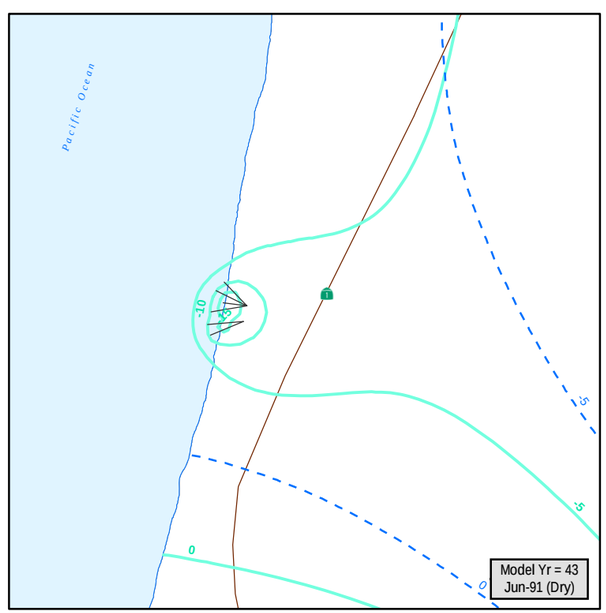
GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_12_Slant_Wells_180ft_9-08.mxd

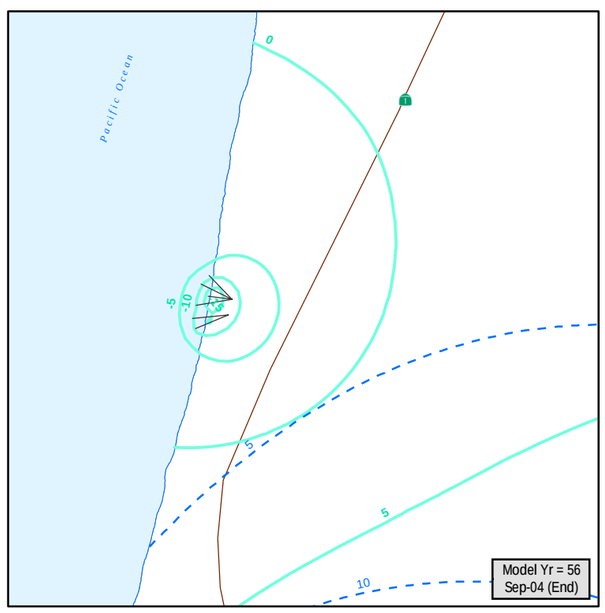
CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS









180-FOOT AQUIFER BASELINE vs. SLANT WELL FEEDWATER SUPPLY SCENARIO (22 MGD) GROUNDWATER ELEVATIONS (Close-Up)

EXPLANATION

- Baseline Groundwater Elevation, ft amsl
- Slant Wells
- Slant Well Scenario Groundwater Elevation, ft amsl
- Highway

Model Yr = 13
Jun-1961 (Dry)

Predictive Model Year*
Hydrologic Year

* Years Since Start of Model Scenario

26-Sep-08

Prepared by: DWB

Map Projection:
State Plane 1983, California Zone IV

NORTH

0 2,000 4,000
Feet

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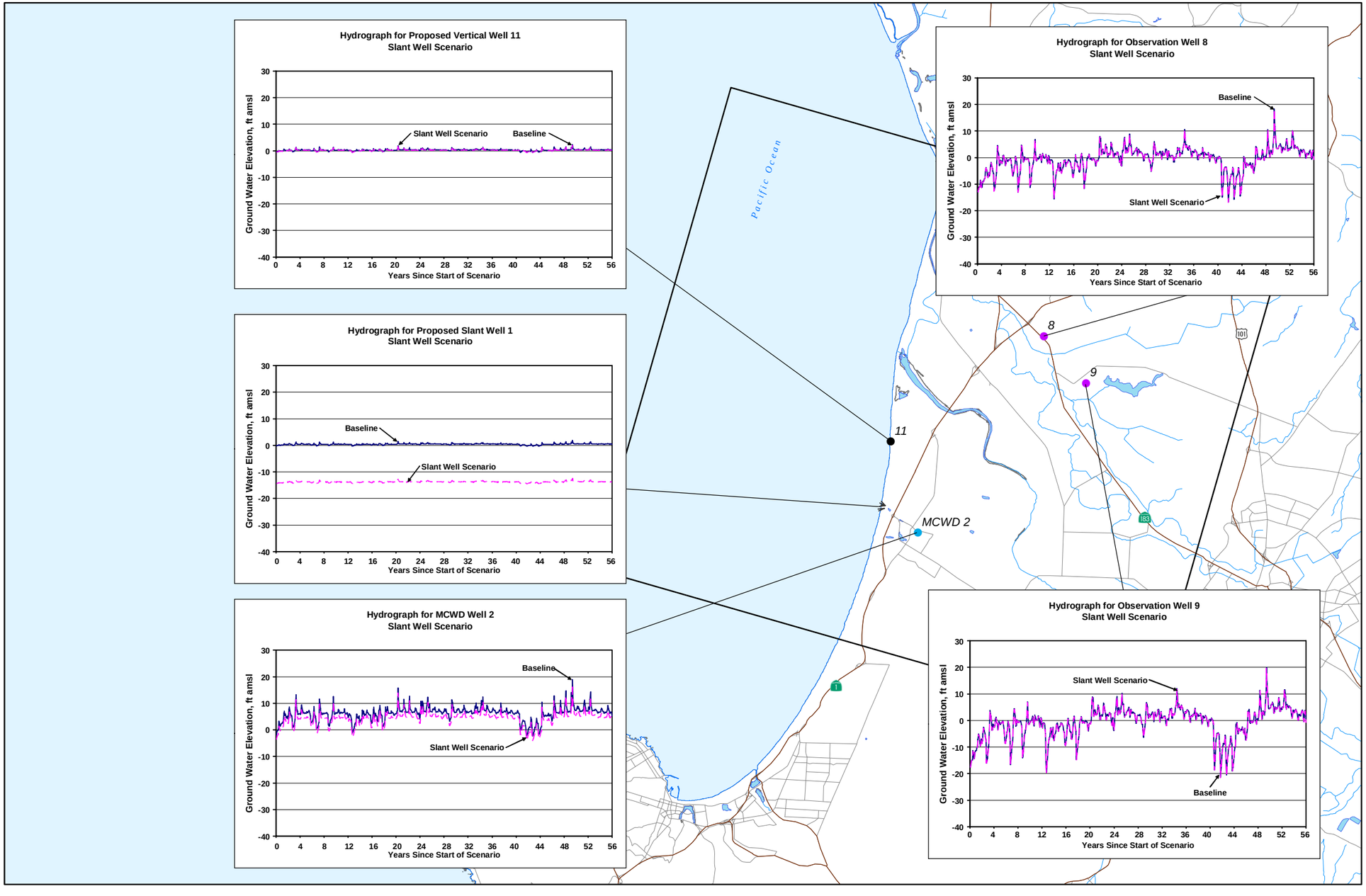
Figure 13

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_13_Slant_Wells_180ft_ZOOM_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS

180-FOOT AQUIFER SLANT WELL FEEDWATER SUPPLY SCENARIO (22 MGD) HYDROGRAPHS



EXPLANATION

- Monterey Regional Project Well
- WRIME Calibration Well
- MCWD Well
- Slant Well
- GEOSCIENCE Groundwater Model Boundary
- Highway
- Major Roads
- Rivers and Creeks

26-Sep-08

Prepared by: DWB

Map Projection:
State Plane 1983, California Zone IV

NORTH

0 2 4 Miles

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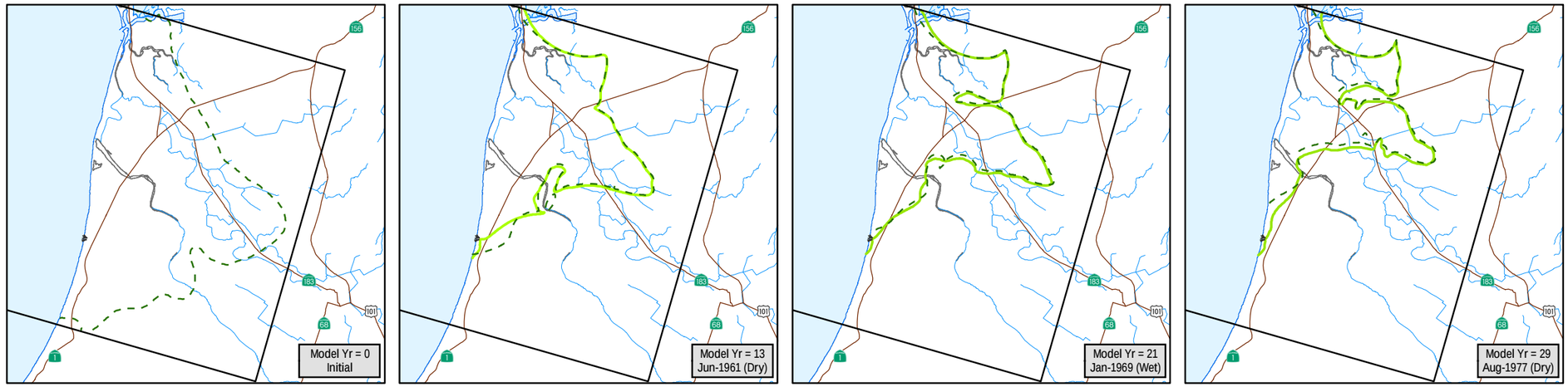
Figure 14

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_14_Slant_wells_Hydrographs_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS

180-FOOT AQUIFER BASELINE vs. SLANT WELL FEEDWATER SUPPLY SCENARIO (22 MGD) SEAWATER INTRUSION



EXPLANATION

- GEOSCIENCE Groundwater Model Boundary
- Baseline Seawater Intrusion Chloride = 500 mg/L
- Slant Well Scenario Seawater Intrusion, Chloride = 500 mg/L
- Slant Well
- Highway
- Rivers and Creeks

Model Yr = 13
Jun-1961 (Dry)
Predictive Model Year*
Hydrologic Year

* Years Since Start of Model Scenario

26-Sep-08

Prepared by: DWB

Map Projection:
State Plane 1983, California Zone IV

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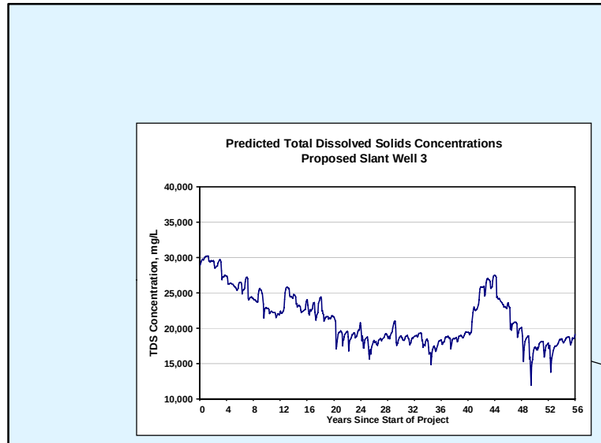
Figure 15

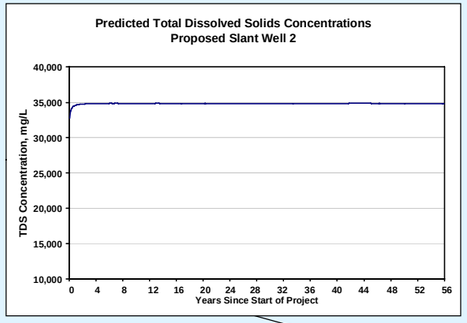
GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_15_Slant_Wells_180ft_SWI_9-08.mxd

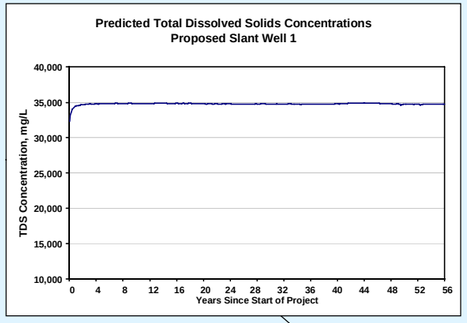
CALIFORNIA AMERICAN WATER

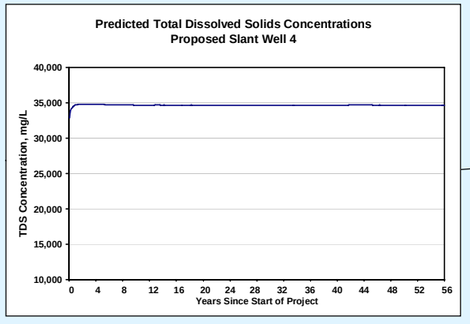
NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS

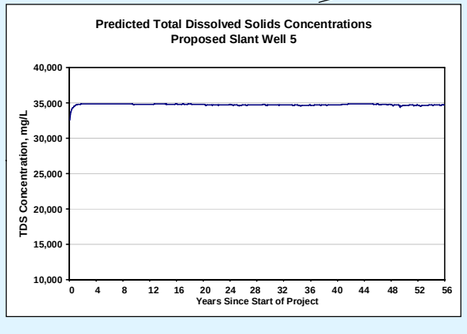
PREDICTED TDS CONCENTRATIONS FROM REGIONAL PROJECT SLANT WELLS

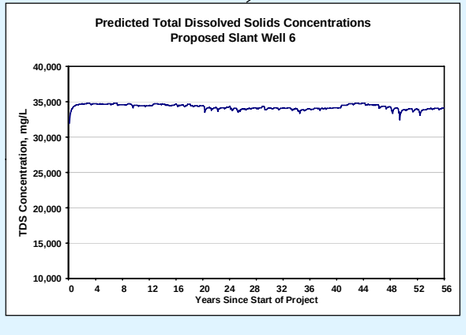












Pacific Ocean

EXPLANATION

- Slant Wells
- Marina State Park
- Highway
- Major Roads

26-Sep-08

Prepared by: DWB

Map Projection:
State Plane 1983, California Zone IV

NORTH

0 2,000 4,000 Feet

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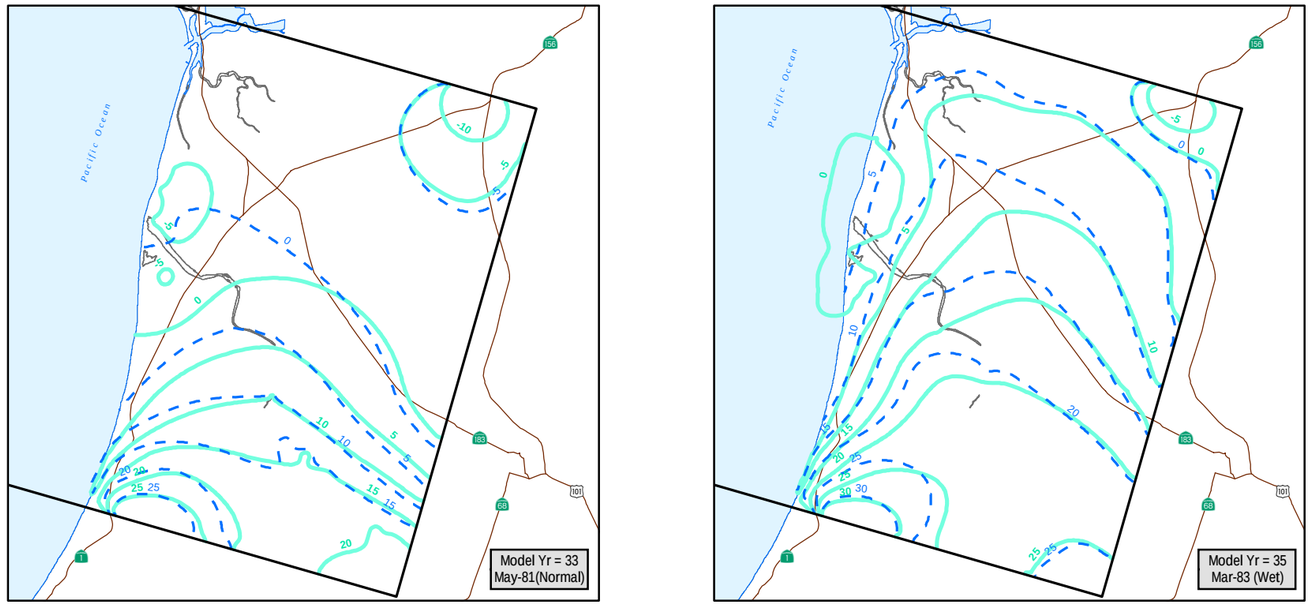
Figure 16

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_16_TDS_graphs_slant_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS



180FT AQUIFER BASELINE vs. REGIONAL PROJECT SCENARIO 3a GROUNDWATER ELEVATIONS

EXPLANATION

- GEOSCIENCE Groundwater Model Boundary
- Baseline Groundwater Elevation, ft amsl
- Regional Project Scenario Groundwater Elevation, ft amsl
- Highway
- Model Yr = 13 Jun-1961 (Dry) — Predictive Model Year* Hydrologic Year

* Years Since Start of Model Scenario

26-Sep-08

Prepared by: DWB

Map Projection:
State Plane 1983, California Zone IV

NORTH

0 2 4 Miles

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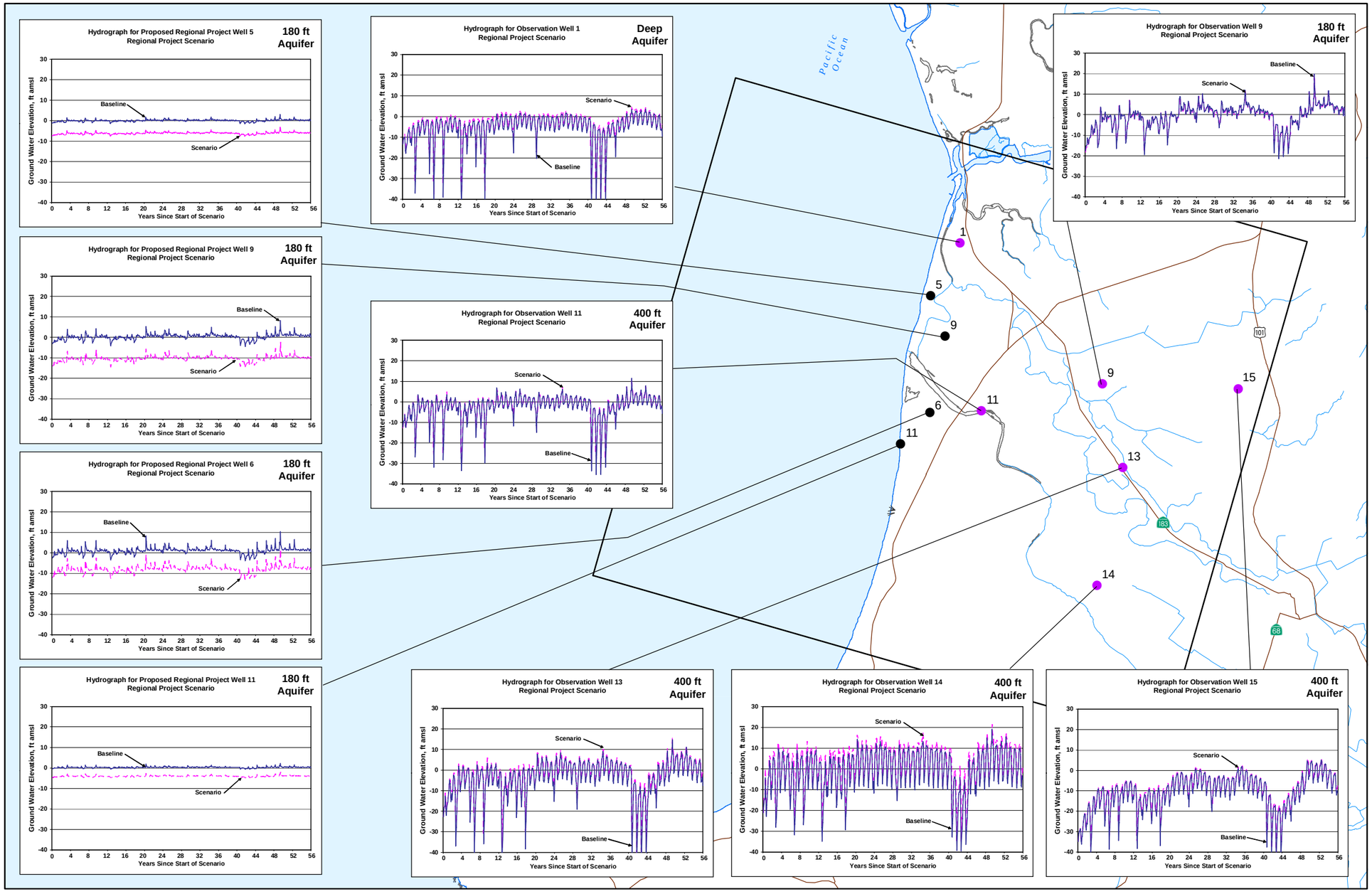
Figure 17

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_17_reg_proj_180ft_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS

REGIONAL PROJECT SCENARIO 3a HYDROGRAPHS



EXPLANATION

Well Hydrograph Locations

- Monterey Regional Project Well
- WRIME Calibration Well
- Slant Wells
- GEOSCIENCE Groundwater Model Boundary
- Highway
- Rivers and Creeks

26-Sep-08

Prepared by: DWB

Map Projection:
State Plane 1983, California Zone IV

NORTH

0 2 4 Miles

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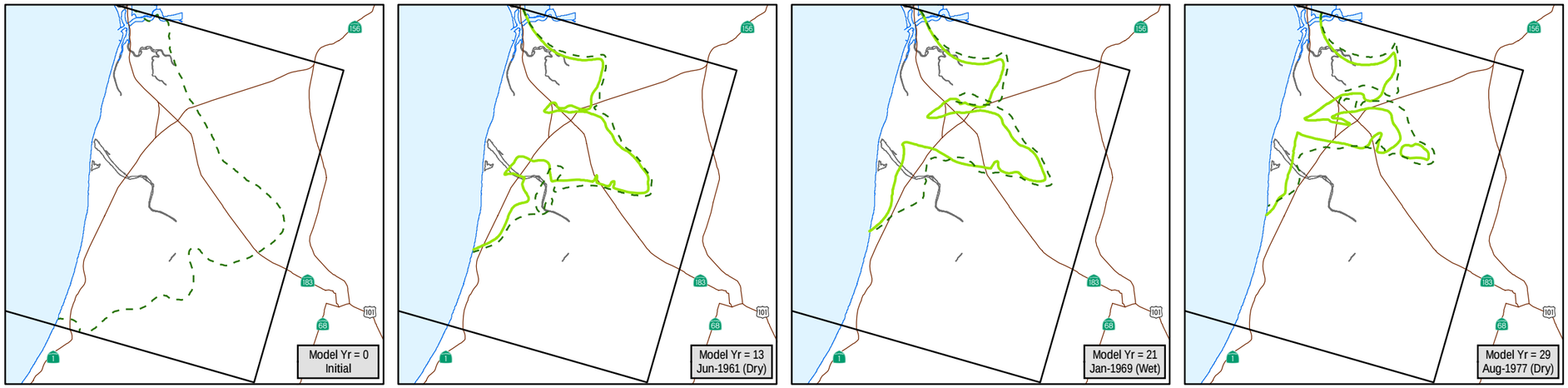
Figure 18

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_18_3a_reg_proj_Hydrographs_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS



180-FOOT AQUIFER BASELINE vs. REGIONAL PROJECT SCENARIO 3a SEAWATER INTRUSION

EXPLANATION

- GEOSCIENCE Groundwater Model Boundary
- Baseline Seawater Intrusion Chloride = 500 mg/L
- Regional Project Scenario Seawater Intrusion, Chloride = 500 mg/L
- Highway
- Model Yr = 13 Jun-1961 (Dry) — Predictive Model Year* Hydrologic Year

* Years Since Start of Model Scenario

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Prepared by: DWB

Map Projection:
State Plane 1983, California Zone IV

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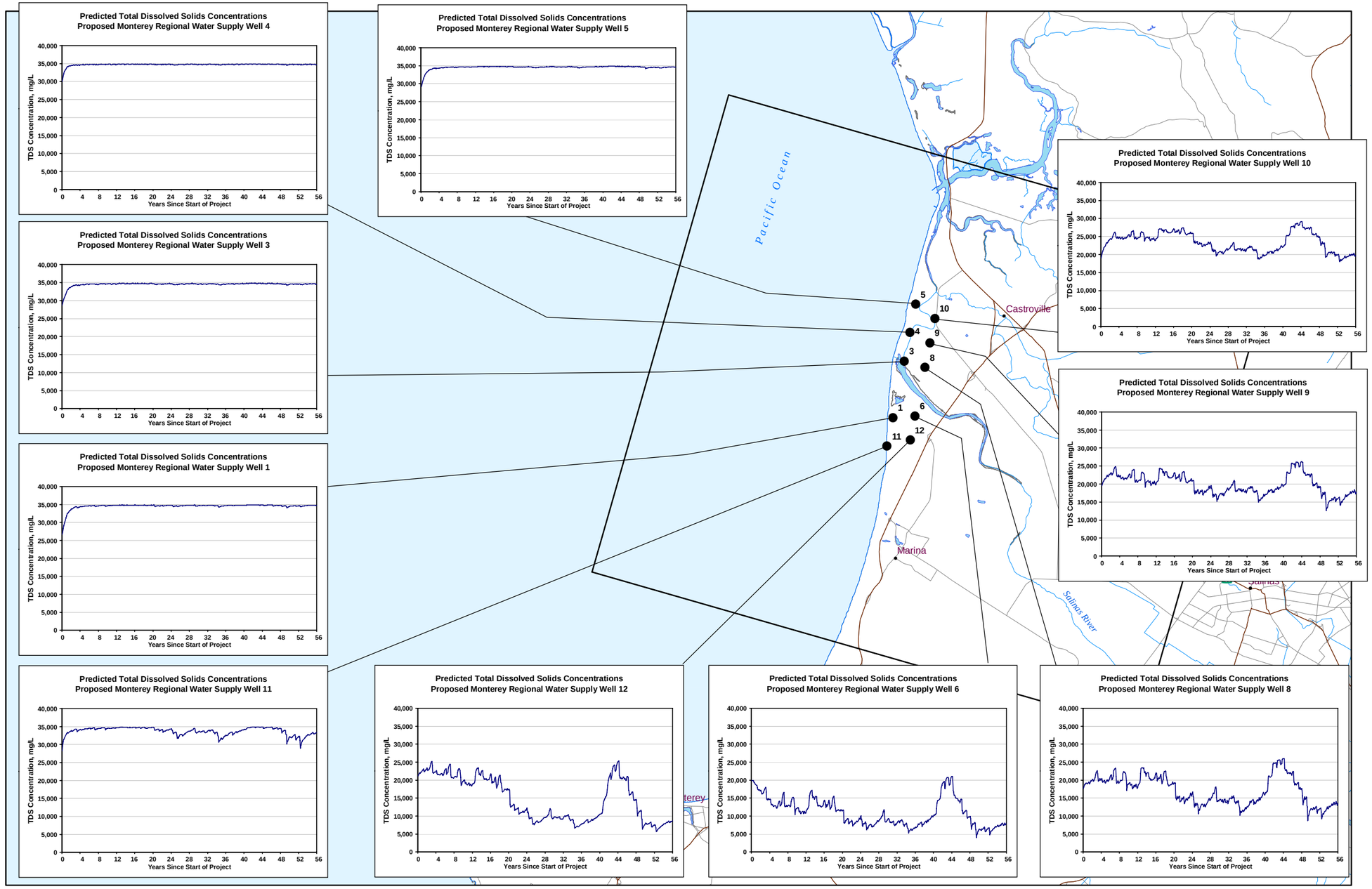
Figure 19

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_19_3a_reg_proj_180ft_SWI_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS

PREDICTED TDS CONCENTRATIONS FROM REGIONAL PROJECT EXTRACTION WELLS



EXPLANATION

- Monterey Regional Project Well
- GEOSCIENCE Groundwater Model Boundary
- Highway
- Major Roads
- Rivers and Creeks

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Prepared by: DWB

Map Projection:
State Plane 1983, California Zone IV

NORTH

0 2 4 Miles

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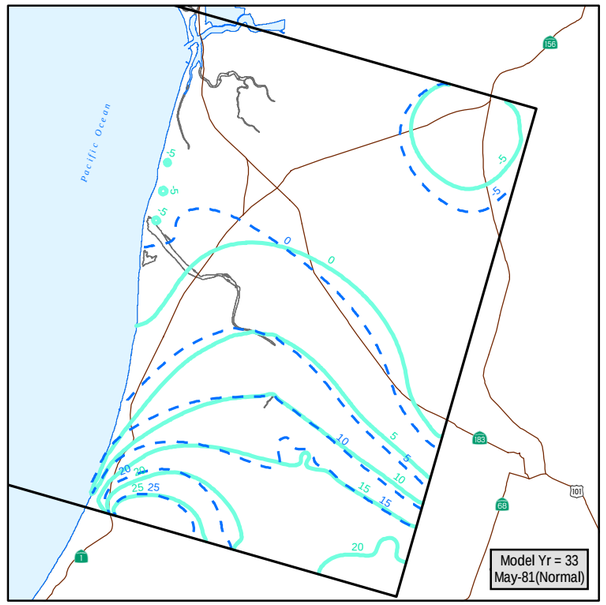
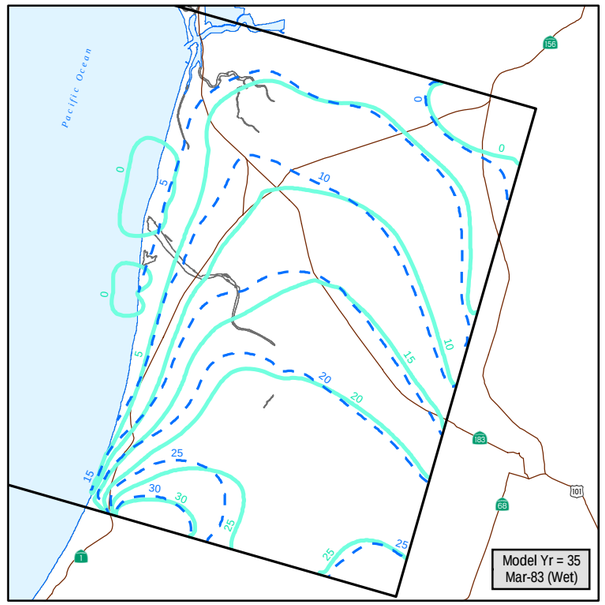
Figure 20

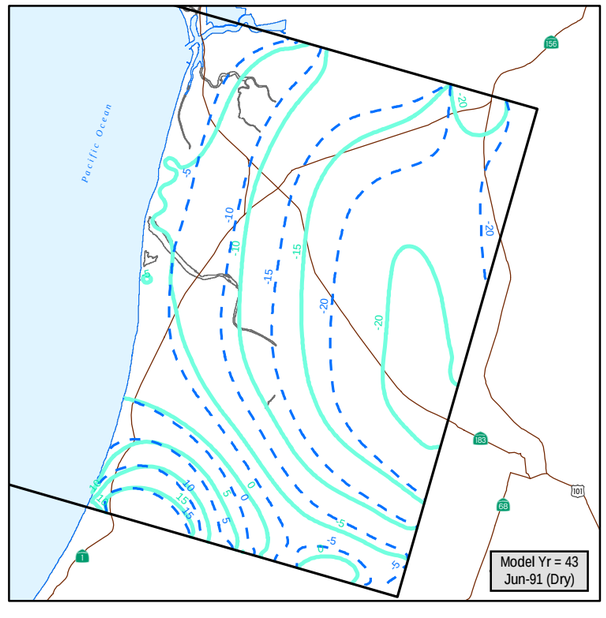
GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_20_TDS_graphs_regional_9-08.mxd

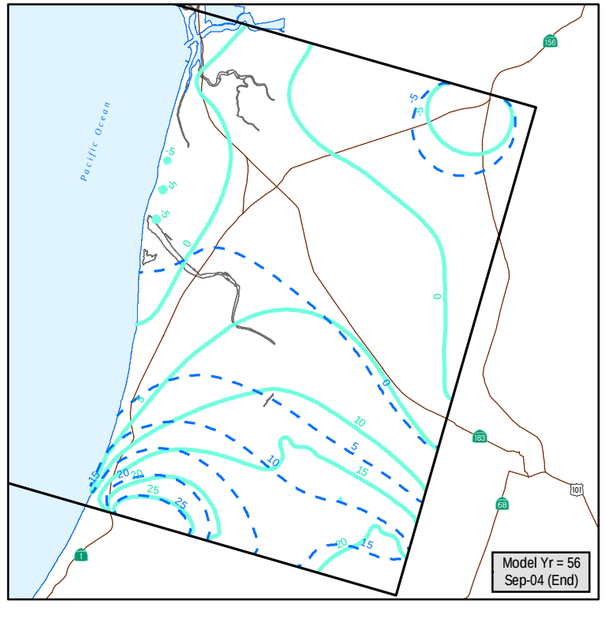
CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS









180-FOOT AQUIFER BASELINE vs. REGIONAL PROJECT SCENARIO 4b GROUNDWATER ELEVATIONS

EXPLANATION

- GEOSCIENCE Groundwater Model Boundary
- Baseline Groundwater Elevation, ft amsl
- Regional Project Scenario 4b Grounwater Elevation, ft amsl
- Highway

Model Yr = 13 Jun-1961 (Dry) — Predictive Model Year* Hydrologic Year

* Years Since Start of Model Scenario

26-Sep-08

Prepared by: DWB

Map Projection:
State Plane 1983, California Zone IV

NORTH

0 2 4 Miles

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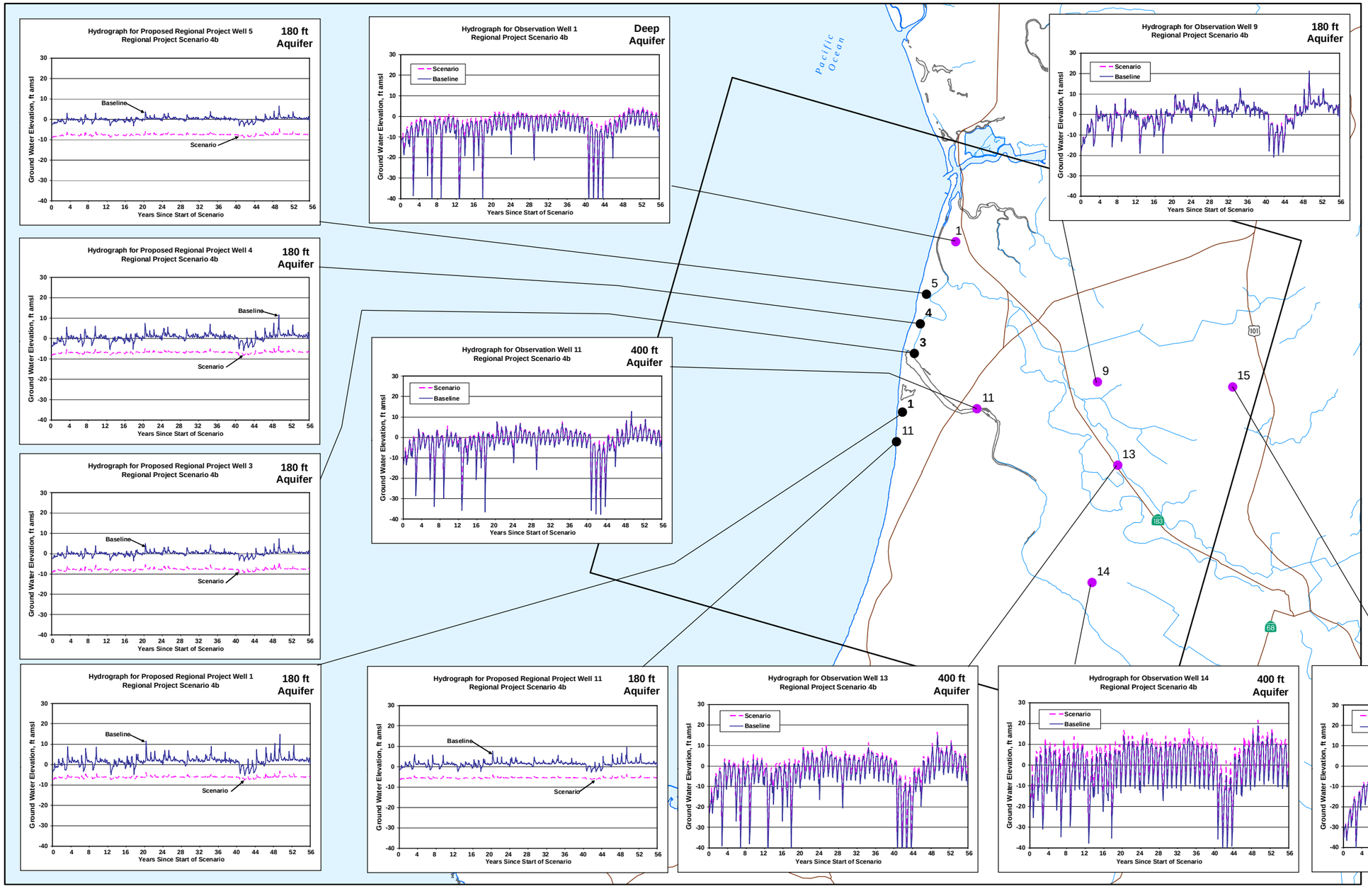
Figure 21

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_21_4a_reg_proj_180ft_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS

REGIONAL PROJECT SCENARIO 4b HYDROGRAPHS



EXPLANATION

Well Hydrograph Locations

- Monterey Regional Project Well
- WRIME Calibration Well
- GEOSCIENCE Groundwater Model Boundary
- Highway
- Rivers and Creeks

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Prepared by: DWB

Map Projection:
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NORTH

0 2 4 Miles

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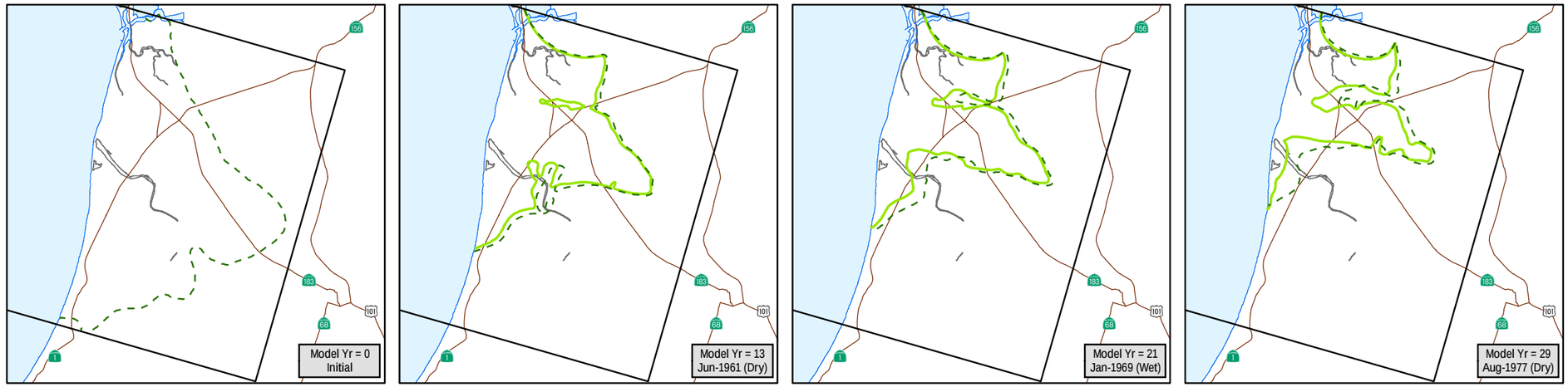
Figure 22

GIS_proj/cal_am_north_marina_modeling_9-08//0_Fig_22_4a_reg_proj_Hydrographs_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS



180-FOOT AQUIFER BASELINE vs. REGIONAL PROJECT SCENARIO 4b SEAWATER INTRUSION

EXPLANATION

- GEOSCIENCE Groundwater Model Boundary
- Baseline Seawater Intrusion Chloride = 500 mg/L
- Regional Project Scenario Seawater Instrusion, Chloride = 500 mg/L
- Highway

Model Yr = 13 Jun-1961 (Dry) — Predictive Model Year* Hydrologic Year

* Years Since Start of Model Scenario

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Map Projection:
State Plane 1983, California Zone IV

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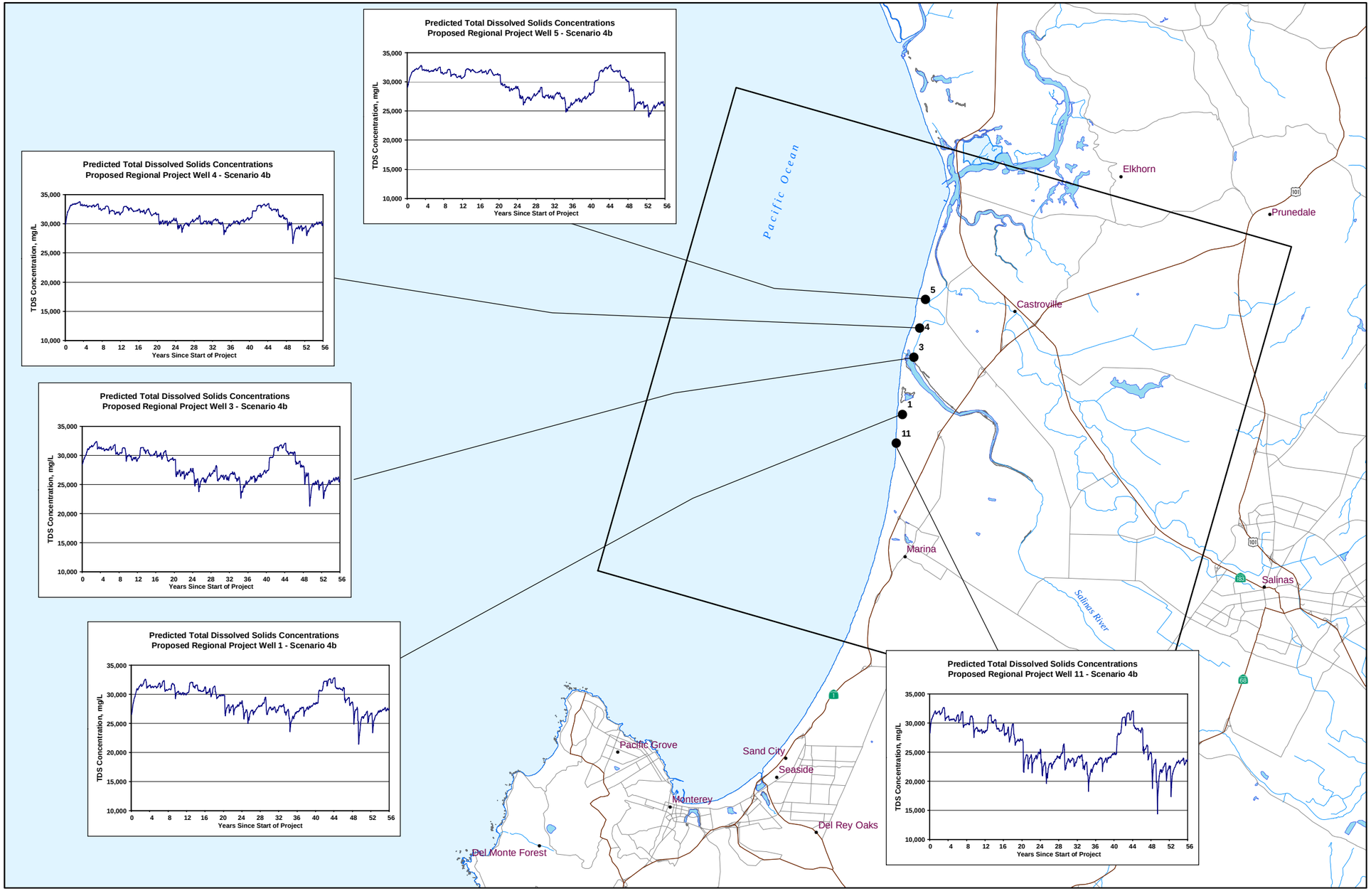
Figure 23

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_3_4a_reg_proj_180ft_SWI_9-08.mxd

CALIFORNIA AMERICAN WATER

NORTH MARINA GROUNDWATER MODEL
EVALUATION OF POTENTIAL PROJECTS

PREDICTED TDS CONCENTRATIONS FROM REGIONAL PROJECT SCENARIO 4b EXTRACTION WELLS



EXPLANATION

- Monterey Regional Project Well
- GEOSCIENCE Groundwater Model Boundary
- Highway
- Major Roads
- Rivers and Creeks

26-Sep-08

Prepared by: DWB

Map Projection:
State Plane 1983, California Zone IV

NORTH

0 2 4 Miles

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Figure 24

GIS_proj/cal_am_north_marina_modeling_9-08/0_Fig_24_TDS_graphs_regional_9-08.mxd