APPENDIX M

Appendices and Attachments to the Public Comments on the DEIR/EIS

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STATE OF CALIFORNIA — EDMUND G. BROWN JR., *Governor*

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September 30, 2015

File Ref: SCH # 2006101004

Mary Jo Borak
California Public Utilities Commission
c/o Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108

Subject: Draft Environmental Impact Report (EIR) for the Monterey Peninsula Water Supply Project, Monterey County

Dear Ms. Borak:

The California State Lands Commission (CSLC) staff has reviewed the subject draft EIR for the Monterey Peninsula Water Supply Project (Project or MPWSP), which is being prepared by the California Public Utilities Commission (CPUC). The CPUC is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.) because it is considering issuance of a Certificate of Public Convenience and Necessity (CPCN) to the California American Water (CalAm) pursuant to Public Utilities Code section 100. The CSLC is a trustee agency for projects that could directly or indirectly affect sovereign lands and their accompanying Public Trust resources or uses. Additionally, because the Project involves work on sovereign lands, the CSLC will act as a responsible agency. CSLC staff previously commented on the Notice of Preparation for the Project in a letter dated November 8, 2012 (enclosed).

<u>CSLC Jurisdiction and Public Trust Lands</u>

The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6301, 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

On December 17, 2014, the CSLC authorized a General Lease – Right-of-Way Use to CalAm for the construction and operation of a temporary exploratory test slant well in Monterey Bay. In order to operate the existing test well as a permanent well, CalAm would be required to obtain a new lease. In addition, the Project includes nine new proposed slant wells which appear to be located on sovereign land within Monterey Bay; construction and operation of these wells would also require a lease. Please provide a more detailed map showing how far the slant wells extend waterward of the mean high tide line to assist CSLC staff's determination of the location and extent of its leasing jurisdiction. Lastly, the existing Monterey Regional Water Pollution Control Agency's (MRWPCA) ocean outfall and diffusers are currently under State Lands Lease No. PRC 6091.9. A lease amendment or new lease may be required for CalAm to use the existing outfall. Questions regarding CSLC jurisdiction or leasing requirements should be directed to Drew Simpkin with the Land Management Division (see contact information below).

Project Description

The Project as proposed by CalAm would be located near the Salinas River along the coast in the southern portion of Monterey Bay, in Monterey County. The MPWSP is proposed to include various facilities and improvements, including:

- A subsurface seawater intake system which would consist of 10 subsurface slant wells (eight active and two on standby) located at the CEMEX property in Marina;
- A 9.6 million gallon per day (mgd) desalination plant located on Charles Benson Road, adjacent to the Monterey County Environmental Park;
- Approximately 30 miles of pipelines, two pump stations, and water storage tanks;
- Improvements to the existing Seaside Groundwater Basin Aquifer Storage and Recovery (ASR) facilities, which would enable CalAm to inject desalinated product water into the groundwater basin for subsequent extraction and distribution to customers; and
- An agreement to purchase 3,500 acre feet/year of recycled water from the proposed Pure Water Monterey Groundwater Replenishment (GWR) project to replace those portions of CalAm's supplies that have been constrained by legal decisions regarding CalAm's diversions from the Carmel River and pumping from the Seaside Groundwater Basin.

The MPWSP includes many of the same elements previously analyzed in the Coastal Water Project (CWP) Final EIR (October 2009). The proposed Project evaluated in the draft EIR is a modified version of the North Marina project evaluated in the CWP, and as a result there is substantial overlap between the MPWSP and the CWP; however, key components, including the seawater intake system and desalination plant, have been relocated and/or modified under the current proposal.

The draft EIR identifies the MPWSP Variant as the Environmentally Superior Alternative. This Alternative would reduce the overall energy use of the proposed Project, which results in reduced GHG emissions. In addition, the impacts on the Salinas Valley Groundwater Basin would be reduced as a result of a reduction in pumping at the slant wells.

Environmental Review

As a responsible agency, the CSLC's exercise of discretion is limited to the portions of the Project that are under the CSLC's jurisdiction (State CEQA Guidelines, § 15096, subd. (d)). As a result, the below comments focus on the discharge pipeline and the slant wells, which are the components of the Project that would be subject to the CSLC's leasing authority. CSLC staff requests that the CPUC consider the following comments on the Project's draft EIR.

General Comments

1. CSLC staff recommends that the CPUC meet with all potential regulatory agencies to identify roles and responsibilities as they relate to oversight and permitting of this Project, in particular the Monterey Bay National Marine Sanctuary (MBNMS), as they would likely be the lead agency under the Federal National Environmental Policy Act (NEPA). CSLC staff believe that the EIR should be developed as a joint EIR/EIS to satisfy NEPA's requirements and avoid potential Project delays.

Project Description

2. Under section 3.4.2.5, Brine Storage and Disposal, the draft EIR provides a brief description of the existing 2.1-mile-long MRWPCA outfall pipeline and diffusers; however, no history of these existing components or their current condition was included. The draft EIR (section 4.13) states that an evaluation of the offshore portion of the MRWPCA outfall was performed in 2015 (E2 Consulting Engineering, 2015). CSLC staff requests that a copy of that report be made available for review (or if it has been provided, direct the public to its location), and that additional information on the pipeline be included in the draft EIR to further facilitate CSLC staff's analysis of the Project components within CSLC jurisdiction.

Deferred Mitigation

3. Several impacts discussed in the draft EIR rely on other agency permits to reduce specific impacts to a less-than-significant level. For instance, Impact 4.3-1 (p. 4.3-56) analyzes general construction activities as they relate to water quality and states

that a SWPPP (stormwater pollution prevention plan) would be prepared by a Qualified SWPPP Developer, and a Qualified SWPPP Practitioner would oversee its implementation. The impact conclusion then states that because the Project would be required to comply with the Construction General Permit by preparation of a SWPPP, no mitigation is required.

Please note that under CEQA, a lead agency may not defer the formulation of a mitigation measure to other agencies; lead agencies have an independent obligation to address potentially significant impacts, even where a subsequent permit from another agency is necessary. In addition, CEQA requires that mitigation measures be presented as specific, feasible, enforceable obligations, or where identification of specific measures is infeasible or impractical, be presented as formulas containing "performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way" (State CEQA Guidelines, §15126.4, subd. (b)).

CSLC staff requests that all impacts that defer to other agency permits be revised to better comply with CEQA by identifying and incorporating mitigation to reduce impacts to the extent feasible, independent of subsequent permits that may be necessary to fully entitle the Project. Any revised measures should also provide sufficient detail about the mitigation measure(s) and its/their expected performance and enforcement mechanisms to enable the reader to independently assess and comment on the effectiveness and feasibility of the measure.

Land Use, Land Use Planning and Recreation

4. Page 4.8-39 of the draft EIR states that "since pipeline construction would proceed at a rate of 150 to 250 feet per day, the total duration of disturbance at any one location would generally be less than a week." Therefore, the draft EIR finds that the impacts to recreation would be less than significant. Although there may be no long-term impacts associated with each component's construction, the cumulative effects of ongoing construction along the coast that could affect public access to the beach and Monterey Bay at various coastal locations may be significant. According to Table 3-4, construction of the Transmission Main is estimated to take 6 months and the construction of the Monterey Pipeline is estimated to take 12 months. CSLC staff request that additional discussion be included in the draft EIR regarding access to public beaches and Monterey Bay along these routes, and mitigation proposed to offset the impacts associated with ongoing construction activities.

Greenhouse Gas Emissions

5. Although the draft EIR clearly states (p. 4.11-14) that the "CPUC cannot substantiate numerically that the mitigated GHG emissions would be reduced to a less-than significant level," in order to better analyze the impacts, CSLC staff suggest that the GHG Emissions Reduction Plan (presented in Mitigation Measure [MM] 4.11-1) and the Construction Equipment Efficiency Plan (MM 4.18-1) be prepared prior to

certifying the EIR so that the public and decision-making bodies are better informed as to what the resulting Project emissions would be under such plans.

In addition, the draft EIR only mentions Executive Order (EO) S-3-05 and Assembly Bill 32 under State Regulations in Section 4.11. In addition the draft EIR should discuss the following:

- Executive Order S-01-07 (Governor Schwarzenegger, January 2007) established a low carbon fuel standard for California, and directed the carbon intensity of California's transportations fuels to be reduced by at least 10 percent by 2020.
- Executive Order B-30-15 (Governor Brown, April 2015) established a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It additionally directed all State agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve GHG emissions reductions to meet the 2030 and 2050 targets.

Climate Change

6. Sea-Level Rise: A tremendous amount of State-owned lands and resources under the CSLC's jurisdiction will be impacted by rising sea levels, including the coastal areas that are part of the proposed Project. Note that the State of California released the final "Safeguarding California: Reducing Climate Risk, an Update to the 2009 California Climate Adaptation Strategy" (Safeguarding Plan) on July 31, 2014, to provide policy guidance for state decision-makers as part of continuing efforts to prepare for climate risks. The Safeguarding Plan sets forth "actions needed" to safeguard ocean and coastal ecosystems and resources as part of its policy recommendations for state decision-makers.

   The draft EIR (p. 4.3-99 to -100) discusses the potential for flooding due to sea-level rise, and states that "The wellheads for the slant wells would be encased in concrete vaults buried 5 feet below the sand and would be designed to withstand inundation. Therefore, the slant wells would not be subject to a significant risk of damage from flooding due to sea-level rise." However, the electrical panel (housing the electrical controls for the slant wells, as shown on Figure 3-3) is not discussed and is also in close proximity to areas that may be subject to sea-level rise. As damage to electrical panel could be significant in terms of operation of the slant wells, CSLC staff requests that the EIR include a discussion of how impacts to the electrical panel, due to flooding and/or sea-level rise, would be avoided.

Thank you for the opportunity to comment on the draft EIR for the Project. As a responsible and trustee agency, the CSLC will need to rely on the Final EIR for the issuance of any amended/new lease as specified above and, therefore, we request that you consider our comments prior to certifying the EIR.

Please send copies of future Project-related documents, including electronic copies of the Final EIR, Mitigation Monitoring and Reporting Program (MMRP), Notice of Determination (NOD), CEQA Findings and, if applicable, Statement of Overriding Considerations when they become available, and refer questions concerning environmental review to Cynthia Herzog, Senior Environmental Scientist, at (916) 574-1310 or via e-mail at Cynthia.Herzog@slc.ca.gov. For questions concerning CSLC leasing jurisdiction, please contact Drew Simpkin, Public Land Management Specialist, at (916) 574-2257, or via email at Drew.Simpkin@slc.ca.gov.

Sincerely,

Cy R. Oggins, Chief
Division of Environmental Planning
and Management

Attachment

cc: Office of Planning and Research
C. Herzog, CSLC
D. Simpkin, CSLC
L. Calvo, CSLC

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November 8, 2012

File Ref: SCH# 2006101004

California Public Utilities Commission
Attn: Andrew Barnsdale
550 Kearny Street, Suite 800
San Francisco, CA 94108

Subject: Notice of Preparation (NOP) for a Draft Environmental Impact Report (Draft EIR) for the Monterey Peninsula Water Supply Project, Monterey County.

Dear Mr. Barnsdale:

The California State Lands Commission (CSLC) staff has reviewed the subject NOP for a Draft EIR for the Monterey Peninsula Water Supply Project (Project or MPWSP), which is being prepared by California Public Utilities Commission (CPUC). The CPUC is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.) because it is considering issuance of a Certificate of Public Convenience and Necessity (CPCN) to California American Water (CalAm) pursuant to Public Utilities Code section 100. The CSLC provides these comments as a trustee agency with responsibility for natural resources held in trust for the people of the State of California which may be affected by a project, as provided in CEQA and the State CEQA Guidelines.[1] The CSLC will act as a trustee agency because of its trust responsibility for projects that could directly or indirectly affect sovereign lands, their accompanying Public Trust resources or uses, and the public easement in navigable waters. Additionally, because the Project will involve work on sovereign lands, the CSLC will act as a responsible agency.

CSLC Jurisdiction and Public Trust Lands

The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6301, 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust.

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[1] The State CEQA Guidelines are found in California Code of Regulations, Title 14, section 15000 et seq. Trustee agencies are designated in section 15386.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

Based on CSLC staff's review of in-house records and mapping, it appears that the proposed Project will extend onto sovereign ungranted lands in the Pacific Ocean. CalAm will be required to submit an application for all portions of the Project extending within the CSLC's leasing jurisdiction. CSLC staff notes that CalAm has already submitted an application for a proposed Slant Test Well Project (Test Well) that the Applicant states is needed to obtain information necessary for Project design.

Project Location and Description

The Project as proposed by CalAm would be located near the Salinas River along the coast in the southern portion of Monterey Bay, in Monterey County. Proposed Project facilities and improvements would include:

- Construction and operation of a seawater intake system consisting of eight 750-foot-long subsurface slant wells extending offshore into the Monterey Bay, and source water conveyance pipelines.
- Construction and operation of a 9-million-gallons-per-day desalination plant including source water receiving tanks, pre-treatment, reverse osmosis, and post-treatment systems, chemical feed and storage facilities, brine storage and discharge facilities, pipelines, pump stations, clearwells, and a terminal reservoir.
- Construction and operation of desalinated water storage and conveyance facilities including pipelines, pump stations, clearwells, and a terminal reservoir.
- Construction and operation of expanded Aquifer Storage and Recovery (ASR) facilities including improvements to the existing Seaside Groundwater Basin ASR, including two additional injection/extraction wells, a pump station, a product water pipeline, a pump-to-waste pipeline, and pump-to-waste treatment.

Environmental Review

Because the CSLC will need to rely on the EIR for issuance of a lease, CSLC staff requests the CPUC consider the following comments and suggestions when preparing the Draft EIR.

1. Project Description. A thorough and complete Project description of all proposed facilities and improvements should be included in the Draft EIR in order to facilitate meaningful environmental review of potential impacts, mitigation measures, and alternatives. The Project description should be as precise as possible in describing

the details of all allowable activities (e.g., types of equipment or methods that may be used, maximum area of impact or volume of sediment removed or disturbed, seasonal work windows, locations for material disposal, etc.), as well as the details of the timing and length of activities. Thorough descriptions will facilitate CSLC staff's determination of the extent and locations of its leasing jurisdiction, make for a more robust analysis of the work that may be performed, and minimize the potential for subsequent environmental analysis to be required.

2. Relationship of Coastal Water Project (CWP) EIR to MPWSP Draft EIR. The NOP on page 2 states that "[s]ubsequent to approval of the Regional Project CalAm withdrew its support for the Regional Project in January 2012. As a result, in April 2012, CalAm submitted Application A.12-04-019 to the CPUC for the Monterey Peninsula Water Supply Project (MPWSP)." The Draft EIR should clearly explain the relationship between the CPW EIR and MPWSP Draft EIR. CSLC staff recommends using tables and diagrams to illustrate relationships among past, present, and future components of the proposed Project and other similar Projects in the area. The Draft EIR should also clearly explain the relationship between the "DeepWater Desal Alternative" and the "People's Moss Landing Water Desalination Project (People's Project) Alternative" on page 12 of the NOP and should explain how these proposed or other alternatives meet CalAm's project objectives while reducing or avoiding one or more impacts.

Biological Resources

3. Mitigation Measures. In order to avoid the improper deferral of mitigation, mitigation measures should either be presented as specific, feasible, enforceable obligations, or should be presented as formulas containing "performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way" (State CEQA Guidelines, §15126.4, subd. (b)).

4. Sensitive Species Database Inquiries. The CPUC should conduct queries of the California Department of Fish and Game's (CDFG) California Natural Diversity Database (CNDDB) and U.S. Fish and Wildlife Service's (USFWS) Special Status Species Database to identify any special-status plant or wildlife species that may occur in the Project area. The Draft EIR should analyze the potential for such species to occur in the Project area and, if impacts to special-status species are found to be significant, identify adequate mitigation measures. CSLC staff recommends early consultation with these agencies to minimize Project impacts on protected species.

5. Underwater Noise. The NOP does not address whether Project-related activities may generate underwater/below seafloor noise. The Draft EIR should evaluate, based on the activities required to construct and operate the Project, potential noise and vibration impacts on fish, marine mammals, and birds from Project-related activities in water or below the seafloor, on the beach, and for land-side supporting structures. Mitigation measures could include species-specific work windows as defined by CDFG, USFWS, and the National Oceanic and Atmospheric

Administration's Fisheries Service (NOAA Fisheries). Staff recommends early consultation with these agencies to minimize the impacts of the Project on sensitive species.

6. Pre-treatment and Post-treatment Procedures. The Draft EIR should include detailed discussions of possible environmental impacts from procedures and chemical treatments of pre-treatment of seawater and post-treatment of desalinated water. These discussions should also include possible environmental impacts from such treatments and how they may possibly impact the groundwater aquifers.

7. Injection of Desalinated Water into the Existing Seaside Groundwater Basin (Basin). Page 5 of the NOP explains that the primary function of the two additional proposed expanded ASR wells would allow "...desalinated water to be injected into the Seaside Groundwater Basin for subsequent distribution to customers...." The Draft EIR should include detailed discussion and possible environmental impacts of the following:

   - Current conditions of the Basin;
   - Procedures of injecting into the Basin;
   - Possible geological impacts of injections;
   - Possible impacts to hydrology in the Basin;
   - Duration of leaving injected water in the Basin; and
   - Procedures of drawing water out of the Basin.

   The above stated Project components may be most effectively presented by using diagrams and images related to different stages and conditions of the Basin. CSLC staff also recommends discussions of the most recent scientific data supporting the above proposed activities for better evaluation of possible environmental impacts.

Public Trust

8. Public Trust and Recreation. If the Project lies within the State-owned sovereign land, then it is subject to the Public Trust. Members of the public have the benefit of use consistent with the Public Trust which includes, but is not limited to, navigation and recreation such as rafting, sailing, rowing, fishing, fowling, bathing, and other water-related recreational uses. The Draft EIR should discuss the Project's potential to restrict or impede the public's use and enjoyment of the Pacific Ocean or to otherwise affected Public trust resources and values; for example, the Draft EIR should evaluate impacts associated with the brine discharge plume on Public Trust resources and values. If any impacts are determined to be significant, the CPUC should identify measures to avoid or reduce them as feasible.

   The Draft EIR should also discuss how the members of the public will be notified of Project-related activities in the Project area. CSLC staff recommends posting signage, in advance, at and around the Proposed Project; any additional discussions of notification and operational or construction practices should be addressed in the Draft EIR in order to minimize the impact to members of the public.

Land Use

9. Conflicts with Specially Designated Lands. The proposed Project is located within the boundaries of the Monterey Bay National Marine Sanctuary and in the vicinity of Marine Protected Areas. The Draft EIR should evaluate potential land use conflicts and other direct or indirect impacts resulting from Project construction and operation, and should list the appropriate agency jurisdictions that were consulted to ensure any such potential impacts are avoided or reduced to the extent feasible.

Cultural Resources

10. Submerged Cultural Resources. The NOP on page 9 states that "the EIR will evaluate potential impacts on historic, archaeological, and paleontological resources, and human remains." However, it does not state how the Draft EIR will approach this analysis. The CSLC maintains a shipwrecks database that can assist with this analysis. CSLC staff requests that the CPUC contact Senior Staff Counsel Pam Griggs at the contact information noted at the end of this letter to obtain shipwrecks data from the database and CSLC records for the Project site. The database includes known and potential vessels located on the State's tide and submerged lands; however, the locations of many shipwrecks remain unknown. Please note that any submerged archaeological site or submerged historic resource that has remained in State waters for more than 50 years is presumed to be significant.

11. Title to Resources. The Draft EIR should also mention that the title to all abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is vested in the State and under the jurisdiction of the CSLC. CSLC staff requests that the CPUC consult with Senior Staff Counsel Pam Griggs at the contact information noted at the end of this letter, should any cultural resources on state lands be discovered during construction of the proposed Project.

Climate Change

12. Greenhouse Gases. A greenhouse gas (GHG) emissions analysis consistent with the California Global Warming Solutions Act (AB 32) and required by the State CEQA Guidelines should be included in the Draft EIR. This analysis should identify a threshold for significance for GHG emissions, calculate the level of GHGs that will be emitted as a result of construction and ultimate build-out of the Project, determine the significance of the impacts of those emissions, and, if impacts are significant, identify mitigation measures that would reduce them to the extent feasible.

13. Sea Level Rise. The Draft EIR should also consider the effects of sea level rise on all resource categories potentially affected by the proposed Project. At its meeting on December 17, 2009, the CSLC approved the recommendations made in a previously requested staff report, "A Report on Sea Level Rise Preparedness" (Report), which assessed the degree to which the CSLC's grantees and lessees

have considered the eventual effects of sea level rise on facilities located within the CSLC's jurisdiction. (The Report can be found on the CSLC's website, http://www.slc.ca.gov.) One of the Report's recommendations directs CSLC staff to consider the effects of sea level rise on hydrology, soils, geology, transportation, recreation, and other resource categories in all environmental determinations associated with CSLC leases.

Please note that, when considering lease applications, CSLC staff is directed to (1) request information from applicants concerning the potential effects of sea level rise on their proposed projects, (2) if applicable, require applicants to indicate how they plan to address sea level rise and what adaptation strategies are planned during the projected life of their projects, and (3) where appropriate, recommend project modifications that would eliminate or reduce potentially adverse impacts from sea level rise, including adverse impacts on public access.

Thank you for the opportunity to comment on the NOP for the Project. As a responsible agency, the CSLC will need to rely on the EIR for its review and consideration of a lease amendment as specified above and, therefore, we request that you consider our comments when preparing the Draft EIR. Please send additional information on the Project to the CSLC staff identified below as plans become finalized.

Please send copies of future Project-related documents, including electronic copies of the Draft EIR, Final EIR, CEQA Findings, and Notice of Determination when they become available, and refer questions concerning environmental review to Afifa Awan, Environmental Scientist, at (916) 574-1891 or via e-mail at afifa.awan@slc.ca.gov. For questions concerning archaeological or historic resources under CSLC jurisdiction, please contact Senior Staff Counsel Pam Griggs at (916) 574-1854 or via email at pamela.griggs@slc.ca.gov. For questions concerning CSLC leasing jurisdiction, please contact Drew Simpkin, Public Land Management Specialist, at (916) 574-2275, or via email at drew.simpkin@slc.ca.gov.

Sincerely,

Cy R. Oggins, Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
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EXEMPT FROM FILING FEES
[GOVERNMENT CODE § 6103]

SUPERIOR COURT FOR THE STATE OF CALIFORNIA
COUNTY OF SANTA CRUZ

MARINA COAST WATER DISTRICT, AND DOES 1-10,

Petitioner and Plaintiff,

v.

CALIFORNIA COASTAL COMMISSION, AND DOES 11-50,

Respondents and Defendants.

CALIFORNIA-AMERICAN WATER COMPANY, a California water corporation, AND DOES 51-100,

Real Party in Interest.

Case No.: CV180839

MARINA COAST WATER DISTRICT'S OPENING BRIEF IN SUPPORT OF PETITION FOR WRIT OF MANDATE AND COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

(California Environmental Quality Act (CEQA))

[Code Civ. Proc., § 1094.5, subd. (g); Pub. Resources Code, §§ 21168 30803, subd. (a); Code Civ. Proc., § 525 et seq.]

Filing Date of Action:
December 11, 2014

Hearing Date: July 23, 2015
Time: 9:00 a.m.
Department: 4

TABLE OF CONTENTS

TABLE OF CONTENTS, cont'd.

TABLE OF AUTHORITIES

California Cases

Page(s)

TABLE OF AUTHORITIES

California Cases, cont'd

TABLE OF AUTHORITIES

California Cases, cont'd

TABLE OF AUTHORITIES

California Cases, cont'd

California Statutes

TABLE OF AUTHORITIES

California Statutes

California Regulations

TABLE OF AUTHORITIES

California Regulations

Page(s)

Miscellaneous

TABLE OF AUTHORITIES

Miscellaneous

Page(s)

I. INTRODUCTION

This action challenges Respondent California Coastal Commission's ("CCC's") approval of two Coastal Development Permits ("CDPs") for Real Party in Interest California American Water Company's ("Cal-Am's") Slant Test Well Project ("slant well" or Project) under the Coastal Act (Pub. Resources Code, § 30000 et seq.) and California Environmental Quality Act ("CEQA") (Pub. Resources Code, § 21000 et seq.). [1] The Project will pump over 4,000 acre-feet ("AF") of water per year from the overdrafted Salinas Valley Groundwater Basin ("SVGB") "to gather technical data related to the potential hydrogeologic and water quality effects that would result from using similar wells at or near this site to provide water for the proposed Monterey Peninsula Water Supply Project [MPWSP]." (AR4142; 4158.) [2] As both the CCC and Cal-Am have acknowledged, the Project is a "necessary precursor" and the first phase of Cal-Am's MPWSP, which proposes multiple slant wells that would be located at the Project site, a desalination plant to be located about two miles inland, pipelines, and the other related facilities. (AR1588; 2711; 3126; 3597; 3540; 4142; 4156.) Cal-Am ultimately plans to use the slant well as a long-term production well for the MPWSP. (AR4142; 4156-57.)

Prior to the CPUC completing its environmental review for the MPWSP, Cal-Am sought to develop the Project to confirm that slant wells are feasible at Cal-Am's preferred location for the MPWSP – i.e. the Project site. To that end, Cal-Am submitted a CDP application to the City of Marina ("City") for the land-side portion of the Project within the City's jurisdiction (AR315). Cal-Am also submitted applications to the State Land Commission (SLC) to lease the water-side portion of the Project (within state tidelands) and to the CCC for a CDP for that water-side portion. (AR2712.)

The City was designated the lead agency for purposes of conducting CEQA review for the Project (AR1592) and published a Mitigated Negative Declaration (MND) in May 2014. (AR2059.) After three days of public hearings, the City ultimately determined that the MND for the Project was

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[1] / Except as otherwise noted, all further statutory references are to the Public Resources Code. Citations to "Guidelines" refer to CEQA Guidelines found at California Code of Regulations, title 14, section 15000 et seq., which are the guidelines for the application of CEQA.

[2] / Cal-Am submitted an application to the California Public Utilities Commission ("CPUC") for approval of the MPWSP in April of 2012 before seeking approval of the slant well. The CPUC submitted a Notice of Preparation for an Environmental Impact Report ("EIR") on the MPWSP in October 2012, which had not been published at the time the CCC's approval the Project. (AR315, 4142.)

inadequate under CEQA. (AR315-17.) Therefore, the City adopted written findings stating additional environmental review was required based on the Project's potential adverse environmental impacts. (*Ibid.*) Prior to reaching its determination, the City requested that Cal-Am agree to an additional condition/mitigation limiting the Project's extraction of groundwater (as opposed to seawater) from the SVGB to 500 AF per year. (AR190-92.) Cal-Am refused. As a result, the City had no choice but to deny the Project under CEQA. (*Ibid.*) The City's resolution expressly stated that it was denying Cal-Am's CDP application "without prejudice" until "appropriate CEQA review is completed." (AR316.)

Unwilling to accept the City's proposed additional mitigation to address groundwater impacts and unwilling to work with the City to prepare an EIR for the Project, Cal-Am "appealed" the City's "without prejudice" denial of the CDP application to the CCC. (AR1588.) Cal-Am argued that the CCC should grant the appeal because the Project was consistent with the City's Local Coastal Program (LCP) and public access policies of the Coastal Act. (*Ibid.*) Cal-Am's appeal did not mention, much less address, the crucial fact that the City's denial of the CPD was "without prejudice" until appropriate CEQA review was completed. (*Ibid.*) The CCC also ignored this crucial fact when it found a "substantial issue" and asserted appellate jurisdiction over the Project finding "insufficient factual and legal support for the City's denial." (AR4166.) This was prejudicial error.

This error was compounded by the CCC's subsequent, abbreviated, closed-door environmental review process for the Project, which included both Cal-Am's appeal and the CDP for the portion of Project within CCC's original jurisdiction. As explained below, in addition to improperly asserting jurisdiction and usurping the City's authority to decide whether to approve the Project, the CCC:

- Assumed the role of the lead agency under CEQA (given the City did not certify an environmental document for the Project), but failed to review all of the Project's potential environmental impacts as required by CEQA;
- Failed to comply with CEQA's mandatory public review requirements depriving the public and resources agencies adequate time to review and comment on the Project's potential significant impacts and inadequate mitigation measures/special conditions;
- Failed to provide written responses to comments on significant environmental points raised during its evaluation of the Project as required by CEQA and its own regulations;
- Improperly segmented (or "piecemealed") its environmental review of the Project by failing to assess the significant environmental impacts of the entire project—i.e., the MPWSP;
- Failed to establish thresholds of significance and provide baseline information in its CEQA-equivalent document against which to measure the Project's potential groundwater impacts;

- Improperly delegated and deferred mitigation of potential impacts to groundwater;
- Improperly changed mitigation for endangered species in a manner that could result in new impacts to biological resources without notice to the public or responsible and trustee agencies.
- Failed to fully mitigate the Project's impacts to "environmentally sensitive habitat area" ("ESHA") as required under the City's LCP
- Failed to *analyze* any feasible alternatives in its CEQA-equivalent document.
- Failed to comply with CEQA's mandatory recirculation requirements.

In sum, unlike the City's open environmental process which was interrupted by the appeal, the CCC's environmental review was the antithesis of what is required under CEQA and the Coastal Act.

As MCWD explained to the CCC, MCWD is not opposed to the Project, but to the CCC's rushed process that did not allow for meaningful public participation, adequately assess or mitigate groundwater impacts to the SVGB, or consider feasible alternatives to the location of the Project. (AR4056-58.) Based on these prejudicial errors, MCWD requests the Court grant its request for a writ of mandate.

II. STATEMENT OF FACTS

In 1995, the State Water Resources Control Board ("Water Board") adopted an Order (WR 95-10) finding that Cal-Am was unlawfully diverting about 10,730 acre-feet per year of water from the Carmel River and directing Cal-Am to diligently implement actions to terminate its unlawful diversions. (AR732.) In 2009, the Water Board adopted a cease and desist order stating that "Cal-Am has not diligently implemented actions to terminate its unlawful diversions," and requiring Cal-Am to significantly reduce its Carmel River diversions on an annual basis and terminate all illegal diversions by December 31, 2016. (AR788-94.) The cease and desist order, however, provides that Cal-Am may petition the Water Board for relief from reductions if public health and safety are threatened. (AR790.)

Cal-Am has proposed the MPWSP to replace a significant amount of the water it is currently unlawfully diverting from Carmel River. (AR4241.) In connection with Cal-Am's application for the MPWSP, Cal-Am entered into a settlement agreement with many (but not all) of stakeholders with interests in the Project. (AR1602-94.) As part of the settlement agreement, the settling parties negotiated terms for the development, construction, operation, and financing of the MPWSP. The negotiated settlement required the parties to support all aspects of the MPWSP consistent with the settlement agreement. (AR1606.) The settling parties also agreed to support construction slant wells, including the slant test well at issue, at the Project site. (AR1610; 1643.) The parties further agreed to an order of alternatives to the proposed MPWSP's intake wells: (1) Ranney collectors at Project site; (2) slant wells at Potrero Road; (3) various slant wells or a Ranney collector intake system at Moss Landing, among several options. (AR1650.) The Staff Report does not mention any of these alternatives. (AR2742-44.)

The Project involves the construction and operation a slant well required under the settlement agreement. (AR4156-58.) The Project will be constructed in "extremely rare" coastal dune habitat identified by CCC as an "ESHA." (AR2693; 4175-76.) During the operations phase of the Project Cal-Am will continuously pump water from the well for up to 24 months at volumes up to 2,500 gallons per minute. (AR4158.) Cal-Am initially proposes to use the slant well to calculate how much water being pumped from the SVGB is groundwater, how much is sea water, and then discharge all of the pumped water into the ocean. (AR4142; 4156-57.)

Cal-Am applied with the City for a CDP for the land-side elements of the Project. (AR3542; 4275-76.) The City prepared a MND. (AR2059-2681.) After an extensive public process, the City's Planning Commission determined that the MND was inadequate under CEQA. Cal-Am appealed that decision to the City Council. (AR4.) After the hearing on the appeal, and after Cal-Am refused to adopt additional ground-water mitigation, the Council concluded: "Based upon the substantial evidence in light of the whole record before the City of Marina, the City Council in unable to find that the Project will not have significant effect on the environment." (AR316.) On the CDP, the City expressly found:

> Based upon the above conclusions regarding CEQA, the City is unable to approve the Project and therefore **denies the Project without prejudice to reconsideration as such time as the appropriate CEQA review is completed**. (AR316.)

Cal-Am subsequently appealed the City's denial of its application to the CCC. (AR1558-63.) The CCC's staff released its recommendations in a consolidated "Staff Report" on October 31, 2014. (AR2691-943.) Although MCWD and other commenters objected to the CCC's premature review of the CDP—before the City could consider the CDP on the merits—staff recommended the CCC grant the appeal and approve both the land- and water-side elements of the Project. (AR2693-94; 4070-72.)

On November 7 and 10, 2014, MCWD submitted comment letters explaining in detail that the CCC lacked jurisdiction to act on the permits and that the Staff Report did not satisfy the CCC's obligations under CEQA and the Coastal Act, and explained why the significant environmental impacts of the Project had not been addressed and that feasible alternatives had not be considered. (AR3613-37.)

Midday on November 11, 2014—both a national and state holiday—the CCC published on its website a 578-page "addendum" to its Staff Report, consisting mostly of comments on the Staff Report. It did not include MCWD's comments. (*Ibid.*) MCWD was informed its comments would be included in a later addendum. (AR3783-84.) Well into the evening, the CCC published a second addendum, substantially modifying the original Staff Report. (AR3789; 3523-3611.) The second addendum *still* did not include MCWD's comments. Nor did the addendum respond to the significant environmental issues raised in the MCWD's comment letters. (*Ibid.*) Notably, while MCWD's comments were never provided to the public or Commissioners before the hearing, CCC staff provided copies of the letters to Cal-Am and Cal-Am's response to MCWD's letters was included in the addendum. (AR3545-3568.)

The second addendum **significantly changed both the Project and the mitigation for the Project**, including but not limited to biological resources and hydrology impacts. (AR3523-3544.) The Project, for instance, was modified so as to allow construction to continue after February 28, which was identified by every consulted wildlife agency as the critical deadline before which all construction activities must cease in order to avoid adverse impacts to Western snowy plover, a bird species protected under the Federal Endangered Species Act. (AR3530; 3525; 2699; 2353-54; 4158; 4164). The mitigation was altered as well. For instance, the new mitigation allows Cal-Am to physically move listed-endangered species in violation of the Endangered Species Act. (AR3526-27.) The mitigation for groundwater impacts was also changed. (AR3531-32.) The record does not provide any information as to why these changes were made or how the changed mitigation was adequate to avoid impacts. At the November 12, 2014, hearing, CCC staff announced further changes to mitigation. (AR3997-98.)

Well into the hearing, right before the Commissioners voted to approve the CDPs, CCC staff provided the Commissioners with copies of MCWD's letters of November 7 and 10, 2014. (AR4056-57; 4086.) In as much as the letters were in excess of 100 pages combined, it was impossible for the Commissioners to read and comprehend MCWD's comments before they approved the Project.

After the close of the public hearing, the CCC approved both CDPs with limited discussion. (AR4144; 4102; 3982.) Recognizing that Cal-Am did not have a lease from the SLC, the CCC issued a conditioned approval for the water-side portion of the Project. (AR4144; 4147; 4531.)

MCWD timely filed a Petition for Writ of Mandate challenging the CCC's Project approvals.

III. STANDARD OF REVIEW

Agencies should not approve projects "if there are feasible alternatives or mitigation measures available" which would substantially lessen the project's significant environmental effects. (§ 21002.) "[T]he public agency bears the burden of affirmatively demonstrating that, notwithstanding a project's impact on the environment, the agency's approval of the proposed project followed meaningful consideration of alternatives and mitigation measures." (*Mountain Lion Foundation v. Fish & Game Com.* (1997) 16 Cal.4th 105, 112, 134.) "To accomplish CEQA's informational purpose, an 'EIR must contain facts and analysis, not just the agency's bare conclusions.' [Citation.]" (*Citizens for Goleta Valley v. Bd. of Supervisors* (1990) 52 Cal.3d 553,568 ("*Goleta*").)

Review of an action challenging an agency's determination under CEQA is governed by Public Resources Code section 21168 in administrative mandamus proceedings (decisions "made as a result of a proceeding in which by law a hearing is required to be given, evidence is required to be taken…") and section 21168.5 in traditional mandamus actions. (*Berkeley Hillside Preservation v. City of Berkeley* (2015) 60 Cal.4th 1086, 1109.) The standard of review under both sections is "essentially the same." (*Id.* at p. 1110, fn. 4.) "In either case, the issue before the . . . court is whether the agency abused its discretion. Abuse of discretion is shown if (1) the agency has not proceeded in a manner required by law, or (2) the determination is not supported by substantial evidence." (*County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 945; see also § 21168.5.)

In evaluating an EIR for CEQA compliance, "a reviewing court must adjust its scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts." In a factual dispute, the agency's factual conclusions are accorded greater deference and reviewed only for substantial evidence. (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 435.) In contrast, the agency fails to proceed in the manner prescribed by CEQA where it fails to comply with CEQA's procedural mandates or fails to include certain information mandated by CEQA in its environmental analysis. (*Id.* at p. 435 [courts must "scrupulously enforce" all legislatively mandated CEQA requirements; to do so, courts "determine de novo whether the agency has employed the correct procedures" in taking the challenged action].) "Generally speaking, an agency's failure to comply with the procedural requirements of CEQA is prejudicial when the violation thwarts the act's goals by precluding informed decisionmaking and public participation." (*San Lorenzo Valley Community Advocates for Responsible Education v. San Lorenzo Valley Unified School Dist.* (2006) 139 Cal.App.4th 1356, 1375.) "The existence of substantial evidence supporting the agency's ultimate decision on a disputed issue is not relevant when one is assessing a violation of the information disclosure provisions of CEQA." (*Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 82 ("*CBE*").)

The standard of review under the Coastal Act is similar to CEQA. (Pub. Resources Code, §§ 30801, 30803; *Sierra Club. v. California Coastal Com.* (1993) 19 Cal.App.4th 547, 556-557; *Bolsa Chica Land Trust v. Super. Ct.* (1999) 71 Cal.App.4th 493, 502-503.) Whether the CCC "proceeded in the manner required by law," under Coastal Act and whether it correctly interpreted the provisions of the statute is subject to independent judicial review. (*East Peninsula Education Council, Inc. v. Palos Verdes Peninsula Unified School Dist.* (1989) 210 Cal.App.3d 155, 165; *Sierra Club v. Super. Ct.* (1985) 168 Cal.App.3d 1138, 1145-1146.) The Court must evaluate "both whether substantial evidence supports the administrative agency's findings and whether the findings support the agency's decision." (*Topanga Assn. for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 514-515 ("*Topanga*").) *Topanga* held: "[T]he agency which renders the challenged decision must set forth findings to bridge the analytic gap between the raw evidence and ultimate decision or order." (*Id.* at p. 515.) Whether findings support the challenged decisions is a question of law where the facts are undisputed. (*San Francisco v. Board of Permit Appeals* (1989) 207 Cal.App.3d 1099, 1110.)

In enforcing the Coastal Act, the Legislature expressly instructed that the Act "... be liberally construed to accomplish its purposes and objectives." (§ 30009; see also *McAllister v. California Coastal Com.* (2008) 169 Cal.App.4th 912, 928.) Similarly, the Legislature intended CEQA "to be interpreted 'to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.'" (*Mountain Lion Foundation, supra,* 16 Cal.4th at p. 112, quoting *Friends of Mammoth v. Bd. of Supervisors* (1972) 8 Cal.3d 247, 259).

IV. THE CCC'S VIOLATIONS OF THE COASTAL ACT

Under the Coastal Act, primary jurisdiction to issue CDPs within the City of Marina lies with the City pursuant to its certified LCP. Before the City could exercise that jurisdiction, however, the CCC seized jurisdiction under the guise of an "appeal." The CCC's actions were simply ultra vires, usurping the City's authority under the Act.

A. The denial of the CDP "without prejudice" was not appealable under the Coastal Act.

It is undisputed that the CCC certified the City of Marina's LCP in 1982. (AR796.) Once an LCP has been certified, as is the case here, the CCC no longer undertakes "development review," and that becomes the sole province of the local agency:

> after a local coastal program, or any portion thereof, has been certified and all implementing actions within the area affected have become effective, the **development review … shall no longer be exercised by the commission over any new development proposed within the area to which the certified local coastal program** … applies and shall at that time be delegated to the local government that is implementing the local coastal program or any portion thereof.

(§ 30519, subd. (a), emphasis added; see also *City of Malibu v. California Coastal Com.* (2012) 206 Cal.App.4th 549, 563 [once the CCC certifies an LCP, "[d]evelopment review authority can no longer be exercised by the [CCC]" and is "delegated to the local government that is implementing the [LCP]," with limited rights of appeal to the CCC].)

The CCC retains only very limited appellate jurisdiction under the Coastal Act in such circumstances. (§ 30603.) As relevant here, an "appeal" taken from a denial of a project that constitutes a "major public works project"— "shall be limited to an allegation that the development conforms to the standards set forth in the certified local coastal program and the public access policies set forth in this division." (§ 30603, subds. (a)(5), (b)(2).) The implementing regulations for the Coastal Act confirm the grounds for appeal are narrow. (Cal. Code Regs., tit. 14, § 13113 ["grounds of appeal … limited to those specified in Public Resources Code Section 30603…"].) The regulations further explain that an appeal should only be heard when it raises significant questions "as to conformity with the certified [LCP]." (*Id.*, § 13115, subd. (b).) Case law further supports a narrow view of the CCC's appellate jurisdiction:

> **After certification, the local government has discretion to choose what actions it will take to implement its LCP.** [Citation.] Thus, for example, the Coastal Act "does not dictate that a local government must build a hotel and conference center—that decision is made by the local government. It merely requires **local governments to comply with specific policies—but the decision of whether to build a hotel or whether to designate an area for a park remains with the local government.**" [Citation.] Once the LCP is certified, "the Commission's role in the permit process for coastal development [is] to hear appeals … The Commission's jurisdiction in such appeals, however, is limited.

(*Security Nat. Guar., Inc. v. California Coastal Com.* (2008) 159 Cal.App.4th 402, 421; accord *City of Malibu*, *supra*, 206 Cal.App.4th at p. 555.) Thus, the only grounds for appeal are that the project is, in fact, consistent with the certified LCP and the Coastal Policies, notwithstanding any findings to the contrary by the City. (§ 30603, subd. (b)(2); see *Kaczorowski v. Mendocino Cnty. Bd. of Supervisors* (2001) 88 Cal.App.4th 564, 569 [interpreting virtually identical terms in subdivision (b)(1)].)

Despite the clear words of the statute and case law, the CCC found that where a "major public works project" was at issue, any denial at all, on any ground would trigger appellate jurisdiction if an appellant alleged conformance with the LCP. In other words, according to the CCC, it has plenary authority to review any action taken on a "major public works project" by a local agency if an appellant alleges conformance with the LCP. (AR3986 ["The Coastal Act generally only allows appeals to the [CCC] of local government approvals of CDP's but in the case of major public works facilities and major energy facilities any action including a denial taken by a local government on development which constitutes a major public works facility or a major energy facility appealable to the [CCC]."].) This is simply wrong. There is nothing in the Coastal Act that authorizes the CCC to exercise plenary authority over "major public works projects" in the Coastal Zone. As with other appeals, the appeal may only be taken from a local agency's denial of a CDP on the grounds it is ostensibly inconsistent with the LCP. (§ 30603, subds. (a)(5), (b)(2).) Here, the City's made no decision on the Project's conformance with the City's LCP, pending compliance with CEQA. (AR316.) [3]

Cal-Am and the CCC suggest the City ceded jurisdiction by sending a letter indicating final agency action was taken. (AR327-328.) That letter was sent by City staff explaining the Council's actions. (*Ibid.*) Staff's letter cannot change the nature of the action taken by the City Council, who clearly never acted pursuant to their authority under the Coastal Act. (AR2686-2688.) Moreover, by regulation, staff's letter does not constitute "final agency action" supporting an appeal. The CCC's

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[3] / The CCC may argue that because its appeals are heard "de novo," it has resumed plenary land-use authority under the Coastal Act. (See § 30621.) "De novo" review is a standard of review, it allows a tribunal to reconsider the issue, and in this case receive new evidence, without deference to the lower tribunal. (See, e.g., Black's Law Dictionary (9th ed. 2009), p. 789, cl. 1 [hearing de novo: "a reviewing court's decision on a matter anew, giving now deference to a lower court's findings"], p. 112, cl. 2 [appeal de novo: "an appeal in which the appellate court uses the trial court's record without deference

regulations explain that a local government action "shall not be deemed complete" until the agency has made all the required findings regarding the project's compliance with the LCP and when all local remedies have been exhausted. (Cal. Code Regs., tit. 14, § 13570.) Here, the record unequivocally shows the City made none of the required LCP findings. Rather, as required by CEQA, the City deferred making these findings until environmental review was complete. This was not error.

CEQA imposes a duty on public-agency decisionmakers to document and consider the environmental implications of their actions. (See §§ 21000, 21001; *Friends of Mammoth, supra,* 8 Cal.3d at pp. 254-256.) This review had to occur before the City could approve the project under the LCP. CEQA "requires that, before approving a project, the lead agency 'find either that the project's significant environmental effects identified in the [final] EIR have been avoided or mitigated or that the unmitigated effects are outweighed by the project's benefits.'" (*Laurel Heights Improvement Assn. v. Regents of Univ. of Cal.* (1993) 6 Cal.4th 1112, 1124 ("*Laurel Heights II*"), citing §§ 21002, 21002.1 and 21081.) Thus, the City had to comply with CEQA before acting on the CDP. [4]

In sum, there simply was no final action under the Coastal Act that could trigger the CCC's jurisdiction, and therefore nothing to appeal from.

B. The CCC's "substantial issue" findings are not supported by substantial evidence and conflict with the record and CEQA.

Despite the fact that the City plainly took no final action under the Coastal Act with respect to the CDP for the Project pending compliance with CEQA, the CCC's findings on the "substantial issue" question pretend the City did. (AR4165-66.) These findings are not supported by substantial evidence. (*Topanga, supra,*11 Cal.3d at p. 515; accord *Great Oaks Water Co. v. Santa Clara Valley Water Dist.* (2009) 170 Cal.App.4th 956, 971 [findings requirement "serves to conduce the administrative body to draw *legally relevant* sub-conclusions supportive of its ultimate decision", emphasis added].)

The term "substantial issue" is not defined in the Coastal Act or its implementing regulations. As

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to the trial court's rulings."].) De novo review does not expand the scope of the appellate jurisdiction of the CCC. Such a reading would render the narrow grounds for appeal in section 30603 superfluous.

[4] / The CCC suggests that the City was somehow abusing its discretion by refusing to act expeditiously on the Project. There is absolutely no evidence of that. The City acted in accordance with its legal mandate. In any event, the CCC is not a universal arbiter of City action. If the City had been acting in such a way, the remedy would be judicial review, not appeal to the CCC.

noted in the Staff Report, the CCC has been guided by the following factors in deciding whether and appeal presents a "substantial issue":

> 1. The degree of factual and legal support for the local government's decision that the development is consistent or inconsistent with the certified LCP and with public access policies of the Coastal Act;
> 2. The extent and scope of the development as approved or denied by the local government;
> 3. The significance of the coastal resources affected by the decision;
> 4. The precedential value of the local government's decision for future interpretation of its LCP; and,
> 5. Whether the appeal raises only local issues or those of regional or statewide significance.

(AR2715; 4165.) The CCC's findings that "four of the five substantial issue factors weigh heavily in favor of a finding of substantial issue," however, conflict with both the record and the law. (AR4166.)

As to the first factor, the CCC found that there is insufficient factual and legal support for the City's denial of the proposed test well. (AR4166.) This finding cannot be sustained. As discussed above, at the conclusion of the City's hearing on the MND, the City Council concluded that it simply could not permissibly approve the CDP consistent with its obligations under the CEQA. Having found substantial evidence indicating that unaddressed significant impacts may occur, the City was compelled by law to deny the project until an EIR was prepared. CEQA mandates preparation of a full environmental impact report (EIR), rather than a MND, where substantial evidence in the record supports a "fair argument" that significant impacts may occur. (*Laurel Heights II*, *supra*, 6 Cal.4th at p. 1123.)

Nothing in the Coastal Act gives the CCC appellate jurisdiction over CEQA determinations. (See, e.g., § 30603 [describing the CCC's narrow appellate jurisdiction on "actions taken by a local government on a coastal development permit application]; *Hines v. California Coastal Com.* (2010) 186 Cal.App.4th 830, 852 [holding that the CCC lacks jurisdiction to hear an appeal from the City's determination under CEQA].) In any event, the CCC neither addressed nor disputed the City's CEQA finding. Under the header "Coastal Development Permit," the City made the following finding:

> **Based upon the above conclusions regarding CEQA, the City is unable to approve the Project and therefore denies the Project without prejudice to reconsideration as such time as the appropriate CEQA review is completed.**

(AR316.) Thus, the CDP review—and any determination of consistency with the LCP—was put on hold until CEQA was complied with. That is simply what is required by law under the facts.

As to the second and third factor, the CCC found that "while the project is not expected to impact a significant portion of the CEMEX site, it will be constructed in areas that are within primary habitat, so significant coastal resources will be affected by the proposed project." (AR4166.) This finding is inexplicable. Since the City did not approve the project, no significant coastal issues would be affected. The finding is simply contrary to fact. In fact, the evidence would appear to cut against finding a substantial issue, at this juncture in any event.

As to the fourth factor, the CCC found it was "poor precedent for the City to deny a CDP without making any findings as to why the proposed project does not conform to the City's LCP." (AR4166.) This alleged "poor precedent" was mandated by the Legislature. As addressed in detail above, CEQA requires that the environmental impacts of a project be understood before an agency acts. As the courts have noted, "[T]he ultimate decision of whether to approve a project, be that decision right or wrong, is a nullity if based upon an EIR that does not provide the decision-makers, and the public, with the information about the project that is required by CEQA." (*Riverwatch v. Olivenhain Mun. Water Dist.* (2009) 170 Cal.App.4th 1186, 1201, citing *Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d 818, 829.) The decision to approve a project cannot be informed without full CEQA review. Thus, as with the first factor, the finding is in direct conflict with the law.

As to the fifth factor, the CCC found the "appeal raises significant regional concerns, as the data that will be produced by the test well are needed to assess the feasibility, location and design of a desalination facility that is intended to address regional water shortages." (AR4166.) Given the CCC determination that the slant well is a separate project and it would review the MPWSP separately, this finding should not be sustained. Moreover, this factor alone would not support the CCC's findings.

In sum, with the possible exception of the fifth factor, none of the "substantial issue" factors are supported by substantial evidence. Moreover, given the limited scope of jurisdiction in this case, the CCC's substantial issue findings do not bridge the analytical gap between the raw evidence, the "legally relevant subconclusions," and its ultimate decision to accept appellate jurisdiction. (*Topanga, supra*, 11 Cal.3d at p. 515; *Great Oaks Water Co., supra*, 170 Cal.App.4th at p. 971.) Because the CCC's findings in support of jurisdiction are unsupported by legally relevant evidence and analysis, the CCC acted ultra vires when it accepted jurisdiction.

C. The CCC found the project to be inconsistent with the LCP and on this basis ought to have denied the appeal.

Ironically, after accepting the appeal, the CCC concluded that the project was not consistent with the City's certified LCP. The Staff Report noted that "the key concern" with the CDP was the "project's unavoidable effects on [ESHA]." (AR2693.) On the project site, the rare coastal sand dunes were found to be ESHA "due to their vulnerable habitat," the "rarity" of the habitat, and its important ecosystem functions, particularly for "sensitive species," including endangered and threatened species. (AR2721.) The CCC's biological expert concluded that the habitat affected by the Project was primary habitat under the LCP and ESHA. (AR2725.) The Staff Report further notes that the LCP, and the Coastal Act, preclude development on primary habitat unless the development is "dependent on the resources." (AR2726.) Here, the report notes, the "proposed project is not a resource dependent use, so it cannot be approved consistent with the LCP's habitat protection policies." (AR2726.) As a result, the report concludes that the project "does not conform to the Habitat Protection policies in the City's LCLUP." (AR2727.) Based on this finding alone, the CCC determination out to have denied the appeal. (§ 30603, subds. (a)(5), (b)(2).) Its conclusions to the contrary are not supported by substantial evidence.

D. The CCC—without any authority —concluded that its appellate jurisdiction allowed it to override the City's LCP and approve the Project.

Given the fact that the CCC itself found that the Project was inconsistent with the LCP's land use plan, one would suppose that the CCC would have denied the appeal, which was after all "limited to an allegation that the development conforms to the standards set forth in the certified local coastal program and the public access policies set forth in this division." (§ 30603, subds. (a)(5), (b)(2).) It did not. The CCC took matters further.

The CCC found that—although "Project activities would further disturb the sensitive habitat areas in a manner not consistent with provisions of the LCP"—it could essentially override the LCP. (AR2693.) It reasoned that "because the project is a coastal-dependent industrial facility and the LCP allows such facilities in this location, consistent with Coastal Act Section 30260, the CCC may approve a permit for this project if (1) alternative locations are infeasible or more environmentally damaging; (2) denial of the permit would not be in the public interest; and, (3) the project is mitigated to the maximum extent feasible." (AR2693.)

The CCC can overturn a local agency's denial of a major public works project under the Coastal Act if it concludes that the project is conforms to (1) the standards set forth in the certified LCP; and (2) the public access policies set forth in this division. (§ 30603, subds. (a)(5), (b)(2).) Coastal Act section 30260 governs when industrial development is appropriate, and is among the factors the CCC may consider in certifying an LCP in the first instance. (See §§ 30200, 30260.) This override provision is notably not mentioned in either the LCP, nor in the "public access policies" set forth the act—the two exclusive grounds for appeal. (See AR796-897 [LCP]; §§ 30210-30214 [public access policies].) Thus, the factors set forth in section 30260 simply were not relevant on appeal at the CCC. (§ 30603, subds. (a)(5), (b)(2).) As explained in *City of Malibu*, *supra*, 206 Cal.App.4th at p. 556, "after certification of a local coastal program, issuance of coastal development permits is the purview of the local government, not the CCC. And, after certification of an LCP, the Coastal Act mandates—with the singular, narrow exception delineated in the section 30515 override provision—local control over changes to a local government's land use policies and development standards." (*Id.* at p. 556.) The CCC did not purport to act under section 30515 here, therefore, the CCC acted ultra vires and inconsistent with the Coastal Act.

V. THE CCC'S VIOLATIONS OF CEQA

The CCC's statutory and regulatory obligations require it to comply with both the Coastal Act and CEQA. (See § 21080.5; Cal. Code of Regs., tit. 14 §§ 13096, subd. (a) ["All decisions of the commission relating to permit applications shall be accompanied by written conclusions about the consistency of the application with… [CEQA]"], 13057, subd. (c).) The CCC is exempt, however, from preparing a formal EIR because Public Resources Code section 21080.5 specifies that the Secretary of Resources may certify that an agency's environmental review process satisfies the substantive mandates of CEQA and serves as the "functional equivalent" of an EIR. (See §21080.5, subd. (a); Cal. Code of Regs., tit. 14 § 15251 [CCC has a certified regulatory program].) However, the agency must meet the strict requirements of the certified regulatory program and is still required to identify all significant environmental impacts of its Project, to assess cumulative impacts, and to include feasible alternatives or feasible mitigation measures that would substantially lessen any significant adverse effects of the Project. (See § 21080.5, subd.(d)(2)(A), subd. (d)(3)(A); Cal. Code of Regs., tit. 14 § 13057.) Here, the CCC failed to comply with the basic legal mandates of CEQA and its certified regulatory program.

A. The Coastal Commission had a duty to identify, disclose, and mitigate all of the impacts of the Project.

1. The Coastal Commission is not exempt from CEQA.

CEQA contains a number of statutory exemptions, and for those activities, the Legislature has declared that CEQA simply does not apply. (§ 21080, subd. (b).) Certified regulatory programs, however, are not on the list of activities for which CEQA "does not apply." (See § 21080, subd. (b).) The Supreme Court found this to be telling. In as much as the Legislature has identified activities that are exempt from CEQA and did not include certified regulatory programs, "[w]e therefore reject" the assertion that certified regulatory programs are "'exempt" from CEQA. (*Sierra Club v. State Bd. of Forestry* (1994) 7 Cal.4th 1215, 1230-31.) Rather, "section 21080.5 establishes a *limited exemption* from CEQA's EIR requirements for qualifying state agencies having environmental protection responsibilities." (*Mountain Lion Foundation, supra,* 16 Cal.4th at pp. 126-127, emphasis added.)

Certified regulatory programs are only exempt from very specific provisions of CEQA: "Section 21080.5 compels instead the conclusion that [certified regulatory programs are] exempt only from chapters 3 and 4 of CEQA and from section 21167 of that act." (*Sierra Club, supra,* 7 Cal.4th at pp, 1230-1231; see also *Joy Road Area Forest and Watershed Assn. v. California Dept. of Forestry & Fire Protection* (2006) 142 Cal.App.4th 656, 668 ("*Joy Road*") ["Our Supreme Court has expressly found that this exemption must be strictly construed" and certified regulatory programs are "exempt *only* from chapters 3 and 4 of CEQA and from section 21167...."].)

A number of agencies with certified regulatory programs have argued for a more expansive exemption, and the courts have refused to read the exemption expansively. For instance, when the Air Resources Board argued that it did not have to consider an environmental document before approving its project, as required by the CEQA Guidelines section 15004, subdivision (a), the court disagreed: "we conclude that the timing requirement set forth in Guidelines section 15004, subdivision (a) applies to the environmental review documents prepared by ARB in this case—that is, the staff reports and written responses to comments that ARB used in lieu of an EIR." (*POET, LLC v. California Air Resources Bd.* (2013) 218 Cal.App.4th 681, 716.)

When forestry companies argued that the regulatory scheme under the Forest Practice Act was exempt from CEQA, the court disagreed, holding that such programs are only exempt from the requirement to prepare a full-blown EIR." (*Environmental Protection Information Center, Inc. v. Johnson* (1985) 170 Cal.App.3d 604, 620 ("*EPIC*").) The court also held that:

- "Full compliance with the letter of CEQA is essential to the maintenance of its important public purpose," even in the case of a certified regulatory program. (*Id* at p. 622.)
- "Reviewing courts 'have a duty to consider the legal sufficiency of the steps taken by [administrative] agencies [citation], and we must be satisfied that these agencies have fully complied with the procedural requirements of CEQA, since only in this way can the important public purposes of CEQA be protected from subversion." (*Id* at p. 622.)

As another court noted: "If CEQA is scrupulously followed, the public will know the basis on which its responsible officials either approve or reject environmentally significant action, and the public, being duly informed, can respond accordingly to action with which it disagrees… In pursuing an approach that 'releases a report for public consumption that hedges on important environmental considerations while deferring a more detailed analysis to [a report] that is insulated from public review' the Department pursued a path condemned as inconsistent with the purpose of CEQA …." (*Friends of the Old Trees v. Department of Forestry & Fire Protection* (1997) 52 Cal.App.4th 1383, 1402.)

In all of these cases, the courts have held that the procedural and substantive mandates of CEQA apply with equal vigor to certified regulatory programs.

2. The Coastal Commission was neither required nor entitled to limit environmental review because of its limited jurisdiction.

Nor can the CCC limit its environmental review under CEQA to the areas within its jurisdiction. Under CEQA, a project is not a "permit." A "project" is the "whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." (Guidelines, § 15378.) "'Project' is given a broad interpretation in order to maximize protection of the environment." (*Creed-21 v. City of San Diego* (2015) 234 Cal.App.4th 488, 503, citing *McQueen v. Board of Directors* (1988) 202 Cal.App.3d 1136.) Project does not "mean each separate governmental approval." (Guidelines, § 15378, subd. (c); *Citizens Assn. for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151, 165.)

It is important to note that the CCC acted as the "lead agency" here, over MCWD's objections, and as such it had responsibility to evaluate all of the impacts of the project and to prepare an environmental study that other agencies could rely on. (*Riverwatch, supra,* 170 Cal.App.4th at p. 1201; *Planning and Conservation League v. Dept. of Water Resources* (2000) 83 Cal.App.4th 892, 904

["Public Resources Code Section 21067 provides the statutory definition of the term 'lead agency' under CEQA: 'the public agency *which has the principal responsibility for carrying out or approving* a project which may have a significant effect upon the environment.' [Citation.]"].)

Second, even if CEQA countenanced limited environmental review where the scope of an agency's discretion was limited, nothing here indicates that the CCC's limited jurisdiction circumscribed its ability to study and mitigate project impacts. In other words, nothing in the LCP suggests that curtailed or focused environmental review is justified. The LCP itself does not provide for curtailed or limited environmental considerations. The LCP reiterates that a permit ought not be granted until the full environmental impacts are understood and mitigated (AR840 [noting need for EIR and full mitigation].) In addition to these policies which emphasize that the consideration of environmental impacts generally is essential to the implementation of the LCP, the LCP states that in deciding whether a proposed project is consistent with the LCP a number of considerations are relevant, including whether the impacts of the project are mitigated to the extent feasible. (AR840 ["Included feasible mitigating measures which substantially reduce significant impacts of the project ..."].)

Third, the statute that the CCC cites as the primary justification for approving the permit mandates a full environmental review. That statute provides that, in certain circumstances, the LCP policies may be overridden but only if the following three findings can be made:

> **alternative locations are infeasible or more environmentally damaging**; (2) to do otherwise would adversely affect the public welfare; and (3) **adverse environmental effects are mitigated to the maximum extent feasible.**

(§ 30260, emphasis added.) In order to make findings under this section, the CCC obviously had to consider all the impacts of the proposed action and all potentially feasible alternative locations. To be clear, either the does not have jurisdiction override the LCP (as MCWD contents), or if it does (as the CCC contends), it had to take full responsibility to analyze and mitigate the projects impacts.

3. The Coastal Commission had to adopt a process that furthers CEQA's mandate to ensure (1) open and informed decisionmaking and (2) full disclosure and mitigation of environmental impacts.

The twin purposes of CEQA are (1) to ensure that the public and decision-makers know, understand, and meaningfully consider the environmental effects of proposed projects, and (2) to require that public agencies consider and adopt feasible mitigation measures and alternatives that would avoid or lessen significant effects. (See §§ 21001, 21001.1, 21002, 21002.1, 21081, 21100.) As noted above, although a certified regulatory program is exempt from the requirement to prepare an EIR per se, certified regulatory programs are not exempt from CEQA and must comply with these mandates. (*Conway v. State Water Resources Control Board* (2015) 235 Cal.App.4th 671 citing *City of Arcadia v. State Water Resources Control Bd.* (2006) 135 Cal.App.4th 1392, 1422 (*Conway*) ["A certified regulatory program is subject to the broad policy goals and substantive standards of CEQA."].) Furthermore, "there must be significant documentation" of environmental review, including "a description of the proposed activity with alternatives to the activity and mitigation measures as well as written responses to significant environmental points raised during the evaluation process." (*Conway, supra*, citing § 21080.5, subds. (d)(2)(D) & (d)(3)(A); Guidelines,§ 15252, subd. (a).) This is because the substitute document "serve[s] as the functional equivalent of an EIR." (*Conway, supra*, citing *Ebbetts Pass Forest Watch v. Cal. Dept. of Forestry and Fire Protection* (2008) 43 Cal.4th 936, 943.)

In furtherance of these purposes, public agencies pursuing projects subject to CEQA must follow a familiar and well-established course of action. First, a lead agency must determine whether the environmental impacts of its project are "significant." (Guidelines, §§ 15063, 15064.) If there is substantial evidence in light of the whole record that the project will have significant effects, the agency must prepare an EIR or EIR-equivalent document. (§§ 21082.2, subd. (d), 21100, subd. (a); Guidelines, § 15064, subd. (a)(1), (f).) The EIR-equivalent must identify the Project's environmental effects, evaluate their significance, describe feasible mitigation measures to minimize those effects, and consider a range of reasonable alternatives that could avoid or substantially lessen those effects. (Guidelines, §§ 15126.2, 15126.4, 15126.) Before the agency can approve the project, it must specifically find that the project's significant effects have been mitigated or avoided. (§ 21081; Guidelines, § 15091.) If significant environmental effects remain after implementation of all feasible measures, the agency may still approve the project, but only after adopting a "statement of overriding considerations" finding that the project's benefits outweigh its environmental cost. (§ 21081, subd. (a)(3), (b); Guidelines, § 15093.) Mitigation measures must be monitored and enforced following project approval "to ensure compliance during project implementation." (§ 21081.6, subd. (a)(1); Guidelines, § 15097.)

"[T]he ultimate decision of whether to approve a project, be that decision right or wrong, is a nullity if based upon an EIR that does not provide the decision-makers, and the public, with the information about the project that is required by CEQA." (*Riverwatch, supra,*170 Cal.App.4th at p. 1201, citing *Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d 818, 829.)

B. The CCC failed to comply with CEQA's mandatory 30-day public review period, depriving the public and resources agencies adequate time for review and comment.

The CCC's environmental review process was improperly rushed and flawed, flouting not only CEQA's public notice and participation requirements but also those set out in the Coastal Act. (See § 30006.) [5] Because public participation in the CEQA process is of paramount importance, CEQA requires a minimum 30-day public review period for EIRs. (§ 21091, subd. (a) ["The public review period for a draft [EIR] may not be less than 30 days"]; *Laurel Heights II, supra*, 6 Cal.4th at p. 1123 ["public participation is an 'essential part of the CEQA process'"].) [6] The fact that Public Resources Code section 21091 refers to EIRs rather than environmental documents prepared under a certified regulatory program "is of no consequence."(*Ultramar, Inc. v. South Coast Air Quality Management Dist.* (1993) 17 Cal.App.4th 689, 699.) This mandatory 30-day review period applies with equal vigor to certified regulatory programs. (*Id.* at pp. 699-700; *Joy Road, supra,* 142 Cal.App.4th 656.)

Here, the CCC completely ignored the 30-day notice requirement. The CCC prepared and circulated its Staff Report for the Project on October 31, 2014. (AR2691.) Had the Commission provided the required 30-day comment period, the closing date for comments would have been November 30, 2014, with a hearing scheduled sometime thereafter. Instead, the hearing was scheduled for November 12, 2014. (AR2196.) The comment period provided was a scant 12 calendar days and even more meager 6 business days, counting the day of the hearing. This does not satisfy CEQA. (§ 21091, subd. (a); *Ultramar, supra,* 17 Cal.App.4th at pp. 698-700; *Joy Road, supra,* 142 Cal.App.4th at

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[5] / Section 30006 provides: "The Legislature further finds and declares that the public has a right to fully participate in decisions affecting coastal planning, conservation, and development; that achievement of sound coastal conservation and development is dependent upon public understanding and support; and that the continuing planning and implementation of programs for coastal conservation and development should include the widest opportunity for public participation."

[6] / See also, e.g., *Sierra Club, supra,* 7 Cal.4th at p.1229 [public review "demonstrate[s] to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action"]; *Schoen v. Department of Forestry & Fire Protection* (1997) 58 Cal.App.4th 556 ["This public review provides the dual purpose of bolstering the public's confidence in the agency's decision and providing the agency with information from a variety of experts and sources"].

pp. 667-673.) Nor was 12-days reasonable given the complex issues as MCWD testified. (AR4056-58.)

The CCC argues it is exempt from the public review provisions of CEQA—despite the fact that section 21091 is not set out Chapters 3 or 4, which are the provisions in CEQA that certified regulatory programs are exempt. The CCC claims that *Ross v. California Coastal Commission* (2011) 199 Cal.App.4th 900, 932 (*Ross*), establishes that the 30-day notice requirement is inapplicable to the CCC. *Ross* is not on point. The court in *Ross* addressed the notice requirement in a **completely separate, and very different, regulatory scheme** than the one at issue here. Specifically, the court in *Ross* considered the notice period for staff recommendations under the CCC's certified regulatory program for LCPs and Long Range Development Plans. That certified regulatory program does not apply here. (See Guidelines, § 15251 [listing separate CCC regulatory programs for CDPs and LCPs].) Accordingly, *Ross* is not controlling. There is no similar timing provision here. Section 13059, which governs the circulation of Staff Reports for CDPs, states only: "Staff reports shall be distributed within a reasonable time to assure adequate notification prior to the scheduled public hearing."[7]

It is also important to note that Public Resources Code section 21091 was adopted after the CCC's regulatory program was certified. The 30-day requirement was added to CEQA after the CCC's certified regulatory program was certified in 1978. At the time, CEQA only required that EIRs be circulated for a "reasonable time," similar to the language in the CCC's regulatory program. (Cal. Stats. 1989, ch. 907, § 2.) When the Legislature amended CEQA in 1989 to add the 30-day requirement, the requirements of the Act, as amended, applied to regulatory programs because regulatory programs are not exempt from the requirements of section 21091. (See *Ultramar, supra*, 17 Cal.App.4th 689; *Joy Road, supra*, 142 Cal.App.4th 656.) Sections 13059 and 21091 can and, thus, must be reconciled. (See note 9.) The CCC simply cannot escape the fact that it was required to comply with CEQA's 30-day notice requirement. By providing only a 12-day public review period for the Staff Report, the CCC failed to proceed in the manner required by law.

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7 / As the Supreme Court stated in *Mountain Lion Foundation, supra,* 16 Cal.4th at p. 122, if the "benefits and purposes of the CEQA process can be reconciled with the [ageny]'s duty under [its certified regulatory program]… *we are obligated to harmonize the objectives common to both statutory schemes to the fullest extent the language of the statutes fairly permits*." (Emphasis added; see also *Strother, supra,* 173 Cal.App.4th at p. 880 [harmonizing CEQA and the Coastal Act)

C. The CCC failed to respond to any significant environmental comments raised during the evaluation of the slant well.

As the Supreme Court has explained, "[i]n order to claim the exemption from CEQA's EIR requirements, an agency must demonstrate ***strict compliance*** with its certified regulatory program." (*Mountain Lion Foundation, supra,* 16 Cal.4th at p. 132, emphasis added.) Here, the Coastal Commission's regulations expressly require that a Staff Report include "[r]esponses to significant environmental points raised during the evaluation of the proposed development *as required by [CEQA]*." (Cal. Code Regs., tit. 14, § 13057, subd. (c)(3); see *Strother v. California Coastal Com.* (2009) 173 Cal.App.4th 873, 877, 881 ("*Strother*") [noting requirement that the CCC provide written responses to significant environmental points raised during the evaluation process]; *Conway, supra,* 35 Cal.App.4th 671 [a document used as a substitute for an EIR under a regulatory program must include "written responses to significant environmental points raised during the evaluation process"].) The CCC, however, did not provide any responses to environmental points raised by MCWD or other commenters.

To fulfill the requirements of CEQA, and its own regulations, the CCC was required to provide a "reasoned response," in writing, to each of the significant environmental issues raised, and to set forth in detail the reasons why particular comments and objections were rejected. (See Guidelines, § 15088, subd (b) ["There must be good faith, reasoned analysis in response [to the comments received]. Conclusory statements unsupported by factual information will not suffice."]; § 21091, subd. (d)(2)(B) ["The written response shall describe the disposition of each significant environmental issue that is raised by commenters"]; *Gallegos v. State Bd. of Forestry* (1978) 76 Cal.App.3d 945, 953-955; *People v. County of Kern* (1974) 39 Cal.App.3d 830, 841; *EPIC, supra,* 170 Cal.App.3d 604; *Flanders Foundation v. City of Carmel-by-the-S*ea (2012) 202 Cal.App.4th 603, 616-617.)

The CCC's "responses to comments" runs a scant two-and-a-half pages in the Staff Report, and addresses none of the significant environmental points raised by commenters. (AR3535-3538.) For example, among the significant environmental points raised in comments to the CCC, commenters expressed concerns regarding hydrological and groundwater impacts, including the potential for saltwater intrusion and other impacts to the Salinas Groundwater Basin (AR3613-3614; 3625-3626; 2998; 3011-3021; 3452; 3455-3457), impacts to endangered species such as the Western Snowy Plover and ESHA (AR3632-3633; 3621-3622; 3624; 3635-3636; 3886-3887), greenhouse gas emissions and air quality impacts (AR2795). Additionally, commenters repeatedly questioned the adequacy and effectiveness of proposed mitigation, the CCC's failure to consider feasible alternatives, and the Staff Report's failure to establish an adequate baseline from which to measure groundwater impacts. (AR3614; 3625-3623; 3633-3636; 3886-3887.) The CCC provided *no response* to these comments or any other comments on environmental issues in violation of CEQA. (*Berkeley Keep Jets Over the Bay Com. v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1367 ["Where comments from responsible experts or sister agencies disclose new or conflicting data or opinions that cause concern that the agency may not have fully evaluated the project and its alternatives, these comments may not simply be ignored. *There must be good faith, reasoned analysis in response.*"].) Rather, the Staff Report only includes responses regarding the CCC's appellate jurisdiction. (AR3535-3538.)

By completely ignoring its obligation to provide written responses to comments, the CCC disregarded a critical component of the environmental review process. As the California Supreme Court explained in *Mountain Lion Foundation*, CEQA's "written response requirement ensures that [the decisionmakers] will fully consider the information necessary to render decisions that intelligently take into account the environmental consequences. [Citations.] It also promotes the policy of citizen input underlying CEQA." (16 Cal.4th at p. 133; see also *id.* at p. 123 [articulating its reasons for rejecting opposing views in written form helps sharpen the agency's understanding of the significant points raised in opposition to a project]; *EPIC, supra,* 170 Cal.App.3d at p. 628 ["the purpose of this requirement is to provide the public with a good faith, reasoned analysis why a specific comment or objection was not accepted"]; *People v. County of Kern* (1974) 39 Cal.App.3d 830, 841 [responses to comments "helps insure the integrity of the process of decision by precluding stubborn problems or serious criticism from being swept under the rug."].) By failing to provide any responses to the environmental points raised by commenters, the CCC failed to proceed in the manner required by law. (*Mountain Lion Foundation, supra*, 16 Cal.4th at p. 137 [noting that failure to proceed in accordance with law is presumptively prejudicial when mandatory procedures not followed]; *Environmental Protection Information Center v. California Dept. of Forestry and Fire Protection* (2008) 44 Cal.4th 459, 487 [failure to respond to comments must be deemed prejudicial unless the agency can prove the comments were, on their face, demonstrably repetitive of material already considered or were patently irrelevant].)

D. The CCC improperly piecemealed the Project by analyzing the impacts of the slant well separate from the larger MPWSP.

CEQA prohibits the "piecemealing" or segmenting of a project into smaller parts to avoid the early assessment of the significant environmental impacts of the entire project. (*Laurel Heights Improvement Assn. v. Regents of Univ. of Cal.* (1988) 47 Cal.3d 376, 396 ("*Laurel Heights I*"); Guidelines § 15165.) Therefore, when a specific project contemplates future expansion, the lead agency is required to review all phases of the project. (*Laurel Heights I, supra,* 47 Cal.3d 376; see also *Banning Ranch Conservancy v. City of Newport Beach* (2012) 211 Cal.App.4th 1209, 1224, [improper piecmealing occurs when "the purpose of the reviewed project is to be the first step toward future development"]; Guidelines, § 15162 ["All phases of a project must be considered when evaluating its impact on the environment"].) This requirement reflects CEQA's broad definition of "project" as "the *whole* of an action" that may impact the environment. (Guidelines, § 15378, italics added; see *Habitat & Watershed Caretakers v. City of Santa Cruz* (2013) 213 Cal.App.4th 1277, 1297.)

Segmenting a project into smaller pieces, as the CCC did here, results in an improperly "curtailed" and "distorted" project description. (*San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 730.) The "segmentation" of the "test slant well" from the overall MPWSP mislead the public, understated the impacts of the project, and resulted in unnecessarily curtailed discussion of potentially feasible alternatives to the Project. Accordingly, by using "truncated project concept" the CCC failed to proceed in a manner required by law. (*Ibid.*; see also *Tuolumne County Citizens for Responsible Growth, Inc. v. City of Sonora* (2007) 155 Cal.App.4th 1214, 1224.)

In *Laurel Heights I, supra,* 47 Cal.3d 376, the Supreme Court explained that an agency must analyze the effects of potential future development if such development is: (1) "a reasonably foreseeable consequence of the initial project," and (2) "will likely change the scope or nature of the initial project or its environmental effects." (*Id.* at p. 396.) The slant well easily meets both parts of the test.

Here, the record shows that the slant well is the initial phase of the MPWSP and that Cal-Am intends to convert the slant well into a production well for the MSWP. (AR4142; 4156; see also AR4634 [identifying the slant well as a "major component" of the MPWSP].) As a result, it cannot reasonably be disputed that the MPWSP is a reasonably foreseeable consequence of the Project. As the Mayor of Marina, a proponent of the Project, noted:

> MAYOR DELGADO: Well, that seems like a no-brainer; that, of course, it's foreseeable that if these slant test wells work out the way everyone hopes they do, then they would be turned into permanent wells and they would be supplying the desal project. (AR3177.)

In an attempt to circumvent CEQA's prohibition of piecemealing, the CCC's Staff Report and findings state that they apply only to the slant well "and do not authorize development that may be associated with long-term use of the well, including converting the well to use as a water source for the separately proposed MPWSP. Any such proposal will require additional review … and will be conducted independent of any decision arising from these Findings." (AR4156.) This position cannot be reconciled with *Laurel Heights I*. (47 Cal.3d at p.396.) Like the CCC, the respondent in *Laurel Heights I* claimed that because further approvals were required and would be evaluated in their own right, the agency could defer evaluation of the potential expansion. (*Id.* at p. 394.) The Supreme Court flatly rejected this argument, finding deferring environmental review to a later point, when "bureaucratic and financial momentum" would make it difficult to deny the expansion, violated CEQA. (*Id.* at pp. 395-96.)

The CCC's improper piecemealing of the Project here is even more apparent than the proposed expansion in *Laurel Heights I*. The CPUC is currently preparing an EIR for the full project pursuant to an application by Cal-Am. (AR4156; 3990.) Because the Project represents a significant commitment to the selection of this site for the MPWSP, and even the final design of the MPWSP, the slant well could not be segmented from the environmental review of the MPWSP under CEQA.

Moreover, as explained in the CEQA Guidelines, "[w]here an individual project is a necessary precedent for action on a larger project . . . an EIR must address itself to the scope of the larger project." (Guidelines § 15165; *Nelson v. County of Kern* (2010) 190 Cal.App.4th 252, 272.) The CCC's findings readily admit that the test well is a "necessary precursor" for the MPWSP. (AR4161.) Indeed, the record is abundantly clear that the slant well is a necessary precedent for the MPWSP. (See, e.g., AR2711 [the test well is "a necessary precursor to determining whether slant wells are feasible at this site and determining whether the MPWSP will be constructed and operated as currently proposed."]; 2706 ["Information derived from the well tests is necessary to assess the feasibility and the preferred design and location of the proposed full-scale project."]; 2743; 4634.) Because the slant well is a necessary precedent to the MPWSP, it could not be analyzed separately.

After the piecemealing problem was brought to the Cal-Am's attention, it has attempted in vain to establish that the slant well has independent utility separate from the MPWSP that justifies its treatment as a separate project. Here, the slant well does not have independent utility apart from the MPWSP. As the City noted there "is no independent utility of the test wells that has been able to be focused to us other than the furtherance of the larger project." (See AR215.)The entire justification for the Project is to determine whether the MPWSP will be constructed and operated as proposed. (See AR2711; 2706; 4142; 215.) As explained above, the Project is necessary for the MPWSP to proceed.

Moreover, even accepting Cal-Am's flawed argument that the slant well and MPWSP have independent utility because they could be implemented separately, "the possibility that two acts could be taken independently of each other is not as important as whether they actually will be implemented independently of each other. Theoretical independence is not a good reason for segmenting the environmental analysis of the two matters." (*Tuolumne County Citizens for Responsible Growth, Inc. v. City of Sonora* (2007) 155 Cal.App.4th 1214, 1229; see also *Banning Ranch Conservancy, supra*, 211 Cal.App.4th at p. 1226, fn. 7 [If the implementation of two projects "would be sufficiently interdependent in practice, even if theoretically separable, . . . a piecemealing challenge would be well founded."].) The record here is abundantly clear that the slant well and the MPSWP are in fact parts of the same project. Treating them as separate projects is classic piecemealing.

Finally, the CCC's justification for asserting jurisdiction over and approving the Project, as well as for rejecting alternatives, are all premised on the MSWSP being approved at Cal-Am's preferred location and based on its preferred design. (See e.g., AR4200 [MPWSP as the basis for siting the Project in ESHA]; 4196 [MPWSP as the basis for rejecting alternatives]; 4166 [finding a "substantial issue"].) Cal-Am cannot have its cake and eat it too. If the slant well is indeed a separate project, as the CCC and Cal-Am allege, the CCC could not use the MPWSP as the basis for (1) asserting jurisdiction of Cal-Am's appeal; (2) siting the Project in ESHA; (3) rejecting alternatives; or (4) approving the Project despite is significant and unavoidable impacts. Either the CCC improperly piecemealed the slant well from the larger MPWSP, or the findings in the Staff Report cannot be upheld.

E. The Staff Report failed to establish an adequate baseline and thresholds of significance against which to measure impacts to hydrology and water quality.

The Project will pump water 24 hours per day for up to 2 years at a rate from about 1,000 gallons per minute (gpm) to 2,500 gpm and will remove up to 3.6 million gallons of water from the groundwater basin. (AR2740; 4191.) Despite acknowledging potential impacts to Coastal Agriculture, the Staff Report fails to analyze or discuss the Project's potential impacts to the overdrafted Salinas Valley Groundwater Basin (SVGB). (AR2741.) With the exception of providing Cal-Am's estimate of the cone of depression from the slant well, no evaluation of the potential impacts to the SVGB is included in the Staff Report. (AR2740-2741.) The CCC seems to believe it is not required to analyze the Project's impacts to groundwater or hydrology because it is exempt under its regulatory program from certain portions of CEQA. The CCC is mistaken. As explained above, the CCC must analyze all potential environmental impacts of a project in its functional equivalent document.

1. The Staff Report failed to establish an adequate baseline against which to measure impacts to hydrology and water quality.

To fulfill CEQA's information disclosure function, the Staff Report was required to "delineate environmental conditions prevailing absent the project, defining a baseline against which predicted effects can be described and quantified." (*Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439; Guidelines, §§ 15125, 15126.2, subd. (a).) "Before the impacts of a project can be assessed and mitigation measures considered, an EIR must describe the existing environment. It is only against this baseline that any significant environmental effects can be determined. [Citations.]" (*Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 119-120.) Without an adequate description of the baseline, "analysis of impacts, mitigation measures and project alternatives becomes impossible." (*County of Amador, supra,* 76 Cal.App.4th at p. 953.) Without accurate and complete information pertaining to the setting of the project and surrounding uses, it cannot be found that the [EIR] adequately investigated and discussed the environmental impacts of the development project." (*Cadiz Land Co. v. Rail Cycle* (2000) 83 Cal.App.4th 74, 87.)

Here, the Staff Report failed to provide any meaningful baseline information regarding hydrologic conditions beyond the historic level of sea-water intrusion. (AR2740-2741.) The entire discussion of existing conditions is a brief one-paragraph "background" discussion and a couple sentences in the "project objectives" section. (AR2740; 2708.) It does not contain an adequate description of existing conditions at the project site or explain the differing conditions in the 180-ft and 400-ft aquifers. The Staff Report also fails to describe the existing salinity or water levels to evaluate the

Project's impacts. And the Staff Report includes no information regarding tidal and seasonal variations in water levels. (*Ibid.*) Based on the limited information provided in the Staff Report, it was simply impossible for the public or the Commissioners to evaluate the Project's potential impacts to the groundwater supplies and water quality. (AR2740-2741; see *Save Our Peninsula Committee, supra,* 87 Cal.App.4th at p. 125; Guidelines, §§ 15125, 15126.2.)

After MCWD commented on the lack of baseline analysis in the Staff Report (see AR3625-3626), CCC staff added the term "baseline" to the text in an addendum, but still did not provide an any discussion of baseline groundwater conditions. (AR3531-3532; 3525.) Nor did the CCC respond to MCWD's comments. Instead, the CCC modified its conditions of approval (Special Condition 11) to require Cal-Am to monitor water and salinity levels *after* the Project is constructed, and provide the Executive Director with "baseline" water and Total Dissolved Solids ("TDS") levels. (AR3531-3532; 3525 [changes to Special Condition 11].) This was inadequate under CEQA. By deferring the analysis of baseline conditions, it was impossible for the Staff Report to provide the information necessary for the decisionmakers and the public to understand the impacts of the Project. (*Save Our Peninsula Committee, supra,* 87 Cal.App.4th at p. 125; Guidelines, §§ 15125, 15126.2, subd. (a).) As explained in *Save Our Peninsula Committee,* an environmental document may not simply present data without meaningful analysis. Without an explanation of preexisting conditions, the Staff Report does not comply with CEQA. (*Id.* at p. 122 [EIR failed to comply with CEQA because it relied on "figures generated at the end of the environmental review process, rather than at the beginning, to determine a baseline].)

Furthermore, CEQA requires the identification of baseline conditions in an open process that involves interested agencies and the public *before* a project is approved. (*CBE, supra,* 184 Cal.App.4th at p. 88 [holding experts reliance on undisclosed data regarding baseline does not meet the "informational" goals of CEQA and that baseline information provided at the end of the process was too little, too late].) By failing to provide meaningful baseline data or description of existing conditions, the Staff Report is inadequate as an informational document as a matter of law. [8]

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[8] To make matters worse, the conclusory statements regarding historic sea-water intrusion are not supported by evidence in the record. The Staff Report limited groundwater references, include citations

2. The Staff Report failed to establish adequate thresholds of significance to measure the Project's impacts to hydrology and water quality.

The main purpose of an EIR is to allow agencies and the public to consider whether a project will result in any significant environmental impacts and to evaluate alternatives and mitigation measures that could reduce or avoid those impacts. (Pub. Resources Code, §§ 21002; 21002.1, subd. (a).) To serve this important function, an EIR must establish and explain the "threshold of significance" used to measure the severity of each potential impact. "A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant." (Guidelines, § 15064.7.)

Here, the Staff Report fails to describe any threshold of significance to measure the severity of impacts to groundwater. As noted above, the Staff Report improperly only discusses whether the Project would have a significant effect on coastal agriculture. (But see Guidelines, Appendix "G" [Would the project "deplete groundwater supplies or interfere substantially with groundwater recharge *such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level* …"].) There is no threshold for gauging impacts to the SVGB. Therefore, it was impossible for the CCC or the public to determine whether the Project would have a significant impact to the SVGB.

Instead, the Staff Report seems to rely on a mitigation measure proposed by Cal-Am (which was rejected by the City of Marina) to establish a threshold of significance. The Staff Report states that if a drawdown of one foot "above natural fluctuations" occurs, this "shall be considered a significant adverse effect on water supply." (AR2741.) Even if it was appropriate for the CCC to only describe a threshold of significance as part of its mitigation, there is no explanation why this particular threshold was selected and there is no evidence to support the use of this threshold. As MCWD' interim general manager, and an experienced engineer expert (AR3616-17), commented "the proposed mitigation and monitoring for the Project are completely inadequate to assure that impacts to Salinas Groundwater Basin and wells in the basin are fully mitigated." He noted that the "keystone to the mitigation is the assumption that single one-foot drawdown in monitoring wells is meaningful and relevant to assure no

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to the Monterey County Groundwater Management Plan (AR2708) and the Salinas Valley Water Project impacts will occur. How was that one-foot drawdown determined? What baseline groundwater elevation and salinity levels did the Commission use to evaluate the proposal? The Staff Report includes no description of the existing groundwater elevations, and no analysis to support the assumption that a one-foot drawdown or increase in salinity levels has any meaning whatever from a technical standpoint." (AR3614.) The CCC did not respond to MCWD's comments. This was error. (*Berkeley Keep Jets Over the Bay Commission v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1367 ["Where comments from responsible experts or sister agencies disclose new or conflicting data or opinions that cause concern that the agency may not have fully evaluated the project and its alternatives, these comments may not simply be ignored. There must be good faith, reasoned analysis in response."].)

As explained in *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1111, "the fact that a particular environmental effect meets a particular threshold cannot be used as an automatic determinant that the effect is or is not significant." The agency must explain *why* the threshold is appropriate and *why* there will be no impacts based on the threshold. (*Ibid.*).

Even if the revisions to Special Condition 11 could be considered thresholds of significance, the addendum failed to provide any analysis to support the assumption that a 1.5-foot water level drawdown or increase in TDS levels of more than 2,000 parts per million at Monitoring Well 4 provides a meaningful threshold for assessing impacts as required under CEQA. (See *Protect the Historic Amador Waterways, supra,* 116 Cal.App.4th at pp. 1110-1112; Because the Staff Report failed to provide any explanation or evidence to support the use of any thresholds, the Commissioners and the public were not able to determine whether the impacts to groundwater would in fact be significant. Therefore, the Staff Report is inadequate as an informational document.

3. The mitigation added in the last-minute addendum does not cure the baseline and thresholds of significance problems; the mitigation itself is improper under CEQA.

Instead of analyzing potential impacts to the SVGB, the Staff Report relies on mitigation proposed by Cal-Am (that was rejected by the City as inadequate) to establish the Project will not significantly impact Coastal Agriculture. (AR2741). This was error. An EIR must separately identify and analyze the significance of environmental impacts before proposing mitigation

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Environmental Impact Report (AR2740), are not included in the CCC's administrative record.

measures. (See *Lotus v. Department of Transportation* (2014) 223 Cal.App.4th 645 (*Lotus*).) Here, the Staff Report assumes Cal-Am's mitigation is part of the Project, will be voluntarily implemented, and will be effective, without first analyzing or disclosing the impacts of the Project itself. "[T]his short-cutting of CEQA requirements subverts the purposes of CEQA by omitting material necessary to informed decision-making and informed public participation. It precludes both identification of potential environmental consequences arising from the project and also thoughtful analysis of the sufficiency of measures to mitigate those consequences." (*Id.* at p. 658.)

Adding to the problem, Special Condition 11, as amended last-minute, constitutes unlawful deferral of mitigation and improper delegation by leaving it up to Cal-Am's Hydrology Working Group, subject to concurrence by the Executive Director, to determine whether impacts are significant. (AR4151; 3532; 3525.) This approach has been soundly rejected by the courts. "A study conducted after approval of a project will inevitably have a diminished influence on decisionmaking. Even if the study is subject to administrative approval, it is analogous to the sort of post hoc rationalization of agency actions that has been repeatedly condemned in decisions construing CEQA." (See *CBE*, *supra*, 184 Cal.App.4th at p. 92, see also *id*., at p. 93 ["Fundamentally, the development of mitigation measures …is not meant to be a bilateral negotiation between a project proponent and the lead agency after project approval; but rather, an open process that also involves other interested agencies and the public."].)

In addition, the CCC was required to determine whether the Project will have a significant effect on the environment and whether mitigation will be effective before project approval; this authority cannot be delegated. (See *POET, supra,* 218 Cal.App.4th at p. 731.) By allowing the Hydrology Working Group and Executive Director to determine the Project's impacts and effectiveness of mitigation after Project approval and outside of the public forum, the CCC violated CEQA.

F. The CCC's CEQA-Equivalent Document Failed to Disclose, Analyze, or Propose Adequate Mitigation for the Project's Significant Impacts on Special-Status Species and ESHA.

The CCC's Staff Report purported to consider the impacts on special-status species and ESHA. Among other things, the Staff Report found:

- the "dune habitat" on site is an "extremely rare physical habitat type." (AR2725.)
- Cal-Am's expert argued that the habitat was "degraded" and thus unimportant. (AR2725.) The CCC's experts disagreed. (*Ibid.*)

- the "entire area in which the project would be located is primary habitat and ESHA under the LCP." (AR2726.)
- The Coastal Act also protects ESHA against significant disruption of habitat values and only allows uses "dependent on those resources" in ESHA areas. (AR2726.)
- "The proposed project is not a resource-dependent use, so it cannot be approved consistent with the LCP's habitat protection policies." (AR2726.)
- A number of plant and animal species of special concern are dependent on dune habitat, including several listed species. (AR2722.) For instance, "Monterey spineflowers and snowy plover nests have been identified within and adjacent to the proposed project area." (AR2725.)

The Staff Report purports to analyze potential impacts to ESHA and to special-status species. In addressing these impacts, the Staff Report states that the impacts will be addressed by "requiring project construction, well pack replacement, and decommissioning to occur outside of the Western snowy plover breeding and nesting season, the active season for the Smith's blue butterfly, and the blooming period of the Monterey spineflower." (AR2749.) Thus, "construction will occur outside the Western snowy plover nesting season, which runs from February 28 to October 1 each year." (AR2708.) The Staff Report repeats this assurance no less than **6 times**. (AR2699; 2701; 2708; 2713; 2722; 2766.)

Notably, this condition was based in large part on the Environmental Assessment prepared by the Monterey Bay National Marine Sanctuary, in consultation with the United States Fish and Wildlife Service. (AR357-482.) In face-to-face meetings with the Sanctuary and the Service, Cal-Am made repeated assurances that neither "construction" nor "demobilizations" would occur in the snowy plover nesting season "**under any condition**." (AR2353.) The federal concurrence in the CDP was dependent on this condition, and the Service specifically noted that the "season of work was important to our concurrence for the plover and butterfly." (AR475; 3849.) Every single biologist in this case opined that construction activities had to cease by February 28 to avoid impacts to snowy plover and other special-status species. On the date of project approval, in fact, United States Fish and Wildlife Service sent an email reiterating the importance of the construction deadline. (*Ibid.*)

Nevertheless, without any notice to the public, without consultation with the expert resource agencies or biological experts, the CCC essentially deleted this condition on the evening before the project approval. (See AR3525; 3526; 3527; 3528; 3530; 3534.) Although the Staff Report continues to cite to the federal approvals as evidence that the adopted mitigation is effective, there is absolutely no evidence in the record that the federal agencies knew of the changes in the mitigation. More importantly, there is no substantial evidence in the record that the modified mitigation will avoid impacts to species.

Although under the City's LCP, the dune habitat on the project site constitutes "primary habitat area" and ESHA, which cannot be impacted, the Staff Report purports to authorize impacts and to mitigate impacts to ESHA by requiring habitat restoration. (AR2705, 2727.) This was not only impermissible under the City's LCP, it violates the Coastal Act. (*Bolsa Chica, supra,* 71 Cal.App.4th at pp. 506-507 [the only permissible mitigation of Project impacts to ESHA, *even if degraded,* is preservation and *complete avoidance*].)

G. The CCC Violated CEQA by Failing to Adequately Analyze a Reasonable Range of Alternatives to the Project in its CEQA-equivalent document.

In adopting CEQA, the Legislature expressly declared that "it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects[.]" (§ 21002.) To achieve this end, the Legislature has directed that environmental documents must contain a "detailed statement" setting forth alternatives to a proposed project. (§ 21100, subd. (b)(4).) The document must "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." (Guidelines, § 15126.6, subd. (a).) Under the CCC's certified regulatory program, its environmental analysis must include a discussion of alternatives that satisfies CEQA. The Staff Report does not.

The entire discussion of alternatives in the Staff Report is a scant two-and-a-half pages.[9] (AR2742-2744; 4194-4196.) The first page is largely a statement of legal standards for the preparation of an adequate alternatives analysis, which are subsequently ignored. (AR2742; 4194.) The remaining discussion consists primarily of a conclusory summary that no alternative methods or locations are feasible. (AR2743; 4195-4196.) This does not satisfy CEQA. (See *Laurel Heights I,*

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[9] / Notably, in its comments on the slant well to the City of Marina, the CCC recommended the City's review of the slant well "include a robust alternatives analysis to identify feasible sites where the project may result in fewer impacts – e.g., sites with less sensitive habitat, less potential for coastal erosion, etc." (AR4486.) The CCC did not even follow its own recommendation.

supra, (1988) 47 Cal.3d 376 [conclusory statements as to lack of feasible alternatives is inadequate under CEQA].) An EIR must discuss the reasons for rejecting alternatives "in sufficient detail to enable meaningful participation and criticism by the public. (*Id.* at 405.)

While the Staff Report states that, allegedly, "stakeholders" considered various factors such as habitat, coastal resources, and the availability of electrical service to eliminate unstated alternatives, the Staff Report cites to no actual evidence of this analysis and does not mention which alternatives were considered. (AR2743.) The "applicant's feeling about an alternative cannot substitute for the required facts and independent reasoning" regarding the feasibility of alternatives. (*Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336, 1356.) An agency may not simply accept the project proponent's assertions about an alternative; rather, the agency "must independently participate, review, analyze and discuss the alternatives in good faith." (*Save Round Valley*, *supra*, 157 Cal.App.4th at 1460, quoting *Kings Cnty. Farm Bureau v. City of Hanford*, 221 Cal.App.3d 692, 736 (1990). Here, the CCC abdicated its independent duty to evaluate alternatives and let the Cal-Am determine the project objectives and each alternatives' feasibility, despite the Cal-Am's failure to provide any data from which to draw rational conclusions about each alternative's feasibility.

The EIR 'is required to make an *in-depth* discussion of those alternatives identified as at least potentially feasible.' [Citation.]" (*Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336, 1354, italics added.) Moreover, "[w]hile the lead agency may ultimately determine that the potentially feasible alternatives are not actually feasible due to other considerations, the actual infeasibility of a potential alternative does not preclude the inclusion of that alternative among the reasonable range of alternatives." (*Watsonville Pilots Assn. v. City of Watsonville* (2010) 183 Cal.App.4th 1059, 1087.) Moreover, it is well settled that private agreements cannot be used to circumscribe the analysis of alternatives under CEQA, even if the agreement actually binds the private parties, which is not the case here. (See *Habitat & Watershed Caretakers, supra,* 213 Cal.App.4th at p. 1301 [rejecting the notion that the alternatives analysis could be limited because the project was supposed to implement a settlement agreement]. As the Supreme Court explained in *Laurel Heights I*, it is not sufficient for decisionmakers (or their staff) to privately discuss the feasibility of alternatives, and thus limit the scope of analysis in an environmental document. (47 Cal.3d at p. 404.)

Because the CCC improperly dismissed all alternatives in conclusory fashion, there is no analysis or discussion comparing the impacts of the alternatives to those of the Project as required by CEQA. (Guidelines, § 15162 ["the analysis must contain sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project"]; *Friends of the Eel River*, supra, 108 Cal.App.4th at p. 873 [discussion of alternatives must provide sufficient "information to the public to enable it to understand, evaluate, and respond" to the agency's conclusions.].)

Additionally, the curtailed scope of the analysis is not supported by substantial evidence in light of Cal-Am's public declarations that other sites are potentially feasible. Cal-Am has described a site "near Potrero Road" as promising, especially because it would "avoid impacts to the Salinas Basin." (AR3627; 3588, 3592.) In its comment letter on the Staff Report, MCWD asked that the CCC consider this alternative. (AR3627; 3614.) The CCC did not respond to the comment, but in a late-night alteration to the Staff Report, it argued that the alternative would have potential impacts related to public access and "could" impact plover habitat. (AR3533; 4195.) The revisions to the Staff Report also state that it is further away from Cal-Am's preferred location for the unapproved MPWSP desalination facility, and thus might have impacts. (AR3533; 4195.) These assertions are merely conclusions; there are no facts or analysis. As such, they do not satisfy CEQA. (*Laurel Heights II*, *supra*, 6 Cal.4th at p. 1124 ["Conclusory statements unsupported by factual information will not suffice."]; see also *Habitat & Watershed Caretakers, supra*, 213 Cal.App.4th at p. 1305 ["CEQA does not permit a lead agency to omit any discussion, analysis, or even mention of *any* alternatives that feasibly might reduce the environmental impact of a project on the *unanalyzed theory* that such an alternative *might not* prove to be environmentally superior to the project. The purpose of an EIR is to provide the facts and analysis that would support such a conclusion so that the decision maker can evaluate whether it is correct."].)

Finally, the Staff Report is inadequate because it completely fails to analyze the impacts of the "no project" alternative as required under CEQA. (Guidelines, § 15126.6, subd. (e)(1).) As explained in the CEQA Guidelines, the "no project" alternative should compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the project is approved. (Guidelines, § 15126.6, subd. (e)(3)(B).) Here, the Staff Report fails to comply with this basic requirement. (AR2743-2744.) There is no discussion regarding what would be expected to occur at the project site if the Project is not approved and the scant discussion comparing potential impacts from other potential desalination projects is conclusory. The lack of any meaningful analysis of potentially feasible alternatives renders the Staff Report inadequate as an informational document

H. The CCC's in-lieu environmental document must be re-noticed and re-circulated.

Certified regulatory programs, like the CCC's, are subject to Public Resources Code section 21092.1, which requires new public notice and recirculation for additional public comment when "significant new information" is added to an EIR after its original release for public review. (*Joy Road, supra,* 142 Cal.App.4th at pp. 667-671 ["notice and recirculation provisions of CEQA ensure that the public has notice and an opportunity to comment on the actual plan that [the agency] intends to approve"].) "Significant new information" triggering recirculation includes, for example, a disclosure showing (1) a new or substantially more severe environmental impact; (2) a new feasible project alternative or mitigation measure that is not adopted; or (3) when the draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded. (Guidelines, § 15088.5.)

Here, the October 31 Staff Report was substantially modified in the evening of November 11, 2014, the night before the CCC approved the Project, to fundamentally alter the project description, the mitigation, the disclosure of impacts, and the disclosure of feasible alternatives. For example, the Staff Report's analysis of impacts to snowy plover was predicated on the fact that no construction-related activities would occur during the snowy plover nesting and breeding season under any condition. (AR2708; 2722.) The mitigation in the Staff Report included an express condition that Project-related construction "shall not occur between February 28 and October 1 of any year." (AR2699.) After the Staff Report was circulated, this restriction was eliminated, without public review, and without agency consultation. (AR3526-3527; 3528; 3530.) This change authorizes construction to continue after February 28, which would likely cause new undisclosed impacts. (*Ibid.*) "Special Condition 14," as amended, also authorizes Cal-Am to capture and move endangered snowy plovers in the project area without an incidental take permit, which is prohibited under the Endangered Species Act. (AR3526-3527.) These changes significantly weakened the mitigation described in the Staff Report without any discussion regarding whether the mitigation would be effective. There are no expert reports or opinions demonstrating that the new mitigation is substantially similar and equally effective as the old mitigation. The new mitigation is of questionable efficacy and has never seen the light of public review and has not been reviewed by the wildlife agencies. (See *Gray*, *supra*, 167 Cal.App.4th at p. 1120 [change to mitigation measure triggered recirculation].)

The CCC also disclosed a new potentially feasible alternative site for the Project at Potrero Road, explaining that this new alternative site was "suitable for a slant well." (AR3533.) This alternative, however, was never subject to public scrutiny. In *Joy Road*, the lead agency left out a discussion of alternatives from its draft timber harvest plan (an EIR equivalent under CEQA) and then slipped a discussion into the final plan without comment from the public. (*Joy Road, supra*, 142 Cal.App.4th at 667-68.) The court ordered recirculation noting that "public review and comment regarding alternatives is a crucial component of CEQA." (*Id.*, at p. 667.)

The CCC also substantially changed the discussion of impacts to coastal agriculture, substantially changing the mitigation and adding significant new information regarding seawater intrusion near the site. (AR3531-3532; 3525.) By adding the new information and additional data in the cover of night after the Staff Report was circulated, the public and other agencies were deprived any opportunity to comment on these significant environmental issues. (Guidelines, § 15088.5, subd. (a)(4).)

The eleventh-hour changes deprived the public any opportunity to comment on the actual project approved. Therefore, the CCC was required to recirculate the Staff Report before approving the Project to comply with CEQA. (See Pub. Recourses Code, § 21092.1, Guidelines, § 15088.5; *Laurel Heights II, supra*, 6 Cal.4th at pp. 1124-1125; *Joy Road, supra*, 142 Cal.App.4th at pp. 667-671.)

VI. CONCLUSION

For the foregoing reasons, KTC respectfully requests that the Court grant the petition.

Dated: May 6, 2015

REMY MOOSE MANLEY, LLP

By: [signature]
Howard F. Wilkins III

Attorneys for Petitioner
MARINA COAST WATER DISTRICT

Marina Coast Water District v. California Coastal Commission, et al.
Santa Cruz Superior Court Case No.: CISCV180839

PROOF OF SERVICE

I, Rachel Jackson, am a citizen of the United States, employed in the City and County of Sacramento. My business address is 555 Capitol Mall, Suite 800, Sacramento, California 95814. My email address is rjackson@rmmenvirolaw.com. I am over the age of 18 years and not a party to the above-entitled action.

On May 6, 2015, at approximately 4:15 p.m., I served the following:

MARINA COAST WATER DISTRICT'S OPENING BRIEF IN SUPPORT OF PETITION FOR WRIT OF MANDATE AND COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

☑ On the parties in this action by causing a true copy thereof to be electronically delivered via the internet to the following person(s) or representative at the address(es) listed below. The parties on whom this electronic mail has been served have agreed to such form of service

SEE ATTACHED SERVICE LIST

I declare under penalty of perjury that the foregoing is true and correct and that this Proof of Service was executed on this 6th day of May, 2015, at Sacramento, California.

Rachel Jackson

Marina Coast Water District v. California Coastal Commission, et al.
Santa Cruz Superior Court Case No.: CISCV180839

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SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF SANTA CRUZ

Marina Coast Water District, and DOES 1-10, Petitioner, **v.** **California Coastal Commission, and DOES 11-50,** Respondents, **California-American Water Company, a California water corporation, and DOES 51-100,** Real Party in Interest.	Case No. CV180839 **CALIFORNIA COASTAL COMMISSION'S MEMORANDUM OF POINTS AND AUTHORITIES IN OPPOSITION TO PETITION FOR WRIT OF MANDAMUS** July 23, 2015, 9:00 a.m. Department 4 Honorable Rebecca Connolly Trial Date: None Set Action Filed: November 25, 2014

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Page

CASES

TABLE OF AUTHORITIES
(continued)

TABLE OF AUTHORITIES
(continued)

Respondent California Coastal Commission (the Commission) hereby submits this opposition to Marina Coast Water District's (MCWD's) petition for writ of administrative mandamus in this matter. The Commission incorporates by reference the brief filed by Real Party in Interest Cal-Am, and offers the following additional arguments.

I. THE COASTAL ACT AUTHORIZED THE COMMISSION TO HEAR THE APPEAL AND APPROVE THE PERMITS.

A. The Commission had authority to hear this appeal from the denial of a CDP for a major public works project.

First, MCWD contends there were no statutory grounds for Cal-Am's appeal to the Commission from the City's coastal development permit (CDP) denial. Yet Public Resources Code section 30603(a)(5) authorizes the appeal at issue here:

> 30603. (a) After certification of its local coastal program, an action taken by a local government on a coastal development permit application may be appealed to the commission for only the following types of developments:
>
> . . .
>
> (5) Any development which constitutes a major public works project or a major energy facility.

MCWD does not dispute that in this case, the City "took action" on a CDP application for a "major public works project." (See AR 327 [City notice of final local action stating that City denied a CDP for the project]; Pub. Res. Code § 30114 [defining a "public works project" to include water production facilities subject to the jurisdiction of the California Public Utilities Commission]; Cal. Code Regs., tit. 14, § 13012(a) [public works facilities costing at least $100,000 are "major"].)

MCWD maintains, however, that the Coastal Act did not authorize the appeal to the Commission here, because the City denied the CDP application "without prejudice," and the City did not base its denial on local coastal program (LCP) conformance or nonconformance. (MCWD Memo. at p. 6.) MCWD misunderstands the Coastal Act appeal provisions.

The scope of the Commission's appellate jurisdiction is defined by the type of development acted on by the local government, not the nature or adequacy of the local government's findings. (See Pub. Res. Code § 30603(a) ["After certification of its local coastal program, an action taken by a local government on a coastal development permit application may be appealed to the commission for only the following types of developments:"].)

The grounds for appeal have nothing to do with the local government's analysis or findings. Nor does section 30603 distinguish between local permit actions that are "with prejudice" and "without prejudice." (Neither the LCP nor the Coastal Act authorizes a denial "without prejudice." Indeed, since an applicant can always reapply for a permit, that distinction is meaningless.) Rather, as MCWD accurately states on page 9 of its memorandum, a valid appeal must allege that the project conforms to the standards of the LCP. (Pub. Res. Code § 30603(b)(2) ["The grounds for an appeal of a denial of a permit pursuant to paragraph (5) of subdivision (a) shall be limited to an allegation that the development conforms to the standards set forth in the certified local coastal program and the public access policies set forth in this division."].) That *is* the case here: the appeal to the Commission alleged that the project conformed to the standards of the LCP. (See AR 1588 ["Because the proposed Project conforms to the standards of the LCP and the public access policies in the Coastal Act, the Commission should grant this appeal and issue the CDP."].)

In fact, after adhering to this untenable talking point for a few pages, MCWD quickly lapses back into acknowledging the actual legal standard. (See MCWD Memo. at p. 14 ["The CCC can overturn a local agency's denial of a major public works project under the Coastal Act if it concludes that the project is [sic] conforms to (1) the standards set forth in the certified LCP; and (2) the public access policies set forth in this division.(§ 30603, subds. (a)(5), (b)(2).)"].) Accordingly, the appeal was proper, and the Commission appropriately heard it.

The City's interpretation of its action matched the Commission's, and the City issued a final local action notice (FLAN) following its decision. (AR 2983.) In the City's resolution itself, the resolution summarizing the City Council action simply states that the City Council disapproved the coastal permit; the reference to the denial being "without prejudice" to subsequent "reconsideration" appears in the findings. (AR 316-17.)

MCWD argues that regardless of what the City thought it was doing, under the Commission's regulations, the City's action was not "complete" until it made all the required findings regarding the project's compliance with the LCP. [1] (MCWD Memo. at p. 10.) MCWD's argument is incorrect for two reasons. First, the City based its decision on CEQA, and so there were no "required findings" concerning LCP compliance, at least for purposes of Commission appellate review and judicial review.[2] (See, e.g., *Topanga Association For A Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 510 [agency must have analytical bridge between evidence and findings, and findings and action]; *Saad v. City of Berkeley* (1994) 24 Cal.App.4th 1206, 1215 [agency need only have one valid, sufficient ground for denying permit].) The clear intent of the regulation is to address those situations where a local government has made a decision, but is still in the process of adopting supporting findings—not situations where the local government has made a decision, given notice that its decision is final, and has made all of the findings it intends to make in connection with that final decision.

Second, while this regulation imposes requirements on local governments, it is not a jurisdictional provision. Even if "completeness" arguably affects when an approved permit takes effect (a question the Court need not reach), it should not impede appellate review by the Commission. Indeed, MCWD's reading would negate one of the main purposes of such review: to correct inadequate findings. If MCWD were correct, then when a local government made inadequate findings (either in good faith, or intentionally, to capitalize on this regulation), then the Commission could never exercise appellate review over the decision. It could exercise such review only if the local government made *adequate* findings, in which case there would probably be no need for appellate review. The jurisdiction of an appellate body cannot be limited to

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[1] The pertinent regulation states as follows:

> A local decision on an application for a development shall not be deemed complete until (1) the local decision on the application has been made and all required findings have been adopted, including specific factual findings supporting the legal conclusions that the proposed development is or is not in conformity with the certified local coastal program and, where applicable, with the public access and recreation policies of Chapter 3 of the Coastal Act, and (2) when all local rights of appeal have been exhausted as defined in Section 13573.

(Cal Code Regs., tit. 14, § 13570.)

[2] Of course, the Commission does not believe that the City's approach here was legally sound, simply that it was "complete" for purposes of review.

situations where the body whose decision is being appealed from has complied with all of its legal obligations.

MCWD also claims that the Commission could not hear the appeal because the City had not prepared an EIR, citing *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.* (1993) 6 Cal.4th 1112, 1124. (MCWD Memo. at p. 10.) This argument, however, assumes that an EIR was required before the Commission could act. Unlike *Laurel Heights*, here the Commission *can* act absent an EIR, because it has a certified regulatory program. (Cal. Code Regs., tit. 14, §§ 15250, 15251(c).)

B. Substantial evidence supported the substantial issue findings.

MCWD argues that the Commission erred in finding a "substantial issue," but does not quote the relevant statutory language from the Coastal Act. After certification of an LCP, "[t]he commission shall hear an appeal unless it determines . . . (2) . . . that no substantial issue exists with respect to the grounds on which an appeal has been filed pursuant to Section 30603." (Pub. Res. Code § 30625(b).)

Here, the ground for the appeal was that the proposed development conformed to the LCP. (AR 1588.) Given that the Commission ultimately determined that the proposed development did conform to the LCP despite inconsistency with one provision of the Land Use Plan, there was, at a minimum, a substantial issue on that point.[3] The Commission therefore did not abuse its discretion in finding a substantial issue. (See *Alberstone v. California Coastal Com.* (2008) 169 Cal.App.4th 859 [trial court reviews an administrative agency determination of whether an appeal raises a substantial issue for abuse of discretion].)

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[3] The five factors listed in MCWD's brief can be helpful in this analysis, and the Commisison found that "four of the five substantial issue factors weigh in favor of a finding of substantial issue." (AR 4165-66.) The Commission explained its reasoning behind each of the five factors in detail in the Staff Report, providing substantial evidence in support of its determination. (AR 2716.)

C. The Commission properly found that approving the project was the option most consistent with the LCP, despite being inconsistent with one primary habitat policy.

MCWD contends that the Commission erred in approving the CDPs for the project because, according to MCWD, only resource dependent development, and not industrial development, is allowed on the site, despite it being designated for coastal-dependent industrial uses. MCWD inaccurately asserts that the Commission found that the project was inconsistent with the LCP, but in fact, the Commission found that the project was inconsistent with one provision of the Land Use Plan, but consistent with the LCP when the various provisions were read together. (AR 2727.)

1. The Commission was within its discretion when it read the various LCP provisions together, and determined that they allowed this use at the project site.

On its face, the LCP supports the Commission's interpretation of the LCP, allowing the project. First, only the Commission's interpretation gives effect to the LCP's specific land use designation for this site. The LCP designates the project site as "Coastal Conservation and Development," which prioritizes development of coastal-dependent industrial uses. (AR 4197.) The LCP also states that "Coastal Conservation and Development uses shall be allowed on the west side of Dunes Drive," which includes the project site:

> Coastal Conservation and Development uses *shall be allowed* on the west side of Dunes Drive. These activities shall include, but not be limited to, marine agriculture (Mariculture); off-shore and surf-zone sand mining, and other commercial activities dependent for economic survival on proximity to the ocean, salt water or other elements only available in this particular environment. *Development in this area will be allowed* in already disturbed areas (see Sensitive Habitat section).

(AR 820, emphasis added.) Thus, the LCP mandates that such uses, which include the test well, be allowed here. MCWD's interpretation, which would not allow an industrial use on the site, is flatly incompatible with the LCP's designation of this site for industrial use.

Second, the Commission's interpretation, unlike MCWD's, gives effect to LCP language confronting exactly the issue here: harmonizing protection of primary habitat with the intent to allow industrial development on the site. The LCP balances those concerns by restricting such development to already disturbed areas:

> Because of the fragile character of the dune vegetation, new development in this area shall be restricted to already-disturbed areas. Development in areas where the natural dune remains shall not alter the basic configuration of the natural dune landform, and shall provide for site reclamation.

(AR 817.) The project would be located in a dune area "that has been extensively disturbed by mining activities." (AR 2693.) Thus, the CDP approval comports with the LCP's requirement that new coastal dependent industrial development be located in disturbed areas. Additionally, the Commission found that "Because the area of the proposed project essentially lacks dune vegetation, the primary habitat criteria linked to the presence of dune vegetation does not apply in this instance." (AR 2724, fn. 15.)

The Commission relied on these LCP provisions, and others, in finding the use allowable. (AR 4197-4202.)

Third, as a general matter, the Commission's interpretation of the LCP is entitled to judicial deference, given the Commission's special familiarity with the regulatory and legal issues. (*Hines v. California Coastal Com.* (2010) 186 Cal.App.4th 830, 849 [court gives "broad deference" and "great weight" to Commission's interpretation of LCP]; *Reddell v. California Coastal Commission* (2009) 180 Cal.App.4th 956, 965-966 [courts give deference to Commission's interpretation of the LCP appropriate to the circumstances of the agency action]; *Alberstone v. California Coastal Commission* (2008) 169 Cal.App.4th 859, 866 ["we grant broad deference to the Commission's interpretation of the LCP since it is well established that great weight must be given to the administrative construction of those charged with the enforcement and interpretation of a statute."]; § 30625, subd. (e) [Commission decisions to guide future actions of local governments].) "The Commission has the ultimate authority to ensure that coastal development conforms to the policies embodied in the state's Coastal Act." (*Charles A. Pratt Construction Co. v. California Coastal Com*, *supra*, 162 Cal.App.4th at 1075.) The Commission's interpretation here is therefore entitled to deference.

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2. The Commission could properly consider the Coastal Act in interpreting the LCP.

Furthermore, the Commission's interpretation allowing industrial development in already disturbed areas is consistent with Public Resources Code section 30260.[4] MCWD criticizes the Commission for citing section 30260 in its approval of an industrial facility in primary habitat. MCWD argues that because the City has a certified LCP, that LCP and the Coastal Act public access and recreation policies—and not the remaining provisions of the Coastal Act—provide the substantive policies with which proposed development must comply. Therefore, according to MCWD, the Commission erred by considering section 30260, which is not part of the Public Access and Recreation chapters of the Coastal Act. (MCWD Memo. at p. 14.)

This argument is specious. In considering section 30260 for additional support, the Commission tracked the LCP, which repeatedly references section 30260. The Commission findings cite section 30260 because the LCP cites that provision in its discussion of appropriate uses for the site. (See AR 843 ["The Coastal Conservation and Development designation for this area is consistent with . . . 30260 (Coastal-Dependent Industries)"]; AR 849 ["Priority for public acquisition along with the continuation of the existing land use and future Coastal Conservation and Development land use designation are consistent with Coastal Act policies: . . . 30260 (Coastal-Dependent Industries)."].)[5]

> [4] Coastal-dependent industrial facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth where consistent with this division. However, where new or expanded coastal-dependent industrial facilities cannot feasibly be accommodated consistent with other policies of this division, they may nonetheless be permitted in accordance with this section and Sections 30261 and 30262 if (1) alternative locations are infeasible or more environmentally damaging; (2) to do otherwise would adversely affect the public welfare; and (3) adverse environmental effects are mitigated to the maximum extent feasible.

(Pub. Res. Code § 30260.)

[5] In its preliminary injunction papers, MCWD contended that the LCP's references to section 30260 simply indicate that the City considered section 30260 in deciding how to designate each site, and so the citation is more an indication of past review than a mandate that future review should consider the standards in section 30260. (Opening Memorandum in Support of Motion for Preliminary Injunction, at p. 9.) If MCWD is correct, then by designating the site for this type of development, the LCP simply codifies a previous finding that coastal dependent industrial use at the site satisfies section 30260. If that is true, then the use is allowable,

(continued…)

Moreover, while the Commission believes that the LCP provisions are straightforward in their support for coastal dependent industrial development at this location, to the extent there was any ambiguity in the LCP policies, it is appropriate to use Coastal Act provisions to resolve such ambiguity because provisions of an LCP must be consistent with Coastal Act requirements. (*McAllister v. California Coastal Com.* (2009) 169 Cal.App.4th 921, 931.)

To the extent there was any tension between two or more LCP policies, the Commission appropriately looked to the Coastal Act to interpret the LCP. The Coastal Act allows coastal dependent industrial uses, even in sensitive habitat, when the three part test of 30260 can be satisfied. Given the absence of evidence that the project will adversely affect primary habitat, the Commission therefore properly prioritized the industrial facilities designation in the LCP over the primary habitat policies, which is consistent with how the LCP and Coastal Act prioritize those competing concerns. (AR 817, 843, 846.)

And as explained above, in finding that the project was consistent with the LCP, the Commission relied primarily on LCP provisions requiring the Commission to allow coastal dependent industrial development at the site, and cited section 30260 as additional support. Thus, any error regarding section 30260 was harmless, because the Commission had and cited LCP grounds for its decision.

3. MCWD approves of the Commission's reference to the Coastal Act as an interpretive tool when it serves MCWD's arguments.

MCWD is selective and hypocritical in its disdain for the Commission's consideration of the Coastal Act when interpreting LCP policies. On one hand, it argues that the Commission should not have considered section 30260 when harmonizing the various LCP policies discussed above. On the other hand, its entire argument here turns on the Commission's finding that the site is "primary habitat" under the LCP. (See MCWD Memo. at p. 13.) The LCP language requiring that a proposed use be "resource dependent" applies only for primary habitat, not for secondary habitat. (See AR 2720; MCWD Memo. at p. 13.)

(…continued)
consistent with the LCP, with or without explicitly referencing section 30260 in a decision approving a CDP.

Yet in determining that the project site was primary habitat, the Commission relied in large part on Coastal Act policies:

> Thus, interpreting the definition of primary habitat consistent with the Coastal Act, the Commission finds that the area in which the proposed project would be located constitutes ESHA and meets the first description of primary habitat under the LCP.
>
> This interpretation of the LCP and the definition of primary habitat is further supported by the structure of the LCP and Coastal Act habitat policies. The Coastal Act ESHA protection policies in Section 30240 state:. . .

(AR 2726.) The CEMEX site is actually mapped as secondary habitat in the LCP, and the applicant's biologist determined that is was secondary habitat adjacent to primary habitat. (AR 2724-25.)

MCWD cannot have it both ways. If, as the Commission believes, it was appropriate to reference the Coastal Act in interpreting the LCP and harmonizing its provisions, then the Commission properly found the project consistent with the LCP. If, in contrast, the Commission could not consult related Coastal Act provisions when interpreting the LCP, then MCWD cannot build its argument on the Commission's classification of the site as primary habitat, because that also cited Coastal Act provisions for support. And even if MCWD could take such inconsistent positions, as explained above, even without relying on section 30620, the Commission had other bases for finding the project consistent with the LCP when read as a whole.

The Commission did not abuse its discretion in interpreting the LCP to allow industrial use in an already disturbed area.

II. THE COMMISSION COMPLIED WITH CEQA.

The Commission has a certified regulatory program under CEQA. (Cal. Code Regs., tit. 14, §§ 15250, 15251(c).) The parties agree that the Commission is therefore exempt from Chapters 3 and 4 of CEQA (sections 21100 through 21154), and section 21167, and from the requirement to prepare an EIR. (See MCWD Memo. at p. 15.)

A. CEQA Specifies the Content of Substitute Documents, Which Is Different from Standard CEQA Documents.

The parties dispute the extent to which Commission findings must mirror an EIR or other CEQA document. MCWD contends that having a certified regulatory program does not affect what information an agency must include in its environmental document. At its core, MCWD argues that the Commission should have prepared an EIR, but could give it a different title. In contrast, the Commission maintains that the content of its environmental documents is governed by the provision that specifically addresses the content of substitute environmental documents for certified regulatory programs, CEQA Regulation 15252:

> 15252. SUBSTITUTE DOCUMENT
>
> (a) The document used as a substitute for an EIR or Negative Declaration in a certified program shall include at least the following items:
>
> (1) A description of the proposed activity, and
>
> (2) Either:
>
> (A) Alternatives to the activity and mitigation measures to avoid or reduce any significant or potentially significant effects that the project might have on the environment, or
>
> (B) A statement that the agency's review of the project showed that the project would not have any significant or potentially significant effects on the environment and therefore no alternatives or mitigation measures are proposed to avoid or reduce any significant effects on the environment. This statement shall be supported by a checklist or other documentation to show the possible effects that the agency examined in reaching this conclusion.
>
> (b) The notice of the decision on the proposed activity shall be filed with the Secretary for Resources.

(Cal. Code Regs., tit. 14, § 15252.) Substitute documents contain more information than what section 15252 describes, in part because the agencies' governing statutes and regulations require it. In addition, the Secretary of Natural Resources reviews the regulatory programs prior to certification to ensure that they are consistent with CEQA's overarching policies, and the provisions required to qualify for the certification process, which includes more than what is specified in section 15252. Once certified, however, section 15252 is the CEQA provision that most directly governs what should be in a substitute environmental document in order to be compliant with CEQA.

This provision, on its face, governs the Commission's findings, and MCWD's arguments about various other alleged requirements not found in section 15252 is simply incompatible with section 15252. Other provisions of CEQA also contradict MCWD's position that if an EIR would be necessary for a project absent a certified regulatory program, then Commission findings must contain all the same information as an EIR. Public Resources Code section 21100 lists the information that must be in an EIR. Although MCWD accuses the Commission of violating that provision (MCWD Memo. at pp. 18, 32), MCWD also admits that Chapter 3 of CEQA does not apply to the Commission. (*Id.* at p. 15; see *Sierra Club v. State Bd. of Forestry* (1994) 7 Cal.4th 1215, 1230-31.) Section 21100 is in Chapter 3.

Thus, MCWD is arguing that all of the informational requirements for EIRs found in section 21100 and elsewhere apply to a certified regulatory program, even though (1) the Legislature enacted a provision of CEQA specifically stating what information a certified regulatory program document must contain; and (2) the Legislature explicitly stated that certified regulatory programs need not comply with the CEQA provision listing the information that EIRs must include (section 21100). MCWD's position makes no sense, and contravenes the clear legislative intent.

And as a practical matter, why would an agency go to the trouble of obtaining certification from the Secretary of Resources if the only benefit was being able to call its document something other than "EIR," and the content had to be exactly the same? The purpose of allowing certified regulatory programs was to enable agencies to create their own programs, tailored to their governing statutes, policies, and procedures, while still serving CEQA's central goals of considering the environmental effects of a proposed project.

In support of its argument that a substitute document must include all information that an EIR must include, and not just what section 15252 lists, MCWD cites a number of cases, none of which support MCWD's conclusion. *Sierra Club* says that a certified regulatory program is not "exempt" from CEQA entirely, which no one is arguing in this case. (*Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1230-31.) The *Joy Road* case held that the Department of Forestry was subject to CEQA notice and recirculation requirements. (*Joy Road Area Forest and Watershed Assn. v. California Dept. of Forestry & Fire Protection* (2006) 142 Cal.App.4th 656, 668.) *Joy Road* noted that certified regulatory programs are exempt only from Chapters 3 and 4 and section 21167 of CEQA. (*Ibid*.) While the Commission is not "exempt" from the rest of

CEQA, other provisions apply only as they specify. Thus, in the absence of an indication they were intended to apply more broadly, provisions addressing EIRs apply only to EIRs, not to MNDs or substitute documents. For example, section 21080.1 is not one of the provisions that the Commission is "exempt" from under *Joy Road*, but on its face, it does not concern certified regulatory programs, because it sets forth an obligation to determine the appropriate type of CEQA document to prepare, when certified agencies need not prepare any of the CEQA documents referenced.[6] Put differently, an agency preparing an EIR is not "exempt" from section 15252, but section 15252 imposes no additional obligations on that agency. In the same way, there are various CEQA provisions that the Commission is not "exempt" from, but that do not impose any obligations on the Commission in this matter.

MCWD also cites *POET, LLC v. California Air Resources Bd.* (2013) 218 Cal.App.4th 681, 716. *POET* held that CEQA regulation 15004 applied to a certified regulatory program. Yet section 15004 refers to "a final EIR or Negative Declaration or another document authorized by these Guidelines to be used in the place of an EIR or Negative Declaration." (Cal. Code Regs., tit. 14, § 15004(a).) This only bolsters the Commission's argument that when CEQA or its regulations intend to address substitute documents, they say so.

Similarly, another case that MCWD cites held that a certified program may rely on "abbreviated project plans instead of a full-blown EIR." (*Environmental Protection Information*

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[6] That provision reads as follows:

> (a) The lead agency shall be responsible for determining whether an environmental impact report, a negative declaration, or a mitigated negative declaration shall be required for any project which is subject to this division. That determination shall be final and conclusive on all persons, including responsible agencies, unless challenged as provided in Section 21167.
>
> (b) In the case of a project described in subdivision (c) of Section 21065, the lead agency shall, upon the request of a potential applicant, provide for consultation prior to the filing of the application regarding the range of actions, potential alternatives, mitigation measures, and any potential and significant effects on the environment of the project.

(Pub. Res. Code § 21080.1.) The Commission is not exempt from this provision, but at the same time, it is not "responsible for determining whether an environmental impact report, a negative declaration, or a mitigated negative declaration shall be required for any project."

Center, Inc. v. Johnson (1985) 170 Cal.App.3d 604, 620.) This also supports the Commission's position that the informational requirements for substitute documents are not identical to EIRs.

Finally, in support of its argument that the Commission is not entirely exempt from CEQA—a position the Commission agrees with—MCWD cites *Conway v. State Water Resources Control Board* (2015) 235 Cal.App.4th 671 and *City of Arcadia v. State Water Resources Control Bd*. (2006) 135 Cal.App.4th 1392, 1422. (See MCWD Memo. at p. 18.) Both of these cases say that certified programs are subject to CEQA's "broad policy goals and substantive standards." (*Conway, supra*, 235 Cal.App.4th at p. 680; *City of Arcadia, supra,* 135 Cal.App.4th at p. 1422.) MCWD pretends that being subject to a statute's broad policy goals, and broad substantive standards, means being subject to every phrase in the statute, whether it applies on its face or not. That is not a fair reading of the cases.

Conway specifically mentions that "there must be significant documentation." (*Conway*, *supra*, 235 Cal.App.4th at p. 680.) Here, there was, as evidenced by the Commission's extensive findings and administrative record.

Most importantly, both of these cases specifically track CEQA regulation 15252 when discussing what requirements apply to certified regulatory programs. (*Conway*, *supra*, 235 Cal.App.4th at p. 680; *City of Arcadia, supra,* 135 Cal.App.4th at p. 1422.) That is precisely the Commission's position here, and it negates MCWD's position that the information in a substitute document must be identical to what would be in an EIR. That would render section 15252 superfluous.

B. The Commission did not find any significant environmental effects from the project, and so was not required to discuss mitigation or alternatives.

While the Commission believes that its discussion of alternatives and mitigation in its findings was analytically sufficient, such a discussion would be necessary only under section 15252(a)(2)(A). Here, the Commission found no significant adverse effects, and so the applicable provision was section 15252(a)(2)(B), which does not require an analysis of alternatives and mitigation.[7]

C. CEQA does not give a certified regulatory program jurisdiction to address environmental effects that are otherwise outside the agency's jurisdiction.

CEQA does not expand the powers or jurisdiction of an agency beyond its governing statute. (Pub. Res. Code § 21004; Cal. Code Regs., tit. 14, § 15040.) As MCWD notes, in reviewing the project, the Commission is limited to applying the policies found in the City of Marina LCP. (MCWD Memo. at pp. 8-9.) Although the LCP has no policies concerning groundwater supply or quality, the LCP does have policies concerning coastal agriculture. While CEQA does not empower the Commission to independently regulate groundwater quality and supply issues, the Commission did find that the project would not adversely affect groundwater quality and supply so as to harm coastal agriculture.

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[7] The Commission found that the project as conditioned would not interfere with public access or beach use (AR 2718), would not adversely affect coastal waters (AR 2729), including ocean water quality (AR 2730), and not otherwise cause any adverse impacts within the scope of the LCP's marine resources, water quality, and spill prevention policies. (AR 2730.)

The Commission also considered geologic hazards such as erosion, earthquake, and tsunami, and found no adverse project impacts. (AR 2732-34.)

The Commission found no adverse impacts to archaeological and cultural resources (AR 2737), and that the project was consistent with LCP policies protecting scenic and visual resources. (AR 2739.)

Specifically concerning habitat, the Commission found that the project would not adversely affect habitat (AR 2724 [noting that area of disturbance has historically been used as an access road, and has been disturbed by sand mining activities for many years]), and that the site is not currently supporting native dune vegetation (AR 2725). The only "mitigation" the Commission required was monitoring and construction best management practices to ensure unanticipated impacts did not occur and restoration for temporary impacts, if any, in areas not disturbed by CEMEX (AR 2703-2705). That is not true mitigation, since there might not have been any adverse impacts without it. The Commission stated that "The LCP also requires that all adverse effects in primary habitat are fully mitigated," and that the project could be approved consistent with the LCP. (AR 2726-27.)

Finally, the Commission found that the project would not result in diminished water supply or water quality for agricultural uses, and would have "an insignificant effect on coastal agriculture." (AR 2740.) The Commission adequately analyzed potential effects on groundwater levels and quality, and found that the project would not have an adverse impact. (See California-American Water Company's Opposition To Ag Land Trust's Opening Brief, Case No. June 5, 2015, Case No. CV180887, at pp. 7-24.) Here too, the Commission included conditions in the permit to make sure its initial analysis was correct—not to "mitigate" expected adverse impacts.

All of the above findings were supported by substantial evidence.

MCWD makes a number of other assertions about CEQA that are not correct. First, it states that as the lead agency, the Commission "had responsibility to evaluate all of the impacts of the project and to prepare an environmental study that other agencies could rely on." (MCWD Memo. at p. 16.) Yet Section 15253 of the CEQA regulations sets forth the circumstances in which another agency can rely on a certified document in lieu of preparing its own CEQA document. Section 15253(c) states that "Certified agencies are not required to adjust their activities to meet the criteria in subdivision (b)."[8] If any certified agency acting as lead were required to "evaluate all impacts of the project and to prepare an environmental study that other agencies could rely on" then this section of CEQA would be meaningless. Additionally, section 15253(b)(3) lists as a requirement for another agency to rely on the document that the analysis

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[8] Section 15253(b) reads as follows:

> (b) The conditions under which a public agency shall act as a Responsible Agency when approving a project using an environmental analysis document prepared under a certified program in the place of an EIR or Negative Declaration are as follows:
>
> (1) The certified agency is the first agency to grant a discretionary approval for the project.
>
> (2) The certified agency consults with the Responsible Agencies, but the consultation need not include the exchange of written notices.
>
> (3) The environmental analysis document identifies:
>
> (A) The significant environmental effects within the jurisdiction or special expertise of the Responsible Agency.
>
> (B) Alternatives or mitigation measures that could avoid or reduce the severity of the significant environmental effects.
>
> (4) Where written notices were not exchanged in the consultation process, the Responsible Agency was afforded the opportunity to participate in the review of the property by the certified agency in a regular manner designed to inform the certified agency of the concerns of the Responsible Agency before release of the EIR substitute for public review.
>
> (5) The certified agency established a consultation period between the certified agency and the Responsible Agency that was at least as long as the period allowed for public review of the EIR substitute document.
>
> (6) The certified agency exercised the powers of a Lead Agency by considering all the significant environmental effects of the project and making a finding under Section 15091 for each significant effect.

includes the significant environmental effects within the jurisdiction or expertise of the responsible agency. If certified agencies acting as CEQA lead agency were always required to analyze all issues subject to CEQA, then this requirement, too, would be unnecessary. The purpose of certifying a program is to allow that agency to review the project under its governing statute and regulations, without needing to review all issues that would be analyzed in an EIR. While acknowledging that certified programs are exempt from EIR requirements, MCWD is essentially arguing that they must nevertheless prepare an EIR in everything but name.

MCWD also argues that "The LCP reiterates that a permit ought not be granted until the full environmental impacts are understood and mitigated," citing page 840 of the administrative record. (MCWD Memo. at p. 17.) No such statement appears on page 840 of the administrative record. The LCP does require the Planning Commission, when considering a CDP application, to make a finding about whether the project will include "feasible mitigating measures which substantially reduce significant impacts of the project as prescribed in any applicable EIR." (AR 940.)

This provision, which is directed to the Planning Commission, does not mandate that the Commission prepare an EIR. It requires that when considering a CDP application, the Planning Commission must include feasible mitigating measures that substantially reduce significant impacts of the project "as prescribed in any applicable EIR." No EIR was required here, as MCWD concedes. This LCP provision, by its terms, has no effect when there is no EIR. Thus, there is no general LCP requirement that all environmental impacts be mitigated.

MCWD argues that Public Resources Code section 30260 mandates that all adverse environmental effects be mitigated to the maximum extent feasible. (MCWD Memo. at p. 17.) As explained above, this provision does not directly apply, as the project must be consistent with the LCP. The Commission referenced section 30260 only as part of the process of interpreting the LCP, and had sufficient LCP grounds for approving the permit even without reference to section 30260. Throughout MCWD's opening points and authorities, MCWD argues that section 30260 does not apply.

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Assuming arguendo that the project must comply with section 30260, the Commission found that environmental impacts had been mitigated to the maximum extent feasible. In fact, the Commission found that the project would not have significant adverse environmental impacts. (See p. 13 fn. 6 *ante.*) That finding is supported by substantial evidence, and MCWD does not demonstrate otherwise.

Citing six provisions of CEQA, MCWD contends that one of CEQA's two purposes is "to require that public agencies consider and adopt feasible mitigation measures and alternatives that would avoid or lessen significant effects. (MCWD Memo. at p. 17-18.) The first cited provision states that it is the policy of the state "to consider alternatives to proposed actions affecting the environment." (Pub. Res. Code § 21001(g).) Of course, here, the Commission found no significant adverse environmental impacts, but nevertheless did consider alternatives. MCWD's second provision announced that "The Legislature further finds and declares that it is the policy of the state that projects to be carried out by public agencies be subject to the same level of review and consideration under this division as that of private projects required to be approved by public agencies." (Pub. Res. Code § 21001.1) That sheds no light on this case, since no public agency is carrying out the project.

The third cited provision states a legislative finding encouraging feasible alternatives and feasible mitigation. (Pub. Res. Code § 21002.) While the Commission did consider both mitigation and alternatives in this case, section 21002 must be read alongside the nearby provision stating that CEQA does not expand the powers an agency has under its governing statute, here, the Coastal Act. (See Pub. Res. Code § 21004.) Accordingly, the Commission cannot require mitigation measures and/or alternatives to address environmental impacts not within the scope of the LCP. MCWD also cites sections 21002.1 and 21081, but those provisions apply to how EIRs should be used, and govern agency responsibilities after an EIR is certified, whereas no EIR is required here. Similarly, while MCWD also cites section 21100, not only does this provision also concern EIRs, but it is also found in Chapter 3 of CEQA, and MCWD agrees that the Commission is exempt from Chapter 3. The Commission does have some responsibilities under CEQA, but it need not prepare an EIR, and therefore, those requirements that are specific to EIRs do not apply to the Commission.

MCWD singles out the CEQA requirement that an EIR include written responses to all significant comments. (MCWD Memo. at p. 18.) MCWD cites section 21080.5(d)(2)(D), which states as follows:

> (d) To qualify for certification pursuant to this section, a regulatory program shall require the utilization of an interdisciplinary approach that will ensure the integrated use of the natural and social sciences in decision making and that shall meet all of the following criteria:
>
> . . .
>
> (2) The rules and regulations adopted by the administering agency for the regulatory program do all of the following:
>
> . . .
>
> . (D) Require that final action on the proposed activity include the written responses of the issuing authority to significant environmental points raised during the evaluation process.
>
> . . .

On its face, this is a requirement for the Secretary of Natural Resources to apply when considering whether to certify a regulatory program. Once he or she does so, the specific provisions of the program, not the CEQA analog or the certification standard in section 21080.5, governs. Here, the Coastal Act has specific provisions addressing responses to comments, and the Commission has complied with those. (See Cal. Code Regs., tit. 14, § 13057(c)(3) [Commission staff report must respond to significant comments received at that point].) And even if this provision purported to specify ongoing procedures for an agency to follow, since it conflicts with the Commission's own certified provision, the latter controls. (See *Ross v. Coastal Com.* (2011) 199 Cal.App.4th 900.) MCWD also cites CEQA regulation 15252(a), but that provision does not mention responses to comments.

MCWD then proceeds to cite a variety of other CEQA provisions that are specific to preparing EIRs or governing agency obligations once an EIR or MND is certified. (See MCWD Memo. at p. 18 [citing Guidelines §§ 15063, 15064, 15091, 15093, 15097, 15126, 15126.2, 15126.4; Pub. Res. Code §§ 21081, 21082.2(d), 21081.6, 21100(a)].) Again, the Commission is not required to prepare an EIR before approving a permit, and so these provisions do not apply. Furthermore, Guideline 15093 does not apply, because the Commission found no significant adverse environmental impacts.

D. Application of CEQA's 30-day circulation requirement to Coastal Commission staff reports would be legally incorrect and unworkable.

MCWD contends that the Commission violated CEQA because CEQA requires a 30-day minimum review period for a staff report on a CDP appeal. (See Pub. Res. Code § 21091(a) ["The public review period for a draft environmental impact report may not be less than 30 days."].)

1. *Ross* is controlling.

There is only one published case that discusses whether CEQA's public comment period provisions apply to the Commission. (*Ross v. Coastal Com.* (2011) 199 Cal.App.4th 900, 932.) *Ross* is on point, and it establishes that the Coastal Act's timing provisions, and not section 21091(a) of CEQA, control.

MCWD attempts to distinguish *Ross* on the basis that the hearing in *Ross* concerned an LCP amendment, whereas this case involves a CDP. (MCWD Memo. at p. 20.) The final Commission staff recommendation about a LCP amendment must be circulated "within a reasonable time but in no event less than 7 calendar days prior to the scheduled public hearing." (Cal. Code Regs., tit. 14, § 13532.) For CDP proceedings, the requirement in the Commission's regulations is "within a reasonable time," and it allows the staff report to be distributed with the hearing notice, which must be distributed no later than 10 days preceding the hearing (See Cal. Code Regs., tit. 14, § 13059 ["Staff reports shall be distributed within a reasonable time to assure adequate notification prior to the scheduled public hearing. The staff report may … accompany the meeting notice required by section 13015 "].)[9] MCWD argues that even though both

[9] Although this provision is found in the Chapter of the regulations concerning permits issued by the Commission (which would apply to one of Cal-Am's two CDPs), section 13321 makes section 13059 applicable to appeals from local permit decisions as well.

regulations say "reasonable time," the inclusion of a specific seven-day minimum for LCP amendments distinguishes *Ross*.

MCWD's attempted distinction is unpersuasive. *Ross* emphasized that the Secretary of Natural Resources had reviewed section 13532 and certified it, and so that certified regulation—and not its CEQA counterpart—controlled. (199 Cal.App.4th at p. 936.) The certification had occurred decades earlier, and so it was too late to challenge the certification of section 13532. (*Ibid*.) The analysis is identical here: section 13059 dictates when a staff report must be distributed, and it supplants the 30-day CEQA period. The Secretary reviewed section 13059 and approved it. The statute of limitations has run for any challenge to either the Commission's adoption of the regulation, or the Secretary's certification of it. And MCWD does not address the specific allowance in section 13059 for distribution just ten days before the hearing.

Nothing in *Ross* indicates that its analysis turned on whether the Coastal regulation referred to a concept ("reasonable time"), a set number of days (seven), or both. Indeed, given that on its face, "a reasonable time" in section 13059 gives the Commission more flexibility than section 13532, it would be ironic if that intent to provide *greater* flexibility resulted in the Commission having *less* flexibility in determining when to distribute staff reports and set hearings. In addition, as in *Ross*, the regulation at issue specifically allows for distribution of the staff report in fewer than 30 days. (Cal. Code Regs. Tit 14, § 13015 ["Notice of regular meetings of the commission shall be … dispatched not later than 10 days preceding the meeting."].)

MCWD relies heavily on *Ultramar, Inc. v. South Coast Air Quality Management Dist.* (1993) 17 Cal.App.4th 689, 699 and *Joy Road Area Forest and Watershed Assn. v. California Dept. of Forestry & Fire Protection* (2006) 142 Cal.App.4th 656, 672-673. *Ross* distinguished *Ultramar* and *Joy Road* on the ground that both cases established only that the CEQA notice period applied *in the absence of a different time period in the agency's controlling statute or regulations:*

> Neither *Ultramar* nor *Joy Road* involves a similar grant of power and a certified regulatory program which expressly deviates from the 30–day notice time frame specified in Public Resources Code section 21091.

(*Ross, supra,* 199 Cal.App.4th at p. 937.) *Ross* buttressed its analysis by observing that under Public Resources Code section 21174, "to the extent of any inconsistency or conflict between [the Coastal Act and CEQA, the Coastal Act] shall control." (*Ibid*.) There is a conflict between (1) "not less than 30 days," and (2) "a reasonable time" with an allowance for distribution 10 days before the hearing. And at a minimum, they are inconsistent. [10] As MCWD notes, the Legislature amended CEQA to change the CEQA requirement from "reasonable time" to 30 days, so the two requirements cannot be identical.

It would be irrational to have such a disparity between the distribution period for staff reports about LCP amendments and staff reports about CDPs. Indeed, it would be quite odd if the staff report for a CDP appeal concerning a single family dwelling had to be circulated 30 days before the hearing, even though the staff report for a hearing to consider approving an LCP or major LCP amendment (which could involve a lengthy and complicated set of policies, and designate allowable development for a large number of properties) need only be circulated seven days in advance of the hearing.

Here, as in *Ross* (and unlike in *Ultramar and Joy Road*), there is a Commission regulation that "expressly deviates" from section 21091 by specifying a different period. The Commission therefore did not violate the law by circulating its staff report less than 30 days before the hearing.

2. Applying the 30-day CEQA timeline to CDP appeals would be unworkable and would undermine the goals of the Coastal Act and CEQA.

Beyond the fact that a 30-day circulation period is inconsistent with the Commission regulation dictating a different circulation period, a 30-day circulation period would be inconsistent with the overall structure of the Coastal Act, which requires that the Commission take action quickly after an appeal is filed. Public Resources Code section 30621(a) requires that

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[10] MCWD may argue that there is no conflict between Public Resources Code section 21091 and Commission regulation 13059, because the Commission can comply with both. That argument is specious, and fails to distinguish *Ross.* The Commission could also comply with both a 30-day minimum notice period and a seven-day minimum notice period—by giving at least 30-days notice. The point is that two mandates, worded so differently, are different and therefore *inconsistent*, which is what *Ross* relied on in holding that the timeline in the Coastal regulation, and not the timeline in CEQA, controlled.

a hearing on any coastal development permit application or appeal be set no later than 49 days after the date it is filed with the Commission.[11] The Commission must take action within that period; it may not simply open and continue the public hearing under section 30621. (*Encinitas Country Day School, Inc., v. California Coastal Commission* (2003) 108 Cal.App.4th 575.)

The Commission meets for only a few days each month, on a schedule that is set many months in advance. If the Commission were required to circulate a staff report at least 30 days prior to the hearing, that could mean that Commission staff would have as few as five days to prepare a staff report.[12]

Failure to act within 49 days can cause the local action to become final. (See *Encinitas, supra,* 108 Cal.App.4th 575.) While such an outcome here might please MCWD, most appeals are from local *approvals* of CDPs, so the effect of importing CEQA's 30-day notice requirement would most often result in deemed approval of development, significantly undermining the purpose of the Commission's appellate jurisdiction and of CEQA. Unlike CEQA, the Commission allows comments up until the time of the hearing. (Cal. Code Regs., tit. 14, § 13060(b).) As MCWD argues, the Commission must make a reasonable effort to respond to significant comments. (See MCWD Memo. at p. 21.) Were the courts to hold that the Commission must continue its hearing if certain information or documents are not transmitted until the day of the hearing or the day before, as MCWD will undoubtedly argue, such a rule would have the pernicious result of causing automatic *approvals* of development without any meaningful environmental review by the Commission at all. MCWD's approach is not compatible with the Public Resources Code section 30621 requirement that the Commission take action within 49 days.

[11] Short deadlines apply in other circumstances as well. Public Resources Code section 30513 requires the Commission to act on LCP implementation plan submittals within 60 days after receipt of the submittal. Section 30512 requires actions on land use plan submittals within 90 days.

[12] MCWD's position here is doubly absurd given that it also argues that a Commission staff report must essentially comply with all of the requirements for an EIR. As a result, MCWD is arguing that the Commission staff must prepare a thorough, legally valid EIR, in as few as five days (or less if it does not immediately receive the complete local record for the project).

Moreover, the Commission is required to give notice at least ten days before the meeting. (Cal. Code Regs., tit. 14, § 13063.) One would expect notice of a hearing to be given at the same time as, or in advance of, a detailed staff report for the matter. This is further evidence that there was no legislative intent to require thirty days notice for Commission staff reports.

III. CONCLUSION

The Court should deny the petition.

Dated: June 5, 2015

Respectfully Submitted,

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Marina Coast Water District (MCWD)
Attachment

DECLARATION OF SERVICE BY E-MAIL

Case Name: *Marina Coast Water District v. California Coastal Commission*

Case No.: **CV180839**

I declare:

I am employed in the Office of the Attorney General, which is the office of a member of the California State Bar, at which member's direction this service is made. I am 18 years of age or older and not a party to this matter.

On June 5, 2015, I served the attached **CALIFORNIA COASTAL COMMISSION'S MEMORANDUM OF POINTS AND AUTHORITIES IN OPPOSITION TO PETITION FOR WRIT OF MANDAMUS** by transmitting a true copy via electronic mail, addressed as follows:

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I declare under penalty of perjury under the laws of the State of California the foregoing is true and correct and that this declaration was executed on June 5, 2015, at Oakland, California.

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SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF SANTA CRUZ

MARINA COAST WATER DISTRICT, and DOES 1-10, Petitioner and Plaintiff, v. CALIFORNIA COASTAL COMMISSION, and DOES 11-50, Respondents and Defendants.	CASE NO. CV180839 Assigned to: Hon. Rebecca Connolly, Dept. 4 **CALIFORNIA-AMERICAN WATER COMPANY'S OPPOSITION TO MARINA COAST WATER DISTRICT'S OPENING BRIEF**
CALIFORNIA-AMERICAN WATER COMPANY, a California water corporation, and DOES 51-100, Real Party in Interest.	<u>Hearing Date:</u> Date: July 23, 2015 Time: 9:00 a.m. Dept.: A Action Filed: December 11, 2014

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Page(s)

CASES

STATUTES

REGULATIONS

LOCAL ORDINANCES

I. INTRODUCTION

The California Coastal Commission ("Commission") fully complied with the Coastal Act and the California Environmental Quality Act ("CEQA") in approving the development and operation of California-American Water Company's ("Cal-Am") temporary test slant well project ("Project"). At bottom, this case is really about sour grapes; a "competitor" trying to block a Project it doesn't like because its own bad conduct derailed a prior water supply project proposed for the Monterey region. Marina Coast Water District ("MCWD") has no genuine environmental concern with the Project. Just a few years ago, along with Cal-Am, MCWD was proposing its own test well project to the Commission, drawing water from the Salinas Valley Groundwater Basin ("SVGB"), the *same groundwater basin* from which Cal-Am's current test well Project draws. *See* Request for Judicial Notice ("RJN"), Ex. A at 2 of 32. And now, concurrently with pursuing this action against the Commission, MCWD is seeking funding and approvals for its ***own subsurface intake wells in the exact same location as Cal-Am's test well***. In reality, MCWD fears that the data obtained from the Project will demonstrate the feasibility and *de minimis* impacts associated with Cal-Am's slant well, and support Cal-Am's development of its own future full-scale desalination facility before MCWD can move forward with a separate facility using the same technology. When viewed through this lens, MCWD's allegations about the Commission's "illegal" actions in approving the Project truly ring hollow.

Notwithstanding MCWD's true motives, its arguments that the Commission violated the Coastal Act and CEQA in its approval of this temporary test slant well Project all are without merit. MCWD attempts to cast this Project as a permanent facility that will have irreversible consequences to the groundwater basin and surrounding habitat, but the fact remains that this is a two-year Project to collect scientific data about this type of well to ensure that any future, permanent desalination projects in the region are appropriately designed and conditioned to avoid potential impacts. Moreover, Project construction is now complete and no habitat impacts will occur, and Project operations are fully conditioned so that the groundwater basin will not be adversely affected. Yet MCWD still seeks to stop this single well from operating and providing valuable data to federal, state, and local resource agencies.

The Court should be familiar with MCWD's arguments, as MCWD has repeated them nearly verbatim from its past attempts to enjoin the Project. Despite the Court rejecting many of those arguments at the hearing on MCWD's motion for stay and preliminary injunction, MCWD continues to assert them in its Opening Brief. ***Nothing has changed since the May 1 hearing. MCWD's arguments still fail.***

The Commission complied with the Coastal Act in accepting Cal-Am's appeal of the City of Marina's ("City") denial of the Project's local coastal development permit ("Local CDP"), and approving the Local CDP and the coastal development permit for those portions of the Project in the Commission's retained jurisdiction ("Commission CDP") The City took final action in denying the Local CDP, Cal-Am timely appealed that action in accordance with the requirements of the Coastal Act, and the Commission appropriately found that the appeal raised a substantial issue as to conformity with the City's Local Coastal Program ("LCP"). In approving the Local CDP and the Commission CDP at a public hearing, the Commission appropriately found that although the Project would be developed in a sensitive habitat area, because it meets certain tests required for coastal-dependent industrial facilities, the Commission had the authority under the Coastal Act and LCP to approve the Project. The Commission's actions complied with the law and are supported by substantial evidence in the record.

The Commission also complied with CEQA in approving the Project. The Commission's release of the Staff Report 13 days before the Commission's hearing was appropriate under and consistent with the Commission's CEQA certified regulatory program, and the Commission's consideration of comments submitted in advance of the hearing also complied with the rules applicable to the Commission under that program. As the Court agreed at the May 1 hearing, the Commission did not piecemeal CEQA review of the Project from Cal-Am's full-scale desalination project. Substantial evidence in the record supports the Commission's consideration and disclosure of existing groundwater conditions, as well as its establishment of appropriate standards to measure potential impacts to groundwater. Moreover, the Commission assessed and considered a reasonable range of alternatives and adequately mitigated potential impacts to biological resources. Finally, the Commission's changes to the Staff Report and proposed Special Conditions did not require the Staff Report to be recirculated. The Commission proceeded in the manner required by law and its CEQA findings are supported by substantial evidence.

MCWD's Petition should be denied.

II. STATEMENT OF FACTS

A. <u>Background</u>

The water supply situation on the Monterey Peninsula is dire. AR3090-3091, 3107, 4160. Cal-Am, which provides potable water supply to approximately 100,000 customers on the Monterey Peninsula, has been vigorously working for many years to obtain alternative water sources to decrease its reliance on the Carmel River for the Monterey region's water supply. AR3888, 4143. Orders issued by the State Water Resources Control Board ("State Board") require Cal-Am to significantly reduce its Carmel River withdrawals by the end of 2016, making development of a new water supply project in the region an urgent matter. AR732-795, 3547, 2710, 4160-4161. As such, Cal-Am has proposed and the California Public Utilities Commission ("CPUC") is evaluating the Monterey Peninsula Water Supply Project ("MPWSP"), a project including a full-scale desalination facility and water supply system improvements. AR3540, 4241.

Prior to the developing the MPWSP, Cal-Am worked with MCWD to develop the Regional Desalination Project ("RDP"). AR3548. The RDP also included a proposed subsurface test well to confirm the suitability of potential seawater intake well along Monterey Bay. *Id*. However, the RDP failed after a MCWD consultant violated conflict of interest laws, and MCWD now opposes Cal-Am and the MPWSP. *Id*. To that end, MCWD conveniently fails to mention that it *fully supported* the proposed RDP subsurface test well, and joined in an application to the Coastal Commission for approval of a CDP for that test well. *See* RJN, Ex. A. As such, it is clear that MCWD's motives in this case are disingenuous: it has no genuine concern for potential environmental impacts of Cal-Am's test well Project or the actions taken by the Coastal Commission to approve the Project. MCWD simply wants to block the Project. Indeed, MCWD is currently proposing its own desalination plant *with vertical wells near the beach* at the CEMEX facility and near the Project. *See* RJN, Exs. B, C, D; AR139.

B. The Test Well Project

At issue in this case is Cal-Am's *temporary* test slant well at the disturbed CEMEX sand mining facility in the City. AR2706, 4156. The Project will be constructed, operated, and decommissioned over approximately 24 to 28 months. AR2706-2707, 4156-4157. The Project will remove primarily seawater from a sub-seafloor extension of the Dune Sand and 180-Foot Aquifers within the SVGB, which have been impacted by seawater intrusion due to past groundwater pumping. AR2708, 2740, 4158, 4191, 2098, 2166-2170. Primary components of the Project include (1) the slant test wellhead, where the water is pumped, which is located about 650 feet from the shoreline and extends downward at close to a 20 degree angle from the surface to a point over 200 feet below sea level beneath Monterey Bay; (2) monitoring wells in the Project vicinity used to measure groundwater levels and water quality during the pump tests; (3) a disposal pipeline connecting to the Monterey Regional Water Pollution Control Agency's existing ocean outfall; and (4) other associated infrastructure, including electrical supply. *Id.*

Due in part to the aquifers being seawater-intruded near the Project site, the closest active off-site wells are about 5,000 feet from the Project site. AR2740, 4191. The Project will not perforate any aquifers used or suitable for irrigation or human consumption. AR3531, 3592, 2167.

The Project will allow Cal-Am, with support from the Department of Water Resources, to gather data about the hydrogeological and water quality effects of using similar wells at or near the Project site to provide source water for potential future desalination facilities. AR2706, 4156, 1855. The data will assist resource agencies in assessing the future viability of slant wells here and around the State and inform the CPUC's consideration of the MPWSP. AR2709, 4159, 2711, 4161, 1855. The data is also required to satisfy Monterey Bay National Marine Sanctuary ("MBNMS") guidelines requiring Cal-Am to investigate the feasibility of subsurface slant wells before moving forward with the MPWSP. AR1840.

The Project is located in part within the City's LCP jurisdiction under the California Coastal Act (Pub. Res. Code § 30000, et seq.) and in part within the Commission's retained Coastal Act jurisdiction. AR2711, 4162. Development in the City's jurisdiction includes the

Project's land-based activities, and development in the Commission's jurisdiction includes the portion of the well beneath the seafloor. *Id.*

C. <u>The Coastal Commission Properly Reviewed and Approved the Project</u>

In March 2013, Cal-Am applied to the City and the Commission, respectively, for the Project's two CDPs. AR4249-4250. On September 4, 2014, the City denied Cal-Am's application for the Local CDP. AR315-317. On September 12, the Commission received the City's Final Local Action Notice ("FLAN"), ***which explicitly stated that the City had denied the Local CDP***. AR1597. Cal-Am timely appealed the City's decision to the Commission, AR2714, 4164, and on November 12, the Commission considered both Cal-Am's appeal and Cal-Am's CDP application to the Commission, and conditionally approved the Project over MCWD's objections. AR4146. By including Special Conditions, the Commission found that the Project "has been adequately mitigated and is determined to be consistent with CEQA." AR2748-2749, 4201-4202, 2753, 4206.

The Commission's actions were appropriate and legal under the Coastal Act and CEQA. Pertinent to the issues raised by MCWD:

- The Commission properly exerted jurisdiction over the Local CDP appeal because the City took final action on a major public works project, and the appeal properly alleged that the Project conformed with the LCP and public access policies. AR2983-2984, 1588, 4164.
- The Commission appropriately found that the Local CDP appeal raised a substantial issue, and substantial evidence in the record supported that finding. AR4146, 4155-4156.
- The Commission's release of the Staff Report 13 days before the hearing was appropriate under its certified regulatory program, which is not subject to a 30-day review period. AR2691. The Commission also complied with its certified regulatory program by including comment letters in the addenda, providing them to Commissioners at the hearing, and orally responding to comments at the hearing. AR3524-3535, 3545-3611, 4086-4089.
- The Commission adequately disclosed existing groundwater conditions. AR4158, 4191, 2098, 2166-2170, 483-566. The Commission established an appropriate standard to measure potential groundwater impacts, requiring Cal-Am to stop pumping if Monitoring

Well 4 shows a reduction in water level of 1.5 feet or an increase of 2,000 parts per million in total dissolved solids ("TDS") from pre-pump conditions. AR4151-4152.

- The Commission adequately considered and assessed a reasonable range of alternatives to the Project. AR4194-4196, 4143, 2295-2296, 2208.
- The Commission appropriately imposed Special Conditions designed to protect potential impacts to sensitive species. AR3526-3527, 4199-4202.

In sum, the Commission's actions in approving the CDPs complied with the law and are supported by substantial evidence in the record.

III. STANDARD OF REVIEW

This case challenges the Commission's approval of CDPs, which is reviewed pursuant to Code of Civil Procedure section 1094.5. Pub. Res. Code § 30801.

MCWD implies that the Court is to independently review the Coastal Commission's actions, giving no deference to the Commission. That is incorrect. In reviewing a decision by the Commission, "[t]he trial court presumes that the [Commission's] decision is supported by substantial evidence, and the [petitioner] … bears the burden of demonstrating the contrary." *Ocean Harbor House HOA v. Cal. Coastal Comm'n*, 163 Cal.App.4th 215, 227 (2008); *see also Norris v. State Personnel Bd.*, 174 Cal.App.3d 393, 396 (1985) ("All reasonable and legitimate inferences must be considered in support of the [Commission's] decision."); Pub. Res. Code § 21168. The Court's review is "quite limited" and the Commission is "given *substantial deference*." *Evans v. City of San Jose*, 128 Cal.App.4th 1123, 1145-46 (2005) (emphasis added). MCWD bears the burden of proof. *Ocean Harbor House HOA*, 163 Cal.App.4th at 227.

In reviewing an allegation that the Coastal Commission violated the Coastal Act's procedural requirements, the Court determines whether "the [Commission] proceeded without, or in excess of, jurisdiction; whether there was a fair trial; and whether there was any prejudicial abuse of discretion." *La Costa Beach Homeowners' Ass'n v. California Coastal Comm'n*, 101 Cal.App.4th 804, 814 (2002); Code Civ. Proc. § 1094.5(b). Code of Civil Procedure section 1094.5(b) provides that a prejudicial "[a]buse of discretion is established if the respondent has not proceeded in the manner required by law, the order or decision is not supported by the findings, or the findings are not supported by the evidence." *McAllister v. California Coastal Comm'n*, 169 Cal.App.4th 912, 921 (2008); *La Costa Beach Homeowners' Ass'n*, 101 Cal.App.4th at 814.

The Court similarly reviews the Commission's determination that a "substantial issue" exists for an "abuse of discretion." *See Hines v. California Coastal Comm'n*, 186 Cal. App. 4th 830, 849 (2010). In reviewing the Commission's substantial issue determination, the Court "grant[s] broad deference to the Commission's interpretation of the [local coastal program] since it is well established that great weight must be given to the administrative construction of those charged with the enforcement and interpretation of a statute." *Id*. The Court **"**will not depart from the Commission's interpretation *unless it is clearly erroneous*." *Id*. (emphasis added).

In reviewing the Commission's findings in support of a CDP, the Court "must uphold the Commission's findings of fact if they are supported by substantial evidence,"[1] *i.e.*, the CDP cannot be overturned unless *"no reasonable person would have reached the same conclusion*" as the Commission. *Charles A. Pratt Constr. Co. v. Cal. Coastal Comm'n*, 162 Cal.App.4th 1068, 1076 (2008) (emphasis added). The Court is to "look to *the 'whole' administrative record and consider all relevant evidence*, including that evidence that may detract from the decision." *Kirkorowicz v. Cal. Coastal Comm'n*, 83 Cal.App.4th 980, 986 (2000) (emphasis added); *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal*., 47 Cal.3d 376, 407-408 (1988) ("*Laurel Heights I*") (court must "consider the evidence as a whole[,] . . . 'scrutinize the record and determine whether substantial evidence' supports the agency's decision").

The Court may not engage in an independent review of the evidence or substitute its own findings and inferences for those of the Commission. *Kirkorowicz,* 83 Cal.App.4th at 986. "Rather, it is for the Commission to weigh the preponderance of conflicting evidence, as [the court] may reverse its decision only if, based on the evidence before it, a reasonable person could

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[1] "Substantial evidence" means "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached." CEQA Guidelines § 15384(a); *Laurel Heights I*, 47 Cal.3d at 393. Substantial evidence includes facts, reasonable assumptions based on facts, and expert opinion supported by facts. Substantial evidence ***does not*** include argument, speculation, unsubstantiated opinion or narrative, or evidence that is not credible. Pub. Res. Code §§ 21080(e), 21082.2(c); CEQA Guidelines §§ 15064(f)(5)–(6), 15384.

not have reached the conclusion reached by it." *Id.* The Court "must deny the writ if there is any substantial evidence in the record to support the findings." *Smith v. County of Los Angeles*, 211 Cal.App.3d 188, 198 (1989).

Further, MCWD is also obligated to lay out the evidence favorable to the other side and show why it is lacking. The "[f]ailure to do so is fatal" to any substantial evidence challenge and "is deemed a concession that the evidence supports the findings." *Defend the Bay v. City of Irvine*, 119 Cal.App.4th 1261, 1266 (2004); *Citizens for a Megaplex-Free Alameda v. City of Alameda*, 149 Cal.App.4th 91, 112-13 (2007). "A reviewing court will not independently review the record to make up for appellant's failure to carry his burden." *Defend the Bay*, 119 Cal.App.4th at 1266.

MCWD alleges that the Commission failed to comply with certain CEQA requirements. Noncompliance with CEQA is not *per se* reversible; actual prejudice must be shown. *Neighbors for Smart Rail v. Expo. Metro Line Constr. Auth.*, 57 Cal.4th 439, 463 (2013); Pub. Res. Code § 21005(b). "Insubstantial or merely technical omissions are not grounds for relief." *Neighbors for Smart Rail*, 57 Cal.4th at 463. "A prejudicial abuse of discretion occurs if the failure to include relevant information precludes informed decisionmaking and informed public participation, thereby thwarting the statutory goals of the [environmental review] process." *Kings County Farm Bureau v. City of Hanford*, 221 Cal.App.3d 692, 712 (1990). Failing to comply with CEQA's substantive requirements is not prejudicial error if there is no basis to conclude that a properly conducted analysis "would have produced any substantially different information." *Neighbors for Smart Rail*, 57 Cal.4th at 463.

IV. ARGUMENT

A. <u>The Commission Was Authorized to Hear Cal-Am's Appeal</u>

At the May 1 hearing on MCWD's motion for stay and preliminary injunction, MCWD's arguments that the Commission did not have jurisdiction over the Project did not persuade the Court.[2] Tr. at 117:10-12. Nevertheless, MCWD repeats its baseless claims that the Commission

[2] The transcript of the May 1, 2015, hearing ("Tr.") was lodged with the [Proposed] Order Denying Petitioner's Motion for Stay and Preliminary Injunction on May 28, 2015.

did not have authority to approve the Local CDP. Nothing has changed: MCWD continues to misread the Coastal Act and cannot show that the Commission acted in excess of its jurisdiction.

1. The City's Denial of Cal-Am's CDP Application Was a Final Action

MCWD claims that the City's denial of the Project's CDP is not a "final" action. Brief at 9-10. This claim is contradicted by the Coastal Act's text and the record, and has no legal basis.

On September 4, 2014, the City denied the Project's local CDP and declined to approve the mitigated negative declaration ("MND") that the City prepared as the Project's CEQA document. AR315-317. On September 11, the City issued its FLAN, notifying the Commission that the City had taken a final action on the Project.[3] AR2983-2984. On September 12, the Commission received the FLAN. AR4164. The FLAN stated, in relevant part, that the "City Council adopted [a resolution] . . . *denying Coastal Development Permit CDP 2012-05*" for the Project. AR2983 (emphasis added.) The FLAN's plain text and the City's submission of it to the Commission demonstrate that the City took a final action denying the CDP. Nothing more is required.

MCWD attempts to downplay the legal import of the FLAN by repeatedly referring to the FLAN as a "letter" that "does not constitute 'final agency action' supporting an appeal." Brief at 9. In doing so, MCWD unabashedly misrepresents the purpose of a FLAN under the Coastal Act, which is a trigger for a ten-day period for an appeal to the Commission. Pub. Res. Code § 30603(c); 14 Cal. Code Regs., § 13110. Moreover, MCWD suggests that Coastal Act Regulation section 13570, which provides that actions are final when findings have been adopted and local rights of appeal have been exhausted, somehow prevented the City from issuing a FLAN. *Id*., § 13570. MCWD declines to mention that section 13571 provides that a local government shall issue a FLAN within seven days of meeting the requirements of section 13570. *Id*., § 13571. By preparing a FLAN, the City conceded its action was a "final agency action" under the Coastal Act.

In addition, nothing in the Marina Municipal Code ("MMC") provides for a denial of a CDP "without prejudice" to prevent an appeal to the Commission. MMC Section 17.41.090 governs the City's CDP procedures. Subsection 17.41.090.D.3 requires that "[w]ithin five days of

[3] "Within five (5) working days of the approval or denial of a coastal development permit. . . a local government shall notify the commission and any person requesting such notification in writing of the ***final local action***." 14 Cal. Code Regs., § 13331 (emphasis added).

any *final city council action* on an appeal of a coastal permit the city shall notify . . . the State Coastal Commission." RJN, Ex. E at 3; AR2973 (emphasis added). Subsection 17.41.090.F.3 states that "[a]ppeals to the Coastal Commission must follow at least one local action on the application." RJN, Ex. E at 4; AR2973. The City followed its procedures by denying Cal-Am's CDP application, then notifying the Commission in the FLAN that its denial was a final action.

Moreover, MCWD continues to rely on *City of Malibu v. California Coastal Commission*, 206 Cal.App.4th 549 (2012), even after the Court indicated at the May 1 hearing that the case is distinguishable. Brief at 8; Tr. at 34:19-22. Cal-Am agrees with the Court. *City of Malibu* involved an entirely different fact pattern from the facts at issue here. There, the Commission "approved amendments to a city's certified local coastal program at the request of state agencies, over the objections of the city, where the amendments were not requested to undertake a public works project or energy facility development, but instead changed the city's land use policies and development standards as they would apply to future plans for development within the city." *City of Malibu*, 206 Cal.App.4th at 552. In contrast, no LCP amendments are at issue here. Here, the Commission simply *interpreted* the LCP in considering Cal-Am's appeal, which courts have uniformly recognized as being within the Commission's authority. See, *e.g., Pratt*, 162 Cal.App.4th at 1078. *City of Malibu* is inapposite.

The rules are simple. Because the City denied the CDP and filed a FLAN with the Commission, the City's denial was appealable to the Commission.[4]

2. Because the Project is a Major Public Works Project, the Commission Had Jurisdiction to Hear the Appeal

The City's denial of the CDP was appealable to the Commission. Pub. Res. Code §§ 30603(a)(5), 30603(b)(2). The City denied the CDP, and Cal-Am appealed to the Commission on

[4] MCWD contends that the Commission lacked jurisdiction to hear the appeal because the City should be afforded the opportunity to consider the Project on the merits after further CEQA review. That interpretation would lead to absurd results and conflict with Coastal Act section 30603. MCWD's interpretation would mean that a City could hold a major public works project that it opposes hostage from Commission review on appeal simply because the City claims its own CEQA review is inadequate – thwarting the very purpose of the Commission's appellate authority under the Coastal Act.

the grounds that the Project—a major public works project—conforms to the standards set forth in the certified LCP and the Coastal Act's public access policies. AR1588. No more was required.

MCWD suggests that because the City did not make findings about consistency with the City's LCP, there is no basis for appeal here.[5] That is not correct. That the City made no findings regarding LCP consistency had no impact on whether Cal-Am could appeal the City's final action denying the CDP. MCWD wrongly asserts that the "appeal may only be taken from a local agency's denial of a CDP on the grounds it is ostensibly inconsistent with the LCP." Brief at 9. But the standard applied to the appeal of a denial of a major public works project—which applies to this Project—is "an allegation that the development conforms to the standards set forth in the certified local coastal program and the public access polices" in the Coastal Act. Pub. Res. Code § 30603(b)(2). Cal-Am's stated grounds for appeal were that "the proposed Project fully conforms to the standards set forth in the City's certified [LCP] and the public access policies of the California Coastal Act." AR1588.

Moreover, the Project qualifies as a "public works project" because it is a facility for the production, transmission, and recovery of water, and as a "major public works project" because its costs exceed the minimum required to be considered as one under the Coastal Act Regulations. Pub. Res. Code § 30114(a) (defining "public works"); 14 Cal. Code Regs., § 13012(a) (defining "major public works"); AR1588, 4164. Cal-Am satisfied the applicable appeal requirements in the Coastal Act, and the Commission had jurisdiction to hear the appeal.

B. <u>Substantial Evidence Supports the Commission's "Substantial Issue" Findings</u>

MCWD now alleges that the Commission's substantial issue findings are not supported by substantial evidence. Brief at 10-12. As noted above, the Commission's determination that a "substantial issue" exists is reviewed for an "abuse of discretion." *See Hines*, 186 Cal.App.4th at 849. In reviewing the Commission's substantial issue determination, the Court "grant[s] broad deference to the Commission's interpretation of the [LCP]." *Id.* The Court "*will not depart from*

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[5] If MCWD's argument were accepted, a local jurisdiction could prevent a denied project from ever being appealed to the Commission simply by choosing not to make LCP consistency findings.

the Commission's interpretation unless it is clearly erroneous." *Id*. (emphasis added). Here, the Commission's determination that a substantial issue existed was not an "abuse of discretion."

In an appeal to the Commission where the local government has a certified LCP, the Commission first determines whether a substantial issue "exists with respect to the grounds on which an appeal has been filed pursuant to Section 30603." Pub. Res. Code § 30625(b)(2). A substantial issue presents a "significant question" as to LCP conformity. 14 Cal. Code Regs., § 13115. When interpreting whether an appeal raises a significant question as to conformity with the LCP, the Commission generally looks at five factors. AR4165; *Hines*, 186 Cal.App.4th at 849.

Here, the Commission appropriately concluded that the appeal raised a substantial issue regarding conformity with the LCP and the Coastal Act's public access policies. AR4166. The Commission weighed and considered each of the five factors that guide the Commission's substantial issue determination, and found that "four of the five substantial issue factors weigh in favor of a finding of substantial issue." AR2715-2716, 4165-4166. The Commission explained its reasoning behind each of the five factors in detail in the Staff Report. AR2716, 4166.

MCWD's allegations that the findings are not supported by substantial evidence have no merit. As to the first and fourth factors—factual and legal support for the local agency's determination of the consistency or inconsistency with the certified LCP and precedential value of the local government's decision for future interpretation of its LCP —MCWD suggests that the City could not make LCP findings because it had to deny the Project under CEQA. Brief at 11-12. That is a red herring. MCWD cites to no legal authority standing for the proposition that if an agency denies a project pursuant to CEQA, it cannot make findings regarding the proposed project's consistency with applicable land use plans. Here, the City chose to make no findings regarding the Project's consistency with the LCP and the Coastal Act's public access policies. Under the circumstances, the Commission appropriately determined that these factors weighed in favor of finding a substantial issue. AR2716, 4166. MCWD cannot show that this was erroneous.

As to the third factor—the significance of the coastal resources affected by the decision—the Commission noted that because the Project would occur within primary ESHA habitat, significant coastal resources would be affected. AR2716, 4166. MCWD argues that such a finding is inappropriate because the City denied the Project. But reading the factor as MCWD does would mean that any denial of a major public works project by a local agency could never be appealed to the Commission because the local agency's denial would prevent the project and mean that coastal resources would never be affected by it. The Coastal Act should not be interpreted so narrowly. The entire purpose of the Coastal Act's appellate procedures for major public works projects is to ensure that parochial local interests do not prevail on projects of regional or statewide significance. *See Reddell v. California Coastal Comm'n*, 180 Cal.App.4th 956, 963 (2009) ("[A] fundamental purpose of the Coastal Act is to ensure that state policies prevail over the concerns of local government."). MCWD's interpretation would cause Coastal Act section 30603(a)(5) to have no meaning or effect, and flies in the face of established rules of statutory interpretation. *See Tuolumne Jobs & Small Business Alliance v. Superior Court*, 59 Cal.4th 1029, 1037 (2014) ("Interpretations that lead to absurd results or render words surplusage are to be avoided.").

Finally, as to the last factor—regional concerns—MCWD argues that the Commission's finding "should not be sustained," because the Commission will be reviewing the proposed MPWSP separately from the Project. Again, this argument defies logic. The Project itself implicates important regional issues, as its main purpose is to determine whether slant well technology is feasible for full-scale desalination facilities in the region. AR4158, 1855, 1588-1591. The Commission's finding was appropriate and supported by the record.

The Commission thoroughly evaluated each of its applicable factors in determining that Cal-Am's appeal raised a substantial issue, and the Commission's findings and determination are supported by the record and entitled to "broad deference." *Hines*, 186 Cal.App.4th at 849.

C. <u>MCWD's Other Coastal Act Arguments Have No Merit</u>

MCWD raises two other baseless Coastal Act arguments regarding the Commission's interpretation of the City's LCP. Brief at 13-14. First, MCWD argues that the Commission's findings confirm that the Project does not conform to the LCP, and so the Commission should have denied the appeal. *Id.* at 13. MCWD ignores that the Commission's review of those portions of the Project in the City's LCP jurisdiction has two separate components. As noted above, the Commission first looks at five factors to interpret whether an appeal raises a significant question as to conformity with the LCP. AR2714-2715, 4165. The Commission does not make findings of a Project's consistency with the LCP during that process. However, once the Commission determines that a substantial issue exists, it then reviews the local CDP application *de novo*. Pub. Res. Code § 30621(a); 14 Cal. Code Regs., § 13115(b)). It is on *de novo* review where the Commission makes its own independent LCP consistency findings. *See, e.g., Pratt*, 162 Cal.App.4th at 1078-79 (making independent LCP consistency findings after determining that appeal raised a substantial issue). That the Commission may find during a project's *de novo* review that the project is inconsistent with a particular LCP policy has no bearing on its earlier findings that the appeal raised a significant question as to conformity with the LCP.

Second, MCWD argues that the Commission improperly overrode the LCP. Brief at 13-14. The Coastal Act allows the Commission to find that if a new or expanded coastal-dependent industrial facility might be inconsistent with the Coastal Act or LCP, the Commission can still approve that facility if it makes certain findings. Pub. Res. Code § 30260.[6] MCWD suggests that because certain provisions of section 30260 are not repeated verbatim in the LCP, they cannot apply, and so the Commission exceeded its jurisdiction in determining that the Project is a coastal-dependent industrial facility. That is wrong. As explained in greater detail in the Commission's brief in this action, the Staff Report is clear that section 30260 and its factors are incorporated into the City's LCP. AR2746-2749, 3534. The Commission has ultimate authority over LCP interpretation. *Pratt*, 162 Cal.App.4th at 1078. MCWD's claims are meritless.

D. <u>The Commission is Exempt From CEQA Notice and Comment Requirements</u>

MCWD continues to assert that the Commission violated CEQA's notice and comment requirements in preparing its in-lieu environmental document. But the Court of Appeal directly contradicted MCWD's position. "***[T]he Commission's certified regulatory program is exempted from the notice and comment requirements of Public Resources Code section 21091, subdivision (a).***" *Ross v. Cal. Coastal Comm'n*, 199 Cal.App.4th 900, 935 (2011) (emphasis added).

[6] "[C]oastal-dependent development . . . requires a site on, or adjacent to, the sea to be able to function at all." Pub. Res. Code § 30101. The Project is directionally drilled beneath the seafloor and is pumping seawater to gather data on slant well feasibility. It is coastal dependent.

1. CEQA's 30-Day Public Comment Period Does Not Apply

MCWD's attempt to once again distinguish *Ross*' holding that the Commission *does not need to comply with a 30-day CEQA comment period* is baseless and ignores long-standing Commission practice.[7] Under CEQA, the Secretary of the Resources Agency ("Secretary") can certify a state administrative agency's regulatory program. Pub. Res. Code § 21080.5(a). If the program meets certain standards and the Secretary certifies it, the program is exempt from CEQA's requirements for the preparation of EIRs, negative declarations, and initial studies. *Id.* §§ 21080.5(c), (d). Instead, environmental review documents prepared pursuant to the agency's own regulations are used. *Id.* § 21080.5(a). Certifying a regulatory program is a determination that the agency's program includes procedures for environmental review and public comment that are "functionally equivalent" to CEQA. *Californians for Alternatives to Toxics v. Dep't of Pesticide Reg.*, 136 Cal.App.4th 1049, 1059 (2006).

The Secretary approved the Commission's certified regulatory program on May 22, 1979. *Ross*, 199 Cal.App.4th at 931; CEQA Guidelines § 15251(c).[8] When the Commission considers a CDP application or an appeal of a local agency's action on a CDP, its staff report serves as the environmental review document. *Kaczorowski v. Mendocino County Bd. of Supervisors*, 88 Cal.App.4th 564, 569 (2001); 14 Cal. Code Regs., § 13057(c)(2). A certified program's environmental documents must be available for review and comment "for a reasonable time."

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[7] MCWD continues to rely on *Ultramar, Inc. v. South Coast Air Quality Mgmt Dist.*, 17 Cal.App.4th 689 (1993), and *Joy Road Area Forest and Watershed Ass'n v. Cal. Dep't of Forestry & Fire Protection*, 142 Cal.App.4th 656 (2006), even though *Ross* expressly analyzed and distinguished these cases. *Ross*, 199 Cal.App.4th at 936-937 ("Neither *Ultramar* nor *Joy Road* is controlling."). *Ultramar* did not involve a grant of power similar to Public Resources Code section 21174 and a certified regulatory program that expressly deviates from the 30-day notice timeframe specified in CEQA section 21091(a). *Ultramar* involved the South Coast Air Quality Management District's ("SCAQMD") certified regulatory program. The SCAQMD had adopted "implementation guidelines" that included the CEQA section 21091(a) 30-day period of review for an environmental document. The *Ultramar* court, part of the ***same Second Appellate District of the Court of Appeal*** that decided *Ross*, determined that the Secretary expected the same rules would apply to EIRs and SCAQMD's environmental documents. *Ultramar*, 17 Cal.App.4th at 699-703. Accordingly, as the Court of Appeal correctly determined in *Ross*, *Ultramar*'s reasoning is inapplicable here where the issues involve the Coastal Commission's certified regulatory program. Likewise, *Joy Road* did not involve a certified regulatory program that deviates from the 30-day notice period for EIRs. *Ross*, 199 Cal.App.4th at 937.

[8] The CEQA Guidelines are set forth at Cal. Code Regs., title 14, section 15000 *et seq.*

Pub. Res. Code § 21080.5(d)(3)(B). Staff reports for CDP applications and *de novo* hearings on appeals must be "*distributed within a reasonable time to assure adequate notification prior to the scheduled public hearing*." 14 Cal. Code Regs., § 13059 (emphasis added); *id.* § 13115(b).

In *Ross*, the Court of Appeal examined the Commission's certified program's public review and comment provisions, and held that a 13-day public review period for a staff report was reasonable.[9] *Ross*, 199 Cal.App.4th at 935-939. "By providing 13 days' notice of the filing of the staff report, the commission complied with [CEQA]." *Id.* at 936. The court stated that the Secretary is authorized to determine whether a regulatory program satisfies the "reasonable time for review and comment" requirement of CEQA section 21080.5(d)(3)(B); thus, any challenge to the Secretary's approval of the Commission's review and comment provisions should have been made within 30 days from the date of certification (i.e., in 1979). *Id.* at 938.

Here, the Commission released the Project's Staff Report for public review on October 31, 2014, 13 days prior to the Project hearing on November 12, 2014. AR2691. The Project's notice and review period was identical to the time period analyzed in *Ross* and is consistent with the Coastal Act Regulations' requirement that staff reports be distributed within a "reasonable time" before a hearing. As this requirement is part of the Commission's certified regulatory program, it may differ from CEQA's 30-day review period. *See Ross*, 199 Cal.App.4th at 937 ("Public Resources Code section 21174 provides for the primacy of the Coastal Act over [CEQA's] statutory provisions"). Specifically, Section 21174 provides: ***"To the extent of any consistency or conflict between the provisions of the California Coastal Act of 1976. . . and the provisions of [CEQA], the provisions of [the Coastal Act] shall control."*** Pub. Res. Code § 21174 (emphasis added); *Sierra Club v. Cal. Coastal Comm'n*, 35 Cal.4th 839, 859 (2005).[10] Here, as in *Ross*, the Commission acted in compliance with its certified regulatory program,

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[9] MCWD attempts to distinguish *Ross* on the basis that *Ross* concerned a LCP amendment, not a CDP. This is a distinction that makes no difference. In both instances, there is a Commission regulation that "expressly deviates" from CEQA's 30-day public notice for EIRs in Public Resources Code section 21091. Accordingly, in both instances, "the provisions of [the Coastal Act] shall control." Pub. Res. Code § 21174.

[10] In determining whether a 13 days is a "reasonable time" for review and comment, deference must be given to the Commission's interpretation of its own rules. *Ross*, 199 Cal.App.4th at 938.

which allows for a review period that differs from the 30-day review period provided in CEQA section 21091(a). *Ross*, 199 Cal.App.4th at 937. Accordingly, the Commission's 13-day review period for the Project's Staff Report complied with CEQA.

2. The Commission is Not Required to Provide Detailed Responses to Each Comment Letter Submitted After the Release of the Staff Report

Under its certified regulatory program the Commission also is not required to follow CEQA's response to comments requirements, which are applicable to public review of draft EIRs. CEQA Guidelines § 15088. By certifying the Commission's regulatory program, the Secretary determined that the Commission's notice and comment requirements are "functionally equivalent" to CEQA compliance. CEQA Guidelines § 15251(c); *Kaczorowski,* 88 Cal.App.4th at 569 (noting that the Commission's "permit appeal procedure is treated as the functional equivalent of the EIR process"). Thus, the Commission need only comply with its own regulations to comply with CEQA, which do not contain the same response to comment requirements imposed on agencies that prepare draft EIRs. [11]

Coastal Act Regulations section 13057(c)(3), which applies to the Commission's ***initial preparation of the Staff Report***, requires that Commission Staff's ***recommendation*** include "[r]esponses to significant environmental points raised during the evaluation of the proposed development." Contrary to MCWD's arguments, section 13057 ***does not*** require a comment-by-comment response to comments raised after the release of a staff report.

Here, prior to the Commission's consideration the Project had already been subject to a robust environmental review through the processing of the City's MND. AR2059-2681, AR1872-1873. MCWD participated heavily during that process, raising numerous issues that City staff addressed before the MND was presented to the City Planning Commission, and then to the City Council, for review (along with a draft resolution for approval from City staff). *See*

[11] When determining whether an agency proceeded in the manner required by law, a court may not impose procedural or substantive requirements beyond those explicitly stated in the statutes and the CEQA Guidelines. Pub. Res. Code § 21083.1; *South Orange County Wastewater Auth. v. City of Dana Point*, 196 Cal.App.4th 1604, 1617 (2011).

AR1878. Therefore, there was already a detailed administrative record and environmental analysis of the Project's potential impacts before the Commission considered the Project's CDPs.

Based on that detailed record, the Commission's Staff Report responded to environmental concerns raised during the City's administrative process, as required by Coastal Act Regulations section 13057, and attached written comments received by the Commission prior to issuance of the Staff Report, including comments from MCWD. AR2935-2943. Moreover, although not explicitly required to do so, Commission Staff *also* responded to additional environmental concerns raised by commenters in the addenda to the Staff Report prior to the Commission's November 12 hearing on the Project's CDPs. AR3535-3538.

MCWD's claim that the Commission must provide written responses to all significant comments submitted to the Commission on a project between the release of the Staff Report and the Commission's hearing on the Project ignores Coastal Act Regulations section 13060. That regulation does not impose any requirement to respond to written comments on CDP applications and staff reports. Rather, the regulation requires the Commission's Executive Director to either distribute to the Commissioners a text or summary of comment letters received prior to the close of public hearing, or summarize such comments orally at the hearing. 14 Cal. Code Regs., § 13060(a), (c). That regulation also allows written communications to be submitted to the Commission all the way up to the date of the hearing. *Id.* § 13060(b) (written communications may be made "in the hearing room on the day of the public hearing").

The Commission fully complied with section 13060. First, Commission Staff released two addenda in advance of the public hearing, which contained minor modifications and clarifications to the Staff Report (AR3524-3535), *ex parte* and other communications (e.g., AR2946-2949; 3545-3611), and responses to public comments (AR3535-3538). The addenda were issued to provide complete information to the Commission and the public *before the public hearing*. Second, at the hearing, Staff noted that the addenda only included the exhibits from MCWD's November 7, 2014, letter, and that Staff was providing that letter and a November 10 letter from Brian Lee of MCWD to the Commissioners for review over the Commission's lunch break and prior to any action on the Project. AR4063, 4086 (noting that the letter was provided to Commissioners during the break for a complete set of correspondence).[12] At the hearing, Staff orally responded to comments and questions raised regarding Coastal Act and CEQA issues, including those made by MCWD. AR4086-4089. Commission Staff therefore met and exceeded section 13060's requirements.

MCWD's absurd argument that the Commission must respond in writing to all written comments received before the Commission can take an action would create an endless loop for all projects considered by the Commission. No language in the Coastal Act or its Regulations support MCWD's claim. The Commission fully complied with its own regulations governing comments submitted on a CDP application and staff report. Nothing more was required. In addition, MCWD also suggests that the Commission's issuance of two addenda in advance of the public hearing somehow violated Coastal Act requirements due to the length of the addenda. MCWD essentially argues that the Commission should have continued the hearing because of MCWD's last-minute document dump of over 100 pages of comment letters and attachments, which contributed substantially to the length of the addenda. Brief at 4-5. MCWD's argument would allow project opponents to hold projects hostage by waiting to submit voluminous materials mere hours before a hearing. The incentives created by MCWD's argument are contrary to public policy, and have been consistently rejected by the courts. *See, e.g., Citizens for Responsible Equitable Envtl. Dev. v. City of San Diego*, 196 Cal.App.4th 515, 528 (2011).

E. <u>The Commission Did Not Engage in Improper Piecemealing</u>

Although the Court disagreed with MCWD at the May 1 hearing (Tr. at 81:23 to 82:3), MCWD continues to wrongly claim that the Commission engaged in improper "piecemealing" because the Commission did not analyze the environmental effects of the entire MPWSP when analyzing this temporary test well Project. MCWD's argument overlooks years of CEQA case law confirming that two projects may properly undergo separate environmental review when the projects have independent utility and can be implemented independently. *Del Mar Terrace*

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[12] Notably, Commission Staff had summarized the significant points raised by MCWD's October 30 letter in the addenda and responded to them – so the Commission was aware of the issues MCWD had presented.

Conserv., Inc. v. City Council, 10 Cal.App.4th 712, 736 (1992) (section of a proposed freeway was independent from potential later extension when the proposed segment served its own purpose by connecting two logical points); *Cmtys. for a Better Env't v. City of Richmond*, 184 Cal.App.4th 70, 99 (2010) (refinery upgrade and construction of pipeline exporting excess hydrogen from upgraded refinery were "independently justified separate projects"); *Banning Ranch Conserv. v. City of Newport Beach*, 211 Cal.App.4th 1209, 1224 (2012) (park and access road project independent of residential project that would use same access road).

Here, it was entirely appropriate under CEQA for the Project to be analyzed in a separate CEQA document from the larger MPWSP because the test well Project has independent utility. The fundamental purpose of the Project is to "gather technical data" regarding the feasibility of slant wells for desalinated water production in the area of the Monterey Bay. AR2692. The data produced is publicly available and could be used by the MPWSP or any other desalination facility proposed for the area to determine if this type of well design in this general location would provide the necessary amount of water for a desalination facility without causing "unacceptable adverse effects." *Id.* The information that will be learned from the Project will have value to the public, desalination proponents, environmental groups, and California water agencies, regardless of whether the MPWSP is ever approved or constructed. *See* AR1856.

Moreover, the MBNMS Guidelines state that desalination project proponents "should investigate the feasibility of using subsurface intakes [including slant wells] as an alternative to traditional [i.e., open ocean] intake methods." AR1840. Determining whether a slant well intake system is feasible at the CEMEX property is necessary to satisfy the MBNMS Guidelines, and is relevant for any potential desalination project that requires MBNMS approval. *Id.*

The Project also would not legally or factually compel the construction of the MPWSP. *Cf. Tuolumne County Citizens for Responsible Growth v. City of Sonora*, 155 Cal.App.4th 1214, 1231 (2007) (hardware store "cannot be completed and opened legally without the completion of [a] road realignment"). To constitute unlawful piecemealing, a future project must be "a reasonably foreseeable consequence of the initial project" and "likely change the scope or nature of the initial project and its environmental effects." *Laurel Heights I*, 47 Cal.3d at 396. As the

Court agreed at the May 1 hearing, the Project does not meet the piecemealing standard established in *Laurel Heights I*. Tr. at 83:23 to 84:2. While data produced by the Project could affect the future MPWSP's design – including the elimination of slant wells – the future development of the MPWSP or any other desalination project would not change the scope or potential environmental effects of this initial Project. As the Project has utility independent of the MPWSP, the Commission was justified in reviewing the Project separately from the MPWSP. Further, because the CPUC is currently in the process of reviewing the MPWSP's environmental impacts, there is no reason to believe that the MPWSP's review has been compromised. AR2711. As the Commission noted, "approval of this proposed test well would not authorize any additional activities that may be associated with a larger or more permanent facility." AR2692, 4142, *see also* AR4156 (Commission's findings "do not authorize . . . converting the well to use as a water source for the separately proposed MPWSP"). As such, the MPWSP or any other future desalination project would be subject to an entirely separate, independent and rigorous analysis before the Commission.

F. <u>The Commission Adequately Disclosed Existing Hydrological Conditions and Established an Appropriate Significance Standard</u>

1. The Staff Report and Record Evidence Provides Baseline Hydrological Information

MCWD alleges that the Commission failed to establish an adequate environmental baseline with respect to the current SVGB conditions, making an analysis of hydrologic and water quality impacts impossible. That is incorrect. The record is replete with discussion of existing hydrologic conditions in the SVGB. *See, e.g.*, AR409-413 (MBNMS Environmental Assessment); AR522-524 (Geoscience Report); AR2164-2170 (MND); AR2740 (Staff Report). Substantial evidence in the record demonstrates that the Commission disclosed existing hydrological conditions in the SVGB, which is all that is required under CEQA to establish the environmental baseline. *Cmtys. for a Better Env't.*, 48 Cal.4th at 328.

As the Commission recognized, groundwater in the Project vicinity is *already* severely contaminated by seawater intrusion, and these conditions are extremely well understood and documented in reports to and by government agencies. The Commission's findings cite to such reports, describe the existing conditions, and note that the underlying basin is subject to seawater intrusion that extends several miles inland from the coast where the Project is located. AR2708, 4158, 4191. As such, these reports are part of the Commission's record and provide substantial evidence of baseline conditions.[13] *McMillan v. Am. Gen. Fin. Corp.*, 60 Cal.App.3d 175, 183-84 (1976) ("reference to portions of a report in administrative findings incorporates that part of said report into the findings."); *see also Sierra Club v. Cal. Coastal Comm'n,* 35 Cal.4th 839, 864 (2005); *Towards Responsibility in Planning v. City Council,* 200 Cal.App.3d 671, 683-84 (1988) ("it is difficult to take seriously an argument which posits that there is no evidence to support a finding" where the findings refer to studies and reports in the administrative record). The Commission also summarized groundwater conditions in the vicinity of the Project by describing the SVGB, past groundwater pumping quantities, the degree of seawater intrusion, groundwater storage capacity and the proximity of groundwater wells to the Project site. AR4191. For instance, the Commission noted:

- "The known area of seawater intrusion extends along about ten miles of the Bay shoreline and up to about five miles inland, with all known existing wells within two miles of this test well site having already experienced seawater intrusion." AR4158.
- "Water quality data collected from nearby areas over the past several years show that both aquifers exhibit relatively high salinity levels and that there is not an aquitard separating the two. . . . . Those data show that salinity and Total Dissolved Solids ("TDS") concentrations in nearby areas of the aquifers *already exceed levels that are suitable for agricultural crop production*." *Id.* (emphasis added).
- "Seawater intrusion has been estimated to occur at a baseline rate of about 10,000 acre-feet (equal to about three billion gallons) per year, though the Basin's groundwater management programs are attempting to significantly reduce this rate." AR4191 (footnote omitted).

The City's MND also described the severity of seawater intrusion in the aquifers from which the Project will pump. AR2098 ("the Dune Sand and 180-FTE Aquifers are heavily contaminated in the project area due to decades of seawater intrusion"); AR2166-2167 (discussing seawater intrusion due to agricultural pumping); AR2167 ("Water samples taken

[13] An agency's determination of environmental "baseline" conditions is reviewed under the deferential substantial evidence standard. *Cmtys. for a Better Env't*, 48 Cal.4th 310, 328 (2010); *see also Neighbors for Smart Rail*, 57 Cal.4th at 457.

from the exploratory borings at the CEMEX site indicate that both the Dune Sand Aquifer and the 180-FTE Aquifer contain saline (salt) water and are substantially influenced by the sea."); AR2168-2169 (historic seawater intrusion maps for 180-Foot and 400-Foot Aquifers); AR2170 (groundwater quality data collected at the CEMEX site).

Additional information about existing conditions is provided in a hydrogeologic technical memorandum prepared by Geoscience, regarding exploratory boreholes drilled at the CEMEX site (the "Borehole Memorandum"). AR483-650. The Borehole Memorandum described existing conditions in detail, including seawater intrusion, groundwater subbasins, groundwater quality and levels, and other subsurface conditions. AR522-566.

Both the MND and the Borehole Memorandum are substantive file documents cited in the Staff Report, and the Commission relied on those documents in preparing its Project analysis and recommendation. AR2789 (list of substantive file documents); *see also* AR2709, n.4, 4158, n. 5 (citing to the Borehole Memorandum and noting that it "shows TDS levels in surrounding areas of the two aquifers ranging from 16,122 to 35,600 parts per million"). The analysis and information in the MND and the Borehole Memorandum are part of the substantial evidence of the baseline conditions. *Kirkorowicz*, 83 Cal.App.4th at 986 (in reviewing Coastal Commission actions, courts "look to the 'whole' administrative record and consider all relevant evidence").

The record also describes how groundwater conditions can fluctuate over time. The Commission noted that the Project would access water that vary from 16,000 ppm TDS to 26,000 ppm TDS, and that even seawater fluctuates from about 30,000 ppm TDS to 33,000 ppm TDS. AR3532. Given this natural fluctuation, it is nearly impossible to pinpoint one precise "baseline" measurement, as MCWD demands.

MCWD unconvincingly attempts to support its baseline argument by citing to *Save Our Peninsula Committee v. Monterey County Board of Supervisors*, in which the lead agency—when presented with multiple baseline options for water usage—arbitrarily selected the formula most favorable to the project applicant. 87 Cal.App.4th 99 (2001). Here, unlike in *Save Our Peninsula Committee*, the Commission did not arbitrarily choose the most lenient of several baseline options, but provided a substantive discussion of baseline groundwater conditions that was supported by evidence in the Commission's record. AR4158-4159, 4191, 2098, 2166-2170, 522-566, 2651-2655. Based on those baseline conditions, and as discussed in detail below, the Commission established conservative standards in Special Condition 11 to ensure that no potential impacts to groundwater supply and quality could occur. AR 4151-4152.

In sum, the record adequately describes existing baseline groundwater conditions in detail, and substantial evidence supports the Commission's determination of baseline groundwater conditions. *See Cmtys. for a Better Env't*, 48 Cal.4th at 328 (agency's determination of baseline conditions reviewed under deferential substantial evidence standard).

2. Special Condition 11 Establishes Appropriate Standards to Measure Potential Groundwater Impacts

MCWD further alleges that the Commission failed to establish an adequate threshold of significance to measure the Project's impacts to hydrology and water quality. Brief at 28. To the contrary, the measures contained in Special Condition 11 provide a reasoned performance standard for measuring the Project's potential impacts. Pursuant to Special Condition 11, Cal-Am must conduct ongoing water quality monitoring during Project operations, and, if specified monitoring wells show a reduction in water quantity of 1.5 feet above natural fluctuations or a 2,000 parts per million ("ppm") increase in TDS, Cal-Am must stop pumping.[14] AR4151.

A lead agency may exercise its own judgment in selecting a standard of significance. *Clover Valley Found. v. City of Rocklin*, 197 Cal.App.4th 200, 243 (2011) (upholding determination that aesthetic impacts were insignificant within context of existing development); *Sierra Club v. City of Orange*, 163 Cal.App.4th 523, 541 (2008) (upholding significance standards for traffic based on performance standards adopted by local jurisdictions). The lead agency has discretion to accept expert opinions on the appropriateness of the significance standard. *Mount Shasta Bioregional Ecology Ctr. v. County of Siskiyou*, 210 Cal.App.4th 184,

[14] While MCWD may complain that this standard is not explicitly labeled a "threshold," regardless of terminology, this standard provides an objective metric that allows the Commission to make a reasoned decision regarding the significance of hydrology and water quality impacts. *See North Coast Rivers Alliance v. Marin Mun. Water Dist.*, 216 Cal.App.4th 614, 624-625 (referring to both "standards" and "thresholds" of significance).

204 (2010). Significance standards may be tailored to the specific project and contrary to MCWD's implications, do not need be based on the significance questions set forth in CEQA Guidelines Appendix G. *Save Cuyama Valley v. County of Santa Barbara*, 213 Cal.App.4th 1059, 1068 (2013) (upholding project-specific standard for hydrological impacts).

Here, the Commission developed Special Condition 11's standards based on data from a technical report prepared by Geoscience, which was referenced during the Commission's proceedings and is included in the Commission's record. AR3997-3998; AR1403-1448; AR1410 (describing model results showing one foot decline in groundwater levels at a distance of approximately 2,500 to 1,800 feet from the test slant well). Commission Staff incorporated a discussion of the rationale for the standards into an addendum to the Staff Report, which was ultimately included in the Commission's findings. AR3531-3532, 4192-4193. The findings explain that the standard of 1.5 feet above natural fluctuations would account for changes in barometric pressure, tidal changes, offsite pumping, and rainfall events. AR4193.

In addition, the Commission noted that 2,000 ppm was selected as a conservative standard for TDS, because seawater has approximately 3,000 ppm natural variability from 30,000 ppm to 33,000 ppm. AR3532, n. 2, 4192, n. 34. The salinity standard for Project shut down is therefore below the natural level of fluctuation, and was appropriately selected as the threshold "for when the monitoring wells may begin to detect an adverse effect." *Id*.

Substantial evidence in the record supports the Commission's selection of the significance standards in Special Condition 11. The absence of any expert analysis in the Commission's record showing that these standards are *not* conservative and protective of the environment only supports the Commission's determination.

1. Special Condition 11 Ensures That the Project Will Not Result in Significant Groundwater Impacts; MCWD's Deferred Mitigation Claims Have No Merit

There is ample evidence in the record showing that the Project would not result in significant drawdown of local groundwater levels in the SVGB. For example, the MND stated that "[a]nalytical modeling indicates that no significant drawdown of groundwater wells would occur as a result of the test pumping activities." AR2098; *see also* AR1423 (Geoscience findings). Nonetheless, to ensure that an early avoidance system is in place, the Commission adopted Special Condition 11, requiring Cal-Am to monitor both the quantity and quality of water in areas that may affected by operation of its test well. As described above, pursuant to Special Condition 11, if MW-4 shows a reduction in water quantity of 1.5 feet above natural fluctuations or a 2,000 ppm increase in TDS, Cal-Am must stop pumping. AR4151. This standard ensures the Project will have no significant adverse impact on area water quantity or quality. This is exactly what CEQA requires. *North Coast Rivers Alliance*, 216 Cal.App.4th at 647-49.

MCWD's accusation that the Hydrogeologic Working Group ("HWG") and the Commission's Executive Director will set a *post hoc* baseline is misplaced. [redacted] Neither the levels of drawdown or salinity increases, nor the consequences if those levels are reached, are discretionary. *Defend the Bay*, 119 Cal.App.4th at 1275-76 (upholding mitigation measure that specified objective performance criteria). Given the fact that both groundwater levels and salinity fluctuate naturally, it was wholly appropriate for the Commission to set objective performance criteria and to delegate authority to the Commission's Executive Director to work with scientific experts to determine whether the Project is violating those criteria. CEQA Guidelines § 15025(a); *Cal. Clean Energy Com. v. City of Woodland*, 225 Cal.App.4th 173, 195 (2014) ("Shifting the responsibility to carry out the mitigation in that measure is allowed under CEQA.").

MCWD continues to assert that Special Conditions 11 results in an impermissible "deferral" of mitigation. This argument still fails. Courts have long recognized that a mitigation measure is appropriate if it sets specific performance standards even if all specifics are not known at the time of approval. *Defend the Bay*, 119 Cal.App.4th at 1275-76. Exact details on meeting the performance standards may be deferred until further study has been conducted. *North Coast Rivers Alliance*, 216 Cal.App.4th at 630-31. Special Condition 11 satisfied these requirements: the Commission committed to the specified the criteria that needed to be met in order for the Project to continue operating under the CDP. *Defend the Bay*, 119 Cal.App.4th at 1275-76 (no deferral when City committed to mitigating biological impacts in accordance with habitat conservation plan criteria); *Endangered Habitats League, Inc. v. County of Orange*, 131 Cal.App.4th 777, 794-96 (2005) (no deferral when agency "commit[ted] to mitigation and set out standards for a plan to follow."). The Commission set a standard requiring Project activities be halted upon reaching specific triggers—1.5 foot drawdown or 2,000 ppm TDS increase. As these standards are specific, the Commission could allow determination of further details to occur once Cal-Am had completed Project construction, including the development of monitoring wells to provide data necessary to implement Special Condition 11. "[T]he fact [that] the entire extent and precise detail of the mitigation that may be required is not known does not undermine the . . . conclusion that the impact can in fact be successfully mitigated." *Riverwatch v. County of San Diego*, 76 Cal.App.4th 1428, 1447 (1999); *Nat'l Parks & Conserv. Ass'n. v. County of Riverside*, 71 Cal.App.4th 1341, 1362, 1364-66 (1999). MCWD's argument that specific groundwater monitoring data at monitoring well locations is required before the monitoring wells are constructed is nonsensical. Under this absurd logic, Cal-Am could never obtain a CDP for the Project because it would need to provide data from the monitoring wells before the CDP allowing their construction could be approved.

The data needed to implement Special Condition 11 will be overseen by the HWG, a team of hydrogeologic and modeling experts representing the interests of various stakeholders of groundwater use and management in the region. *See* AR4195; AR1589, 2069-2070 (listing HWG representatives, including a CPUC member). Contrary to MCWD's allegations, enlisting the HWG's technical expertise in implementing Special Condition does not constitute an improper delegation of the Commission's authority. Brief at 30. Under CEQA, an agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity that accepts the delegation. CEQA Guidelines § 15097(a). The HWG's expertise and neutrality make it an appropriate body to analyze the data and provide it to the Commission so that the Commission may enforce the established standards in Special Condition 11. In addition, Special Condition 11 requires that all of the data the HWG will analyze be made public, and none of the HWG's determinations or recommendations will be final without oversight and approval by the Commission's Executive Director. AR3525, 4151-4152. It is well recognized that the Commission may delegate authority to implement Project conditions to the Executive Director. CEQA Guidelines § 15025; *Cal. Clean Energy Com*, 225 Cal.App.4th at 195.

G. The Commission Adequately Analyzed Project Alternatives

MCWD's arguments that the Commission failed to adequately assess Project alternatives wholly lack credibility. MCWD has conceded that the CEMEX site is the preferred alternative for a subsurface seawater intake well—because it is pursuing its own well ***at this exact same location.*** RJN, Exs. B, C, D. Also, the Commission analyzed a reasonable range of alternatives, including alternative sites, in compliance with CEQA and the Coastal Act.[15]

Under CEQA, a lead agency must consider a "reasonable range" of alternatives to a project, or to the project's location, "which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." CEQA Guidelines § 15126.6(a); *see also id.*, § 13053.5(a). An agency need not consider "every conceivable alternative" and may determine how many is a reasonable range. *Id.*, § 15126.6(a); *Citizens of Goleta Valley v. Bd. of Supervisors*, 52 Cal.3d 553, 566 (1990). Sometimes, no feasible alternative locations exist. CEQA Guidelines § 15126.6(f)(2)(B).

The Commission analyzed a reasonable range of alternative locations for the Project—a project for which location is critical. AR2742-2743, 4194. Due to the State's and MBNMS' preferences for using subsurface intakes, where feasible, to provide water for desalination, the analysis of alternative Project locations focused on sites in the region that are potentially

[15] MCWD implies that the alternatives analysis in the Staff Report *must* be inadequate because it is 2 ½ pages. Brief at 32. There is no page requirement for an alternatives analysis. All that is required is "sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project." CEQA Guidelines § 15126.6(d). Contrary to the MCWD's suggestions, "[t]he discussion of alternatives need not be exhaustive. . . ." *Sierra Club v. City of Orange*, 163 Cal.App.4th 523, 548 (2008).

favorable for subsurface intakes. AR2743, 4194, 1480. The availability of such sites is limited. AR2743, 4195. Nonetheless, a group of stakeholders identified a number of potential sites between Marina and the Moss Landing Power Plant, conducted a hydrogeologic investigation to determine potential locations for a subsurface intake, AR2743, 4195, and concluded that slant wells may be feasible at two locations at the CEMEX property (where the Project site is located) and at a site eight miles north, near Moss Landing. *Id*. One location was initially considered at the northern end of the CEMEX facility, but consultation with wildlife agencies revealed that locating a test well in that area would significantly impact nesting Snowy Plover, require more excavation and shoreline protective devises, and be subject to greater erosion and coastal hazards. AR2743, 4196. Therefore, the current site at the south end of the CEMEX facility, which is within an already disturbed area, is further from the shoreline, and would avoid significant impacts to Plover through mitigation, was identified as a preferable location. *Id*.

The alternative site near Moss Landing is not a disturbed location like the CEMEX site and would require miles of additional pipeline, including through potentially sensitive ecosystems (a State park), increasing environmental impacts. AR3533, 4195. Thus, the Commission concluded that the Moss Landing site would cause greater impacts than the Project site and excluded that site from further consideration. AR4143; CEQA Guidelines § 15126.6(f)(2)(A).

The Commission also considered a fourth, “No Action” alternative. AR4196. This could result in greater adverse impacts than the Project because not completing or delaying the Project would deprive Cal-Am and the public of data on the feasibility of slant wells in the Monterey Bay, delaying future water supply projects in the region, which could have drastic economic consequences. AR2743-2744. This alternative could extend withdrawals from the Carmel River, exacerbating ongoing impacts on fish and habitat. AR2710, 4160, 2744, 4196.

In determining whether the Commission analyzed a reasonable range of alternatives, the Court should look at the entire record before the Commission establishing that alternative sites were infeasible or more environmentally damaging than the Project site. The Commission’s findings are to be supported by “substantial evidence in light of the whole record.” Code of Civ. Proc. § 1094.5(c); *Sierra Club v. Cal. Coastal Comm’n*, 19 Cal.App.4th 547, 557-58 (1993)

(Commission's findings upheld because "the record discloses that findings [on alternatives] in the FEIR were part of the administrative record referenced by the Commission" and "explain the rationale which led the Commission to determine there is no feasible less environmentally damaging alternative"); *Village Laguna of Laguna Beach, Inc. v. Bd. of Supervisors*, 134 Cal.App.3d 1022, 1029 (1992) (agency not required to analyze "every conceivable variation" of an alternative).

For example, the Project's Biological Assessment describes the analysis of "numerous alternative temporary slant test wells sites." AR2295. The CEMEX site was ultimately selected in consultation with the U.S. Fish and Wildlife Service and environmental consultants to minimize biological impacts. AR2296. Likewise, the MND explains that the "current project location was selected after lengthy discussion and consideration of alternative sites." AR2208. The MBNMS also considered alternative locations, which " were all determined to be less preferable than the location identified in the Proposed Action." AR399-400. As described in the MBMNS' Environmental Assessment, a substantive file document cited in the Staff Report (AR2789), the CEMEX site was identified as a potential location for Project development due to, among other things, the site's heavy disturbance and existing access. AR400.

In light of the detailed consideration of alternative sites in the record, it is telling that MCWD's brief does not identify a single potential location for an alternative site that the Commission did not consider. *See Save San Francisco Bay Ass'n v. San Francisco Bay Conservation etc. Com.*, 10 Cal.App.4th 908, 922, 929-30 (1992) ("[A]ppellants have not pointed to a single location brought to the City's attention that was disregarded" yet "[w]e are asked to presume that a feasible alternative site existed somewhere"); *Save Our Residential Env't v. City of W. Hollywood*, 9 Cal.App.4th 1745, 1754 (1992) ("surely [Petitioners] would have identified the alternative sites meriting analysis" if any existed.). MCWD's alternatives arguments fail.

H. <u>MCWD's Biological Impacts Arguments are Moot and Lack Merit</u>

MCWD alleges, as it has many times before in its requests to enjoin the Project, that the Commission failed to adequately mitigate potential impacts to special-status species and sensitive habitat areas. Brief at 30-32. MCWD's arguments, which focus on harm that allegedly could be caused by Project construction, are moot because construction of the Project is complete.[16] An argument "should be dismissed as moot when the occurrence of events renders it impossible for the . . . court to grant [petitioner] any effective relief." *Cucamongans United for Reasonable Expansion v. City of Rancho Cucamonga,* 82 Cal.App.4th 473, 479 (2000). When a project's construction phase ends, claims of impacts resulting from construction are moot because no effective relief can be granted. *See, e.g., Santa Monica Baykeeper v. City of Malibu*, 193 Cal.App.4th 1538, 1549-1551 (2011). That same principle applies here.[17]

Even if the Court decides to reach the merits of MCWD's arguments, they are baseless. MCWD focuses on Special Condition 14, which consists of biological resources protection measures imposed by the Commission, arguing that substantial evidence does not demonstrate that changes made to that condition in an addendum to the Staff Report would avoid impacts to species. Brief at 31-32. MCWD is wrong. The Commission's modifications to Special Condition 14 made the Project's biological resources mitigation *more protective*.[18] For example, changes to Special Condition 14 required that monitoring begin earlier in the year (by February 1, rather than March 1), clarified standards for notification to appropriate wildlife agencies should sensitive species and/or active nests be found at the site, limited construction noise, and added measures to halt construction if necessary. AR3526-3527. The changes to Special Condition 14 make it clear that construction could be halted at *any time, even before February 28,* if Snowy Plover or other sensitive species were present at the Project site. *Id.* Overall, with the imposition of a number of Special Conditions, as well as the acknowledgment that Cal-Am had independently incorporated

[16] *See* Declaration of Ian Crooks in support of Cal-Am's Opposition to MCWD's Motion for Stay and Preliminary Injunction, filed with the Court on April 20, 2015, ¶¶ 13-15. Although this is extra-record evidence, it is admissible for the sole purpose of supporting Cal-Am's mootness defense, which Cal-Am included as its eight affirmative defense in its answer to the Petition. *See San Joaquin County Local Agency Formation Comm'n v. Superior Court,* 162 Cal.App.4th 159, 169 (extra-record evidence may be admissible to prove affirmative defense).

[17] MCWD cannot show that any exceptions to the mootness doctrine apply to its biological impacts claims. There will be no recurrence of controversy between the parties, as construction is complete and Cal-Am does not propose to modify the Project. There is also no material question remaining for the court's determination. *See Santa Monica Baykeeper*, 193 Cal.App.4th at 1551.

[18] MCWD implies that the Commission's modifications to Special Condition 14 were inappropriate because no resource agencies were consulted about those changes. MCWD is wrong. Because the Project has a public purpose, consultation was not required. *See La Costa Beach Homeowners Ass'n*, 101 Cal.App.4th at 820.

additional biological mitigation measures into the Project, the Commission expressly determined that the Project's biological impacts would be fully mitigated. AR4201-4202,4215-4222.

Project construction was strictly limited to compacted and unvegetated sand dunes that have been subject to continued disturbance by sand mining operations for decades. AR2725, 4176, 2747, 4200. Because the disturbed area is located in a coastal dune complex, however, the Commission determined that the entire area should be considered an environmentally sensitive habitat area ("ESHA"), even though the Project is within a disturbed area and will not impact sensitive habitats. AR2721, 4172, 2724-2726, 4175-4177. Under the Commission's regulations and the City's LCP, any project in ESHA—regardless of whether it has impacts—can be approved only if the project is "resource dependent" *or* a coastal-dependent industrial facility. Pub. Res. Code § 30260; AR2726, 4178, 2747-2749, 4199-4202. Because the Project is a coastal-dependent industrial facility, the Commission determined that it had the authority to approve the Project within the site's disturbed footprint. *Id*. MCWD's convoluted and misleading claim that any development in ESHA would result in environmental harm is contradicted by the plain text of the Coastal Act and the LCP – which expressly allow development in ESHA in limited circumstances - and which the Commission confirmed in its findings. AR4177-4178. MCWD's argument is also inconsistent with the City's own analysis of the site, which determined it was secondary habitat, within which development may be sited when designed to prevent impacts that would significantly degrade primary habitat. AR2724, 4175. Accordingly, substantial evidence supports the Commission's findings regarding the Project's potential biological impacts.

I. <u>The Commission Was Not Required to Recirculate the Staff Report</u>

MCWD asserts that the Commission should re-notice and recirculate the Staff Report due to the inclusion of purported "significant new information" in the addendum to the Staff Report. MCWD is grasping at straws; the minor modifications and clarifications to the Staff Report contained in the addendum did not rise to the level of "significant new information."

The Commission is not bound by CEQA's recirculation provisions. As described above, the Commission's regulatory program is exempt from CEQA's procedural requirements. Pub. Res. Code §§ 21080.5(c), (d). Certification of a regulatory program means that the agency's program includes procedures for environmental review and public comment that are "functionally equivalent" to CEQA. *Californians for Alternatives to Toxics*, 136 Cal.App.4th at 1059. The Commission's regulations expressly address when recirculation of a staff report is required. Coastal Act regulation section 13096 provides that, if a Commission action is "substantially different than that recommended in the staff report," staff shall "prepare a revised staff report with proposed revised findings that reflect the action of the commission." 14 Cal. Code Regs., § 13096(b). The revised staff report will then be presented at a noticed public hearing. 14 Cal. Code Regs., § 13096(c). Here, the Commission's action on the CDP was not "substantially different" than that recommended in the Staff Report, and no revised staff report was required.

Even if the Commission was required to abide by CEQA's recirculation requirements,[19] recirculation is not required unless "significant new information" is added to an environmental document after public notice of the document's availability. CEQA Guidelines § 15088.5(a). "New information added to an EIR is not 'significant'" unless the public is deprived "of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative) that the project proponents have declined to implement." *Id*. Recirculation is not required if the new information "merely clarifies," "amplifies" or "makes insignificant modifications." CEQA Guidelines § 15088.5(b). None of the limited information in the addenda constitutes "significant new information" requiring recirculation because the information does not identify new significant or more severe impacts or a new feasible alternative or mitigation measure that the Commission declined to implement. CEQA Guidelines § 15088.5(a).

MCWD first contends that changes made to Special Conditions in an addendum to the Staff Report to address potential biological impacts "would likely cause new undisclosed impacts," and would permit Cal-Am to capture and move snowy plovers in violation of the Endangered Species Act. Brief at 35. That is incorrect. MCWD's accusations of new undisclosed impacts are pure

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[19] MCWD relies on *Joy Road Area Forest & Watershed Ass'n* to argue that certified regulatory programs must comply with CEQA recirculation requirements. *Joy Road* involved a different agency's program that did not include recirculation provisions. 142 Cal.App.4th at 670-671.

speculation, not substantial evidence. CEQA Guidelines § 15384(a). As described above, the Commission's edits to Special Condition 14 made the Project's biological resources mitigation *more protective*. MCWD can point to no record evidence demonstrating that the Commission's changes to Special Condition 14 required recirculation under CEQA's test for recirculation.

Second, MCWD points out that the addendum included information about a potentially feasible alternative site at Potrero Road. Brief at 36; AR3533. This information does not require recirculation. Under *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal*., 6 Cal.4th 1112 (1993) ("*Laurel Heights II*") and CEQA Guidelines section 15088.5(a)(3), when new information consists of a suggested new project alternative, recirculation is required only if the alternative: (1) is feasible; (2) is considerably different from the alternatives already evaluated; (3) would clearly lessen the project's significant environmental impacts; ***and*** (4) is not adopted. *South County Citizens for Smart Growth v. County of Nevada*, 221 Cal.App.4th 316, 330 (2013). Recirculation is required only if *each* of the above tests is met. *South County Citizens*, 221 Cal.App.4th at 330. To prevail on a claim that a new alternative triggered a duty to recirculate, MCWD has the burden to prove that there is no substantial evidence in the record that might support an express or implied finding by the agency that at least one of the triggers for recirculation was not met. *South County Citizens*, 221 Cal.App.4th at 330; *see also North Coast Rivers Alliance*, 216 Cal.App.4th at 655 (new alternative did not trigger recirculation because it was infeasible and was not considerably different from alternatives already evaluated); *Sierra Club v. City of Orange*, 163 Cal.App.4th 523, 547 (2008) (new alternative added to final EIR in response to comments did not trigger recirculation). MCWD cannot meet that burden.[20]

The Potrero Road site is very similar to the Moss Landing site analyzed in the initial Staff Report. AR3533. The addendum concluded the Potrero Road site would be inferior to the CEMEX site in several ways, including less aquifer depth, proximity to a wildlife refuge, and

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[20] Agency determinations that recirculation is not required are to be upheld if supported by substantial evidence. *Laurel Heights II*, 6 Cal.4th at 1135; CEQA Guidelines § 15088.5(e). All "reasonable doubts" are to be resolved in favor of the agency's decision. *Laurel Heights II*, 6 Cal.4th at 1135. The agency's decision is presumed to be correct; petitioner bears the burden of demonstrating that the decision is not supported by substantial evidence. *South County Citizens*, 221 Cal.App.4th at 330 (petitioner "bears the burden of proving a double negative").

distance from other water infrastructure, and impacts to public beach parking. AR3533. Accordingly, the addendum concluded that the Potrero Road site would result in higher adverse impacts on public access and recreation as compared to the CEMEX site, and could also adversely affect areas of sensitive habitat and coastal agriculture. *Id.* The analysis of the Potrero Road site did not alter the Commission's finding that the CEMEX site is the preferred alternative for a subsurface seawater intake well. AR2744, 4196. As such, the inclusion of information on the Potrero Road site does not constitute "significant new information" and does not satisfy the four factors that must be met to require recirculation under CEQA Guidelines section 15088.5(a)(3). The Potrero Road site is not "considerably different from the alternatives or mitigation measures already evaluated," nor would the site "clearly lessen the project's significant environmental impacts." *South County Citizens*, 221 Cal.App.4th at 330. Thus, recirculation was not required.

Finally, MCWD asserts that the addendum's changes to mitigation for potential impacts to coastal agriculture required recirculation. Again, MCWD is wrong. The changes to Special Condition 11 described above did not identify new significant or more severe impacts or a new feasible alternative or mitigation measure that the Commission declined to implement. Rather, the changes clarified objective standards for avoiding any potential impacts to adjacent groundwater wells. This does not meet the standards for recirculation in the CEQA Guidelines.

V. CONCLUSION

MCWD has failed to meet its burden to demonstrate any abuse of discretion on the part of the Commission. The Commission complied with applicable Coastal Act and CEQA requirements and the Commission's determinations and findings are supported by substantial evidence. Cal-Am requests that this Court deny the Petition and uphold the Commission's approval of the CDPs.

Dated: June 5, 2015

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EXEMPT FROM FILING FEES
[GOVERNMENT CODE § 6103]

SUPERIOR COURT FOR THE STATE OF CALIFORNIA
COUNTY OF SANTA CRUZ

MARINA COAST WATER DISTRICT, AND DOES 1-10, Petitioner and Plaintiff, v. CALIFORNIA COASTAL COMMISSION, AND DOES 11-50, Respondents and Defendants. CALIFORNIA-AMERICAN WATER COMPANY, a California water corporation, AND DOES 51-100, Real Party in Interest.	Case No.: CV180839 **MARINA COAST WATER DISTRICT'S REPLY BRIEF IN SUPPORT OF PETITION FOR WRIT OF MANDATE AND COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF** **(California Environmental Quality Act (CEQA))** [Code Civ. Proc., § 1094.5, subd. (g); Pub. Resources Code, §§ 21168 30803, subd. (a); Code Civ. Proc., § 525 et seq.] Filing Date of Action: December 11, 2014 Hearing Date: July 23, 2015 Time: 9:00 a.m. Department: 4

TABLE OF CONTENTS

///

///

///

TABLE OF AUTHORITIES

California Cases

Page(s)

TABLE OF AUTHORITIES
California Cases, cont'd

TABLE OF AUTHORITIES
California Cases, cont'd

California Statutes

TABLE OF AUTHORITIES

California Statutes, cont'd.

California Regulations

California Code of Regulations, title 14
"CEQA Guidelines" section

TABLE OF AUTHORITIES
Miscellaneous

Page(s)

///

///

///

INTRODUCTION

Marina Coast Water District (MCWD) files this reply in response to the California Coast Commission's (CCC's) and California-American Water Company's (Cal-Am's) opposition briefs. Given space limitations, MCWD focuses on the merits, ignoring where possible Cal-Am's specious arguments such as the argument MCWD does not seek to protect the Salinas Groundwater Basin (SVGB) or the environment in bringing this action. Our silence is not concession. As MCWD explained to CCC and in its opening brief, MCWD is not opposed to the Project, but to CCC's ultra vires decision to bypass the City of Marina's environmental review process (wherein the City determined an environmental impact report (EIR) was necessary to analyze and mitigate the Project's impacts) that would have required meaningful public review under the California Environmental Quality Act (CEQA) (Public Resources Code, § 21000 et seq.). Instead, the public and MCWD were subjected to a rushed environmental process that did not (1) allow for meaningful public participation; (2) adequately assess or mitigate impacts for the whole of the Project, including impacts to groundwater and extremely rare dune habitat, or (3) consider feasible alternatives to the location of the Project. Based on these violations of CEQA and the Coastal Act, MCWD requests the Court grant its petitions for a writ of mandate.

ARGUMENT

A. CCC violated the Coastal Act.

Cal-Am argues that CCC's determination that it had jurisdiction over Cal-Am's appeal is entitled to deference and reviewed for an "abuse of discretion." (Cal-Am 6-7.) It is wrong. While CCC's interpretation of an LCP is reviewed for abuse of discretion, jurisdictional issues involving the interpretation of the Coastal Act are questions of law this Court reviews de novo. (See *Burke v. CCC* (2008) 168 Cal.App.4th 1098, 1106; *Schneider v. CCC* (2006) 140 Cal.App.4th 1339, 1343-1344.) Courts do not defer to CCC's determination whether an action lies within the scope of authority delegated to it by the Legislature. (*Burke, supra*, 168 Cal.App.4th at p. 1106; *Yamaha Corp. of America v. State Bd. of Equalization* (1998) 19 Cal.4th 1, 11, fn. 4.)

1. CCC lacked jurisdiction to consider the appeal.

When CCC certified the City's Local Coastal Program (LCP), it delegated to the City all development review authority for CDPs within the LCP boundaries, retaining only limited rights to hear appeals relating to compliance with the Coastal Act. (§§ 30519, subd. (a), 30603.)[1] As a result, CCC's appellate jurisdiction is limited by section 30603, which provides that "an action taken by a local government on a [CDP] application may be appealed to the commission for … a major public works project," but "the *grounds for an appeal* of a denial of a [CDP] … *shall be limited* to an allegation that the development conforms to the standards set forth in the certified [LCP] and the public access policies set forth in this division." (§ 30603, italics added.) CCC and Cal-Am acknowledge this provision applies, but argue it does not establish a jurisdictional limitation. Instead, they suggest that CCC can hear appeals from a local agency's denial of CDP of a "major public works project" on any grounds as long the appellant alleges the project conforms to the LCP. (CCC 1-4; Cal-Am 10-11.)[2] This suggestion vastly expands CCC's appellate jurisdiction and finds no support in the case law or statute.

As explained in MCWD's opening brief, an appeal may only be taken from a local agency's *denial* of a CDP where the agency denied the CDP on the grounds that it was inconsistent with the LCP. (MCWD 8-10.)[3] But, and CCC does not contest this point, the City did not deny the CDP on the grounds the project was inconsistent with the City's LCP. Rather the City found that it needed to complete its environmental review—before it could determine whether the Project was consistent with its LCP—as required by CEQA and the LCP. Therefore, the City correctly denied the CDP "without prejudice," subject to completing adequate CEQA review. (AR316.) Neither CCC nor Cal-Am cite any factual or legal authority for the proposition the City's finding were inadequate.

Ironically, despite asserting that a key purpose for CCC's appellate review is to "correct inadequate findings" (CCC 3), CCC and Cal-Am argue the City's findings and reasons for denying the CDP for the Project are not relevant to CCC's appellate jurisdiction. Even assuming these positions can be reconciled (they cannot), this argument conflicts with the Coastal Act. Based on CCC's and Cal-Am's interpretation of section 30603, the CCC could hear and grant an appeal from the denial of CDP irrespective of the decision's finality or grounds, as long as the appellant alleged the Project conformed with the agency's LCP.[4] Such an interpretation, however, would give CCC plenary land-use and judicial

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[1]All statutory references are to Public Resources Code unless otherwise noted.
[2] The Coastal Act does not define "appeal," but given its ordinary meaning "appeal" means "the transference of a case to a higher court for rehearing or review" and "a proceeding undertaken to have a decision reconsidered by a higher authority." (Webster's New World Dict. (2d ed. 1984), p. 66, cl. 1; Black's Law Dict. (9th ed. 2009), p. 112, cl. 2.) Thus, there is decision to appeal, on the grounds that the appellant seeks review. Here, there was no Coastal Act decision to appeal.
[3] CCC's own regulations explain that an appeal should only be heard where the appeal raises significant questions "as to conformity with the certified [LCP]." (§ 13115, subd. (b).)
[4] CCC's and Cal-Am's arguments that the City's denial "without prejudice" does not affect whether an appeal may be taken is illogical. CCC regulations explain that a local government action "shall not be deemed complete" until the agency has made all the required findings regarding the project's compliance with the LCP and **when all local remedies have been exhausted**. (§ 13570.) Here, the record unequivocally shows, as required by CEQA, the City deferred making these findings regarding the project consistency with its LCP until environmental review was complete. Cal-Am chose not to

authority over "major public works projects" in the Coastal Zone, in conflict with the Coastal Act's mandate that local agencies implement the LCP. (*Yost v. Thomas* (1984) 36 Cal.3d 561, 572-73 [after the CCC approves an LCP, "a local government has discretion to choose what action to take to implement its LCP: it can decide to be more restrictive with respect to any parcel of land, provided such restrictions do not conflict with the act."]; *Security Nat. Guar., Inc. v. CCC* (2008) 159 Cal.App.4th 402, 421; *City of Malibu v. CCC, supra,* 206 Cal.App.4th at pp. 555-556; § 30519.)[5] Moreover it would also allow an applicant to escape full review of a Project's impacts and mitigation under CEQA if the Court accepts CCC's arguments about the limits of its own environmental review. (See CCC 14-19.) Such a result, would be inconsistent with the primary purposes of both CEQA and the Coastal Act to protect the environment (§§ 21000, 30001).

Contrary to Cal-Am's unsupported arguments, CEQA mandated the City prepare an EIR for Project before approving a CDP after it determined there was a "fair argument" that the Project could result in unmitigated environmental impacts. (AR315-317) Neither CCC nor Cal-Am actually dispute this point. Instead, they suggest CCC was not subject to the CEQA's EIR requirement because CCC has a certified regulatory program (CRP). (CCC 4.) This argument misconstrues MCWD's arguments regarding CCC's appellate jurisdiction. Here, the City found that further environmental review was required before it (the City) could act – not CCC. This determination was never appealed, is not subject to the appellate jurisdiction of CCC, and is final. This is not the case where the City acted on the application, but simply refused or neglected to make findings, as Cal-Am and CCC feign. Nor is there any evidence that the City sought to delay the project. The City simply could not, consistent with its legal duty, reach the merits because it had to comply with CEQA first. (MCWD 10-12.) If the City had completed its CEQA review and denied the Project on the grounds that the Project was inconsistent with its LCP based on that review, such a decision would be subject to CCC's appellate jurisdiction. But the City's preliminary CEQA determination was not—any more than any other non-Coastal Act "action" taken by the City on the project. Any other interpretation would give CCC plenary land-use and judicial review of the City's actions in violation the Coastal Act, and likely the California Constitution. (Cal. Const., art. VI, § 1 [judicial power vested in the courts].)

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work with the City to complete the CEQA review for the Project.

[5] Cal-Am's attempt to distinguish *City of Malibu* misses the point. Ample authority supports the City's discretion to deny a project in the Coastal Zone on non-Coastal Act grounds (including CEQA) and the limited scope of CCC's appellate jurisdiction. (*Ibid*; § 30005 [City can adopt additional regulations or impose conditions on any land or water use that do not in conflict with the Coastal Act; *City of Dana Point v. CCC* (2013) 217 Cal.App.4th 170, 193; MCWD 8-9.)

In sum, because the City did not reach the merits on the project's consistency with the LCP, there could be no "significant questions" raised as to the City's interpretation of the LCP or the project's conformity with the LCP. (§ 13115, subd. (b).) Therefore, there were no grounds to appeal.

2. CCC's substantial-issue determination is inconsistent with the Coastal Act.

Despite the fact that the City plainly took no final action under the Coastal Act with respect to the CDP pending compliance with CEQA, CCC's findings on the "substantial issue" question pretend the City did. (AR4165-4166.) CCC attempts to dodge this issue by arguing all that matters is CCC ultimately determined it could find the Project conformed to the City's LCP. (CCC 4.) It cannot. Not only do CCC's findings on the "substantial issue" question fail to mention such a rationale, CCC's argument reads the phrase "substantial issue" out of the statute. (§ 30625, subd. (b)(2).) As explained above, CCC does not have plenary authority over "major public works projects" in the Coastal Zone. Rather, CCC can only exercise its appellate jurisdiction over a local agency's denial of CDP based on limited Coastal Act grounds. Again, as CCC admits, the City's denial raised no issues regarding the Project's conformance with the City's LCP or Coastal Act, but was based solely on CEQA grounds. (CCC 3.) Therefore, the City's denial of the CDP could not and did not present a "substantial issue" that allowed CCC to usurp the City's jurisdiction over the Project.

Cal-Am's attempt to justify CCC's "substantial issue" findings fairs no better. Cal-Am suggests the City's explanation for not making CDP findings based on CEQA grounds is a "red herring." Ignoring the voluminous authority that a local agency must comply CEQA before approving a CDP (See, e.g., MCWD 10-12), Cal-Am argues that the City was required to make findings regarding the Project's consistency with the LCP anyway. This argument ignores the practical matter that the City's consistency determinations were dependent on the environmental review for evidentiary support; they could not precede environmental review. (*Ibid.*) Moreover, Cal-Am fails to explain why the City should have made LCP's findings before completing CEQA. Even if the City found that the Project was consistent with its LCP, that would have changed nothing. The City would still have been required to deny the Project on CEQA grounds. Nor would the City's findings denying the Project on CEQA grounds (after making LCP consistency findings) have provided CCC with appellate jurisdiction.

Cal-Am's arguments, that a contrary interpretation would mean a local agency's denial could never be reviewed, also lack merit. CCC has jurisdiction to hear a denial of a permit under the Coastal Act; the courts can hear allegations of other errors. Cal-Am's citation to *Reddell v. CCC* (2009) 180 Cal.App.4th 956, 963, to suggest CCC has authority to override a City's CEQA determination in order to elevate regional over parochial concerns wholly misrepresents the case. While CCC could prevent a local agency from holding up a public works project based on an alleged inconsistency with its LCP in order to further regional goals, CCC simply has no authority to review a local agency's CEQA determination. (*Hines v. CCC* (2010) 186 Cal.App.4th 830, 852.) Also, Cal-Am cites no evidence that parochial concerns motivated the City. Thus, as the record demonstrates, there are simply no bases upon which to make any of CCC's "substantial issue" findings. Under these facts, CCC acted ultra vires when it accepted jurisdiction. (*Burke*, *supra*, 168 Cal.App.4th at p. 1106) Moreover, its findings are unsupported by legally relevant evidence and analysis. (MCWD 12).

3. CCC's "consistency finding" was improper.

CCC's misconstrues MCWD's position, arguing that MCWD advances inconsistent arguments regarding CCC's consistency findings and section 30260. MCWD has consistently argued that CCC improperly relied on section 30260 in approving the project. Despite CCC's arguments advanced now, it cannot deny history; CCC's findings approved the Project on theses grounds. In fact, the first paragraph of CCC's Findings expressly state that CCC would approve the project, despite its unavoidable impacts and inconsistencies with the City's LCP, on the grounds that CCC could approve the project after making the three findings mandated by section 30260: (1) alternative locations are infeasible or more environmentally damaging; (2) denial of the permit would not be in the public interest; and, (3) the project is mitigated to the maximum extent feasible." (AR2693; 4143.) CCC reiterated the importance of section 30260 in its analysis of land use impacts. (AR4178.) In approving the project, notwithstanding its inconsistencies with the LCP's habitat protection policies, CCC concluded:

> "the proposed project meets all of the tests of section 30260 and the parallel LCP policies. It **therefore exercises its discretion to approve this coastal-dependent industrial project, despite its inconsistency with the LCP's habitat protection policy prohibiting non-resource dependent development in primary habitat."**

(AR4202, emphasis added.) Now recognizing that this was error, in as much as section 30260 is not one of the permissible grounds for appeals under Section 30603, CCC attempts to rewrite history. CCC now denies having relied on this section and insists that CCC "read various provisions" of the statute together to arrive at a unified view that the project was consistent with the LCP. (CCC 5-9.) Not only can CCC not run from its own findings, its new argument finds no support in the record.

The LCP says that in the vast dune area to the west of Dunes Drive, generally, "Coastal Conservation and Development uses" "shall be allowed." (AR820.) The LCP does not state that any proposed use, such as the test well, at any location within this area, however, must be approved. Rather, the LCP allows coastal-dependent industrial uses in the vicinity of the project but only after extensive site-specific analysis is conducted to determine if the use is appropriate (AR814-815). Moreover, the LCP states that, because no site-specific analysis has been done, the following policy applies to all areas designated with primary and secondary habitat (AR814-815, 895) like the Project site:

> Primary habitat areas shall be protected and preserved. All development must be sited and designed so as not to interfere with the natural functions of such habitat areas.... ... "***Primary habitat areas shall be protected and preserved*** against any significant disruption of habitat values and ***only uses dependent on those resources shall be allowed within those areas***. All development must be sited and designed so as not to interfere with the natural functions of such habitat areas."

(AR4171.) It is undisputed that CCC's biologist found that the habitat on the project site was primary habitat and that CCC concurred in that designation. (AR4176, 2724-2726.) This did not call for CCC to look outside the LCP as CCC suggests; the LCP itself defines primary habitat as habitat that supports endangered and threatened species (AR4170, 4176, 895) and the site supports such species. (AR418.)

CCC further found that the project was not "resource dependent" (AR2726 ["The proposed project is not a resource dependent use"]) "***so it cannot be approved consistent with the LCP's habitat protection policies.***" (*Ibid.*, emphasis added; AR 4178.) Accordingly, as MCWD has consistently argued, CCC was required to deny the appeal on the merits based on Section 30603. It did not. Rather, CCC found that—although "Project activities would further disturb the sensitive habitat areas in a manner not consistent with provisions of the LCP"—it could override the City's LCP. (AR2693.) It reasoned that because the project is a coastal-dependent industrial facility and the LCP allows such facilities in this location, consistent with Coastal Act Section 30260 as noted above. CCC cannot now switch theories, especially given its new theory is not included in its findings. (*Topanga Assn. for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 515 [findings must must "bridge the analytic gap between the raw evidence and ultimate decision" and to show the "analytic route the administrative agency traveled from evidence to action."].) Nor is the court required to defer to CCC's findings, as both CCC and Cal-Am argue. In questions of law, such as whether CCC applied the appropriate legal factors in making its consistency determination, however, the courts owe no deference to the agency's determination. (See, e.g., *Save Our Peninsula Committee v. Monterey County Bd. Of Supervisors* (2001) 87 Cal.App.4th 99, 118; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1208.) In sum, CCC acted ultra vires when it approved the project.

B. Certified regulatory programs are not exempt from CEQA.

CCC and Cal-Am argue that its CRP essentially supplants compliance with the statutory and regulatory provisions of CEQA, and that compliance with the CRP is de jure compliance with CEQA. This argument contradicts the words of the statute and binding authority from the Supreme Court. As the Supreme Court held, "CEQA is a legislative act, and the Legislature both had and retains the authority to limit the projects to which CEQA applies. It has specified in section 21080 those projects that are categorically exempt from CEQA. (§ 21080, subd. (b)(1)-(16).) .... Section 21080.5 compels instead the conclusion that [CRPs] in this state is exempt only from chapters 3 and 4 of CEQA and from section 21167 of that act." (*Sierra Club v. State Bd. of Forestry* (1994) 7 Cal.4th 1215, 1230-1231.) The court held that it would be improper to "imply additional exemptions." (*Ibid.*)

CCC further argues that its "functional equivalent" environmental document need not be actually equivalent to other CEQA documents and need only address the list of topics set out in section 15252. (CCC 10.) CCC's argument that its functional equivalent document need only satisfy section 15252 ignores both the words of section 21080.5 and the large body of contrary case law, holding that "functional equivalent" documents, must comply with "CEQA's policies, evaluation criteria, and substantive standards."[6] These cases hold mere compliance with a CRP may not satisfy all of an agency's obligations under CEQA, and that a functional-equivalent document must comply with policies and standards that extend the analysis and considerations well beyond the topics addressed in section 15252. To claim an exemption from CEQA's EIR requirements, an agency must demonstrate *strict* compliance with these mandates. (*Mountain Lion Foundation v. Fish & Game Com.* (1997) 16 Cal.4th 105, 132, citing § 21080.5.)

CCC acknowledges that there is vast authority for the proposition that CRPs are not "exempt" from CEQA, but argues that the provisions of CEQA only apply to CRPs when the provisions themselves expressly say they do. (CCC 12.) This is precisely the opposite of what the statute and the case law says. A long line of authority holds that CRPs must comply with the provisions in CEQA from which they are not exempt. Nowhere, did the courts place much emphasis on the mandate that the

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[6] See, e.g., 1 Monaster & Selmi, California Environmental Law and Land Use Practice (2015) Preliminary Review, Exemptions, and Negative Declarations, § 21.07[4], p. 21-64 (3/13), citing *Sierra Club, supra,* 7 Cal.4th at pp. 1228-1231; *Katzeff v. California Dept. of Forestry and Fire Protection* (2010) 181 Cal.App.4th 601, 609-610; *Elk County Water Dist. v. Department of Forestry & Fire Protection* (1997) 53 Cal.App.4th 1, 12; *Californians for Native Salmon etc. Assn. v. Department of Forestry* (1990) 221 Cal.App.3d 1419, 142-1423; *Laupheimer v. State of California* (1988) 200 Cal.App.3d 440, 462; *Environmental Protection Information Center, Inc. v. Johnson* (1985) 170 Cal.App.3d 604, 620 (*EPIC*). *Conway v. State Water Resources Control Board* (2015) 235 Cal.App.4th 671, 680, likewise, confirmed that the substitute document must include "significant documentation," including "written responses to significant environmental points raised during the evaluation process." Similalry, *Joy Road Area Forest and Watershed Ass'n v. California Dept. of Forestry & Fire Protection* (2006) 142 Cal.App.4th 656 (Joy Road) held CRP was not exempt from the requirement to recirculate the functional-equivalent document and rejecting the agencies argument that it did not have to comply with provisions of CEQA which, by their terms, relate to the EIR "process." Thus, the agency there advanced arguments very similar to CCC here. The court explained in as much as the "public review and comment … is a crucial component of CEQA," the agency also had to comply with the "substantive CEQA requirement at issue in this case, i.e., that when significant new information is added to an environmental report, the public and interested parties are entitled" to notice and the opportunity to

Guidelines or the statute expressly refer to "substitute documents" before the mandate is applicable to such programs.

As noted by CCC, the *EPIC* court did refer to the functional equivalent document as an "abbreviated EIR." (CCC 12-13.) The court nevertheless did not excuse the agency from a thorough analysis of the impacts of the project, as suggested by CCC. Rather, the court held that the functional-equivalent document had to include an analysis of cumulative impacts, even though such an analysis was not required by the agency's CRP. Because such programs remain "subject to other provisions in CEQA such as the policy of avoiding significant adverse effects on the environment where feasible," because a cumulative impact analysis is "considered as a substantive criterion for the evaluation of the environmental impact of a proposed project," the agency's failure to consider cumulative impacts was a prejudicial abuse of discretion. (170 Cal.App.3d at pp. 617, 625, citing § 21083, subd. (b), and § 15130.)

Moreover, the Supreme Court held that CRPs must "conform not only to the detailed and exhaustive provisions" of their native statutory scheme, here the Coastal Act, "*but also to those provisions of CEQA from which it has not been specifically exempted by the Legislature.*" (*Sierra Club, supra,* 7 Cal.4th at p. 1228, italics added.) In other words, CEQA mandates apply except where the Legislature has said they do not apply, which is the antithesis of the theory advanced by CCC. (CCC 12.) In *Sierra Club*, the CRP limited its CEQA analysis to the data and information that it already obtained through its CRP. During the comment period, the agency was asked to evaluate the potentially significant impacts on species. The agency determined that it did not have authority to ask for this information as it fell outside of its regulatory bailiwick, essentially the same argument advanced by CCC here. The court disagreed, reasoning that CEQA gives the agency direct authority to require information needed to fully evaluate the impacts of its actions, even if the rules of the CRP did not specifically address the point. (7 Cal.4th at pp. 1228-1231.) The provision at issue there, § 21160, does not specifically refer to CRPs or to functional-equivalent documents; the Supreme Court nevertheless held it applied.

C. CCC violated CEQA.

1. CCC had authority to and a duty to identify, disclose, and study all project impacts; it had a duty to mitigate all impacts within its jurisdiction.

CCC argues that it did not have to "consider all of the impacts of the project" as a CRP need only evaluate the impacts of the project "within the jurisdiction and expertise of the responsible agency." (CCC 15.) It also argues that it is "limited to applying the policies found in the City of Marina LCP" and

comment. (*Id.* at pp. 667-669.)

therefore did not have to consider certain impacts, such as impacts to groundwater supply and quality. (*Ibid.*) These arguments are not only wrong but particularly ironic. They are ironic because CCC wrested the evaluation of the project away from the City, an agency of general police powers fully able to consider and mitigate for all of the impacts of the project. CCC and Cal-Am appear to have become impatient as the City completed its evaluation, prompting Cal-Am's premature appeal to CCC. These arguments are wrong because CCC was not acting as a "responsible agency." A "lead agency" under CEQA "means the public agency which has the principal responsibility for carrying out or approving a project. The lead agency will decide whether an EIR or negative declaration will be required for the project and will cause the document to be prepared." (§ 15367.) Here, **since no other agency approved the project, and** no other agency **prepared an environmental document, CCC** was the lead agency. In any event, a "responsible agency" under CEQA is not one with specialized expertise necessarily, as suggested by CCC, although often responsible agencies act second and do have specialized expertise. Under CEQA, a "responsible agency" "means a public agency which proposes to carry out or approve a project, for which a lead agency is preparing or has prepared an EIR or negative declaration." (§ 15381.) CCC was the lead agency here and was required to consider the full impacts of the project.

The Sixth District Court of Appeal in *Laupheimer* explained that CRPs are not excused from considering the full impacts of their proposed actions. (200 Cal.App.3d at p. 462; see also § 21002.1, subd. (d) ["The lead agency shall be responsible for considering the effects, both individual and collective, of all activities involved in a project. A responsible agency shall be responsible for considering only the effects of those activities involved in a project which it is required by law to carry out or approve."].)

Depending on the scope of its authority, an agency may or may not have authority to mitigate all of the impacts of a project—although CEQA instructs the agency to use any of its various discretionary power to mitigate or avoid significant impacts. (§ 21004.) Such a limitation on mitigation, however, does not obviate the need to identify and disclose impacts and mitigation. In such a case, CEQA instructs the agency to find that it has no authority to adopt the mitigation, but also to find that "**[t]hose changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.**" (§ 21081, subd. (a)(2); but see *City of Marina v. Board of Trustees of the California State University* (2006) 39 Cal.4th 341, 366 ["disclaiming the responsibility to mitigate environmental effects is permissible only when the other agency said to have responsibility has exclusive responsibility"].)

Here, CCC argues that it lacked jurisdiction to mitigate the adverse effects of the project because it was limited to implementing the LCP. The LCP, however, confers broad discretion to mitigate the impacts of the project. (See AR813 [noting policy to "ensure that environmental effects are mitigated to the greatest extent possible" when approving coastal-dependent development]; see also 934 [Coastal Development Permits in the project area may be approved if "[a]ll significant adverse environmental effects are either avoided or adequately mitigated"], 815, 842, 933.) Accordingly, CCC had authority.

CCC also makes the unexpected argument for the first time in its opposition brief that CCC actually found no impacts and adopted no "true mitigation." (CCC 13-14, fn 7.)[7] Although MCWD may agree as to CCC's failure to adopt "true mitigation," if by that CCC means legally adequate mitigation, but the assertion that the project would not result in environmental impacts is false. The Commission found that the project would have potentially significant environmental impacts and adopted mitigation. Tellingly, in the section entitled "California Environmental Quality Act" the Commission stated: **"Because the proposed project has the potential to result in significant adverse environmental impacts, the Commission has identified and adopted seventeen special conditions necessary to avoid, minimize, or mitigate these impacts."** (AR4206; see also AR4141 [noting Special Conditions are "meant to avoid and minimize effects" of the project]; 4173 [mitigation for lizards]; 4188 [noting mitigation for cultural resources]; 4192 [discussing hydrology mitigation]; 4120-4121 [discussing need to mitigate for biological resource impacts and how mitigation will not assure that all impacts are fully reduced to a less-than-significant level].)

2. CCC failed to provide adequate time for public review and comment on the Staff Report.

CCC argues that it is exempt from the CEQA requirement to provide 30 days for public review of environmental documents. (CCC 19.) As explained in MCWD's opening brief, CRPs are not exempt from CEQA's 30-day public notice requirement. (*Ultramar, Inc. v. South Coast Air Quality Management Dist.* (1993) 17 Cal.App.4th 689, 698-700.) The California Supreme Court has held that the statutory exemption for CRPs must be strictly construed. (See *Sierra Club, supra,* 7 Cal.4th at 1230-1231.) Because regulatory programs are not exempt from Public Resources Code section 21091, the 30-day notice and comment period required under that section applies to CCC. (See *Ultramar, supra*, at p. 700 ["an interpretation of [] section 21080.5 which contracts the public comment period would thwart the legislative intent underlying CEQA"].) It is that simple.

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[7] If CCC is asserting that it did not need to prepare the functional-equivalent of an EIR, then presumably CCC concedes the Staff Report is a negative declaration. The standard of review for such documents is the "fair argument" standard. If "***any*** substantial evidence in the record supports a ***fair argument*** that the project may result in significant adverse impacts, the proper remedy is to order preparation of an EIR." (*Communities For A Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 319-320.)

Despite the clear legislative directive in section 21091, and longstanding Supreme Court precedent, Cal-Am and CCC continue to argue that *Ross v. CCC* (2011) 199 Cal.App.4th 900, 932, grants CCC a blanket exemption from CEQA's 30-day notice requirement for all CCC staff reports. (Cal-Am 15; CCC 19-21.) Cal-Am and CCC are wrong. *Ross* is both factually and legally distinguishable and thus is neither controlling nor compelling.

First, *Ross* involved an entirely separate CRP. As explained in the CEQA Guidelines, the Secretary for the Resources Agency has certified two distinct programs operated by CCC. (§ 15251, subds. (c) and (f).) As Cal-Am concedes, CCC's CDP program, and the LCP program, present very different facts and are not comparable. (Cal-Am 10.) Of course, *Ross* considered the terms of the CRP for LCPs; here, the program for CDPs is at issue.

Does this make a difference? Indeed it does. The regulation as issue in *Ross* is fully contained within CCC's program for LCPs. Section 13532 falls within Chapter 8 (Implementation Plans), Subchapter 2 (Local Coastal Programs). It clearly falls within the regulatory scheme certified by the Secretary for the Resources Agency. Section 13532 dictates that staff reports for LCP amendments must be circulated at least seven days before the hearing. (*Ross, supra*, 199 Cal.App.4th at pp. 930, 937.) Because Public Resources Code section 21080.5, subdivision (d)(3)(B) mandated that the functional equivalent document be made available for a "reasonable time" for public review and comment, and because this provision was contained in the actual program certified by the Secretary on May 22, 1979, the Secretary must have determined that seven days was a "reasonable time" for this period. (*Ross, supra*, at p. 936.) It is important to note, as did the court in *Ross,* that the scheme for certifying LCPs certified by the Secretary contemplated **two** periods for public notice: first, the local government is required to provide a **six-week public review period** of both proposed LCP change and the environmental studies prior to voting on the action; only then is the matter transmitted to CCC for more review and a further seven-day review period. (*Ross*, at pp. 935, 939.) Moreover, according to *Ross*, the statutory period to challenge that determination ran 30 days after the certification. (*Ibid.*; see also § 21080.5, subd. (h)(1).) Contrary to CCC's assertion, the court's analysis in *Ross* did turn on the placement of the regulation within the context of the certified regulatory scheme. (CCC 20.) The court specifically distinguished both *Ultramar* and *Joy Road* since neither of those regulatory schemes contained a specific period for public review. (*Ross, supra*, 199 Cal.App.4th at pp. 930, 937 [section 13532 "expressly deviates from the 30-day notice time frame specified in [CEQA]."].)

CCC's CRP for CDPs, relevant here, contains no similar timing provision. Section 13059, which governs the circulation of Staff Reports for CDPs, states only that Staff Reports shall be distributed within a "reasonable time" to assure adequate notification prior to the public hearing; it thus differs in important ways from the regulation at issue in *Ross*. The Secretary of the Resources Agency certified the program with that very general description of notice. Thus, the certified program in this case is like the programs at issue in *Ultramar* and *Joy Road* since neither of those regulatory schemes contained a specific period for public review, and not like the program at issue in *Ross* which did. And obviously, circulation of a Staff Report for at least 30 days would satisfy both CEQA's 30-day requirement and CCC's "reasonable time" requirement. There is simply no conflict between section 13059 and section 21091. For this reason, Cal-Am is wrong, and the certification of the CDP regulatory program does not shield CCC from future challenges under section 21080.5 for failure to provide reasonable notice. In the absence of a *Ross*-type bar, section 21080.5, subdivision (g), specifically recognizes that an agency's action can be challenged for failure to comply with section 21080.5, ***even after the agency's regulatory program has been certified.***

CCC argues that a notice provision—not contained within the CRP for CDPs (Chapter 5, CDPs)—but rather in the more generic rules for CCC's regular meetings (Chapter 2) —serves the same function as the notice provision in *Ross*, and establishes as a matter of law that an abbreviated notice provision is sufficient. (CCC 19-21.) This argument piles inference upon inference. It supposes that the Secretary of the Resources Agency—scoured the general regulations of CCC so as to know and understand that CCC intended the regular meeting notice period to serve as the "notice and comment period" for environmental review. In as much as the Secretary's duty was limited to certifying that the "program" met the "generic" requirements of Public Resources Code section 21080.5 subdivision (d), CCC's argument strains credulity. (Pub. Resources Code, § 21080.5, subd. (e)(2).)

As the Supreme Court explained in *Mountain Lion Foundation, supra,* 16 Cal.4th at p. 122, if the "benefits and purposes of the CEQA process can be reconciled with the Commission's duty under [its CRP] … we are obligated to harmonize the objectives common to both statutory schemes to the fullest extent the language of the statutes fairly permits." (Accord *Strother v. CCC* (2009) 173 Cal.App.4th 873, 880.) Section 13059 and section 21091 can be readily harmonized. CCC's notice requirement for regular meetings does not irreconcilably preclude circulation of the staff report for CEQA purposes in compliance with the Legislative directive for 30-day's notice in CEQA matters under section 21091. Agencies frequently have multiple notice provisions, including provisions under the Brown Act. Agencies can and do reconcile these various notice provisions. There is simply no basis to conclude that CCC's ordinary notice provisions trump the notice requirement for environmental documents under CEQA; such a conclusion would be inconsistent with Supreme Court's directive that the provisions of CEQA and the Coastal Act must be harmonized to the fullest extent possible.

Indeed, public participation is the bedrock element of both CEQA and the Coastal Act and is essential to ensuring an informed decision-making process that minimizes adverse impacts. (See § 30006 ["the ... implementation of programs for coastal … development should include the widest opportunity for public participation."]; § 15201 ["Public participation is an essential part of the CEQA process"].) "The requirement of public review has been called 'the strongest assurance of the adequacy of [environmental review under CEQA]' [Citation.]." (*Mountain Lion Coalition v. Fish & Game Com.* (1989) 214 Cal.App.3d 1043, 1051; accord *Ultramar, supra,* 17 Cal.App.4th at p. 703; see also *Sierra Club, supra,* 7 Cal.4th at p. 1229 [public review "demonstrate[s] to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action"]; *Schoen v. Department of Forestry & Fire Protection* (1997) 58 Cal.App.4th 556 ["public review provides the dual purpose of bolstering the public's confidence in the agency's decision and providing the agency with information from a variety of experts and sources"].) But CCC and Cal-Am ask the Court to remove the public participation component from both CEQA and the Coastal Act.

3. CEQA's 30-day notice requirement is compatible with CCC's procedure for CDP appeals and promotes the purposes of CEQA and the Coastal Act.

CCC's claim that complying with the 30-day notice requirement is unworkable under the Coastal Act is far-fetched and disingenuous. Case law is clear that CCC is only required to determine whether an appeal raises a "substantial issue" conferring jurisdiction on CCC within 49 days; it can hold the hearing on the appeal and decide whether to approve the CDP at a later date. (*Encinitas County Day School, Inc. v. CCC* (2003) 108 Cal.App.4th 575, 586; *Coronado Yacht Club v. CCC* (1993) 13 Cal.App.4th 860.) In *Coronado Yacht Club,* the court was emphatic that CCC is not required to hear an appeal within 49 days. The court explained that such a requirement would unduly "shackle" CCC and lead to "great difficulties." (*Id.*, at pp. 871-872.) In fact, among other problems, the court expressly noted that requiring CCC to hear an appeal within 49 days would make it difficult, if not impossible, for CCC to perform adequate environmental review for a proposed project. (*Id.* at p. 872.) Because the substantial issue determination is much narrower than CCC's ultimate decision on the appeal, CCC may prepare an abbreviated staff report on the limited substantial issue question, which can easily be accomplished within the 49 day period. (*Ibid.*) CCC's determination whether the appeal raised a "substantial issue" is not an approval of a project for purposes of CEQA, and therefore CCC would not be required to perform full environmental review before issuing the abbreviated staff report on that issue. Moreover, as noted by CCC, most appeals are from local approvals of CDPs. (CCC 22.) Because a local agency cannot approve a CDP without first complying with CEQA, a certified CEQA document will usually already exist before CCC even reaches the "substantial issue" question (unless the local agency determines a project is exempt from CEQA). Here, however, CCC asserted jurisdiction over the slant well before the

City could prepare an EIR and therefore there was no certified document

Indeed, this is precisely the procedure CCC typically follows. CCC's own guidance documents explain that the "substantial issue" determination and the hearing on an appeal are completely separate actions. (Wilkins Declaration in Support of Request for Judicial Notice (RJN), Ex. D, p. 3.) The guidance further explains that while the substantial-issue determination must be made within 49 days, "it takes approximately 6-8 months on average" to reach a final decision on appeal and "it may take longer to resolve more complicated appeals." (*Ibid.*) As indicated by CCC's own documents, there was no time crunch for CCC to make a final determination on the appeal. CCC's zeal to compress the entire process into 49 days is inexplicable.

There is simply no justification for CCC ignoring the CEQA-mandated 30-day review period. CCC should have complied with the 49-day requirement by determining whether Cal-Am's appeal raised a substantial issue. By issuing the Staff Report a mere 12 days before the hearing, CCC failed to comply with CEQA and deprived the public any meaningful opportunity to comment on the report.

4. CCC's responses to comments were inadequate; CCC failed to respond to a single significant environmental comment raised during the evaluation process.

Contrary to Cal-Am's assertion, *Ross* does not grant CCC an exemption from CEQA's responses to comments requirement. (Cal-Am14.) The issue in *Ross* was whether CCC was required to comply with Public Resources Code section 21091, subdivision (a), when circulating a staff report for a proposed LCP amendment. (*Ibid.*) Subdivision (a) prescribes the *amount of time* an agency must provide for public review and comment. It has nothing to do with an agency's obligation to respond to comments. The requirement that agencies provide written responses to comments is included in section 21091, subdivision (d). (See also § 15088.) Although the court in *Ross* determined CCC had adequately responded to comments in a separate section of the opinion, it did not hold CCC was exempt from section 21091, subdivision (d). There is simply no authority to support Cal-Am's position that CCC is exempt from CEQA's responses to comments requirement.

Furthermore, CCC's own regulations expressly state that a Staff Report must include "[r]esponses to significant environmental points raised during the evaluation of the proposed development **as required by [CEQA]**." (§ 13057, subd. (c)(3).) Nevertheless, Cal-Am argues that CCC did not need to comply with CEQA's responses to comments requirement and that CCC instead was only required to respond to comments it received *before* the initial Staff Report was issued. (Cal-Am 17-18.) This argument is nonsensical and would subvert the purposes of both CEQA and the Coastal Act. It is impossible for anyone to comment on the adequacy of the environmental review for the project without access to that review. (See, e.g., § §§ 15073-15074 [duty to make negative declaration available for public review and comment], § 15087, subd. (c)(2) [duty to make EIR available for public review and comment].) Indeed, the main purpose of a Staff Report, as a substitute for a draft EIR, is to provide information about a proposed project's environmental impacts so the public can evaluate this information and provide comments. CCC is then required to provide written responses to significant environmental issues raised by commenters. (§ 21091, subd. (d); § 15088; see also § 21080.5, subd. (d)(2)(D); § 13057, subd. (c)(3).)[8] CCC acknowledges it is required to respond to comments. (CCC 22.)

Contrary to Cal-Am's argument, the language of the regulation does not limit this requirement to the "initial" Staff Report, as Cal-Am suggests. (Cal-Am 17.) The regulation states that the Staff Report shall include the staff's recommendation and shall include responses to comments as required by CEQA. (§ 13057, subds. (a)(6), (c)(3).) As occurred here, an initial staff report is often followed by addenda. The addenda include modifications to the initial Staff Report including any proposed changes recommended by staff (see AR3524), responses to comments on the staff report (see AR3535), and any changes to staff's recommendation. In other words, the addenda are part of the staff report and include the staff's recommendation. Thus, even under Cal-Am's interpretation of CCC's regulations, CCC must respond to comments in the final Staff Report as modified by the addenda. This practice is consistent with CEQA's requirement that documents prepared under a CRP must include written responses to significant environmental points raised during the evaluation process in the agency's "*final action* on the proposed activity." (§ 21080.5, subd. (d)(2)(D); see *Ross, supra,* 199 Cal.App.4th at pp. 940-941 [upholding CCC's responses to comments because an addendum to the Staff Report included written responses to comments regarding the content of the Staff Report].)

In fact, Cal-Am claims CCC did comply with this procedure and did respond to environmental concerns raised by commenters in addenda. (Cal-Am 18.) But that is plainly false. The "Responses to Comments" section of the Staff Report is just two-and-a-half pages long and does not respond to a single environmental concern raised during the evaluation period. (AR3535-3538 [the entire "Responses to Comments" section of the Staff Report, which responds only to comments regarding CCC's jurisdiction, and includes *no responses to any environmental issues*].) In short, by failing to respond to significant environmental comments, CCC completely ignored CEQA and its own regulations.

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[8] / Cal-Am suggests CEQA's responses to comments requirement cannot apply to CCC because written communications may be made on the day of the public hearing. (Cal-Am 18.) But Cal-Am ignores the fact that CEQA also permits comments to be submitted on the day of the hearing on a project, and even up till the close of the hearing. (See § 21177.) In fact, due to the improperly truncated comment period, MCWD contacted CCC to inquire about its procedures for responding to comments on the Staff Report. (AR3618.) CCC stated it would provide written responses to comments received through Friday,

D. CCC's analysis was inadequate.

1. CCC improperly piecemealed the project by analyzing the slant well separate from the larger MPWSP project.

Segmenting the slant well from the rest of the MPWSP project is textbook piecemealing and is prohibited under CEQA. (*Laurel Heights Improvement Assn. v. Regents of Univ. of Cal.* (1988) 47 Cal.3d 376 (*Laurel Heights I*); see § 15378.) The two-part "piecemealing" test laid out by the Supreme Court in *Laurel Heights I* is readily satisfied here. First, the MPWSP is a reasonably foreseeable consequence of the slant well. The record plainly shows that the slant well is the initial phase of the MPWSP and that Cal-Am intends to convert the slant well into a production well for the MPWSP. (AR4142; 4156; 634; see also *Whitman v. Bd. of Supervisors* (1979) 88 Cal.App.3d 397 [EIR for test wells inadequate because it failed to analyze a pipeline that would eventually carry oil produced from the wells; the record "reflects that the construction of a pipeline was, from the very beginning, within the contemplation of [Real Party in Interest]."].) Second, the scope of the larger project (i.e. the full MPWSP including the slant well) and its environmental effects would obviously be much greater than the scope and environmental impacts of the slant well by itself. Cal-Am argument to the contrary is nonsense. (Cal-Am 21.) The Staff Report acknowledges that even converting the slant well to a water source well would enlarge the scope of environmental review. (See AR2706 [converting to use as a water source for the MPSWP "will require additional review and analysis"]; 2752.) Because the slant well and MPWSP are in fact two parts of the same project, CCC could not analyze them separately.

The "independent utility" test does not save CCC from this fatal error. (MCWD 24-25.) Cal-Am correctly states that two projects may undergo separate environmental review "when the projects have independent utility ***and can be implemented independently***." (Cal-Am 19; see also 1 Kostka & Zischke, Practice Under the Cal. Environmental Quality Act (Cont.Ed.Bar 2d ed. 2014) § 12.8A [under the independent utility test, "[a] proposal that is related to a project but has independent utility ***and is not necessary for the project to proceed***, need not be included as part of the project . . . and may be reviewed in its own environmental document, as a separate project."].) But contrary to Cal-Am's argument, the slant well and the MPWSP do not satisfy either part of this test.

First, the slant well does not have independent utility apart from the MPWSP. The entire justification for the slant well is that it is necessary to determine whether MPWSP will be constructed and operated as proposed. (See AR2711; 2706; 4142; 215.) Moreover, because project proponents can almost always come up with a reason why portions of a project have utility independent of the rest of the

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November 7. (AR3618.) But CCC did not even do that. (AR3535-3538.)

project, as Cal-Am attempts to do here, courts have repeatedly emphasized that theoretical independent utility does not satisfy the test. (*Tuolumne County Citizens for Responsible Growth, Inc. v. City of Sonora* (2007) 155 Cal.App.4th 1214, 1229; *Banning Ranch, supra*, 211 Cal.App.4th at p. 1226, fn. 7.) Instead, courts must look at whether the two projects will be "interdependent in practice, even if theoretically separable[.]" (*Ibid.*) Here, the record clearly shows that, in practice, the slant well and the MPWSP are interdependent and are parts of the same project. (AR4142; 4156; 2711; 2706; 4634.)

Second, the MPWSP cannot be implemented independent of the slant well. The record confirms that the slant well is a necessary precedent for the MPWSP. (See, e.g., AR2711 [the test well is "a necessary precursor to determining whether slant wells are feasible at this site and determining whether the MPWSP will be constructed and operated as currently proposed."]; 2706; 2743.) Therefore, the slant well and the MPWSP do not satisfy the independent utility test and must be analyzed together as a single project. (See also § 15165 ["Where an individual project is a necessary precedent for action on a larger project . . . an EIR must address itself to the scope of the larger project."].) Cal-Am completely ignores these aspects of the test.

Moreover, contrary to Cal-Am's suggestion, the fact that CCC analyzed the slant well first before the MPWSP does not excuse CCC from its obligation to analyze the two parts of the project together. (See Cal-Am 20.) Even if the slant well could proceed without the MPWSP as Cal-Am claims, the MPWSP could not legally or factually proceed without the slant well. In other words, the two projects cannot, and would not, proceed independent of each other. And again, "[w]here an individual project is a necessary precedent for action on a larger project . . . an EIR must address itself to the scope of the larger project." (§ 15165.) As explained above, the MPWSP both legally and factually compelled completion of the slant well and the slant well was a necessary precedent for the MPWSP. Therefore, the slant well and the MPWSP could not be analyzed separately.

Lastly, Cal-Am and CCC completely ignore the fact that CCC's justification for asserting jurisdiction over and approving the Project, as well as for rejecting alternatives, are all premised on the MSWSP being approved at Cal-Am's preferred location and based on its preferred design. (See, e.g., AR4200; 4196; 4166.) Either CCC improperly piecemealed the slant well from the larger MPWSP, or the findings in the Staff Report cannot be upheld.

2. The alternatives analysis in the Staff Report is inadequate; CCC failed to analyze a single alternative to the Project.

Cal-Am claims CCC analyzed a reasonable range of alternatives in compliance with CEQA and the Coastal Act. (Cal-Am 28.) This claim is plainly false. Although the Staff Report *mentions* several potentially feasible alternatives, none were *analyzed*. (AR2742-2744; 4194-4196.) Instead, the two-page discussion of alternatives in the Staff Report consists primarily of unsupported conclusions that no alternative methods or locations are feasible. (AR2743-2744; 4194-4196.) Because CCC improperly dismissed all alternatives in conclusory fashion, there is no analysis or discussion comparing the impacts of the alternatives to those of the Project as required under CEQA. (See § 15126.6, subd. (d) [the analysis "shall contain sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project"]; *Village Laguna of Laguna Beach, Inc. v. Bd. of Supervisors* (1982) 134 Cal.App.3d 1022, 1029 [there must be sufficient information "to permit a reasonable choice of alternatives so far as environmental aspects are concerned."].) And the Staff Report utterly fails to analyze the comparative merits of any alternatives. (§ 15126.6, subd. (a).)

Rather than addressing MCWD's legal arguments, Cal-Am's argument tracks the discussion in the Staff Report and purports to explain why the few alternatives mentioned in the Staff Report were rejected and therefore *not analyzed.* (Cal-Am 28-30.) Indeed, Cal-Am argues the Staff Report should be upheld despite the lack of analysis because CCC's finding that there are no feasible alternatives is supported by substantial evidence elsewhere in the record. (Cal-Am 29-30.)

The Staff Report is not the place for CCC to make findings on whether the identified alternatives are in fact feasible. The Staff Report was required to analyze a reasonable range of alternatives that are considered *potentially feasible.* (§ 15126.6, subd. (a); *California Native Plant Soc. v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 981 (*CNPS*); *Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336, 1354.) The determination of "actual feasibility" can only be made by decisionmakers, who have the discretion under CEQA to reject alternatives. (*CNPS, supra*, 177 Cal.App.4th at p. 1001.)

Here, all of the alternatives mentioned in the Staff Report are at least potentially feasible, especially the alternative near Potrero Road which, by Cal-Am's own account, is "likely suitable for a slant well" and would "avoid impacts to the Salinas Basin." (AR3533; 3588, 3592.) In fact, the EIR prepared for the larger MPSWP analyzed the Porero Road alternative and concluded that constructing a slant well at that site is not only feasible, but it would also have less environmental impacts than the well at the Project site. (See RJN, Ex. A, pp. 7-259 to 7-261.) Most notably, the EIR explained that slant wells at the Potrero Road site would have **fewer impacts** to snowy plover and ESHA. (*Ibid.*)

Further, making feasibility determinations behind closed doors and outside of the public environmental review process, as CCC did here, is completely inappropriate under CEQA. (See *Laurel Heights I*, supra, 47 Cal.3d at p. 404 [an agency may not privately discuss the feasibility of alternatives, and thus limit the scope of analysis in an environmental document]; *Habitat and Watershed Caretakers v. City of Santa Cruz* (2013) 213 Cal.App.4th 1277, 1301-1305.) Cal-Am cites to several documents claiming that the various unstated alternatives were eliminated by "stakeholders," outside of the public process, because they were determined to be "less preferable" than the Project. (Cal-Am 29-30.) Not only is that an improper basis for rejecting potentially feasible alternatives, the Staff Report cites to no actual evidence of this analysis and does not mention which alternatives were considered or the basis upon which they were determined to be "less preferable."

Cal-Am apparently believes that because CCC was already informed as to the alleged infeasibility of alternatives, there was no need to discuss them in the Staff Report. Cal-Am misses "the critical point that the public must be equally informed. Without meaningful analysis of alternatives in the EIR, neither the courts nor the public can fulfill their proper roles in the CEQA process." (*Laurel Heights I, supra,* 47 Cal.3d at p. 404.) Lastly, Cal-Am does not even attempt to address the inadequacies pointed out in MCWD's opening brief regarding the required "no project" analysis. Cal-Am merely repeats the conclusory and speculative statements in the Staff Report. (Cal-Am 29.) As explained in MCWD's opening brief, the discussion does not satisfy the intended purpose of the "no project" analysis. (AR4196; § 15126.6, subd. (e)(3)(B).)

3. The Staff Report failed to establish an adequate baseline and thresholds of significance against which to measure impacts to hydrology and water quality.

The baseline is the starting point by which changes from the project are measured; the threshold is the amount of change that constitutes a significant impact. Rather than establishing the baseline at the beginning of the process as CEQA and logic require, CCC elected to defer analysis of the baseline conditions until long after project approval. The Staff Report plainly states that "the baseline *will be* established by the Hydrological Working Group." (AR4193.) This was inadequate under CEQA. By deferring the analysis of baseline conditions, it was impossible for the Staff Report to provide the information necessary for the decisionmakers and the public to understand the impacts of the Project. (*Save Our Peninsula Committee* v. *Monterey County Board of Supervisors* (2001) 87 Cal.App.4th 99, 125; §§ 15125, 15126.2, subd. (a).) If CCC believed there was insufficient information to establish the baseline before it approved the project, the Staff Report should have at least explained the extent of information that was available. But CCC deferred the analysis without any explanation.

Cal-Am suggests that the Staff Report was not required fully and accurately describe existing hydrologic conditions in the SVGWB because there is sufficient evidence of existing conditions in other documents in the record. (Cal-Am 21-22.) Cal-Am is wrong. To fulfil CEQA's informational and public participation purposes, the baseline was required to be established at the beginning of the process and accurately described in the Staff Report itself. "If the description of the environmental setting of the project site and surrounding area is inaccurate, incomplete, or misleading, the EIR does not comply with CEQA." (*Cadiz Land Co. v. Rail Cycle* (2000) 83 Cal.App.4th 74, 87.) Further, it is "a central concept of CEQA, widely accepted by the courts, that the significance of a project's impacts cannot be measured unless the EIR first establishes the actual physical conditions on the property." (*Save Our Peninsula Committee, supra,* 87 Cal.App.4th at p. 125.) Here, because the Staff Report included almost no information about existing hydrologic conditions near the project site, it was simply impossible for the public or decisionmakers to understand the Project's potential impacts to groundwater supplies and water quality. (AR2740-2741; see *Save Our Peninsula Committee, supra,* at p. 125; §§ 15125, 15126.2.)

Even if there was some evidence of existing conditions buried somewhere in the record, as Cal-Am contends, that does not make up for the lack of baseline information in the Staff Report itself. As the California Supreme Court has emphasized, "the data in an environmental document must be presented in a manner calculated to adequately inform the public and decision makers, who may not be previously familiar with the details of the project. Information 'scattered here and there in EIR appendices' or a report 'buried in an appendix,' is not a substitute for 'a good faith reasoned analysis.'" (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 442.) It is not the public's responsibility to comb the record and cobble together baseline information. That burden falls squarely on CCC. (See also *Save our Peninsula Committee, supra,* 87 Cal.App.4th at p. 128.) By failing to provide a complete and accurate description of existing conditions (i.e., baseline), the Staff Report is inadequate as an informational document as a matter of law. (*Ibid.*)

Moreover, the purported baseline information in the Staff Report describing the groundwater basin as "severely contaminated by seawater intrusion" is not supported by substantial evidence and is misleading. (RJN, Ex. C.) Publicly available data shows that seawater contamination in the basin is not nearly as pervasive as the Staff Report suggests. In fact, ample data directly contradicts the Staff Report's conclusory statements and shows the slant well would actually pump potable water from the groundwater basin. (*Ibid.*) Because there was hardly any baseline information in the Staff Report itself, and because CCC failed to provide adequate time for review and comment, the public was deprived any opportunity to evaluate or provide comments on the baseline and impacts of the slant well.

Cal-Am cannot identify any threshold of significance that was used to measure the Project's groundwater impacts. The best Cal-Am can do is point to a "performance standard" that was added to Special Condition 11 in a last-minute addendum. (Cal-Am 24.) A performance standard added to a mitigation measure at the end of the process is not a threshold of significance. As explained in MCWD's opening brief, a threshold of significance serves a completely separate function. The threshold of significance is used to determine whether an impact is considered significant. It was not appropriate for CCC to merely state that a standard included in mitigation will ensure impacts are less than significant. (*Lotus v. Department of Transportation* (2014) 223 Cal.App.4th 645, 656.)

Even if it was appropriate for CCC to only describe a threshold of significance as part of its mitigation, there is no explanation why this particular threshold was selected and there is no evidence to support the use of this threshold. (MCWD 30.) Cal-Am claims the required explanation was added to the Staff Report in the addendum and incorporated into CCC's findings. (Cal-Am 25, citingAR3535-3532 and 4192-4193.) Cal-Am is mistaken. The addendum and the findings do not explain why the purported threshold was appropriate or why there would be no impacts based on the threshold. (AR3535-3532; 4192-4193.) There is no explanation anywhere in the Staff Report or the addenda why a 1.5-foot water level drawdown or increase in TDS levels of more than 2,000 parts per million at Monitoring Well 4 provides a meaningful threshold for assessing impacts as required under CEQA.

Cal-Am suggests that Special Condition 11, which was added in the last-minute addendum, cured any flaws in the discussion of impacts to hydrology and water quality. Cal-Am is wrong again. As explained above, CCC could not rely on Special Condition 11 to establish the baseline or the threshold of significance to measure the Project's potential environmental impacts. But even on its own, Special Condition 11 does not satisfy CEQA's requirements for mitigation.

First, the Staff Report improperly assumes Special Condition 11 is part of the Project without first identifying or analyzing the significance of the impact apart from the proposed mitigation. Cal-Am cites to the City's MND (which was deemed inadequate by the City) and the Geoscience findings to support Cal-Am's assertion that the slant well alone would not result in significant impacts to groundwater. (Cal-Am 25.) But the Staff Report made no such determination and clearly relies on Special Condition 11 to support the conclusion that there would be no significant impacts. (AR4192-4193.) Like *Lotus*, the Staff Report does not include any information that enables the reader to evaluate the significance of the impact without the mitigation. (*Lotus, supra,* 223 Cal.App.4th at p. 654, 657 ["By compressing the analysis of impacts and mitigation measures into a single issue, the [Staff Report] disregards the requirements of CEQA."]

Second, despite Cal-Am's argument to the contrary, Special Condition 11 does not include adequate performance standards that would allow CCC to defer mitigation until after project approval. Cal-Am suggestion that Project activities will be halted upon reaching specific triggers—1.5 foot drawdown or 2,000 ppm TDS increase—ignores the fact that there is no assurance that impacts would in fact be avoided. Instead, it is left entirely up to the HWG and Executive Director to determine if the slant well caused such changes. (AR4151-4152.) There are no objective standards for determining whether the slant well caused the changes or whether they were caused by "natural variability." (4192-4193.) There is no evidence that meeting this standard in any event will avoid impacts. Thus, the condition does not include performance criteria that would allow deferral.

4. CCC failed to disclose, analyze, or propose adequate mitigation for the project's significant biological resource impacts.

By failing to disclose, analyze, or propose legally adequate mitigation for the Project's significant impacts on special-status species and ESHA, CCC violated CEQA and the Coastal Act. (MCWD 30-32.) Cal-Am argues all biological impacts claims are moot because Cal-Am completed major construction activities before the hearing on the merits. (Cal-Am 30-31.) Wrong. First, project construction is *not* complete.[9] For example, decommissioning activities have yet to occur, which would further disturb biological resources and ESHA at the site. (AR4153; see also 2353 [Cal-Am's false assurance to Monterey Bay National Marine Sanctuary that test well *demobilization activities* will not go into the Snowy Plover nesting season (March 1st - September 30th) under any condition]; 2749.) Decommissioning of the slant well and related activities would have significant impacts to ESHA and snowy plover. (AR4201 [mitigation applies to decommissioning].) Thus, MCWD's claims regarding biological impacts remain viable and are not moot.

Cal-Am's claim that the text of the LCP and the Coastal Act establish that there will be no impacts to ESHA and snowy plover is nonsense. (Cal-Am 32.) CCC's unsupported finding that impacts to ESHA have been mitigated "to the maximum extent feasible" is not undisputable proof that environmental harm will not occur. (Cal-Am 32; see AR4198-4202; § 30260.) Indeed, CCC's findings expressly state that biological impacts *will* occur: "***The key concern is the project's unavoidable effects on environmentally sensitive habitat areas ("ESHA").***" (AR4143; 4206 [CEQA finding that significant impacts remain, and no additional mitigation or alternatives have been identified as feasible].) Thus, the slant well was approved *despite* its significant and unavoidable impacts. Under CEQA, if there are any remaining significant, "unavoidable" impacts, i.e., impacts that cannot be mitigated or avoided, the project must either be denied or the agency must cite overriding considerations justifying approval of the project notwithstanding the impacts. (§§ 15091-15093.) It is undisputable that the project will result in harm to ESHA and snowy plover. This is true regardless of whether CCC could make the findings under Public Resources Code section 30260, overriding significant and unavoidable impacts, which is required to site coastal-dependent industrial facilities in ESHA.

Lastly, Cal-Am's suggestion that last minute changes to Special Condition 14 allowing construction activities to continue beyond the critical February 28 cut-off date and into Snowy plover

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[9] See RJN, Ex. B. Even as to well installation, Cal-Am has misrepresented the status of the construction. According to a memo from Cal-Am to the federal regulatory agencies, Cal-Am has not, and cannot, complete dune and sand restoration associated with well installation until later this year because the work was not completed prior to the snowy plover season. (*Ibid.*)

nesting and breeding season made the mitigation *more protective* to snowy plover defies logic and flies in the face of every expert biologist and wildlife agency that commented on the potential impacts of the slant well. (Cal-Am 31.) No expert every stated that the last-minute changes to mitigation would be effective, much less "more protective"; all experts agreed that construction had to cease before February 28 altogether to protect the species. (AR475, 2133, 3849.) There is simply nothing beyond counsel's self-serving argument that the modified mitigation will work to substantiate it. Worse still, Cal-Am claims it can escape scrutiny because further consultation with those wildlife agencies was not required. (Cal-Am 31, fn. 18.) This is nonsensical as well. It simply ignores the fact that there is no substantial evidence to support the effectiveness of the substitute mitigation. As explained below, the last-minute changes to the project allowing activities to occur during snowy plover breeding and nesting season was significant new information requiring the Staff Report to be recirculated to allow both the public and the resources agencies to comment on the actual project approved by CCC.

5. The Staff Report must be re-noticed and re-circulated.

Cal-Am claims that CCC is exempt from all CEQA requirements, including the recirculation requirement in Public Resources Code section 21092.1. (Cal-Am 32, citing § 21080.5.) Not so. Section 21092.1, CEQA's recirculation requirement, is not included in the specific list of exemptions for regulatory programs. (See Section B, *supra*.) Despite major changes to the project and significant new information added to the Staff Report the night before the hearing, Cal-Am further claims CCC was not required to recirculate the Staff Report because the additions were not "significant." (Cal-Am 33.) Again, Cal-Am is wrong. The last minute additions deprived the public any meaningful opportunity to comment on the project's impacts and on feasible alternatives and mitigation.

First, last minute changes to the project allowing construction to continue into the snowy plover nesting and breeding season was significant new information that was only disclosed after circulation for review and comment by the public and the wildlife agencies. (AR3525, 3526-3527.) Cal-Am's suggestion that this change made the project *more* protective of plover is beyond the pale. (Cal-Am 34.) Substantial evidence abounds showing this change would likely cause new and more severe impacts to plover than previously disclosed. (See AR357-482; 396; 2353; 475; 3849 RJN, Ex.B.) Yet neither the wildlife agencies nor the public were afforded any opportunity to comment on this significant change.

Second, Cal-Am claims addition of a new feasible alternative at Potrero Road does not trigger recirculation because it is not considerably different than the other alternatives analyzed in the Staff Report and because it would not clearly lessen the project's significant impacts. (Cal-Am 34-35.) Cal-Am is wrong. As explained above, CCC failed to analyze any alternatives in the Staff Report, so the Potrero Road alternative cannot be similar to any previously analyzed alternatives. Further, the Potrero

Road alternative is at least potentially feasible and would substantially lessen significant impacts. (RJN, Ex.A.) Indeed, Cal-Am itself has described the Potrero Road site "favorable for drilling" and noted that it would "avoid impacts to the Salinas Basin." (AR3588, 3592.)

Further, the addition of significant new information regarding hydrology and groundwater, including the extent of seawater intrusion near the site, also mandates recirculation. (AR3531-3532; 3525.) Foremost, as Cal-Am notes, the only purported threshold of significance to assess impacts to Coastal Agriculture was added to Special Condition 11 after the Staff Report was circulated. (Cal-Am 24, citing AR4151.) In other words, based on Cal-Am's own argument, the only possible measure of whether the Project would adversely impact hydrology and groundwater was added after the Staff Report was circulated. But the public was afforded no opportunity to review and comment on this critical information. Because the public was deprived any opportunity to comment on potential groundwater impacts, recirculation was required. (§ 21092.1; § 15088.5; see also *Save Our Peninsula Committee*, *supra*, 87 Cal.App.4th at p. 131 [the purpose of recirculation of an EIR is to allow public and other agencies the opportunity to evaluate new data or conclusions].) Moreover, the new data and information added in the addenda by Cal-Am at the last minute, without any opportunity for public comment, purportedly showing that all the groundwater in the SVGB was severely seawater intruded and unusable is contradicted by ample data. (RJN, Ex. C.) The public had no opportunity to review and comment on the changes or to submit information to CCC showing its assumptions were wrong. Thus, CCC's failure to recirculate the Staff Report was prejudicial, resulting in a flawed document.

Lastly, the Staff Report was so fundamentally and basically inadequate and conclusory in nature that public comment on the Staff Report was in effect meaningless. (See § 15088.5, subd. (a)(4).) Therefore, CCC was required to recirculate the Staff Report before approving the Project to comply with CEQA. (See § 21092.1; § 15088.5; *Laurel Heights II, supra,* 6 Cal.4th at pp 1124-1125.)

CONCLUSION

For the foregoing reasons, MCWD respectfully requests that the Court grant the petition.

Dated: June 18, 2015

REMY MOOSE MANLEY, LLP

By: [signature] for

Howard F. Wilkins III
Attorneys for Petitioner
MARINA COAST WATER DISTRICT

Marina Coast Water District v. California Coastal Commission, et al.
Santa Cruz Superior Court Case No.: CISCV180839

PROOF OF SERVICE

I, Rachel N. Jackson, am a citizen of the United States, employed in the City and County of Sacramento. My business address is 555 Capitol Mall, Suite 800, Sacramento, California 95814. My email address is rjackson@rmmenvirolaw.com. I am over the age of 18 years and not a party to the above-entitled action.

On June 18, 2015, at approximately 4:00 p.m., I served the following:

MARINA COAST WATER DISTRICT'S REPLY BRIEF IN SUPPORT OF PETITION FOR WRIT OF MANDATE AND COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

☑ On the parties in this action by causing a true copy thereof to be electronically delivered via the internet to the following person(s) or representative at the address(es) listed below. The parties on whom this electronic mail has been served have agreed to such form of service

SEE ATTACHED SERVICE LIST

I declare under penalty of perjury that the foregoing is true and correct and that this Proof of Service was executed on this 18th day of June, 2015, at Sacramento, California.

Rachel N. Jackson

Marina Coast Water District v. California Coastal Commission, et al.
Santa Cruz Superior Court Case No.: CISCV180839

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EXHIBIT 6

To Marina Coast Water District Comments

Inventory of transmitted flash drive folders containing documents produced by California-American Water Company and the California Public Utilities Commission pursuant to requests by Marina Coast Water District in proceeding A.12-04-019

1. 2015 ESA-CPUC DEIR files
2. 2017 ESA-CPUC Flash Drive Contents Feb 9
3. CalAm Received 7-23-15
4. Cal-Am’s document responses to MCWD’s fifth set of data requests
5. Cal-Am’s document responses to MCWD’s sixth set of data requests
6. CAW data request responses
7. CAW documents in Response_to_MCWD_Second_Data_Request
8. CAW re-production of illegible docs
9. PRA 16-268 Disclosed Feb 21 2017
10. PRA 16-268 Rec'd 1-20-17
11. PRA 16-268 Rec'd Feb. 9 2017
12. PRA 16-268_Disclosed_Feb. 7 2017
13. PRA 16-268_Disclosed_Mar. 7 2017
14. PRA 1542_Provided Sept. 17 2015
15. PRA 1611_1542 Provided Sept. 17 2015
16. PRA 1611_1542 Responsive Sept. 11 2015
17. PRA 2000, 2001, 2002 Responses produced 2016
18. PRA Request 1542 CPUC Response [natives]
19. PRA_1611_Documents_Provided_10-8-15
20. PRA_1611_Documents_Provided_10-12-15
21. PRA_1611_Documents_Provided_10-14-15
22. PRA_1611_Documents_Provided_August_10_2015

SUPERIOR COURT OF THE STATE OF CALIFORNIA

IN AND FOR THE COUNTY OF SANTA CRUZ

HONORABLE REBECCA CONNELLY, JUDGE

MARINA COAST WATER DISTRICT,
Petitioner,

vs.

CALIFORNIA COASTAL COMMISSION, et al,
Respondent.

No. CV180839

TRANSCRIPT OF PROCEEDINGS

Courthouse, Santa Cruz, California

May 1, 2015

APPEARANCES:

For the Petitioner:	Howard F. Wilkins, III, Esq. Chris Stiles, Esq.
For Ag Land Trust:	Alison N. Norton, Esq.
For the Respondents California Coastal Commission:	Joel S. Jacobs Deputy Attorney General
For the Real Party in Interest Cal-Am:	Winston Stromberg, Esq. Christopher W. Garrett, Esq. Anthony Lombardo, Esq.
Official Pro-Tem Reporter:	Lisa A. York Meeske, CSR No. 10617

Thank you for your testimony. I appreciate it.

THE WITNESS: You're welcome.

THE COURT: All right. Okay. So then I am going to shift to the testimony of Mr. Williams that you indicated.

MR. GARRETT: Yes. I'd like to call Mr. Dennis Williams to the stand.

THE COURT: Okay. Mr. Williams, if you could come forward please.

DENNIS WILLIAMS,

called as a witness on behalf of the Respondent, being sworn by the clerk to tell the truth, the whole truth, and nothing but the truth, answered and testified under oath as follows:

THE WITNESS: I do.

THE COURT: How's our court reporter doing?

I'm going to try to limit you to half hour. I'd, actually, like you to try to see what you could do in 25 minutes, so, if the California Coastal Commission wants to ask a question, they can have five minutes. And then we can have ten minutes.

MR. GARRETT: I'll try to beat that, Your Honor.

MR. JACOBS: Your Honor, I will not have any direct examination. So I'm happy to take whatever time you're willing to give to Mr. Garrett.

MR. GARRETT: This is my witness, and I will try to move things along. And, if that -- the Court can decide what form you want the questions. It's, obviously, going to be faster if I just ask him some basic questions and move through it.

THE COURT: I'd like you to expedite it, and, you know, please, no leading questions. In the interest of time, I'm going to allow some leading questions and some leeway.

So -- and, with respect to his expertise, perhaps, we could get a stipulation with respect to that.

MR. GARRETT: Would you agree, Mr. Wilkins, that he's an expert?

MR. WILKINS: I would, yes.

DIRECT EXAMINATION

BY MR. GARRETT:

Q. Mr. Williams, first of all could you tell us how you got involved with this area and the wells.

A. My involvement in this area started probably 2009, or earlier, with the -- well, my first involvement was with the Salinas Valley Integrated Regional Groundwater Surface Water Model Waterways consulting to Monterey County Water Resources Agency as a peer reviewer of that model. So that's what we call the large scale model.

And then, when the regional project was involved with that, we developed what's called the North Marina model, which was a large scale model, and I have a slide we can show that later.

And then, more recently, the last few years have been involved with the Salinas Valley water project, where we developed a focused CEMEX model.

Q. And so who are you working for now? Who is your company working for at this point?

A. Yeah. I'm founder president of Geoscience. We have two contracts. One's with ESA, who is contracted with the PUC; and the second contract is with RBF, who is contracted with Cal-American.

THE COURT: With whom?

THE WITNESS: Cal-Am.

The first could on contract with PUC we'll be doing all of the groundwater remodeling work for the EIR, and the second contract with RBF and Cal-Am has to do with the design and the supervision of construction in monitoring the test well.

BY MR. GARRETT:

Q. And, Mr. Williams, was your company involved with any groundwater modeling that was used by the City of Marina in its preparation of the environmental documents for the test well?

A. We didn't do any work for the City of Marina, but we included in our groundwater model in scenarios some of their proposed desalination -- test wells for desalination wells. They're part of our model scenarios the EIR.

Q. I want to ask you first about the same slide figure nine here. Can you, first of all, briefly tell me what it is.

A. This is a slide of the five-day pumping test of the test lab well, which started April 3rd and continued to April 8.

What I plotted here was the water level drawdown, which is the change from a non-pumping level. When I have this note that it's stabilized, you see these slight wavy things. We were having trouble with the valve controlling the flow. For some reason, there was turbulence. So the fluctuation in the lower part of the chart shows the discharge rate. On average, it was like 2,004 gallons per minute for the five-day test; however, you can see -- because of this valving issue, we were having with turbulence, you can see it goes up and down.

Q. So let me just interrupt you.

So this area here, that was important to the prior witness, can you explain what you know about this; what happened there.

A. Can I touch the screen?

THE COURT: Yeah. You can use the touchscreen, and the arrow should just come right up.

THE WITNESS: Very good.

So you see this last -- these last little blips up here. There (indicating). They were, actually -- you see the discharge spiked up, then it went back down. There is a slight lag in there, because this is a -- this aquifer -- this well is producing from two aquifers. So it's producing from both.

But, essentially, the slight blips in the drawdown are due to the fluctuations in the discharge rate due to the valve issue.

But, on average, you can see that it's a nice smooth, and it's flattened out. So, in my opinion, it's reached a restabilization after about three days.

So you can't really say that this is -- when wells turn on, the cone of depression expands enough until it gets enough to recharge the well. And so, during that time, if it's drawing down, and then it gradually smooth out. And that's exactly what we see here.

BY MR. GARRETT:

Q. So you would disagree with Mr. Hopkins and conclude that the well has reached equilibrium at the end of the five days?

A. That's true.

Mr. Hopkins mistakenly interpreted this slope of the graph as different than this slope, and he said that that was a boundary effect, which is not true. This actually shows that it's receiving enough recharge to support the discharge (indicating). So it's hitting a recharge boundary. And we know that a lot of it's coming from the ocean.

Q. If the well has reached equilibrium, would you expect to see changes in water levels after that point?

A. No. They're, generally, stable like it shows here.

Q. And what affect did Mr. Hopkins use of a log-rhythmic or semi-log-rhythmic scale have upon the slopes and curves that he was showing on his slides?

A. Well, it's just a different way of plotting it. We plot it both ways. Sometimes it's easier to understand when you use a linear scale like we did here.

But he took the slope from this early time period here, and he said that that's a different slope than this, which it is, but it doesn't mean that there's any kind of boundary flow.

Q. So did this slope that he presented, which seemed to be a continuous downward slope for eight months, was that an accurate depiction of what you believe will happen from the operation -- continued operation of the test well?

A. No.

He misinterpreted the last few points in his semi-log plot, and those were the points that were drawn down by this spike in the discharge due to the valve fluctuating.

Q. In the interest of time, I want to move to figure eight. And, first of all, Mr. Williams could you tell me what this depicts.

A. This is the drawdown at the end of the five-day test, and we have three sets of control points. Control points are what we use to draw the lines. These are actual measured data. And it's hard to see, but, near monitoring well one -- and I plotted this shallow water levels, because those were the highest drawdowns rather than the middle, just to show worse-case scenario.

Q. So the prior slide we saw before were showing results from monitoring well, the test well itself?

A. Yes, the test well itself.

Q. Okay.

A. These are drawn downs in the aquifer.

Q. Okay.

A. And so you can see here right near monitoring well one shallow, we have about eight and a half feet, and then, in here, we have measurement of one and a half feet. And then our next control point is out monitoring well four, which is the compliance point for this coastal development permit, and there was zero there (indicating).

So what we did is: We used those control points, and then, based on the analysis of the pumping test data where we could determine actual parameters, we calculated these other contours, and they're reasonable. So we had this one and a half, we have we had zero here, we had eight and a half here.

And one question -- you know, in slant wells, because they're -- they are not points in the ground. The drawdown distribution is ellipsoidal around the slant well screens. You see here the slant well screen, the vertical projection is shown by these dashed lines (indicating). So it's ellipsoidal. So this accurately depicts my opinion what the drawdown is at the end of the five-day test.

Q. If the test well has reached equilibrium, would you expect the numbers depicted on figure eight to change or stay the same?

A. No. If it's reached equilibrium they won't change.

Q. Let's go to figure 17.

So, Mr. Williams, can you briefly tell the Court what this figure depicts.

A. This figure is a model prediction, actually, before we started pumping -- before we did the test well, I should say. And it shows the slant well, the dash lines of the screen, vertical projection of the screen, underlying the land and the ocean. And these are what we call backward particle tracking showing the source of water to the test slant well. You can see, by looking at these arrows here, they're all -- most of them are coming from the ocean (indicating).

Q. So this was a prediction from the groundwater well that you created several years ago; right?

A. The groundwater model, yeah, the focused model.

Q. Did you see anything in the results so far from the test well that would contradict this model?

A. No, I haven't.

Q. So do you agree or disagree with Mr. Hopkins when he says that the results from the test well show are inconsistent with the model?

A. No, I disagree with that. They're close.

Of course, the normal procedure is, in any of these projects -- and what we did at Dana Point for -- ten years ago for the Doheney (phonetic) first test well. We did the borings on the beach, then we drilled the test well, and we pumped it for two years. And, during that time, we developed parameters and updated and refined our groundwater model, so then we would accurately, more accurately, predict the inland impacts. That's the procedure we followed then. That's the procedure we're following now.

So we will take the data from the testing and refine the groundwater model and predict impacts.

Q. So, by my calculation, I have about five minutes here to stay true to my time estimate. I'd like to move to figure 12, please.

THE COURT: I think you have a few minutes.

MR. GARRETT: I'm going to leave some time for your questions.

THE WITNESS: This figure, seawater intrusion occurs because, if you look at this one well, it's probably easier to see. This one's bigger. This would be the ocean over here, and you have this -- what's called an interface. There's salt water over here on the left. Fresh water here (indicating). Seawater is heavier than fresh water. There's a density difference.

But there's a principle called a Ghyben Herzberg principle that says, one foot of fresh water above sea level will stabilize 40 feet below sea level.

So, when Mr. Hopkins said the protected elevation is two and a half feet, he was dividing a hundred feet into the dune sand by 40. He got two and a half.

BY MR. GARRETT:

Q. When Mr. Hopkins said that, prior to the operation of test well, the dune sand layer in the 180-foot aquifer levels were above the protective level, protected elevation, you're saying Mr. Hopkins' testimony was incorrect?

A. Yes.

MR. WILKINS: Objection; misstates prior testimony.

THE COURT: I'm sorry. I didn't hear what was the objection.

MR. WILKINS: Objection; misstates prior testimony.

THE COURT: All right. Overruled.

THE WITNESS: The calculation was correct. A hundred divided by 40 is two and a half; however, if you look at where mean sea level is, which is down where this blue line is (indicating), all of our reference points are what's called is NAVD88, North American Datum of 1998. So sea level is actually plus three feet of NAVD88. And you can see that the protected elevation for dune sand is plus five and a half. It's three plus two and a half. And then protective elevation for the 180 aquifer is nine feet.

Now, if you look at the actual water levels, you see that the shallow dune sand levels, even before pumping, were below their protective elevation, which said there was seawater intrusion occurring, and the same with the deeper one.

Now, this is supported by the water level quality, the poor water level quality, that we see in, both, the dune sand and the 180, as well as the 400-foot aquifer.

BY MR. GARRETT:

Q. Okay. I'd like to go to figure two.

THE COURT: Just, while we're looking at this figure, is that then -- how do you explain that they -- according to Mr. Hopkins, they found water that wasn't degraded that looked like it was fresh water?

THE WITNESS: Well, that's quite a ways inland. If you're looking at MW-5, that's two miles inland.

You know, it's incorrect to say that I have an elevation 35 feet two miles inland. Where you get seawater intrusion is at the coast. That would be like saying, well, the water levels in King City and the Salinas Valley are very high. But why do we have seawater intrusion in Salinas is because the coastal pumping. That's the same thing we see here.

You have to look at the protected elevations at the coast, and those the ones that are important.

BY MR. GARRETT:

Q. So I have figure two up now. And, Mr. Williams, maybe you could indicate your prior testimony about the levels and the aquifers being below the protective levels in allowing seawater intrusion.

What area were you talking about when you --

A. Well, that was -- lots my arrow here.

THE COURT: So it's not a drag screen. It's a touchscreen. You should just be able to go immediately to the spot you want.

THE WITNESS: Thank you.

THE COURT: Yes.

THE WITNESS: This is the area of the test slant well. And those drawdowns that we had on that previous are all focused right in here, with MW-4 being zero (indicating). So they're quite localized.

Most of the water, in my opinion, is coming from the ocean. It's not extending out into other areas.

BY MR. GARRETT:

Q. In the testimony that Mr. Hopkins gave in his declarations about there being potable water, where did the data come from for that conclusion?

A. Well, he was talking about this well here, MW-5, which is almost two miles from this -- from the coast (indicating). And that's really not potable if you look at the actual -- the nitrates and TDS and everything. TDS is high, but it's within secondary standard. Probably the nitrate is above the maximum-contaminant level, due to the agricultural fertilizer and so on that's got in the soil.

Q. Where's the closest well on that map where people are using -- taking water from?

A. I'm not quite sure where the pumping wells are for potable supply.

Q. Can you, generally, indicate where the Marina Coast Water District --

A. These are Marina Coast wells down here. I think there's 7 and 12 are over in this case area (indicating). But they're several miles away.

And we also are, you know, going to have some more monitoring wells constructed here and some other areas here and here (indicating).

But the Marina Coast is down in this area (indicating).

MR. GARRETT: So, before I run completely out of time, Your Honor, I would like to move the figures which Mr. Williams has discussed, and I've had referred to by number into evidence.

THE COURT: Only the ones he's discussed?

MR. GARRETT: Yes.

THE COURT: Do you have a copy of only those ones that you'd like to present to my clerk so it can be labeled?

MR. GARRETT: Yes. We can create that.

THE COURT: All right. Because there's other ones in the packet you gave me that you didn't discuss.

MR. GARRETT: That's right. I just want to be sure Mr. Wilkins didn't have any objections, because I would use my remaining time to lay a foundation for it.

MR. WILKINS: I will stipulate that the witness has laid a foundation for the documents.

THE COURT: All right. So the exhibits -- and we're going to call those, collectively, Defendant's A -- or do you have 1?

THE CLERK: Respondent's A as a group.

THE COURT: Respondent's A as a group.

And then I had a question about -- Mr. Hopkins testified that he showed a figure that was attached that showed the water movement that he saw was coming from, say, the area where the MW-5 well is shown on what I'm seeing as figure two, which is Respondent's 1, figure two. And you were saying that the -- or he provided testimony that the water was moving towards the ocean, and there wasn't any recharge going on.

THE WITNESS: Yes, Your Honor. He said, MW-5, that the elevation in the dune sand was 30 feet, which it is, and there is a seaward flow of water; however, at the coast, the elevation drops below the protective elevations, actually, below sea level, close to. So, yeah, there is a seaward flow, a natural grading.

THE COURT: What -- so, because it's below that protected area, are you saying -- I think we can hear your phone buzzing, because it's up against -- I'm not sure. At least I can hear it.

Do you disagree with his opinion that no recharge is happening? That what's happening is that -- I understood his testimony to be that, in the area where MW-1, MW-3, and MW-4 is, since you were taking water out of there, the level of the water was dropping. There's no seawater recharging, and so the water was pulling fresh water, or whatever water, whatever mix of water was pulling from the area of -- designated as MW-5.

THE WITNESS: No, I disagree with that.

If I had that one slide showing the seawater intrusion control, it kind of illustrates what Your Honor was talking about.

MR. GARRETT: Figure 12?

THE COURT: Has that been admitted?

MR. GARRETT: Yes.

THE WITNESS: No. One more. It's the one -- that one.

MR. GARRETT: This one we did not use, Your Honor. It's background information on how you discuss seawater intrusion.

THE COURT: Would you --

MR. GARRETT: I'd like to offer it into evidence.

THE COURT: Okay.

MR. GARRETT: If it's relevant to his answer to your question, I don't see a problem.

THE COURT: All right. Then let's have it marked as Respondent's next in order.

THE WITNESS: Yeah. This is what's happening under the coast. The slant well is intercepting seawater and drawing high percentage of its recharge from the seawater. So you have these localized depressions close to the coast.

Now, there is a seaward flow, but most of the recharge is coming from the ocean. So these, actually, intercept seawater, actually, preventing seawater intrusion, because they're pumping well troughs. It's like we have pumping injection well barriers along Southern California. We also have extraction troughs. And that's what these slant wells will do, they'll intercept seawater to protect the intercoastal access.

THE COURT: Was the seawater supposed to be recharging the well?

THE WITNESS: The seawater is. It's producing most of the water from the ocean. It's leaking to the sea floor and then offshore inflow from the subsurface aquifers, subsea aquifers.

MR. GARRETT: Maybe just to clarify, Your Honor.

BY MR. GARRETT:

Q. The purpose of this test slant well is to determine if it will be recharged by seawater; is that correct?

A. It's one of the things we're looking at. Two, what are the inland impacts? And, three, what is the percentage of water from ocean water sources?

THE COURT: Okay.

MR. GARRETT: One last question, Your Honor?

THE COURT: Okay.

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BY MR. GARRETT:

Q. Mr. Williams, based on the test results that you've seen so far, what do you think will happen in the next day 90 days to the groundwater in the area?

A. Well, I think there may be some slight propagation, but what we've seen from the five-day test, and then we started pumping the well again. We're nine days into it since the 22nd. We see the same trends. We see no change at four and the same slopes we see in the coastal wells, like MW-3 closest.

THE COURT: And, well four, that's where the -- it drops down below 1.5. There has to be -- then pumping has to stop?

THE WITNESS: That's correct.

THE COURT: All right. So I'm going to allow for cross-examination. I'd like you to try to limit it to ten minutes, but I'll try to be flexible.

CROSS-EXAMINATION

BY MR. WILKINS:

Q. So you were just referring to anyone days of additional data. Is that information publicly available that you're testifying about?

A. We will be putting out another monitor report next week. It will contain the data up through, I believe, today.

Q. Do you know why there wasn't a weekly monitoring report this week?

A. There was. There was. The one went out last week.

Q. I meant this week.

A. It will all be coming out, I think, Monday or Tuesday.

Q. If we could go to figure 12 if you don't mind.

In addition to the lines you have here, you also have hand measurements drawn out on this graph, it appears?

A. That's correct.

Q. And, at the beginning of your monitoring, can you tell me whether the dune sand aquifer was above the protective layer.

A. Well, based on the hand levels, the dune sand was. And --

THE COURT: And where are the hand levels?

THE WITNESS: Yes. It's kind of hard to see. But they're the little triangles. For example, the shallow is the triangle. So you see the triangle is slightly above protected elevation, and then, the hand levels, there's some variability. But, basically, the protective elevation, it's calculated. The actual levels are at that or below that.

But, you know, forget all of these calculations. If you just look at the water quality, there is intrusion, historical intrusion. The cause -- you know, existing there. The shallow aquifer has a TDS of about 25,000 and the deeper aquifer has a --

MR. WILKINS: I'm good to object, because I have very limited amount of time. This is nonresponsive.

THE COURT: I'm going to allow him to finish his answer, and I'm not going on penalize you with respect to your time.

THE WITNESS: In the middle aquifer, which you can see is quite below the protective elevation, is very salty. It has a TDS of about 35,000.

So the evidence here just confirms what we've been seeing in our actual lab samples of these monitoring wells.

BY MR. WILKINS:

Q. Based on this graph, if you look at the hand level measurements for the dune sand aquifer, would you agree that, until there was the beginning of pumping at well, that it was at or very close to the protective layer?

A. Based on the calculation. But this is just one estimate.

THE COURT: And hold on. So, if you could just focus on responding to his answer. And you could use the touchscreen in front of you too. I'm assuming that it's right there starting where it says, "Start of five-day pumping."

MR. WILKINS: No. Because they were pumping before that.

THE COURT: So that's why it's helpful for you to show me where you're talking about.

MR. WILKINS: I apologize, Your Honor.

BY MR. WILKINS:

Q. So, when they started to do any pumping at the test well, would you agree that, prior to that, the hand-well measurements indicated that, in the dune sand aquifer, it was at or very close to a protective level?

A. Yes. If you look at that, it is, actually, below it here. Back in February, it was a little bit above it. But, here, again, this is just one estimate of -- we're assuming that the dune sand's a hundred feet. What if it's 80 feet or so on? You have to -- or maybe deeper.

But the thing is: You want to look at both of them. You want to look at the water level elevation to make sure it makes sense. But, most important, you want to look at the actual measured water quality, which is what we're doing. And the water quality is very salty in the 180, and very salty, 25,000 parts per million in the dune sand.

Q. And --

A. Excuse me. It reflects historical intrusion.

Q. And you heard Mr. -- first off, have you reviewed the declarations that have been filed by Mr. Feeney and Mr. Hopkins in this matter?

A. Yes.

Q. And you've seen the testimony that there is a fresh water source that was not anticipated in any of the studies or reports that you have prepared on the project; is that correct?

A. Can you explain what a fresh water source is and where you're referring.

Q. I probably would need the prior exhibits. I would need to --

THE COURT: Aren't they exhibits to your -- Mr. Hopkins's declaration?

MR. WILKINS: To show him.

THE COURT: Here. You can use mine. I'll hand them to him.

What one do you want to hand him?

MR. WILKINS: I believe it's A-1 that I'm referring to.

THE COURT: A-1 from his original or from the reply?

MR. WILKINS: No. I'm sorry. From his reply declaration.

THE COURT: All right. I have A -- this is Exhibit A figure 51. I don't know. I'm not sure. But you may have to stand up to make sure he's looking at the exhibit you want him to.

MR. WILKINS: I will do that.

THE COURT: Or we could switch back.

MR. WILKINS: If we could switch back I could definitely --

THE COURT: No. If you just stand up.

This is the original one. Is that the one?

MR. WILKINS: That one will work, yes, Your Honor.

THE COURT: Okay.

BY MR. WILKINS:

Q. Do you see where MW-5 is located?

A. I do.

Q. And would you agree that the -- I believe you've already testified the area there is not seawater intrusive to the level that it would be deemed contaminated by saltwater intrusion; correct?

A. I'm sorry. Could you rephrase that, please.

Q. Perhaps the -- what level of TDS would you deem to be contaminated by seawater intrusion?

A. Well, the criteria is 500 milligrams per liter of chloride levels, which is what this shows. These are -- MW-5 is not -- it's got brackish water in it. It's got poor water quality.

Q. It's your testimony that MW-5 has brackish water quality?

A. No. Well, it depends on what your definition of brackish.

But, if you look at the inset -- inset charts on here, you can see that the -- it's hard to see this. Yeah. It's about 2,500.

Q. In which aquifer?

A. That's the upper curve, which is --

Q. Can you tell --

A. It's hard to see what that is.

But I think the -- the deep; and then the middle aquifer is about 700, and then the shallow's about a thousand. So these are within secondary standards of total dissolved solids.

Q. For drinking water?

A. For drinking water, yes.

Q. So would you agree that this is a fresh groundwater source, as opposed to a contaminate seawater-intruded source of water?

A. Well, it reflects an increase in salts somewhere. It's getting it somewhere. It's not like, if you go farther inland, it gets fresher and fresher until you get around 400, 450. So it's receiving salts from something.

Q. Do you believe that this water is getting worser instead of better based on the efforts to reduce pumping at this place?

A. You mean due to the Salinas Valley water project?

Q. That, and Marina Coast efforts to curb pumping and all the other information and declarations that a lot of efforts have gone to reducing pumping in this area of the coast?

A. I know that's the intent. I haven't reviewed that to look at the changes in Marina Coast as to what they were doing, how they reduced it, and how the water quality changed. I didn't look at that.

Q. Do you believe, in fact, that there is water here that has lower -- significantly lower than contaminated seawater, TDS, offers protection to wells that are further inland?

A. Let me just maybe answer that in two parts.

First thing that there's a natural transition from salty water near the coast where the aquifers are intruded to fresh water inland. And what you're seeing here, MW-5 is quite a ways. It's almost two miles from the coast. So it is fresher just due to that. So you keep going farther east, it gets fresher still. So that -- that is just what happens. We see that all up and down the Salinas Valley.

Q. Do you know where, between MW-5 and the slant well, the water is no longer fresh or no longer within limits?

A. Well, it certainly isn't within -- within -- TDS certainly isn't within four. It certainly isn't within three or one. So there's no control force between that. We will be putting in some more monitoring wells. And that's the whole purposes of the monitoring, so we can understand what's going on.

Q. Do you think you have enough monitoring wells at this time to, actually, determine whether you're effecting all portions of the basin that may have fresh water in them?

A. Yes, all portions of the basin in this area.

Q. Did you review Mr. Feeney's criticism of

Mr. Hopkins that no one, I believe -- I will quote this for the record so I don't misstate it "Five-Day pumping test" -- stated, "The five-day pumping tests are insufficient to support Mr. Hopkins' opinion, or anybody else's opinion, because developing valve aquifer response data in this setting requires a longer-term testing of the slant well."

Do you agree with Mr. Feeney's statement?

A. Well, we purposely can't ever have enough data, and that's why we want to do the long-term test. And we will use the data from the long-term test to refine the groundwater model to make more accurate predictions of the future condition as it changes.

MR. WILKINS: If we can go to the exhibit where you show the three-day.

THE COURT: And so this is figure nine of Respondent's -- is it 1?

THE CLERK: A.

THE COURT: Respondent's A.

BY MR. WILKINS:

Q. You testified, I believe -- and I don't mean to misquote you if I do -- that there was some valve problem that led to some fluctuations that led Mr. Feeney to miscalculate the potential drawdown in the well; is that correct?

A. No. Mr. Hopkins you mean.

Q. I'm sorry. Mr. Hopkins.

A. Yes. You can see it clearly here, and that's why I had them plot these. You can see, at this point right here, that there is a drop in the water level and due to a spike in discharge. And it goes back down to where this recovers (indicating).

So, overall, when you're looking at these, you can't just be focused on one or two points, especially when you know you have some trouble regulating the flow.

I mean, it wasn't changing very much, but, overall, it did average about 2,000 -- a little over 2,000 gallons a minute.

But, if you just look at one or two points, it went down, like Mr. Hopkins did. It's really not fair to draw a slope of a line just based on those two points. You've got to look at the overall trends. And that's what we do. As a member of the HWG, this is what we have been doing. We've been closely communication, watching all this data.

Q. Is there any way that any member of the public or anyone trying to determine what was happening to this well would have known what -- that the valves were malfunctioning, as you described?

A. Any one of the public?

Q. Yeah.

The monitoring that's published as opposed to what's public; is that correct?

A. This is the way -- when wells are constructed and pumps are operating, you always have fluctuations. I mean, this is normal. This is just normal procedures.

Q. But the data that you're publishing doesn't allow anyone outside the hydrological working group to assess what you're describing here; isn't that correct?

A. The data's been made available every week.

Q. Is the data on the bottom of this graph report?

A. Yes. It's just chart rate. It's chart rate. This is available.

Q. And how would anyone know there was a valve malfunction, so to speak, that resulted in these changes?

A. I don't think it was reported in the monitoring reports, but it's certainly available on all of our field data sheets.

Q. And where are those published?

A. I'm not sure we put those on the site, but they're the ones that are tabulated.

Q. Mr. Hopkins used a log-rhythmic graph, and I believe you testified that that was not a valid -- did you testify that was not a valid way to look at this?

A. No, I didn't say that.

I said we do it both ways. You use a log-rhythmic scale for a time when you're trying to do things, like analyze for aquifer tests and parameters, or you do a linear scale, like we did here. We do both ways. Sometimes one's easier to understand than another, because, for example, like Mr. Hopkins showed, at the last few points of this drop here were bunched up, and he interpreted that as a change in slope or used that for control for a change in slope, which wasn't really the case of what was happening.

Q. Mr. Hopkins testified he plugged in the data from your monitoring reports to calculate his graph. Do you believe that's a scientifically-valid way to calculate this information?

A. Well, I'm not sure what you're asking me.

But, yes, he used the data, which, if he had plotted a linear scale, he would have got exactly this.

Q. But why would this -- isn't it correct that a log-rhythmic graph shows both longer terms, and that's standard in the industry for trying to determine your drawdown over the longer period of time?

A. It depends on what you're trying to do. We use a log rhythmic, semi-log rhythmic, plots to determine aquifer parameters, which we did public those in the baseline report for the HWG.

But sometimes, for illustrations, it's easier to understand this.

Q. You wouldn't use this to, actually -- this figure nine to, actually, assess whether there was equilibrium; isn't that correct?

A. Yes, I use this to say that the pumping level has stabilized.

Q. You could use just this particular graph and assess that the pumping level had reached stabilization? Is that what you're --

A. Yeah. I did this because I knew that we had fluctuations, and I didn't want to use a semi-log rhythmic like Mr. Hopkins did. And this kind of filters out that data. And you can see that, even though you had a little up and down due to the valve-control problem, that you do see, in general, the last two days of pumping was solid.

Q. What level, with certainty, do you have that the pumping stabilized after three days?

A. Well, based on this chart, I'm a hundred-percent certainty.

Q. And so this chart will be sufficient for you to give a hundred-percent certainty that the well has reached a stabilized level after three days?

A. Between three days and five days, yes.

THE COURT: All right. And I've allowed you five extra minutes of your time.

MR. WILKINS: Can I confer with my witness for one --

THE COURT: You may.

Mr. Williams, could you give me your first name one more time.

THE WITNESS: Dennis Williams.

THE COURT: Thank you.

BY MR. WILKINS:

Q. Can I ask you to turn to figure eight of the technical memorandum, which I will -- I don't -- I believe this is in somebody's declaration somewhere, and I'll hand it to you.

THE COURT: It's here. I have it in --

MR. WILKINS: It's this one right here.

THE COURT: I have it here in the Ag Land Trust second request for judicial notice. Is that the Geotechnical?

MR. WILKINS: Yes.

THE COURT: And it is Exhibit A to the request for judicial notice.

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BY MR. WILKINS:

Q. I'll ask that first.

Have you seen this?

THE COURT: What page are you referring to?

MR. WILKINS: I'm referring to figure eight. Unfortunately, it's not paginated.

THE WITNESS: Yes, I have it.

THE COURT: Is it showing on this screen as well?

MR. WILKINS: It does appear to be what I'm looking at.

THE COURT: Excellent. Thank you.

BY MR. WILKINS:

Q. Can you describe for the Court very briefly what this is.

A. This is a semi-log rhythmic plot of monitoring well one, which is the closest well to the pumping well, and it shows the time drawdown distribution of this plot. And we do this because we are interested in the straight line of these portions of that.

Now, that -- this is not the pumping well drawdown, which was different, when I said the well stabilized. This well is not the pumping well. It is a monitoring well, and there's, actually, two monitoring wells shown here. There's the shallow and -- shallow in the middle. Sorry. And, these wells, if -- the tests, the five-day tests, that's all that's plotted here.

Q. At the end of the five-day test, does this graph show a level of equilibrium at these monitoring well locations?

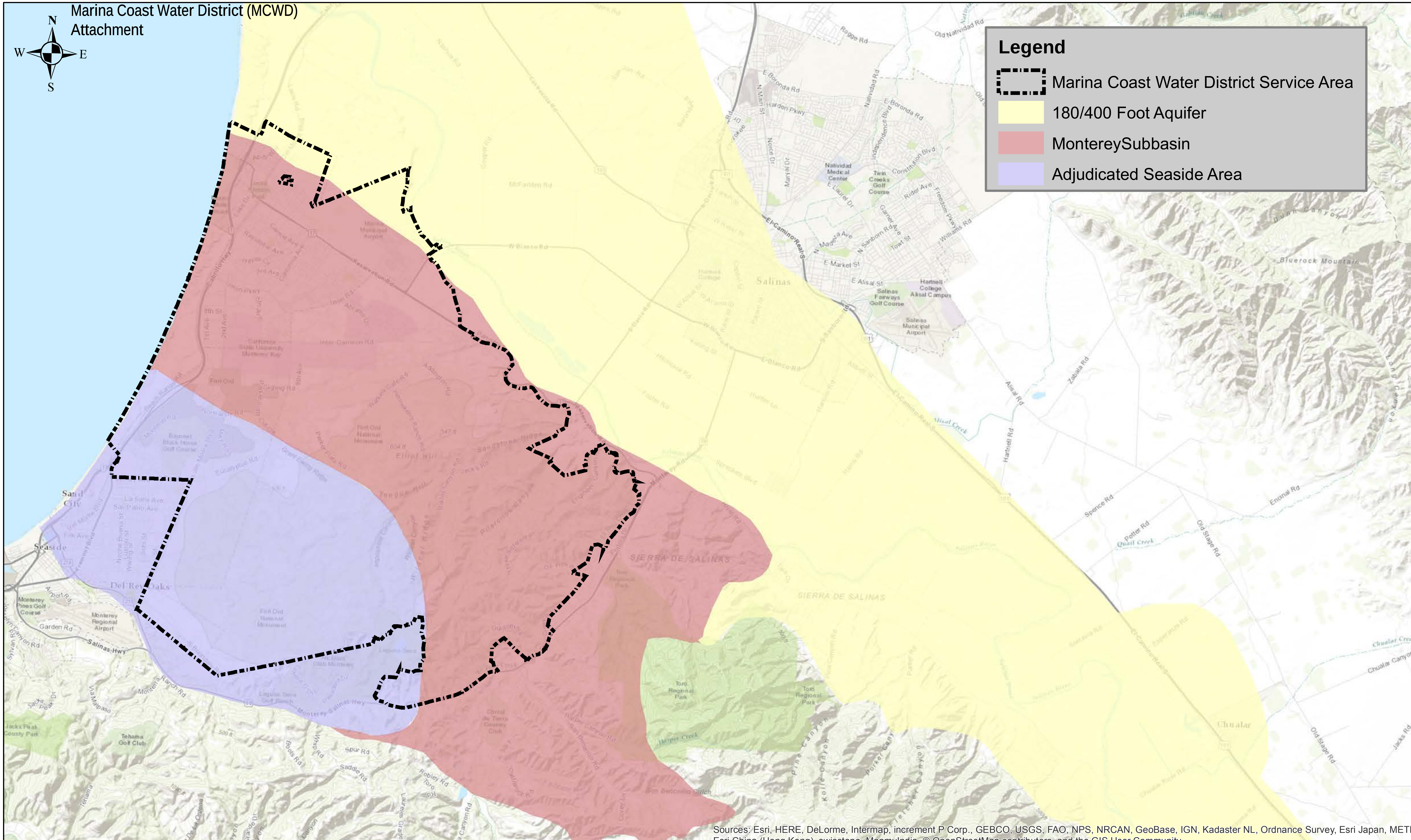
A. Actually, if you look closely at the end of the data -- but we're waiting on longer period of testing to validate that -- this kind of shows a flattening in slope right here (indicating), even on the semi-log chart, but we wanted longer data. So this may indicate a leakage effect. It's not unexpected that this monitoring well, the shallow monitoring well -- and the middle monitor well, may stabilized as we get more test data.

Q. So looking at MW-1. I see a diagonal line. Can you describe where you see a leveling off there.

A. Well, if you look at the shallow, which is the most permeable zone, you see at the end there -- it's kind of up and down a little bit. But the very end -- and this is why sometimes it's useful to use, not only semi-log, because a difference between these last two points is, you know, like a whole day or so. So you need to have longer -- more data, and that's what we're -- we're trying to get with this to see if that equilibrates also to indicate there's a recharge effect.

Q. Based on this graph, how certain are you

that the well has reached equilibrium?
A. I'm basing that on the pumping well.
This well is the monitoring well, and there's a lag time between stabilization. I don't know yet. That's what we're trying to learn about the aquifer, whether this gives a traditional S-shaped curve, which indicates leaky conditions. That's why the long-term test is very important. Because these are parameters that we get from this information, then we put into our groundwater models, and then refine the models and make predictions of potential impacts.
THE COURT: Okay. And thank you.
So thank you for your testimony.
THE WITNESS: You're welcome.
THE COURT: All right. Then Court is going to find that it has heard sufficient evidence from the parties or it's exceeded the time limit within which I've set to hear the evidence.
And I don't need any further argument based upon the evidence that I've seen.
I appreciate that -- I appreciate that the parties have brought live testimony.
I'm concerned about the public interest that would be implicated if the Court was concerned that the evidence established that the use of the slant well was



Marina Coast Water District
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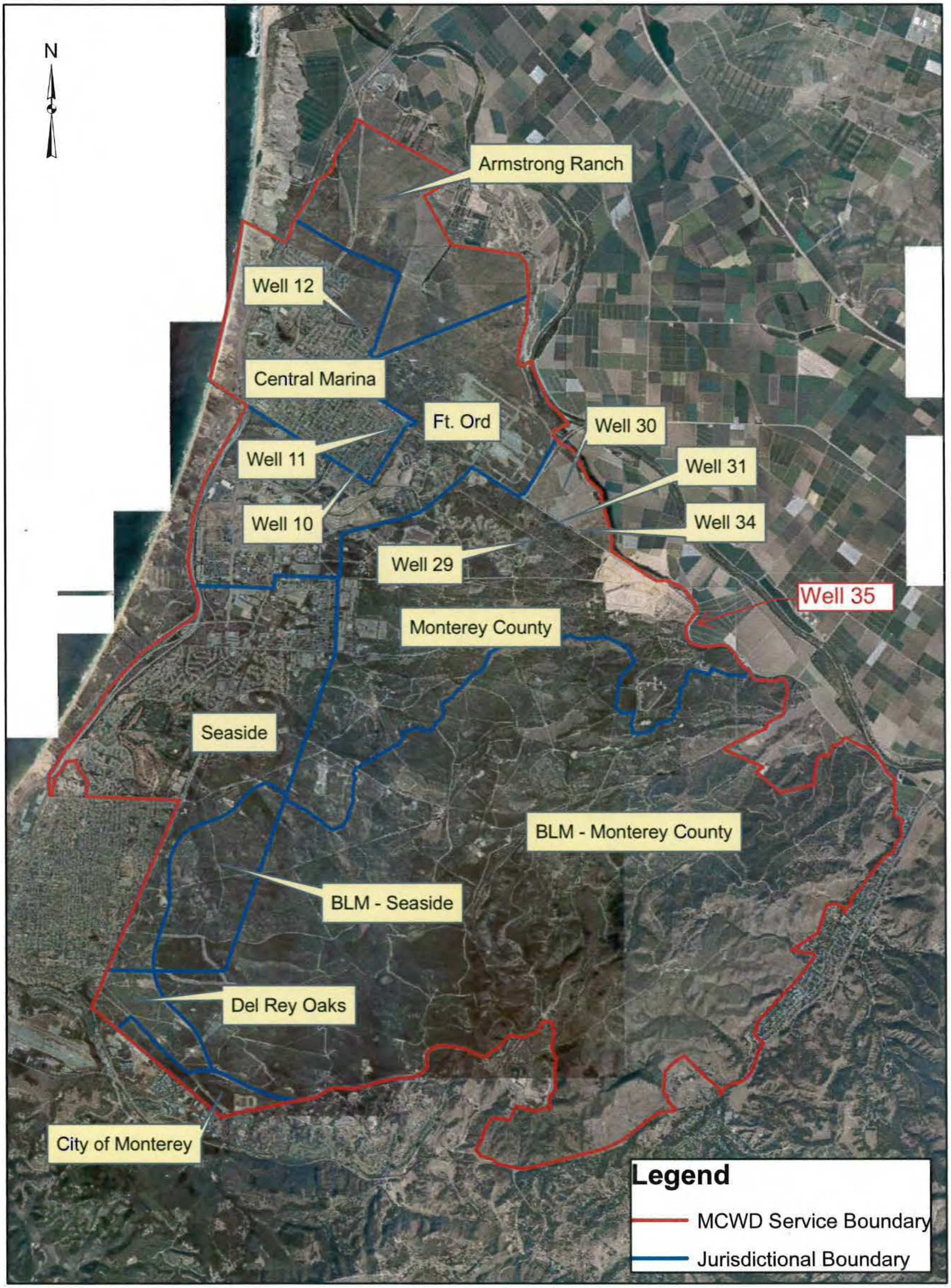
District Service Area and Basins

DATE:
02/21/2017

AUTHOR:
Jaron Hollida

Marina Coast Water District (MCWD)
Attachment

MCWD Service Area Map



STATE OF CALIFORNIA—NATURAL RESOURCES AGENCY EDMUND G. BROWN, JR., GOVERNOR

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W14a & 15a

Permit Filed:	October 3, 2014
Appeal Filed:	September 24, 2014
49th Day:	November 12, 2014
Hearing Opened:	November 12, 2014
Substantial Issue Found:	November 12, 2014
Staff:	T. Luster-SF
Staff Report:	October 31, 2014
Hearing Date:	November 12, 2014
Approved 11-0	

FINAL ADOPTED FINDINGS

Appeal No:	**A-3-MRA-14-0050**
Local Government:	City of Marina
Decision:	Denial
Application No.:	**9-14-1735**
Applicant/Appellant:	**California American Water Company**
Substantial Issue:	On November 12, 2014, the Commission found that the appeal of the local government action on this project raised substantial issue.
Project Location:	At the site of the CEMEX, Incorporated sand mining facility, Lapis Road, City of Marina, Monterey County. (APN #203-011-001 and #203-011-019)
Project Description:	Construct and operate a test slant well and associated monitoring wells to develop data necessary to assess the feasibility of the project site as a potential long-term water source for a desalination facility.

SUMMARY

Project Description
California-American Water Company ("Cal-Am") proposes to construct, operate, and decommission a temporary test slant well, including up to four monitoring well clusters and related infrastructure, at the CEMEX sand mining facility along Monterey Bay within an extensive coastal dune complex in the City of Marina. The project will be completed during a twenty-four to twenty-eight month period. The test wellhead will be located approximately 650 feet inland of mean sea level at an elevation of about 25 feet. No development will occur directly on the beach or seafloor or in ocean waters. The main project activities include staging and site preparation, well drilling and placement of monitoring wells and electrical cables, ongoing monitoring during the test period, and well decommissioning.

Project Purpose
The project will allow Cal-Am to gather technical data related to the potential hydrogeologic and water quality effects that would result from using similar wells at or near this site to provide water for the proposed Monterey Peninsula Water Supply Project. If the data collected from this proposed test well demonstrates that this well design and location would provide the necessary amount of water and not cause unacceptable adverse effects, Cal-Am may choose to apply for additional coastal development permits to convert the test well to a production well and/or construct additional similar wells, subject to certification of an Environmental Impact Report ("EIR") by the California Public Utilities Commission, which is preparing the document for the above-referenced water supply project.

The Commission's approval of this proposed test well does not authorize any additional activities that may be associated with a larger or more permanent facility. Any such proposal will require additional review for conformity to the Coastal Act, which review and analysis will be conducted independently of the current decision, with the current decision exerting no influence over or causing any prejudice to the outcome of that separate decision.

Jurisdiction
The proposed project will be partially within the coastal development permit jurisdiction of the City of Marina and partially within the Commission's retained permit jurisdiction. Development within the City's jurisdiction includes all the project's land-based activities, which represent almost all of the project-related development. The only part of the project within the Commission's permit jurisdiction is the portion of the slant well that is below grade and extends beneath the beach and seafloor.

Appeal: On September 4, 2014, the City denied Cal-Am's CDP application for development of the subject temporary test slant well. Cal-Am then filed a timely appeal of the City's decision. The City's action is appealable to the Commission pursuant to Coastal Act Section 30603(a)(5), which allows appeals of any development that constitutes a major public works facility.

De Novo Review and CEQA: The Commission **conditionally approved** coastal development permits A-3-MRA-14-0817 and 9-14-0050 for the proposed project. The key concern is the project's unavoidable effects on environmentally sensitive habitat areas ("ESHA").

The project will be built on the site of a sand mining facility located within an extensive area of coastal dune habitat. Although the project footprint will be within dune habitat that has been extensively disturbed by mining activities, the area retains sufficient habitat characteristics to be considered sensitive habitat. Project activities will further disturb the sensitive habitat areas in a manner not consistent with provisions of the LCP. However, because the project is a coastal-dependent industrial facility and the LCP allows such facilities in this location, consistent with Coastal Act Section 30260, the Commission may approve a permit for this project if 1) alternative locations are infeasible or more environmentally damaging; 2) denial of the permit would not be in the public interest; and, 3) the project is mitigated to the maximum extent feasible.

1) **Alternative locations are infeasible or more environmentally damaging:** In recognition of the state's preference for subsurface intakes, Cal-Am has focused its efforts on identifying sites where those types of intakes are feasible. Several sites previously considered for water supply projects are either no longer available or have been subject to regulatory or legal changes that limit their feasibility. Several others are more distant from Cal-Am's service area and would result in greater environmental impacts due to an overall larger area of disturbance. Regarding on-site alternatives, the proposed test well is sited within an already disturbed area of the dune habitat that has been affected by mining activities for the past several decades. The current on-site location was selected after consultation by resource agency representatives showed that previously proposed locations on the north end of the CEMEX site would have greater adverse effects on sensitive species and coastal resources.

2) **To deny the project would not be in the public interest:** Since 1995, Cal-Am and other entities in the Monterey Peninsula area have been seeking a water supply to replace that obtained from the Carmel River. Cal-Am is under an Order from the State Water Resources Control Board to significantly reduce its withdrawals from the Carmel River within the next two years. Although significant public effort has gone into previous proposed water supply options, such as a proposed dam, desalination facilities, and others, those projects have either not been completed or are no longer under consideration. The currently proposed test well is meant to provide data for a possible desalination facility that is the subject of extensive environmental and public interest review by the California Public Utilities Commission and is the subject of a Settlement Agreement among more than a dozen local governments and public interest groups. Other potential water supply projects under consideration are not as far along in design, environmental review, or permitting, so are not likely to provide the necessary replacement water supply as quickly as Cal-Am's currently proposed facility, should the test well be successful.

3) **The project is mitigated to the maximum extent feasible:** The Commission's approval includes several Special Conditions meant to avoid and minimize effects to ESHA. Mitigation measures required by **Special Conditions 12 through 16** include biological survey requirements, training of project personnel, avoidance measures to be implemented, and restoration requirements. Additionally, **Special Condition 17** requires Cal-Am to post a bond that will provide for removal of project structures and for restoration should Cal-Am not implement those requirements. Other **Special Conditions** require Cal-Am to implement Best Management Practices during construction, prepare a spill prevention plan, avoid coastal hazard areas, and others, all of which will result in further avoidance and minimization of potential project impacts.

Commission Action
The Commission approved, as conditioned, coastal development permits A-3-MRA-14-0817 and 9-14-1735 as described herein.

TABLE OF CONTENTS

EXHIBITS

APPENDICES

I. RESOLUTIONS

On November 12, 2014, by a vote of 11-0, the Coastal Commission adopted the following resolutions:

Resolution to Find Substantial Issue

> *The Commission finds that Appeal Number A-3-MRA-14-0050 presents a substantial issue with respect to the grounds on which the appeal has been filed under Section 30603 of the Coastal Act regarding consistency with the Certified Local Coastal Plan and/or the public access and recreation policies of the Coastal Act.*

Resolution to Approve CDP A-3-MRA-14-0817

> *The Commission hereby approves Coastal Development Permit Number A-3-MRA-014-0817 and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the City of Marina Local Coastal Program policies and Coastal Act access and recreation policies. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.*

Resolution to Approve CDP 9-14-1735

> *The Commission hereby approves Coastal Development Permit 9-14-1735 and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.*

II. STANDARD CONDITIONS

This permit is subject to the following standard conditions:

1. **Notice of Receipt and Acknowledgment**. The permit is not valid and development shall not commence until a copy of the permit, signed by the Permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. **Expiration**. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. **Interpretation**. Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.

4. **Assignment**. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. **Terms and Conditions Run with the Land**. These terms and conditions shall be perpetual, and it is the intention of the Commission and the Permittee to bind all future owners and possessors of the subject property to the terms and conditions.

III. SPECIAL CONDITIONS

1. **Proof of Legal Interest and Other Approvals.** The Permittee shall provide to the Executive Director a copy of each of the following approvals or documentation from the relevant agency that such approval is not required:
   a. PRIOR TO PERMIT ISSUANCE, proof of legal interest in the project site.
   b. PRIOR TO CONNECTING TO THE OUTFALL, the negotiated agreement or memorandum of understanding between the applicant and the Monterey Regional Water Pollution Control Agency ("MRWPCA") regarding connection and use of the ocean outfall for discharge of water produced from the test well.
   c. PRIOR TO ISSUANCE OF CDP 9-14-1735, a lease from the State Lands Commission.
   The Permittee shall inform the Executive Director of any changes to the project required by, or resulting from, these permits or approvals. Such changes shall not be incorporated into the project until the Permittee obtains a Commission amendment to this permit, unless the Executive Director determines that no amendment is legally required.

2. **Liability for Costs and Attorneys Fees.** The Permittee shall reimburse the Coastal Commission in full for all Coastal Commission costs and attorneys fees – including (a) those charged by the Office of the Attorney General; and (b) any court costs and attorneys fees that the Coastal Commission may be required by a court to pay – that the Coastal Commission incurs in connection with the defense of any action brought by a party other than the Permittee against the Coastal Commission, its officers, employees, agents, successors, and assigns challenging the approval or issuance of this permit, the interpretation and/or

enforcement of permit conditions, or any other matter related to this permit. The Coastal Commission retains complete authority to conduct and direct the defense of any such action against the Coastal Commission.

3. **Project Construction.** The Permittee shall conduct project construction as described and conditioned herein, including the following measures:
   a. Project-related construction shall occur only in areas as described in the permit application.
   b. Project-related construction, including site preparation, equipment staging, and installation or removal of equipment or wells, occurring between February 28 and October 1 of any year is subject to the timing and species protection requirements of Special Condition 14.
   c. Construction equipment and materials, including project-related debris, shall be placed or stored where it cannot enter a storm drain or coastal waters. The Permittee shall ensure that all construction personnel keep all food-related trash items in sealed containers and remove them daily to discourage the concentration of potential predators in snowy plover habitat. All trash and construction debris shall be removed from work areas and properly disposed of at the end of each work day at an approved upland location. All vegetation removed from the construction site shall be taken to a certified landfill to prevent the spread of invasive species.
   d. To reduce construction noise, noise attenuation devices (e.g., noise blankets, sound baffles, etc.) shall be installed around all stationary construction equipment, including drill rigs.
   e. All project vehicles shall maintain speeds of 10 miles per hour or less when at the project site. Prior to moving any vehicle, project personnel shall visually inspect for special-status species under and around the vehicle, and shall notify the on-site biologist should any be detected.
   f. To avoid predation of special-status species, wire excluders or similar anti-perching devices shall be installed and maintained on the top of all aboveground structures (e.g., electrical panel) to deter perching by avian predators.

   No changes to these requirements shall occur without a Commission amendment to this permit unless the Executive Director determines that no amendment is legally required.

4. **Protection of Water Quality.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall submit an erosion control plan for Executive Director review and approval. The Plan shall include a schedule for the completion of erosion- and sediment-control structures, which ensures that all such erosion-control structures are in place by mid-November of the year that construction begins and maintained thereafter. The plan shall identify standard Best Management Practices to be implemented to address both temporary and permanent measures to control erosion and reduce sedimentation. Site monitoring by the applicant's erosion-control specialist shall be undertaken and a follow-up report shall be prepared that documents the progress and/or completion of required erosion-control measures both during and after construction and decommissioning activities. No synthetic plastic mesh products shall be used in any erosion control materials. All plans shall show that sedimentation and erosion control measures are installed prior to any other ground disturbing work.

5. **Hazardous Material Spill Prevention and Response.**
   (a) PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall submit for Executive Director review and approval a project-specific Hazardous Materials Spill Prevention and Response Plan that includes:
   - an estimate of a reasonable worst case release of fuel or other hazardous materials onto the project site or into adjacent sensitive habitat areas or coastal waters resulting from project operations;
   - all identified locations within the project footprint of known or suspected buried hazardous materials, including current or former underground storage tanks, septic systems, refuse disposal areas, and the like;
   - specific protocols for monitoring and minimizing the use of fuel and hazardous materials during project operations, including Best Management Practices that will be implemented to ensure minimal impacts to the environment;
   - a detailed response and clean-up plan in the event of a spill or accidental discharge or release of fuel or hazardous materials;
   - a list of all spill prevention and response equipment that will be maintained on-site;
   - the designation of the onsite person who will have responsibility for implementing the plan;
   - a telephone contact list of all regulatory and public trustee agencies, including Coastal Commission staff, having authority over the development and/or the project site and its resources to be notified in the event of a spill or material release; and,
   - a list of all fuels and hazardous materials that will be used or might be used during the proposed project, together with Material Safety Data Sheets for each of these materials.

   The Permittee shall implement the Plan as approved by the Executive Director. The Permittee shall also ensure that all onsite project personnel participate in a training program that describes the above-referenced Plan, identifies the Plan's requirements for implementing Best Management Practices to prevent spills or releases, specifies the location of all clean-up materials and equipment available on site, and specifies the measures that are to be taken should a spill or release occur.

   (b) In the event that a spill or accidental discharge of fuel or hazardous materials occurs during project construction or operations, all non-essential project construction and/or operation shall cease and the Permittee shall implement spill response measures of the approved Plan, including notification of Commission staff. Project construction and/or operation shall not start again until authorized by Commission staff.
   (c) If project construction or operations result in a spill or accidental discharge that causes adverse effects to coastal water quality, ESHA, or other coastal resources, the Permittee shall submit an application to amend this permit, unless the Executive Director determines no amendment is required. The application shall identify proposed measures to prevent future spills or releases and shall include a proposed restoration plan for any coastal resources adversely affected by the spill or release.

   The Permittee shall implement the Plan as approved by the Executive Director.

6. **Monitoring and Removal of Temporary Structures, Well Head Burial & Well Closure/Destruction.** The Permittee shall monitor beach erosion at least once per week over the duration of the project to ensure the slant well and monitoring wells remain covered. If the wellheads, linings, casings, or other project components become exposed due to erosion, shifting sand or other factors, the Permittee shall immediately take action to reduce any danger to the public or to marine life and shall submit within one week of detecting the exposed components a complete application for a new or amended permit to remedy the exposure.

   Upon project completion, and no later than February 28, 2018, the Permittee shall cut off, cap, and bury the slant well head at least 40 feet below the ground surface, and shall completely remove all other temporary facilities approved by this coastal development permit. To ensure timely removal, the Permittee shall post the bond or other surety device as required by **Special Condition 17** to ensure future removal measures would be appropriately supported and timed to prevent any future resurfacing of the well casing or other project components.

7. **Assumption of Risk, Waiver of Liability and Indemnity.** By acceptance of this permit, the Permittee acknowledges and agrees:
   a. that the site may be subject to hazards from coastal erosion, storm conditions, wave uprush, and tsunami runup;
   b. to assume the risks to the Permittee and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development;
   c. to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and
   d. to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

8. **No Future Shoreline Protective Device.** By acceptance of this permit, the Permittee agrees, on behalf of itself and all other successors and assigns, that no shoreline protective device(s) shall ever be constructed to protect the development approved pursuant to this permit, including the wells, supporting infrastructure, and any future improvements, in the event that the development is threatened with damage or destruction from waves, erosion, storm conditions or other natural hazards in the future. By acceptance of this permit, the Permittee hereby waives, on behalf of itself and all successors and assigns, any rights to construct such devices that may exist under Public Resources Code Section 30235.

   By acceptance of this permit, the Permittee further agrees, on behalf of itself and all successors and assigns, that the Permittee shall remove the development authorized by this permit, including the wells, supporting infrastructure, and any future improvements, if any government agency with the requisite jurisdiction and authority has ordered, and the Executive Director has concurred, that the development is not to be used due to any of the hazards identified in **Special Condition 7**. In the event that portions of the development fall to the beach before they are removed, the Permittee shall remove all recoverable debris associated with the development from the beach and ocean and lawfully dispose of the material in an approved disposal site. Such removal shall require a coastal development permit.

9. **Geology/Hazards.** The project shall be designed to meet or exceed all applicable requirements of the California Building Code. Project design and construction shall meet or exceed all applicable feasible conclusions and recommendations in the *Geotechnical Investigation for the California American Water Temporary Slant Test Well Project, Marina, Monterey County*, California, dated April 3, 2014 (GeoSoils 2014). Project components shall be sited to avoid areas identified in the coastal erosion memorandum prepared by ESA-PWA (March 2014) as subject to coastal erosion during the duration of the project.

10. **Visual Resources.** PRIOR TO PERMIT ISSUANCE, the Permittee shall submit for Executive Director review and approval a Lighting Plan prepared by a qualified engineer that includes the following:
    a. Identifies all lighting and associated infrastructure proposed for use during the test well project, such as towers, poles, electrical lines, etc. The Lighting Plan shall identify the locations, heights, dimensions, and intensity of the lighting and associated lighting infrastructure.
    b. Evaluates the effects of project lighting and associated infrastructure on wildlife in the project area and describes proposed measures to avoid or minimize any adverse effects. These measures may include shielding project lighting from off-site locations, directing lighting downward, using the minimum amount of lighting necessary to ensure project safety, and other similar measures.
    c. Affirms that all lighting structures and fixtures installed for use during the project and visible from public areas, including shoreline areas of Monterey Bay, will be painted or finished in neutral tones that minimize their visibility from those public areas.

    The Permittee shall implement the Lighting Plan as approved by the Executive Director.

11. **Protection of Nearby Wells.** PRIOR TO STARTING PROJECT-RELATED PUMP TESTS, the Permittee shall install monitoring devices a minimum of four wells on the CEMEX site, within 2000 feet of the test well, and one or more offsite wells to record water and salinity levels within the wells and shall provide to the Executive Director the baseline water and Total Dissolved Solids ("TDS") levels in those wells prior to commencement of pumping from the test well. The Hydrogeology Working Group shall establish the baseline water and TDS levels for the monitoring wells. During the project pump tests, the Permittee shall, at least once per day, monitor water and TDS levels within those wells in person and/or with electronic logging devices. The Permittee shall post data collected from all monitoring wells on a publicly-available internet site at least once per week and shall provide all monitoring data to the Executive Director upon request. If water levels drop more than one-and-one-half foot, or if TDS levels increase more than two thousand parts per million from pre-pump test conditions, the Permittee shall immediately stop the pump test and inform the Executive Director. The Hydrogeology Working Group shall examine the data from Monitoring Well 4 if the test well is shut down due to either of these causes. The Hydrogeology Working Group shall determine whether the drop in water level or increase in

TDS is from a cause or causes other than the test well, and it will submit its determination to the Executive Director. If the Executive Director agrees with the Hydrogeology Working Group that the cause of the drop in water level or increase in TDS was a source or sources other than the test well, then the Executive Director may allow testing to resume. If, however, the Executive Director determines that the drop in water level was caused at least in part by the test well, then the Permittee shall not re-start the pump test until receiving an amendment to this permit.

12. **Protection of Biological Resources – Biological Monitor(s).** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall retain one or more qualified biologists approved by the Executive Director to ensure compliance with all relevant mitigation measures and Special Conditions. The approved biologist(s) shall conduct the required preconstruction surveys, implement ongoing monitoring and inspections, keep required records, and notify Commission staff and staff of other agencies as necessary regarding project conformity to these measures and Special Conditions.

    The approved biologist(s) shall be present during daylight hours for all project construction and decommissioning activities and on a periodic basis when the biologist determines operational activities may affect areas previously undisturbed by project activities. The biologist(s) shall monitor construction equipment access and shall have authority to halt work activities, if the potential for impacts to special-status species or habitat is identified, until the issue can be resolved. The qualified biologist(s) shall immediately report any observations of significant adverse effects on special-status species to the Executive Director.

13. **Protection of Biological Resources – Training of On-site Personnel.** Prior to starting construction and decommissioning activities, the approved biologist(s) shall conduct an environmental awareness training for all construction personnel that are on-site during activities. The training shall include, at a minimum, the following:
    - Descriptions of the special-status species with potential to occur in the project area;
    - Habitat requirements and life histories of those species as they relate to the project;
    - Avoidance, minimization, and mitigation measures that will be implemented to avoid impacts to the species and their habitats;
    - Identification of the regulatory agencies and regulations that manage their protection; and,
    - Consequences that may result from unauthorized impacts or take of special-status species and their habitats.

    The training shall include distribution of an environmental training brochure, and collection of signatures from all attendees acknowledging their participation in the training. Subsequent trainings shall be provided by the qualified biologist as needed for additional construction or operations workers through the life of the project.

14. **Protection of Biological Resources – Pre-Construction and Pre-Disturbance Surveys.** The approved biologist(s) shall conduct pre-construction surveys for special-status species as described below:
   a. No more than 14 days before the start of onsite activities or any activities planned for areas previously undisturbed by project activities, the biologist(s) shall conduct a field evaluation of the nature and extent of Western snowy plover activity in the project area and shall identify measures needed to ensure construction activities minimize potential effects to the species. Those measures shall, at a minimum, meet the standards and requirements of the mitigation measures included in Exhibit 5 as well as those included in subsection (d) of this special condition. Those measures shall also be submitted for Executive Director review and approval at least five days before the start of construction activities. The Permittee shall implement the measures as approved by the Executive Director.
   b. Prior to construction or activities planned for areas previously undisturbed by project activities, the approved biologist(s) shall coordinate with construction crews to identify and mark the boundaries of project disturbance, locations of special-status species and suitable habitat, avoidance areas, and access routes. GPS data collected during preconstruction surveys completed in 2012, 2013, and 2014 shall be used to flag the known locations of Monterey spineflower and buckwheat for avoidance during construction. Avoidance buffers shall be established and flagged or fenced as necessary to avoid surface disturbance or vegetation removal. The monitoring biologist shall fit the placement of flags and fencing to minimize impacts to any sensitive resources. At a minimum, the biologist shall direct the placement of highly visible exclusion fencing (snow fence or similar) at the following locations:
      - around sensitive snowy plover habitat areas that do not require regular access;
      - areas along the northern edge of the CEMEX accessway in the vicinity of the settling ponds; and
      - between the work area and any identified occurrence of Monterey spineflower or buckwheat within 10 feet of the existing accessway or work area.

      All delineated areas of temporary fencing shall be shown on grading plans and shall remain in place and functional throughout the duration of construction and decommissioning activities.
   c. The approved biologist(s) shall conduct surveys for Monterey spineflower and buckwheat (host plant for Smith's blue butterfly) within all project disturbance areas and within 20 feet of project boundaries during the blooming period for the spineflower (April-June) to identify and record the most current known locations of these species in the project vicinity. Surveys shall be conducted by a qualified botanist, and shall include collection of Global Positioning System (GPS) data points for use during flagging of sensitive plant species locations and avoidance buffers prior to construction.
   d. Starting no later than February 1 of each year of project construction, operation, and decommissioning, the approved biologist(s) shall conduct breeding and nesting surveys of sensitive avian species within 500 feet of the project footprint. The approved biologist(s) shall continue those surveys at least once per week during periods of project construction, well re-packing, and decommissioning that occur between February 1 and October 1 each year.

In the event that any sensitive species are present in the project area but do not exhibit reproductive behavior and are not within the estimated breeding/reproductive cycle of the subject species, the qualified biologist shall either: (1) initiate a salvage and relocation program prior to any excavation/maintenance activities to move sensitive species by hand to safe locations elsewhere along the project reach or (2) as appropriate, implement a resource avoidance program with sufficient buffer areas to ensure adverse impacts to such resources are avoided. The Permittee shall also immediately notify the Executive Director of the presence of such species and which of the above actions are being taken. If the presence of any such sensitive species requires review by the United States Fish and Wildlife Service and/or the California Department of Fish and Game, then no development activities shall be allowed or continue until any such review and authorizations to proceed are received and also authorizes construction to proceed.

If an active nest of a federally or state-listed threatened or endangered species, species of special concern, or any species of raptor or heron is found, the Permittee shall notify the appropriate State and Federal wildlife agencies within 24 hours, and shall develop an appropriate action specific to each incident. The Permittee shall notify the California Coastal Commission in writing by facsimile or e-mail within 24 hours and consult with the Commission regarding determinations of State and Federal agencies.

If the biologist(s) identify an active nest of any federally- or state-listed threatened or endangered species, species of special concern, or any species of raptor or heron within 300 feet of construction activities (500 feet for raptors), the biologist(s) shall monitor bird behavior and construction noise levels. The biologist(s) shall be present at all relevant construction meetings and during all significant construction activities (those with potential noise impacts) to ensure that nesting birds are not disturbed by construction-related noise. The biologist(s) shall monitor birds and noise every day at the beginning of the project and during all periods of significant construction activities. Construction activities may occur only if construction noise levels are at or below a peak of 65 dB at the nest(s) site. If construction noise exceeds a peak level of 65 dB at the nest(s) site, sound mitigation measures such as sound shields, blankets around smaller equipment, mixing concrete batches off-site, use of mufflers, and minimizing the use of back-up alarms shall be employed. If these sound mitigation measures do not reduce noise levels, construction within 300 ft. (500 ft. for raptors) of the nesting areas shall cease and shall not re-start until either new sound mitigation can be employed or nesting is complete.

If active plover nests are located within 300 feet of the project or access routes, avoidance buffers shall be established to minimize potential disturbance of nesting activity, and the biologist shall coordinate with and accompany the Permittee's operational staff as necessary during the nesting season to guide access and activities to avoid impacts to nesting plovers. The biologist shall contact the USFWS and CDFW immediately if a nest is found in areas near the wellhead that could be affected by project operations. Operations shall be immediately suspended until the Permittee submits to the Executive Director written authorization to proceed from the USFWS.

If, after starting project activities, the Permittee must stop construction due to the presence of sensitive species or due to the lack of necessary approvals or permits (e.g., a lease from the State Lands Commission), the Permittee shall remove and properly store all project-related equipment and vehicles away from the project site in a manner that does not adversely affect sensitive species.

15. **Project Area Restoration.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall prepare a Restoration Plan for review and approval by the Executive Director that is consistent with the City of Marina restoration requirements as codified in Municipal Code Section 17.41.100. The Plan shall include, at a minimum:
    a. a description of the habitat characteristics and extent of the area to be restored, which shall include, at a minimum, all areas of temporary disturbance in the project footprint other than those areas actively in use by CEMEX for mining purposes;
    b. performance standards and success criteria to be used;
    c. a minimum 3:1 ratio of native plants to be replaced within the affected area;
    d. an invasive species control program to be implemented for the duration of the project;
    e. the timing of proposed restoration activities;
    f. proposed methods to monitor restoration performance and success for at least five years following initiation of the Plan; and
    g. identification of all relevant conditions, requirements, and approvals by regulatory agencies needed to implement the Plan.

    The Permittee shall implement the Plan: (1) during and immediately following construction and prior to operation of the test well, and (2) during and immediately following decommissioning activities.

    Success criteria will include plant cover and species composition/diversity, which shall meet or exceed adjacent undisturbed dune habitat on the CEMEX parcel as determined by the biological monitor. Success criteria shall, at a minimum, be consistent with the requirements of the existing Lapis Revegetation Plan prepared for the RMC Lonestar Lapis Sand Plant (25 percent average vegetative cover and species diversity of all species listed in Group A of the Plan present and providing at least 1 percent cover).

16. **Invasive Species Control.** The Permittee shall remove and properly dispose of at a certified landfill all invasive or exotic plants disturbed or removed during project activities. The Permittee shall use existing on-site soils for fill material to the extent feasible. If the use of imported fill material is necessary, the imported material must be obtained from a source that is known to be free of invasive plant species, or the material must consist of purchased clean material.

17. **Posting of Bond.** To ensure timely removal, PRIOR TO COMMENCEMENT OF CONSTRUCTION, the Permittee shall provide to the Commission a surety bond or similar security device acceptable to the Executive Director for $1,000,000 (one million dollars), and naming the Coastal Commission as the assured, to guarantee the Permittee's compliance with Special Conditions 6 and 15. The surety bond or other security device shall be maintained in full force and effect at all times until Special Conditions 6 and 15 have been met.

IV. FINDINGS & DECLARATIONS

A. Project Location, Description, and Objectives

The project site is within the CEMEX sand mining facility, which is located in an extensive area of coastal dunes along the shoreline of Monterey Bay in the northern portion of the City of Marina (see Exhibit 1 – Project Location). Parts of the site have been used for sand mining since 1906, though the site continues to provide significant areas of sensitive habitat along with areas disturbed due to mining activities.

The project applicant and appellant, California American Water ("Cal-Am") proposes to construct and operate a test slant well and associated monitoring wells at a previously disturbed area within the CEMEX site (see Exhibit 2 – Site Plan). Cal-Am will use the test slant well to conduct a pumping and testing program over an approximately 24-month period to obtain data regarding the geologic, hydrogeologic, and water quality characteristics in aquifers underlying the project area. Cal-Am will use the data to help determine whether a subsurface intake system at or near this location could provide source water for a potential seawater desalination facility. Cal-Am has proposed such a facility as part of its Monterey Peninsula Water Supply Project ("MPWSP"), which is the subject of an application before the California Public Utilities Commission ("CPUC"), and is described below in Section IV.B of these Findings.[1] Information derived from the well tests is necessary to assess the feasibility and the preferred design and location of the proposed full-scale project. The data produced from the tests will be analyzed as part of the CPUC's review for the MPWSP and will help inform the CPUC's decision as to whether to approve the MPWSP as part of Cal-Am's water supply system.

The proposed project evaluated herein is for construction and operation of a test slant well only. These Findings, and any coastal development permit issued pursuant to these Findings, apply only to the proposed test slant well and its associated monitoring wells and do not authorize development that may be associated with long-term use of the well, including converting the well to use as a water source for the separately proposed MPWSP. Any such proposal will require additional review and analysis for conformity to relevant Local Coastal Programs and the Coastal Act and will be conducted independent of any decision arising from these Findings. Further, the Commission's decision regarding these Findings exerts no influence over, and causes no prejudice to, the outcome of those separate future decisions.

Project components

All development associated with this test slant well will occur within an approximately 0.75-acre portion of a previously-disturbed area within the approximately 400-acre CEMEX site. The primary components of this proposed test slant well include:

Slant well: The test wellhead will be located about 650 feet from the current shoreline at an elevation of about 25 feet above mean sea level. The wellhead will be set within a concrete wellhead vault that will extend to about five feet below grade and will be covered with steel plates. The slant well will extend downward at about a 20 degree angle below horizontal to a

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[1] The proposed project, including Cal-Am's CPUC Application A.12-04-019, is more fully described on the project website at: http://www.cpuc.ca.gov/Environment/info/esa/mpwsp/index.html

length of up to about 1000 feet and a point about 290 feet below the Monterey Bay seafloor (see Exhibit 3 – Slant Test Well, Representative Illustration). The wellhead will include a radio telemetry alarm system that will communicate any malfunctions – e.g., power or pump failure, excess pressure within the system, unexpected drops in water levels, etc. – and will also allow for automatic shutdown.

Disposal piping: To discharge water pumped from the well during the tests, Cal-Am will construct an approximately 12-inch diameter disposal pipeline that will connect to an existing subsurface manhole located about 450 feet seaward from the wellhead and about three feet below grade. The manhole is part of an existing ocean outfall used by the Monterey Regional Water Pollution Control Agency ("MRWPCA") as a discharge from its wastewater treatment facility to about two miles offshore into Monterey Bay. The outfall is buried along the southern portion of the CEMEX site. The connection will require a total of about 150 cubic yards of excavation along the disposal pipeline and in the area of the manhole.

Electrical supply: Power will be provided to the well pumps through a buried 4-inch conduit that will extend eastward from the wellhead to a new transformer located on an existing power pole about 2000 feet east of the well.

Monitoring wells: Cal-Am will also construct up to four monitoring well clusters consisting of 2-inch diameter vertical wells that will extend to about 300 feet below the ground surface and will be used to measure changes in groundwater levels and water quality during the pump tests. Exhibit 4 provides the suite of water quality parameters that Cal-Am will monitor during the project's testing phase. One monitoring well will be adjacent to the slant wellhead and the other will be about 1,350 feet east adjacent to the CEMEX service road.

Other associated infrastructure: Cal-Am will also install temporary sedimentation tanks, a portable restroom and hand washing station, and a re-fueling area.

Project activities, timing, and work effort
Project activities will occur in phases over an approximately 28-month period. The project's first phase involves constructing the wells and associated infrastructure; the second phase involves pumping and testing the wells; and the final phase involves well decommissioning.

The construction phase includes:
- Site preparations, including mobilizing a drill rig and drilling the monitoring wells;
- Excavating and placing the pre-cast concrete wellhead vault structure;
- Installing water discharge piping, metering and sampling facilities;
- Connecting to the existing outfall and installing temporary sedimentation tanks;
- Mobilizing the drill rig and drilling the slant well through the vault;
- Developing the slant well and conducting initial pumping and aquifer tests;
- Installing electrical conduit, cable, electrical panel, and telemetry system;
- Completing the slant well by removing above-grade casing, installing submersible pump, and making final electrical and piping connections;
- Demobilizing all construction equipment; and,
- Re-grading the CEMEX accessway as needed.

These activities will occur primarily during daylight hours between Monday and Friday, although development of the test slant well will require continuous drilling operations for several weeks. Construction will occur primarily outside the Western snowy plover nesting season, which runs from February 28 to October 1 each year.

The second phase of the project includes continuous well operations for up to 24 months at volumes ranging from about 1,000 gallons per minute ("gpm") to 2,500 gpm. Operators will visit the site on a weekly basis to collect water samples and to check pumping operations. At one point during the 24 months of testing, operators will reposition the packer device within the well that isolates one aquifer from the other. This involves removing and replacing the pump and packer device, which will occur over about a three-day period.

At the end of testing, Cal-Am will decommission and remove the test well and related infrastructure. The wells will be sealed pursuant to requirements of the California Well Standards Bulletin 74-81 and the Monterey County Environmental Health Bureau. Monitoring well components will be removed to at least five feet below ground surface ("bgs") and the slant well components will be removed to at least 40 feet bgs. Decommissioning is expected to take about four weeks and will occur outside the Western snowy plover nesting season.

Project Objectives

The main project purpose is to develop the data needed to determine the overall feasibility, available yield, and hydrogeologic effects of extracting water from this site that might be used by Cal-Am's separately proposed desalination facility. The CEMEX site is at the western edge of the currently mapped extent of the Dune Sand Aquifer and the 180-Foot Aquifer, and the test well will intercept what is believed to be the seaward extension of two aquifers.

The aquifers extend some distance eastward and have been subject to seawater intrusion that has reduced the volume and quality of water from wells further inland. The known area of seawater intrusion extends along about ten miles of the Bay shoreline and up to about five miles inland, with all known existing wells within two miles of this test well site having already experienced seawater intrusion.[2] The rate of seawater intrusion in this area has been estimated at about 14,000 acre-feet per year.[3] The test well will be centrally located along this shoreline area and, at its maximum pumping rate of 2,500 gallons per minute, will pump about 4,000 acre-feet per year.

Water quality data collected from nearby areas over the past several years show that both aquifers exhibit relatively high salinity levels and that there is not an aquitard separating the two. More recently, Cal-Am drilled test boreholes at several locations between Marina and Moss Landing earlier this year, including six at the CEMEX site. Those data show that salinity and Total Dissolved Solid ("TDS") concentrations in nearby areas of the aquifers already exceed levels that are suitable for agricultural crop production. For example, the U.S. Department of

[2] See Monterey Bay National Marine Sanctuary, *Finding of No Significant Impact for the California American Water Slant Test Well Project*, Section 6.1.2 – Water Supply and Quality, October 2014.

[3] See Monterey County Water Resources Agency, *Monterey County Groundwater Management Plan*, Chapter 3 – Basin Description, pages 3.14 & 3.15, May 2006.

Agriculture considers water with TDS levels about 2,000 parts per million as representing a "severe" hazard to crops, and water samples taken at and near CEMEX show that TDS levels range from more than eight to seventeen times higher than this "severe" level.[4] Testing and modeling using data from those boreholes suggest that using wells at this location would be a feasible method to use the two aquifers as conduits to extract water through the seafloor beneath Monterey Bay.[5] Data from the proposed slant well tests will be used to confirm or correct this modeling and analysis.

Cal-Am plans to construct the well with screening that will allow it to pump from each aquifer separately, which will help identify the degree of connectivity between the aquifers, the available yield, and the potential effects on the aquifers. Without such tests, the hydrogeology near the site and in the area will not be adequately characterized for purposes of determining the feasibility of potential full-scale wells and the potential benefits and impacts that would result from operating those wells.

Site History: As noted above, the proposed project site has been used for sand mining for over a century, most recently by its current owner, CEMEX. The site includes sedimentation ponds, sand mining equipment and related infrastructure, accessways, and stockpile areas, some of which have remained in relatively the same location for several decades and some of which have moved within the site due to changing production levels, shifts in the surrounding dunes, changes in sand delivery to the site from the Bay, and other factors. The Commission's enforcement staff is investigating a potential violation regarding mining activities at the site. At this time, the investigation does not include activities within the proposed Cal-Am project footprint or involve matters pertaining to Cal-Am or the proposed Cal-Am project.

In the mid-1980s, the Monterey Peninsula Water Pollution Control Agency ("MRWPCA") constructed an outfall that is buried along the southern portion of the site in an area that had been occupied by sedimentation ponds used in the mining operation. The outfall discharges wastewater from the MRWPCA's treatment facility further inland to about two miles offshore.

Cal-Am's project footprint is largely within the accessway used for sand mining and outfall construction that appears to have been at or near the same location since at least the early 1980s. Much of the footprint consists of disturbed dune habitat, though some continues to provide habitat value (see Section IV. H – Sensitive Habitat below).

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[4] See, for example, the U.S. Department of Agriculture Irrigation Water Quality Guidelines at https://prod.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_068163.pdf . See also Table 5-3 of the Hydrogeology Working Group, *Monterey Peninsula Water Supply Project Hydrogeologic Investigation Technical Memorandum Summary of Results – Exploratory Boreholes*, July 2014, which shows TDS levels in surrounding areas of the two aquifers ranging from 16,122 to 35,600 parts per million.

[5] From Geoscience Support Services, Inc., *Monterey Peninsula Water Supply Project Hydrogeologic Investigation: Technical Memorandum (TM1) Summary of Results – Exploratory Boreholes*, prepared for California-American Water and RBF Consulting, July 8, 2014.

B. PROJECT BACKGROUND

Recent History of Water Issues in Monterey Area

The Monterey area has had long-standing difficulties with its water supply. The area has no imported water sources, and local supplies have sometimes been insufficient to provide the expected amount of water. Over the past several decades, a number of water supply projects have been proposed but for various reasons have not reached fruition.

Cal-Am has provided water to the Monterey Peninsula area since 1966. Its primary source of water has been a series of wells along the Carmel River that draw water from the aquifer underlying the river. Cal-Am also shares a network of wells in the Seaside Groundwater Basin with other water users.

In 1995, the State Water Resources Control Board issued Order No. WR 95-10, which found that Cal-Am had been diverting about 10,730 acre-feet per year[6] from the Carmel River Basin without adequate water rights. The State Board's Order required Cal-Am to take any of several steps to address this issue – either obtain the necessary appropriative rights, obtain water from other sources that would allow it to reduce its use of Carmel River water, and/or obtain water from other entities that have the rights to use Carmel River water. The Order also directed Cal-Am to reduce its Carmel River Basin water use in part by maximizing its use of water from the Seaside Basin.

Around the same time, the Monterey Peninsula Water Management District (MPWMD) proposed constructing a new dam on the Carmel River; however, local voters rejected the dam's financing plan and the dam was not built. Shortly thereafter, two species in the Carmel River watershed were listed as "threatened" under the federal Endangered Species Act – the red-legged frog in 1996 and the steelhead trout in 1997, which severely limited any future consideration of dams on the river.

In 1998, state legislation directed the California Public Utilities Commission ("CPUC") to develop a water supply plan for the Monterey Peninsula that did not include a dam.[7] In 2002, the CPUC completed its plan, known as "Plan B", which included a 9,400 AFY desalination facility at Moss Landing and an Aquifer Storage and Recharge (ASR) system that would store about 1,300 AFY of Carmel River water in the Seaside Basin. Plan B then served as the basis for Cal-Am's 2004 application to the CPUC for the proposed Coastal Water Project ("CWP"), which included a desalination facility at the Moss Landing Power Plant, transmission pipelines from Moss Landing to the Monterey Peninsula, a reservoir, pump stations, and ASR facilities. During the CPUC's review, the State Water Board's Division of Water Rights in 2009 issued a Cease-and-Desist Order to Cal-Am that required Cal-Am to significantly reduce its Carmel River withdrawals by 2016, thereby increasing the urgency of selecting and constructing a water

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[6] An acre-foot is equal to approximately 326,000 gallons of water. In the Monterey Peninsula, which has a relatively per capita water use rate compared to most of California, this would provide water for about two to four households for a year.

[7] AB 1182 required the CPUC to consult with Cal-Am and a number of affected parties to prepare a contingency water supply plan that did not rely on a new dam.

supply project.[8] Nonetheless, several concerns were raised about the desalination facility's proposed use of a power plant open water intake and the resulting significant adverse effects on marine life, the distance of the facility from the service area and the associated increased transmission costs, and others. These concerns led to the development of alternative water supply proposals, including one developed by regional stakeholders known as the "Regional Water Project, Phase I." This alternative proposed moving the desalination facility closer to the Monterey Peninsula and using vertical and slant wells instead of an open water intake.

In December 2010, the CPUC certified an Environmental Impact Report for this Regional Water Project and approved several agreements among stakeholders that established project partner responsibilities regarding construction, ownership, operations, maintenance, and payments. In 2012, however, the CPUC determined it was no longer reasonable for Cal-Am to continue to pursue the Regional Water Project because, due to a significant change in circumstances since 2010, the project no longer had a reasonable prospect of achieving its goals.

The Monterey Peninsula Water Supply Project ("MPWSP")

In 2012, Cal-Am and other stakeholders proposed the Monterey Peninsula Water Supply Project ("MPWSP") as a replacement for the defunct Regional Water Project. In April 2012, Cal-Am filed an application with the CPUC for the MPWSP, which includes slant wells that would be located at the CEMEX site, a desalination facility to be located about two miles inland of the test well site adjacent to a regional wastewater treatment facility, pipelines, and the other related facilities needed to produce and deliver water to the Monterey Peninsula. The CPUC is preparing an EIR for the project, which is expected to be published in 2015.

Associated with the MPWSP is a Settlement Agreement among a number of stakeholders that establishes technical, financial, governance, and other conditions applicable to the project.[9] Included in those conditions is agreement of the need for one or more test wells, a statement that slant wells are the preferred intake method, "subject to confirmation of the feasibility of this option by the test well results and hydrogeologic studies," and a stated preference to locate the wells within the actively mined area of the CEMEX site.

The test slant well described in these findings is the product of Cal-Am's MPWSP application and the Settlement Agreement. It is a necessary precursor to determining whether slant wells are feasible at this site and determining whether the MPWSP will be constructed and operated as currently proposed. Should the slant well testing be successful, Cal-Am is expected to continue with its current proposal; however, failure or difficulties with the slant well could either preclude the MPWSP from being built or require substantial changes to its current design, location, or intake method.

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[8] The Order established a schedule for Cal-Am to reduce its reduce its Carmel River well water withdrawals from its 2009 volume of 10,730 acre-feet per year to no more than 3,376 acre-feet per year by 2016.

[9] The parties to the Settlement Agreement include Citizens for Public Water, City of Pacific Grove, Coalition of Peninsula Businesses, County of Monterey, CPUC Division of Ratepayer Advocates, Landwatch Monterey County, Monterey County Farm Bureau, Monterey County Water Resources Agency, Monterey Peninsula Regional Water Authority, Monterey Peninsula Water Management District, Monterey Regional Water Pollution Control Agency, Planning and Conservation League Foundation, Salinas Valley Water Coalition, Sierra Club, and the Surfrider Foundation.

D. Jurisdiction

The project site is entirely within the coastal zone. Portions of the site landward of the mean high tide line are within the City of Marina's certified LCP permit jurisdiction. The standard of review for development in that part of the site is the City's certified LCP. Portions of the site seaward of the high tide line are within the Commission's retained jurisdiction where the standard of review is Chapter 3 of the Coastal Act. All project components within the Commission's retained jurisdiction will be located beneath the seafloor.

The City's certified LCP consists of its Local Coastal Land Use Plan (LCLUP) and its Local Coastal Program Implementation Plan (LCPIP). The relevant policies and measures of these documents are codified in the Chapter 17.41 of the City's Municipal Code under "Coastal Zoning" and are implemented through requirements and development standards identified in the Ordinance.

Other Agency Approvals & Consultations
The project is additionally subject to the following discretionary permits and approvals:

- **Monterey Regional Water Pollution Control Agency (MRWPCA):** authorization for connection and use of MRWPCA's ocean outfall.
- **State Lands Commission:** lease of state tidelands.
- **Central Coast Regional Water Quality Control Board:** a new or modified National Pollution Discharge Elimination System ("NPDES") Permit.
- **Monterey Bay National Marine Sanctuary:** authorization to allow discharge into Sanctuary waters and drilling and disturbance of submerged lands within the Sanctuary.[10]

Landowner approval: The project will be subject to landowner approval from two entities – CEMEX for the land-based portion of the project, and the State Lands Commission, for the portion of the slant well that will extend beneath state tidelands.

Regarding CEMEX, Cal-Am has been negotiating terms of a lease of CEMEX lands for the past several months. On November 5, 2013, Cal-Am and CEMEX announced they had reached agreement on allowing access to the property. To ensure Cal-Am has the property interest necessary for its proposed test slant well project, **Special Condition 1** requires it to provide proof of legal interest prior to starting construction. In addition, and as authorized by Coastal Act Section 30620(c)(1),[11] **Special Condition 2** requires Cal-Am to reimburse the Commission for any costs or attorneys fees the Commission incurs in connection with the defense of any

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[10] The Sanctuary is serving as lead agency under the National Environmental Policy Act ("NEPA") and has prepared an October 2014 Finding of No Significant Impact ("FONSI") as part of its NEPA obligations.

[11] Coastal Act section 30620(c)(1) states:

> *The commission may require a reasonable filing fee and the reimbursement of expenses for the processing by the commission of an application for a coastal development permit under this division and, except for local coastal program submittals, for any other filing, including, but not limited to, a request for revocation, categorical exclusion, or boundary adjustment, that is submitted for review by the commission.*

See also 14 C.C.R. Section 13055(e).

action brought by a party other than the Applicant/Permittee challenging the approval or issuance of this permit.

Regarding the lease from the State Lands Commission, Cal-Am is expecting its lease application to be heard at the State Lands Commission December 2014 hearing. Although Cal-Am has not yet obtained the approval needed to conduct the project beneath state tidelands, its test slant well drilling activities will not occur within State Lands jurisdiction for the first several weeks of the project – that is, it will take several weeks of site preparation, staging, and drilling before the well will reach areas beneath state tidelands. **Special Condition 1** therefore requires Cal-Am to provide proof of that approval before the slant well extends past the mean high tide line at the site and into State Lands jurisdiction. Cal-Am has acknowledged the risk of starting the project before obtaining this approval and recognizes that the approval might not be granted. However, should approval be granted, this approach will allow Cal-Am to start work and complete the well, presuming State Lands Commission approval, largely before the work limitations imposed due to the Western snowy plover nesting season, which runs from February 28 to October 1 of each year. These Findings discuss this issue in more detail below in Section IV. H – Protection of Sensitive Habitat Areas.

E. Substantial Issue

Appeal Jurisdiction and Procedures

Coastal Act Section 30603 provides for the appeal to the Coastal Commission of certain CDP decisions in jurisdictions with certified LCPs. Section 30625(b) of the Coastal Act requires the Commission to hear an appeal unless the Commission determines that no substantial issue is raised with respect to the grounds on which the appeal has been filed. Commission staff recommended substantial issue, and unless three Commissioners object, it is presumed that the appeal raises a substantial issue and the Commission may proceed to the *de novo* portion of the appeal hearing at the same or subsequent meeting, without taking public testimony regarding the substantial issue question. However, if three Commissioners object to the substantial issue recommendation, the Commission will hear arguments and vote on the substantial issue question. The only persons qualified to testify before the Commission on the substantial issue question are the applicant, local government, and persons (or their representatives) who opposed the application before the local government. Testimony from other persons regarding the substantial issue question must be submitted in writing. It takes a majority of Commissioners present to find that no substantial issue is raised.

Unless the Commission determines that the project raises no substantial issue, the Commission will conduct a full *de novo* public hearing on the merits of the project at the same or subsequent hearing. If the Commission conducts a *de novo* hearing on the appeal, the applicable test under Coastal Act Section 30604 is whether the development is in conformance with the certified Local Coastal Program. In addition, for projects located between the sea and the first public road paralleling the sea, Coastal Act Section 30604(c) requires that a finding that the development conforms to the public access and public recreation policies of Chapter 3.

Denial of a major public works facility: Coastal Act Section 30603(a)(5) provides that appeals may be filed for local government decisions to approve or deny proposed major public works projects. Coastal Act Section 30114(a) defines "public works" as including: "All production, storage, transmission, and recovery facilities for water, sewerage, telephone, and other similar utilities owned or operated by any public agency or by any utility subject to the jurisdiction of the Public Utilities Commission, except for energy facilities." The Commission's regulations, at 14 CCR Section 13012(a) define "major public works" as those facilities that cost more than $100,000, adjusted yearly based on the Construction Cost Index. As of 2012, a public works project must cost slightly less than $240,000 to be considered a "major public works."

Cal-Am is subject to the jurisdiction of the Public Utilities Commission, its proposed test slant well project involves the production, transmission, and recovery of water, and its stated project costs are greater than five million dollars. Pursuant to the above-reference provisions of the Coastal Act and the Commission's regulations, the City's action was therefore a denial of a major public works project and Cal-Am may appeal the City's decision to the Commission.

Section 30603(b)(2) provides that the grounds for appealing the denial of a permit for a major public works project are limited to an allegation that the proposed development conforms to the standards set forth in the certified LCP and the public access policies set forth in this division. Cal-Am's contentions regarding the grounds of its appeal are described below.

Local Action
On July 10, 2014, the City of Marina ("City") Planning Department declined to approve or disapprove a Coastal Development Permit ("CDP") for the proposed Cal-Am test well project, and declined to certify a Mitigated Negative Declaration prepared by the City for compliance with the California Environmental Quality Act ("CEQA"). Cal-Am appealed that decision to the City Council. On September 4, 2014, the City denied the CDP and declined to certify the Mitigated Negative Declaration. The City's Final Local Action Notice ("FLAN") is included as a Substantive File Document.

On Friday, September 12, 2014, the Commission received the Final Local Action Notice ("FLAN") from the City. The Commission's appeal period started on September 15, 2014, the first working day following the date of receipt of that FLAN. In accordance with Section 13110 of the Commission's regulations, the 10-working day appeal period ran from September 15, 2014 to September 26, 2014. On September 24, within the 10-working day appeal period, Cal-Am filed a valid appeal of the City's denial. In accordance with Section 13112 of Title 14 of the California Code of Regulations, staff requested that the City provide all relevant documents and materials regarding the local coastal development permit action. The documents and materials relating to the City's approval of the local coastal development permit are necessary to analyze whether a substantial issue exists with respect to conformity of the City's approval with the relevant policies of the certified LCP. Pursuant to Coastal Act Section 30261, the appeal must be heard within 49 days from the date that the appeal is filed unless the appellant waives that 49-day period. This appeal period runs until November 12, 2014.

Substantial Issue Standard of Review
Coastal Act Section 30625(b) states that the Commission shall hear an appeal unless it determines:

> *With respect to appeals to the Commission after certification of a local coastal program, that no substantial issue exists with respect to the grounds on which an appeal has been filed pursuant to Section 30603.*

The term "substantial issue" is not defined in the Coastal Act or its implementing regulations. Section 13115(b) of the Commission's regulations simply indicates that the Commission will hear an appeal unless it "finds that the appeal raises no significant question." In previous decisions on appeals, the Commission has been guided by factors that include the following:

1. The degree of factual and legal support for the local government's decision that the development is consistent or inconsistent with the certified LCP and with public access policies of the Coastal Act;
2. The extent and scope of the development as approved or denied by the local government;
3. The significance of the coastal resources affected by the decision;
4. The precedential value of the local government's decision for future interpretation of its LCP; and,
5. Whether the appeal raises only local issues or those of regional or statewide significance.

If the Commission chooses not to hear an appeal, the appellant nevertheless may obtain judicial review of the local government's coastal permit decision by filing a petition for a writ of mandate pursuant to California Code of Civil Procedure Section 1094.5.

Substantial Issue Determination
Summary of Appellant's Contentions: In its appeal, Cal-Am asserts that its proposed project is consistent with relevant provisions of the City's certified LCP. It contends both that the City made no findings showing that the proposed project would be inconsistent with applicable LCP policies or would interfere with coastal access, and that its proposed project is fully consistent with the applicable policies. These contentions, and the Commission analysis of each, are described in more detail below.

1. **Cal-Am contends the City did not make findings of LCP inconsistency:** As noted above, the City held two hearings – one on July 10, 2014 with the City's Planning Department and one on September 3 and 4, 2014 with the City Council. In both, the City considered certifying the City's Initial Study/Mitigated Negative Declaration, which it had prepared pursuant to its lead CEQA agency requirements for the proposed project, and considered issuance of a CDP. At the Planning Department hearing, the City declined to certify the IS/MND, but it neither approved nor denied the CDP application. Cal-Am then appealed the Planning Commission's action to the City Council. At the City Council hearing, the City Council adopted a resolution to reject the IS/MND and to deny the CDP application (see Exhibit 7).

At the two hearings, neither the Planning Department nor the City Council adopted findings regarding the proposed project's conformity or non-conformity to the LCP or the Coastal Act's public access policies. The City's CEQA findings stated that it was unable to determine that the project would not have a significant adverse environmental effect and that the draft IS/MND did not reflect the independent decision of the City. The City's CDP findings stated that "based upon the above conclusions regarding CEQA, the City is unable to approve the Project..." In reviewing the City's record, the Commission determines that the City did not make findings that support its denial of the CDP due to any inconsistency of the project with relevant LCP and Coastal Act policies.

2. **Cal-Am contends that its project is fully consistent with relevant LCP and Coastal Act policies:** In its appeal, Cal-Am notes that the City's staff and outside expert consultants determined that, with conditions, the proposed project would meet relevant LCP requirements. The recommended conditions addressed a number of issue areas, including coastal erosion, sensitive habitat, visual impacts, and others (see Exhibit 8 – Cal-Am Mitigation Measures). In its staff report, City staff identified those conditions as allowing the proposed project to conform to relevant provisions of the LCP and recommended that the City conditionally approve the CDP. As noted above, however, the City did not adopt any of the conditions, nor did it make any determination that the project was in any way inconsistent with relevant LCP provisions or the Coastal Act's public access policies.

Substantial Issue Conclusion: With the lack of City findings showing that the project does not conform to relevant LCP and Coastal Act public access provisions, the Commission finds that there is insufficient factual and legal support for the City's denial of the proposed test well. The appeal raises significant regional concerns, as the data that will be produced by the test well are needed to assess the feasibility, location and design of a desalination facility that is intended to address regional water shortages. It is also a poor precedent for the City to deny a CDP without making any findings as to why the proposed project does not conform to the City's LCP. In addition, while the project is not expected to impact a significant portion of the CEMEX site, it will be constructed in areas that are within primary habitat, so significant coastal resources will be affected by the proposed project. Thus, these four factors all weigh strongly in favor of a finding of substantial issue. Conversely, the extent and scope of this project are fairly minor, as project construction is expected to adversely affect less than one acre and the test well is proposed to operate for only two years, so this one factor weighs more towards a finding of no substantial issue. However, four of the five substantial issue factors weigh heavily in favor of a finding of substantial issue, so when all five factors are taken together, the Commission finds that the appeal raises substantial issue regarding conformity to the LCP and to the Coastal Act's public access policies.

F. Coastal Development Permit Determination

The proposed test slant well will be located both within the City of Marina's LCP jurisdiction and within the Commission's original jurisdiction, as portions of the project will extend seaward of the Monterey Bay mean high tide line. Because the Commission found that the City's denial of the portion of the project within the City's jurisdiction raises a substantial issue, the Commission reviews that portion of the project *de novo*. In addition, Cal-Am has applied for a

CDP for the portion of its project within the Commission's retained jurisdiction. The findings below address both portions of the project, using the Coastal Act as the standard of review for those parts of the project within the Commission's retained jurisdiction and using the City's LCP and Coastal Act public access and recreation policies as the standard of review for the portions within the City's LCP jurisdiction.

G. PUBLIC ACCESS AND RECREATION

LCLUP Policy 1 is:

> *To insure access to and along the beach, consistent with the recreational needs and environmental sensitivity of Marina's Coastal area.*

LCLUP Policy 2 is:

> *To provide beach access and recreational opportunities consistent with public safety and with the protection of the rights of the general public and of private property owners.*

LCLUP Policy 3 is:

> *To provide beach access in conjunction with the new development where it is compatible with public safety, military security and natural resources protection; and does not duplicate similar access nearby.*

The LCLUP's "North of Reservation Road Planning Area" requires that proposed development consider:

> *Retention of uninterrupted lateral access along the sandy beach frontage.*
>
> *Protect and continue to provide public access from the nearest public roadway to the ocean.*
>
> *Structures necessary for the functioning of any Coastal Conservation and Development use (e.g., dredgelines, sewer outfall lines) may cross the sandy beach designated Park and Open Space provided lateral beach access is not significantly blocked.*

Coastal Act Section 30211 states:

> *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Coastal Act Section 30212(a) states:

> *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) It is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) Adequate access exists nearby, or, (3) Agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.*

Coastal Act Section 30214 states, in relevant part:

> *(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:*
> *(1) Topographic and geologic site characteristics.*
> *(2) The capacity of the site to sustain use and at what level of intensity.*
> *(3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.*
> *(4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.*

Coastal Act Section 30221 states:

> *Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.*

LCP and Coastal Act policies require generally that development located adjacent to the shoreline in areas with public use not interfere with that use and provide access to the shoreline. The project site consists of an industrial facility with restricted access; however, it is adjacent to shoreline areas that provide lateral public access to the shoreline and recreational opportunities.

All project work will occur at some distance from the shoreline and is not expected to affect lateral beach access. The well drilling and support activities will be set back approximately 650 feet from the mean high tide line, with no activities or structures on the beach itself. Activities to connect the well discharge pipe to the existing outfall will be about 450 feet from the shoreline. Drilling beneath the beach will occur several dozen feet below the ground surface and is not expected to affect or limit ongoing beach access. Therefore, the project activities are expected to be consistent with, and not conflict with the above policies, as they will not require structures across the beach that would inhibit public access and will not impede beach users.[12] Additionally, the bulk of project-related activities will occur during non-peak recreational use in the area, which will further reduce any potential access effects. Further, the project need not provide additional access, as it will be temporary, it is not expected to cause adverse effects to access, it is located within an existing industrial area with restricted access, and it is in an area where suitable access exists, particularly given the highly valued nearby habitat where increased access may not be appropriate.

Conclusion
Based on the above, the Commission finds that the project, as conditioned, conforms to the relevant public access and recreation policies of the LCP and the Coastal Act.

[12] As described below in Section IV.J – Coastal and Geologic Hazards, an extreme erosion event during the slant test well's expected operating life could expose some of the subsurface well casing. **Special Condition 6**, which is meant to address this potential coastal hazard, would also alleviate any effects on public access.

H. Protection of Sensitive Habitat Areas

Relevant LCP Provisions

LCLUP Policy 19:

Promote reclamation and protection of native dune habitat and vegetation.

LCLUP Policy 25:

Protect the habitat of recognized rare and endangered species found in the Coastal dune area.

LCLUP Policy 26:

Regulate development in areas adjacent to recognized rare and endangered species or their habitats so that they will not threaten continuation of the species or its habitat.

LCLUP Policy 41:

Give priority to coastal-dependent development on or near the shoreline and to ensure environmental effects are mitigated to the greatest extent possible.

LCLUP Exhibit A states:

Primary habitat. *This term includes all of the environmentally sensitive habitat areas in Marina. These are as follows:*
1. Habitat for all identified plant and animal species which are rare, endangered, threatened, or are necessary for the survival of an endangered species. These species will be collectively referred to as "rare and endangered."
2. Vernal ponds and their associated wetland vegetation. The Statewide Interpretive Guideline for Wetlands and Other Wet Environmentally Sensitive Habitat Areas (California Coastal Commission, February 14, 1981) contains technical criteria for establishing the inland boundary of wetland vegetation.
3. All native dune vegetation, where such vegetation is extensive enough to perform the special role of stabilizing Marina's natural sand dune formations.
4. Areas otherwise defined as secondary habitat that have an especially valuable role in an ecosystem for sensitive plant or animal life., as determined by a qualified biologist approved by the City. [Resolution No. 2001-118 (October 16, 2001); approved by CCC November 14, 2001]

Secondary habitat. *This term refers to areas adjacent to primary habitat areas within which development must be sited and designed to prevent impacts which would significantly degrade the primary habitat. The secondary habitat area will be presumed to include the following, subject to more precise determination upon individual site investigation:*

1. *The potential/known localities of rare and endangered plan species as shown on LUP p. 71 ("Disturbed Vegetation" map).*

2. The potential wildlife habitats as shown on LUP p. 75 ("Potential Wildlife" map).
3. Any area within 100 feet of the landward boundary of a wetland primary habitat area.

Rare and endangered species. *This term will apply to those plant and animal species which are rare, endangered, threatened or are necessary for the survival of such species. The Environmental Analysis Report prepared for the Marina Local Coastal Program identified such species in the dune habitat areas. While future scientific studies may result in addition or deletion of species, the list presently includes:*

1. Smith's Blue Butterfly (Shijimiaeoides enoptes smithi)
2. Globose Dune Beetle (Coelus globosus)
3. Black Legless Lizard (Anniella pulchra nigra)
4. Salinas Kangaroo Rat (Dipodomys Heermanni Goldmani)
5. Seaside Painted Cup (Castilleja latifolia ssp. Latifolia)
6. Monterey Spine Flower (Chorizanthe pungens var. pungens)
7. Eastwood's Ericameria (Ericameria fasciculate)
8. Coast Wallflower (Erysimum ammophilum)
9. Menzies' Wallflower (Erysimum menziesii)
10. Coastal Dunes Milk Vetch (Astragalus tener var. titi)
11. Dune Gilia (Gilia tenuiflora var. arenaria)
*12. Wild Buckwheat (Eriogonum latifolium)**
*13. Wild Buckwheat (Eriogonum parvifolium)**
14. Bush Lupine (Lupinus ssp.)+
** only within the range of Smith's Blue Butterfly.*
+ only within the range of the Black Legless Lizard.

LCLUP Habitat Protection Policies include:

- *Before any use or change in use, areas identified as potential habitat for rare and endangered plant or animal species shall be investigated by a qualified biologist to determine the physical extent of the primary habitat areas for the specific rare and endangered plants and animals on that site.*
- *Primary habitat areas shall be protected and preserved against any significant disruption of habitat values and only uses dependent on those resources shall be allowed within those areas. All development must be sited and designed so as not to interfere with the natural functions of such habitat areas. Management and enhancement opportunities should be incorporated into use or development proposals; potential impacts shall be fully mitigated, including the assurance of long term mitigation and maintenance of habitat through the use of appropriate acreage replacement/restoration ratios for any unavoidable direct impacts to habitat areas.*
- *Potential secondary or support habitat areas to the primary habitats identified on the site should also be defined. Secondary habitat investigation should include identification of the role and importance of the secondary area to the primary habitat area and should stress the impact of use or development in the secondary area on the primary habitat. All development in this area must be designed to prevent significant adverse impacts on the primary habitat areas. In concert with State law, City ordinances shall require environmental review and appropriate mitigation of*

identified impacts for all development in the Coastal Zone, including the assurance of long term mitigation and maintenance of habitat through the use of appropriate acreage replacement/restoration ratios for any unavoidable direct impacts to habitat areas.

- *Available evidence indicates that dune vegetation is more resilient than previously thought, and areas damaged by illegal use or negligence shall be considered restorable and eligible for restoration.*
- *Where habitats of rare and endangered species are located on any parcel, owners and/or operators shall, at such time that development is proposed, develop and execute a Management Plan which will protect identified rare and endangered plant and animal communities. Each plan shall be drawn up by a qualified biologist in co-operation with the property owner/developer.*

LCLIP Regulations for Coastal Conservation and Development District Policy (b)(2)

Regulations for coastal conservation and development uses shall be specified in the Coastal Development Permit. The permit-issuing body may approve Permit applications if the following factors, where relevant, are found to apply: ...

b. Development is limited to already-disturbed areas.
c. Rare and endangered plant and animal habitats are adequately protected
d. Grading and roadway construction and are the minimum necessary for the development. ...
g. All significant adverse environmental effects are either avoided or adequately mitigated.

Analysis

City of Marina Sand Dunes: Coastal sand dunes constitute one of the most geographically constrained habitats in California. They only form in certain conditions of sand supply in tandem with wind energy and direction. Dunes are a dynamic habitat subject to extremes of physical disturbance, drying, and salt spray, and support a unique suite of plant and animal species adapted to such harsh conditions. Many characteristic dune species are becoming increasingly uncommon. Even where degraded, the Coastal Commission has typically found this important and vulnerable habitat to be ESHA due to the rarity of the physical habitat and its important ecosystem functions, including that of supporting sensitive species.

The sand dunes within the City of Marina include a number of plant and animal species of special concern that have evolved and adapted to the desiccating, salt-laden winds and nutrient poor soils of this area. The best known of these native dune plants are the Menzie's wallflower and the Monterey spineflower, both of which have been reduced to very low population levels through habitat loss. The native dune vegetation in the vicinity of the project also includes other dune species that play a special role in the ecosystem; for example, the coast buckwheat, which hosts the Federally-endangered Smith's blue butterfly.

Site Specific Resources: Consultants for the applicant have conducted several biological studies of the site. Biological investigations conducted in 2013 identified several special-status species present within or near the proposed project area.[13] These include:

- **Monterey spineflower** (*Chorizanthe pungens* var. *pungens*), an annual herb listed as federally threatened under the Endangered Species Act (ESA). At the time of the 2013 survey, individual plants were identified within the overall proposed project boundary, but not within the area expected to be disturbed during the project.

- **Smith's blue butterfly** (*Euphilotes enoptes smithi*), a federally endangered species dependent on two vegetation species – coast buckwheat (*Eriogonum latifolium*) and seacliff buckwheat (*E. parvifolium*) – that grow in these coastal dunes. The butterfly is active from mid-June to early September each year. The most recent surveys documenting the presence of the butterfly were done in the mid-1990s; however, the project area is still considered to support the butterfly as the more recent 2013 biological survey identified numerous coast buckwheat plants along the proposed project's general alignment, but not within the project's anticipated area of disturbance.

- **Western snowy plover** (*Charadrius nivosus*), listed as threatened under the federal ESA and is considered a Species of Special Concern by the CDFW. The shoreline along the project site is within designated critical habitat for the species. The CEMEX site provides nesting habitat for the plover, with recent evidence of successful nesting. Most nests have been located between the shoreline and the base of the foredunes, though some have been adjacent to the project area. Some of Cal-Am's proposed project construction activities would occur during the breeding and nesting period, which runs from February 28 to October 1 of each year.

- **California legless lizard** (*Anniella pulchra*), considered a Species of Special Concern by the CDFW. The species lives beneath the dune surface in the project area and forages beneath leaf litter and sand for insects and other invertebrates. No lizards were identified in the biological surveys, but this species is active in the overall dune complex, primarily in areas with some vegetative cover which provides a means for temperature regulation as well as insects for foraging. As noted in the biological reports done for the project, the lack of native vegetation and the relatively unvegetated project area is less likely to attract this species, the Black Legless Lizard, or the Coast horned lizard, which are also found in the area and are largely dependent on native vegetation. Although these reports demonstrate that it is unlikely for any of these species of special concern to be found at the site and therefore to be adversely affected by the project, mitigation measures are nevertheless imposed to ensure that the project will not adversely affect these species (See Special Conditions 13 and 14 and discussion of mitigation measures in Section P of this report).[14]

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[13] See, for example, Zander Associates, *Technical Memorandum, Biological Resources Assessment MPWSP Temporary Slant Test Well Project*, 2013, and Zander Associates, *Biological Assessment for the MPWSP Temporary Slant Test Well Project, Marina, California*, 2013.

[14] See, for example, Zander Associates, *Biological Resources Assessment MPWSP Temporary Slant Test Well Project*, October 2013.

Other special-status species are known to occupy nearby areas, though were not identified within the project footprint during these most recent surveys. As noted in the LCP, these include the Globose Dune Beetle *(Coelus globosus)*, Salinas Kangaroo Rat *(Dipodomys Heermanni Goldmani)*, Seaside Painted Cup *(Castilleja latifolia ssp. Latifolia)*, Eastwood's Ericameria *(Ericameria fasciculate)*, Coast Wallflower *(Erysimum ammophilum)*, Coastal Dunes Milk Vetch *(Astragalus tener var. titi)*, Dune Gilia *(Gilia tenuiflora var. arenaria)*, Wild Buckwheat *(Eriogonum latifolium)*, and Bush Lupine *(Lupinus ssp.)*.

Location of the Proposed Project: The project will be located in an area of coastal dunes that are part of the southern Monterey Dune complex that extends roughly unbroken some 20 miles from Monterey Harbor to the Pajaro River. The project area itself is located on the approximately 400-acre CEMEX dune property that is located about a mile north of the roughly 1,000 acre Fort Ord Dunes State Park. A portion of the CEMEX property has been the site of sand mining operations since 1906, with ongoing sand mining taking place in the area generally seaward of the proposed project site. The dune areas at this location are continually subject to naturally-occurring changes due to winds, shifting sands, changes in vegetation types and locations, and other similar events. These natural modifications help determine the presence or absence of particular species or habitat value at a particular location on a relatively short, and often shifting, timescale. There may be relatively higher resource values in any one area at any one time (e.g., certain plants and animals are found in a particular area), but natural processes and shifts can move such values around in the dune areas, so dune resource values tend to be best understood in terms of the overall complex of dunes of which they are a part.[15]

Approximately 104 acres of the CEMEX property have experienced some level of disturbance due to past sand mining activities, although current activities are now confined to a much smaller area. The test well project will involve about 0.75 acres of ground disturbance within the footprint of a compacted sand dune area that CEMEX intermittently uses to access its active mining area near the beach. The proposed test well area is also adjacent to the outfall from the Monterey Regional Water Pollution Control Agency's ("MRWPCA's") wastewater treatment facility, which is located several miles inland. The outfall, built in the mid-1980s pursuant to CDP #80-80, is buried along the southern boundary of CEMEX's remaining sand processing and operations area. That CDP required the outfall to be built in a previously disturbed portion of the dunes on the CEMEX site, and to avoid dune vegetation and more stabilized dune areas. Both that CDP and an associated easement anticipate that the dune area where the outfall line is located will be subject to disturbance should the outfall need to be repaired – for example, the easement states that entry will be allowed for "necessary repair, maintenance and replacement" of the outfall.

The location and intensity of some of CEMEX's activities have changed over the past several decades, though some areas appear to have been in relatively constant use during that period. This is illustrated in Exhibit 6, which provides aerial photographs of the site taken in 1972 and 2013. The disturbed and compacted sand dune area within the proposed test well footprint has remained relatively unvegetated, at least in part due to CEMEX using the area for access to and

[15] See, for example, the Commission's approach to dune protection in the Asilomar Dunes area of Monterey County in downcoast Pacific Grove and the Del Monte Forest.

from its dredge pond area near the beach. CEMEX (and previous mine operators), have used a number of different access routes across the dunes in response to shifting dunes, and/or due to the use or disuse of nearby areas for mining or stockpiling materials, but the bare sand access route in which the proposed project will be located can be seen in air photos extending back several decades. Ongoing sand mining and processing operations appear to have also contributed to invasive vegetative species dominating many parts of the CEMEX site, particularly iceplant (*Carpobrotus* spp.). In some areas, the thick cover of iceplant has helped prevent establishment or re-establishment of native species.

Definition and Designation of Habitat as Primary or Secondary: The LCP describes the levels of habitat protection expected in the City's coastal zone and the allowable uses within those areas. The LCP establishes two categories of sensitive habitat areas – primary habitat and secondary habitat. The LCLUP definition of primary habitat includes four types of habitat, and if the habitat meets any of these four descriptions it is classified as primary. As relevant to this project, habitat is primary if it provides habitat for rare, endangered or threatened plant and animal species or if such habitat is necessary for the survival of an endangered species.[16]

Secondary habitat is defined as areas adjacent to primary habitat within which development must be sited and designed to prevent impacts that would significantly degrade primary habitat. The LCP includes maps of areas presumed to be secondary habitat, subject to a more precise determination when a site-specific biological study is undertaken (see Exhibit 7 – LUP Least Disturbed Dune Habitat Map).[17] Although difficult to read, the LCP mapped potential secondary habitat areas appear to include a large area of dune within the City of Marina, including much of the CEMEX site and many of the areas identified therein as subject to past sand mining activities.

It is important to note that all of the cited LCP policies, as well as all that are included within the City of Marina's LCP, derive from the authority of the Coastal Act. The Coastal Act definition of Environmentally Sensitive Habitat (ESHA) is similar to the first description of primary habitat included in the LCLUP. Coastal Act Section 30107.5 defines environmentally sensitive habitat as: "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or

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[16] Because the area of the proposed project essentially lacks dune vegetation, the primary habitat criteria linked to the presence of dune vegetation does not apply in this instance.

[17] The LCLUP policies regarding Rare and Endangered Species: Habitat Protection begin with the following statement: "In Marina's Coastal Zone, the foredune, dune and grassy inland areas all contain potential habitat for rare and endangered plants and animals. The precise range for each plant and animal is not known because intensive site-specific study throughout the area was not financially possible. However, the potential for various rare and endangered habitats has been identified and mapped (see Environmental Capability section) to provide a guide to the locations where more intensive study is required. Because site-specific study is needed in many areas before any development can take place the following policies apply to all of the areas indicated on the map or meeting the definitions of Exhibit "A" as being potential habitats for rare and endangered plants and animals."

degraded by human activities and developments." The LCP definition of primary habitat must be read to be consistent with that in the Coastal Act.[18]

The majority of the grading and other disturbance proposed as part of this project will take place in an area that has historically been used as an access route for equipment accessing the CEMEX dredge pond area near the immediate shoreline. As noted above, this area consists of compacted and unvegetated sand dunes that have been disturbed by CEMEX's (and predecessor's) activities for many years. Adjacent dune areas support more vegetation, including the Monterey spineflower, a federally-threatened species, and other native species, as well as considerable areas dominated by non-native iceplant.

The most recent biological survey of the site was undertaken by the applicant's consultant in September of this year. The applicant's biologist mapped the subject site and nearby areas, including locations of then identified rare, threatened or endangered species and the proposed project footprint (See Exhibit 10 – LCP Primary and Secondary Habitat Delineation). The applicant's biologist determined that the area in which the project is proposed is adjacent to primary habitat that currently supports native vegetation, including the Monterey spineflower, a federally-endangered species. It concludes, however, that the area within the project footprint should be categorized as secondary, not primary, habitat. This conclusion was based on the applicant's biologist's determination that the project would lie within areas used by CEMEX in support of its mining activities, so the biologist determined the area was so disturbed as to no longer qualify as primary habitat.[19]

The Commission's senior staff ecologist, Dr. John Dixon, disagrees with this determination. While Dr. Dixon has not had an opportunity to visit this site himself, given the short 49-day period between the filing of this appeal and the required hearing on the appeal, he has reviewed the relevant reports and photos of the site and, in particular, photos of the compacted sand access area in which much of the development will take place.

Dr. Dixon based his opinion on the following considerations. While the degraded dune habitat that will be adversely impacted by this project is not currently supporting the growth of native dune plants, as with other degraded dune habitat in California, it is an extremely rare physical habitat type. The substrate is comprised of the same type of sand that makes up the adjacent dunes, is contiguous with more undisturbed dune fields, and is subject to the same physical forces. If left undisturbed the degraded habitat would soon begin to develop more typical dune morphology and would be colonized by dune biota, including as even bare dune areas are known to include native dune species seed stock that is buried and just waiting for the right combination of physical forces to germinate and express aboveground. That Monterey spineflowers and snowy plover nests have been identified within and adjacent to the proposed project area is also testimony to the fact that this degraded and historically manipulated habitat is still a sand dune; and it could support other rare or threatened species if not continuously disturbed.

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[18] The LCP derives its statutory authority from the Coastal Act, and all of its provisions, including the policies above, must be read consistent with and understood to conform to the Coastal Act as a matter of law (*McAllister v. California Coastal Commission*, (2009) 169 Cal.App.4th 912, 931).

[19] See Michael Baker International, *LCP Primary and Secondary Habitat Delineation*, received in Coastal Commission offices via email on October 10, 2014.

The City's LCP acknowledges that dune habitat is more resilient than was once thought, and it has been the Commission's experience that this statement has been borne out in other circumstances that show that even degraded dunes can provide habitat for rare and threatened dune species.[20] The LCP also requires that the reclamation and protection of native dune habitat be promoted, and that habitat for rare and endangered species, such as this dune habitat, must be protected (LCP Policies 19 and 25). As noted above, dune habitat is a particularly rare and valuable type of habitat in California's coastal zone. The Commission has in many past cases found degraded dune habitat to constitute ESHA.[21] Thus, interpreting the definition of primary habitat consistent with the Coastal Act, the Commission finds that the area in which the proposed project will be located constitutes ESHA and meets the first description of primary habitat under the LCP.

This interpretation of the LCP and the definition of primary habitat is further supported by the structure of the LCP and Coastal Act habitat policies. The Coastal Act ESHA protection policies in Section 30240 state:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
>
> *(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

The LCP limits development in primary habitat to uses dependent on the resource, just as the Coastal Act limits development in ESHA to such uses.[22] The LCP definition of primary habitat must therefore be read consistent with the Coastal Act definition of ESHA, as the Commission had to certify the LCP to be consistent with the Coastal Act so that the habitat in which only resource dependent uses are allowed would be at least as restrictive in the City's LCP as it is in the Coastal Act.

This interpretation is also consistent with the LCP's definition of secondary habitat and uses allowed in secondary habitat, as development of secondary habitat includes protections that are similar to those required in Coastal Act Section 30240(b) for areas adjacent to ESHA. For example, LCLUP Habitat Protection Policy 3 requires that all development in secondary habitat must be designed to prevent significant adverse impacts on primary habitat, just as 30240(b) requires development adjacent to ESHA to be sited and designed to prevent impacts which would significantly degrade ESHA.

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[20] See the fourth paragraph of the LCLUP Habitat Protection Policies.

[21] See, for example, Commission actions in the Asilomar Dunes system (including Youssef (CDP 3-11-068) and Goins (CDP 3-11-020)), City of Grover Beach LCP Amendment 1-12, Part 1 (Grover Beach Lodge), Koligian (Commission denial of CDP application A-3-PSB-10-062), and California Department of Parks and Recreation (CDP 3-11-003)

[22] LCLUP Habitat Protection Policy Paragraph 2.

As noted above, the LCP limits uses within primary habitat to those dependent on the resources. Any development within those areas is limited to that which is sited and designed to not interfere with the natural functions of the habitat. The LCP also requires that all adverse effects in primary habitat be fully mitigated. Although the project is proposed to be located in portions of the CEMEX site that have been subject to disturbance, the entire area in which the project will be located is primary habitat and ESHA under the LCP. The proposed project is not a resource-dependent use, so it cannot be approved consistent with the LCP's habitat protection policies.

Conclusion
Based on the discussion above, the Commission finds that the project, as proposed, does not conform to the Habitat Protection policies in the City's LCLUP. However, because the proposed project is considered a "coastal-dependent" industrial facility and the LCP designates coastal-dependent industrial uses as appropriate uses on this site, consistent with Coastal Act Section 30260, such uses may be approved despite inconsistencies with other LCP policies. The analysis and findings related to Section 30260 are provided below in Section IV. P of these Findings.

I. Protection of Coastal Waters and Marine Resources

LCLUP Policy 16:

> *To insure the protection of marine resources for long-term commercial, recreational, scientific and educational purposes.*

LCLUP Policy 17:

> *To insure protection and restoration of the ocean's water quality and biological productivity.*

Coastal Act Section 30230 states:

> *Marine resources shall be maintained, enhanced, and, where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Coastal Act Section 30231 states:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

These LCP policies require generally that development protect marine resources, ocean water quality and biological productivity.

Effects on Coastal Water Quality
As noted previously, the purpose of the project is to identify whether the test slant well can provide a suitable source of water for a proposed desalination facility. Cal-Am specifically selected a subsurface slant well instead of an open ocean water intake to avoid the adverse entrainment and impingement effects on marine life caused by open water intakes.[23] Where feasible, the use of wells rather than open water intakes is the preferred method for obtaining desalination source water, as it eliminates these types of adverse effects on marine life. Any seawater pumped from the well will have been very slowly introduced into the underlying

[23] Entrainment occurs when small organisms, such as plankton, fish eggs, larvae, etc., are pulled into an open-water intake. It results in essentially 100% mortality due to the organisms being subjected to filters and high pressures within the facility's pre-treatment or treatment systems. Impingement occurs when larger fish or other organisms are caught on an intake's screening system and are either killed or injured.

aquifer through the seafloor, thus harmlessly filtering out any marine life. Given the depth of the well intake screen and the area from which the well will draw in water, any effects that may occur to the overlying ocean water column or benthic habitat are expected to be imperceptible. Cal-Am's modeling of the site shows that the expected area of drawdown during its pump test could extend up to about 2,500 feet from the well. With a relatively large area within which drawdown will occur and a maximum pumping rate of 2,500 gallons per minute, the infiltration rate through the seafloor will be essentially undetectable, even if all the water came from the overlying ocean water column rather than from within the aquifer.

Effects of Construction Activities

Most construction activities will occur about 650 feet from the beach at the location of the slant wellhead where the drilling rig will operate. The closest land-based activities to the shoreline will be the work needed to connect the test well discharge pipeline to the existing outfall, which will occur about 450 feet from the shoreline. As described in the previous section of these Findings, the project footprint will occur within a relatively limited area in previously disturbed portions of the site, which will reduce potential construction-related effects. Additionally, the drilling technique Cal-Am will use for the slant well does not require the use of drilling fluids, which represents a significant reduction in potential effects – for example, there are no concerns related to the unexpected release of these fluids, known as "frac-outs."

Drilling activity will also occur beneath the shoreline and ocean bottom, which could cause noise or vibration to propagate to the water column; however, noise and vibration levels are expected to be very low because of the intervening dozens to hundreds of feet of substrate between the drilling equipment and the water column. The potential for these levels to affect marine life is low, due in part to the relatively low sound levels resulting from drilling as compared to other sources known to cause marine life effects, such as those resulting from high-impact activities such as pile driving. Any project sounds within the water column are also expected to be at or below the levels of other ambient sounds caused by wave action, boat traffic, and other ongoing nearby sources.[24]

To help ensure that project construction activities will not cause adverse effects to coastal waters, **Special Condition 3** requires Cal-Am to implement a number of Best Management Practices meant to reduce the potential that project effects will reach any nearby waters. These include requirements to remove trash and debris on a regular basis, use noise attenuation devices to limit the levels of project-related noise at nearby beaches, and others. **Special Condition 4** requires Cal-Am to prepare and submit an erosion control plan that identifies measures it will implement to reduce the potential for project-related runoff from reaching coastal waters.

Spill Prevention and Response

The project involves use of heavy construction equipment near sensitive dune habitat and coastal waters that could be adversely affected by spills of fuel or other hazardous materials. Cal-Am has included several measures in its project to reduce the potential for spills. It has incorporated several spill prevention/response conditions developed by City staff into its project description,

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[24] See Monterey Bay National Marine Sanctuary, *Finding of No Significant Impact for the California American Water Slant Test Well Project, Section 6.3 – Marine Biological Environment*, October 2014.

such as siting staging areas away from locations that have the potential to experience significant runoff during rains, maintaining cleanup materials at the project site should any spills occur, and providing training to on-site personnel regarding spill prevention and cleanup.

To further ensure the potential for spills is reduced and effective measures are implemented for any spills that do occur, **Special Condition 5** requires Cal-Am to produce a Hazardous Material Spill Prevention and Response Plan. That Plan is to identify the maximum potential spill that could occur during project activities and describe all measures that Cal-Am will implement to prevent spills and to respond to spills should they occur.

Discharge of produced well water: After testing, Cal-Am will discharge the pumped water into an outfall owned by the Monterey Regional Water Pollution Control Agency ("MRWPCA"). The outfall conveys treated wastewater from the MRWPCA's regional wastewater treatment facility in northern Monterey County. The rate of discharge through the outfall varies significantly over the year, as the MWRPCA produces recycled water for irrigation during the agricultural growing season from February through December. The outfall's flow rates vary from up to about 38 MGD to near zero during parts of the season. The pump test flow rates will vary between about 1,000 and 2,500 gallons per minute (gpm), or about 1.4 to 3.6 MGD. Discharge volumes from Cal-Am's testing will therefore represent anywhere from about four percent to nearly 100% of the wastewater volumes conveyed through the outfall.

The test water discharge will be subject to requirements of the MRWPCA's NPDES permit for the outfall. The well water is expected to be about 95-100% seawater and therefore similar to the receiving waters; however, concentrations of some constituents in subsurface seawater may be different than those contained in surface water – for example, subsurface water sometimes has higher concentrations of naturally-occurring iron or manganese. To ensure NPDES permit requirements are met, Cal-Am will install temporary sedimentation tanks at the test well site to allow solids to settle out and will test the water for several dozen constituents, such as pH, dissolved oxygen, metals, and others. The discharged water is expected to be in compliance with the NPDES permit requirements and is not expected to need further treatment to meet Ocean Plan standards. The project's discharge is therefore not expected to cause impacts to ocean water quality. To confirm the project's expected lack of impacts, **Special Condition 1** requires Cal-Am to submit proof of consistency with the NPDES permit and Ocean Plan from MRWPCA or the Regional Water Quality Control Board.

Conclusion

Based on the discussion above, the Commission finds that the project, as conditioned, will conform to the marine resources, water quality, and spill prevention provisions of the LCP and the Coastal Act.

J. Coastal and Geologic Hazards

The LCLUP states:

> *Before development is permitted in the Coastal Zone, a geotechnical report appropriate to the specific proposal shall be prepared for that development in the dunes or in the vicinity of any vernal pond. The report shall include at least geologic and seismic stability, liquefaction potential, identification of an appropriate hazard setback to protect the economic life of structures, and specific recommendations on drainage, irrigation and mitigation of identified problems. Report contents shall comply with guidelines of the California Division of Mines and Geology.*
>
> ...
>
> *No new development shall be permitted which will require the construction of shoreline protection structures unless such development is in accordance with the provisions of the "Small Boat Harbor" section of this Land Use Plan, or when such structures are necessary to serve coastal dependent uses (as defined in the Coastal Act) or to protect publicly owned beaches from erosion.*

The LCLUP states:

> *Tsunami Hazard: Tsunamis are seismic sea waves, often erroneously called "tidal waves". Because of the height and depth of the Coastal dunes in Marina, inland areas are not within the tsunami hazard zone. The areas most subject to tsunami in Marina are the sandy beaches and dunes. With an adequate tsunami warning system, there is no significant tsunami threat to beach users. Since there is little development within the tsunami run-up zone, there is little present threat. Future development should not occur in the tsunami run-up zone (on the sandy beaches and foredune area).*

The LCLUP states:

> *Ground shaking and Liquefaction Hazard: All land in the Marina Coastal Zone is subject to potential ground shaking from earthquakes. The risk to structures is moderate and can be effectively reduced by application of the standards in the Uniform Building Code (required of all new construction). Risks to Coastal users from ground shaking are low and no special protection is needed.*
>
> *Liquefaction is a condition which accompanies ground shaking when sandy soils become saturated with water. The effect is that the soil loses some of its strength to support structures. The potential for liquefaction occurring in various areas of the Coastal Zone is uncertain. Since water is an important factor in causing liquefaction, areas where there is standing water or the water table is close to the surface are more susceptible. Key among these areas are the Vernal Ponds, particularly during the wet season. However, the potential for liquefaction is highly site specific and should be determined by geotechnical investigation prior to permitting development. If development is permitted, it should be designed to account for possible ground failure.*

The LCP's North of Reservation Road Planning Area requires proposed development consider:

> *Public safety and vulnerability to wave erosion.*
>
> *Tsunami and other coastal hazards.*

The LCLIP states:

> ***Standards for Coastal Protection Structures:*** *Except for a few facilities associated with sand mining, there currently is little capital investment to be threatened by erosion along Marina's shoreline. The face of the dunes is subject to wave erosion, so future development shall be placed beyond the area vulnerable both to wave erosion and tsunami hazard. This setback shall be great enough to protect the economic life of the proposed development (at least 50 years) and be east of the tsunami hazard zone. The exact extent of this setback shall be determined by a qualified geologist, selected from an approved list compiled and maintained by the City. Because of variation from site to site, the setback line shall be determined at the time development of a site or parcel is proposed.*
>
> *Protective structures are not recommended in Marina; however, if they should ever be necessary, standards shall be established to insure that the type of protection, location, design and other factors are considered. In determining if it is suitable to issue a coastal permit for a shoreline structure, the following shall be addressed: (1) alternatives to a protective structure shall be determined and evaluated by appropriate specialists first; and (2) an EIR/EIS shall be required on the proposed structure. The EIR/EIS shall address specific issues of Local Coastal Land Use Plan concern, construction and maintenance. The environmental evaluation and mitigations shall be prepared by qualified specialists and shall address at a minimum the following specific issues and design considerations.*

Coastal Act Section 30253 states, in relevant part:

> *New development shall do all of the following:*
> *(a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
> *(b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*

The LCP generally requires that development be sited and designed to avoid and minimize risks associated with coastal and geologic hazards. The site is subject to several of these hazards, including coastal erosion and seismic-related events such as groundshaking, liquefaction, and tsunami, each of which is addressed below.

Coastal Erosion
The site is on and adjacent to the actively eroding shoreline of Monterey Bay. Parts of the Bay shoreline exhibit the highest annual erosion rates in the state, due in part to relatively high levels of wave energy and the easily erodible sand that makes up most of the Bay shoreline. In recognition of the area's high erosion potential, the LCP requires that development be located inland of areas near the shoreline that are vulnerable to erosion.

The CPUC prepared a technical memorandum as part of its environmental review for Cal-Am's full-scale proposal that estimates the coastal erosion expected at several sites along the southern Monterey Bay shoreline through the year 2060, including the CEMEX site.[25] The estimates were based on computed historic erosion rates, erosion expected from sea level rise, and erosion from infrequent extreme events. For this proposed test well, a consultant hired by the City prepared an additional analysis based on that provided in the CPUC technical memorandum to determine likely erosion hazards to the test slant well during its expected operating life.[26] This analysis described the erosion rates in the CPUC memorandum as "worst-case," based in part on its use of the upper range of expected sea level rise and "aggressive" events such as the 100-year storm, and because it did not consider possibly beneficial effects that might result from potential beach nourishment projects or reduction of sand mining. Using what it describes as the "very conservative" CPUC analysis, the City's consultant determined that the test slant wellhead location would not be subject to erosion until sometime around 2040. The report noted, however, that if a 100-year storm event occurred during the approximately two years of the test well study, the wellhead would be close to the erosion area and potentially at risk and that erosion could expose a subsurface section of the well casing down to about -15 feet NAVD88, or about 40 feet below the wellhead (see Exhibit 11 – Expected Erosion and Future Beach Profiles). It recommends that in the event of exposure or at project completion, whichever comes first, the wellhead and at least the top 40 feet of the casing be removed. This recommendation is reflected in **Special Condition 6**, which requires Cal-Am to remove all test well-related infrastructure to a depth of no less than 40 feet below the ground surface upon exposure due to erosion or within two years of completing the test well project, whichever occurs first. **Special Condition 17** also requires Cal-Am to post a bond that is sufficient to pay for necessary removal if Cal-Am does not complete the required removal. **Special Condition 6** further requires Cal-Am to conduct monitoring at least once per week to determine whether beach erosion is likely to expose any components of the well or associated infrastructure.

In recognition of the risks associated with the project site, **Special Condition 7** requires Cal-Am to acknowledge those risks and assume any liability that may result from constructing and operating the test well at this location. Additionally, **Special Condition 8** provides that Cal-Am will not construct a shoreline protective device to protect the project and will remove any structures threatened by coastal erosion.

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[25] ESA PWA, *Technical Memorandum – Analysis of Historic and Future Coastal Erosion with Sea Level Rise for Monterey Peninsula Water Supply Project (205335.01)*, March 19, 2014.

[26] See Sea Engineering, Inc., *Review of Coastal Erosion Analysis by ESA PWA (2014) for the California American Water Temporary Slant Test Well Environmental Impact Evaluation*, prepared for SWCA Environmental Consultants, April 18, 2014.

Groundshaking, Liquefaction, and Lateral Spread

The entire Monterey Bay area is seismically active. There are no known faults at the project site, though there are several nearby.[27] Seismic activity from these faults could damage the test well and its associated infrastructure due to groundshaking, liquefaction, or lateral spread at the site.[28]

As required by the LCP, Cal-Am produced a site-specific geotechnical investigation for the project.[29] It concludes that the site could expect a maximum 7.0 earthquake, with peak horizontal ground acceleration of up to 0.572 g, liquefaction-induced settlement of up to about three inches, and lateral spread of up to about one foot in the event of the design-level earthquake. Although these maximum expected events are unlikely to occur during the relatively short-term project life, **Special Condition 9** establishes the minimum design standards that Cal-Am must use in the design and construction of the project to ensure safety and minimize risks due to these geologic hazards.

Tsunami

Portions of the CEMEX site are subject to tsunami runup, and the LCP requires that development be located inland of areas subject to tsunami hazards. The most recent (2009) California Geological Society tsunami inundation map for the area shows the potential runup area extending about two hundred feet inland from the shoreline. As noted previously, the wellhead will be set back about 650 feet from mean sea level at an elevation of about 25 feet. At that location, it is not expected to be subject to tsunami hazards during the expected project life. Nonetheless, the above-noted **Special Conditions 6 & 8** requiring removal of the test well will act to reduce the potential for the development to be affected by current or future tsunami-related hazards.

Conclusion

Based on the discussion above, the Commission finds that the project, as conditioned, will conform to the geologic and coastal hazard provisions of the LCP.

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[27] Faults within about 20 miles of the site include the San Andreas, Reliz, Rinconada, Monterey Bay, Palo Colorado, Navy, Chupines, and Vergeles Faults.

[28] Liquefaction occurs when ground movement causes saturated or partially-saturated soils to lose strength and act as a liquid. It can cause settlement or displacement of overlying structures unless they are designed to resist the expected amount of liquefaction at a site. Lateral spread occurs when soils that are on flat to gently sloping surfaces above liquefiable soils and adjacent to an unsupported slope move in response to a seismic event – essentially, a landslide that occurs on nearly flat ground.

[29] See GeoSoils, Inc., *Geotechnical Investigation – California American Water Temporary Slant Test Well Project, Marina, Monterey County, California*, produced for SWCA Environmental Consultants, April 3, 2014.

K. Archaeological and Paleontological Resources

Overview
The City's LCP does not include provisions related to the protection of archaeological resources. However, the Coastal Act provides some guidance on protection of archeological resources in the coastal zone.

Coastal Act Section 30244 states:

> *Where development would adversely impact archaeological or paleontological resources by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

Analysis
Cal-Am's project footprint is within a previously disturbed area of the CEMEX sand mining facility and partially within and adjacent to an area that was excavated during construction of the MRWPCA outfall. The site is also within a dynamic dune habitat that has continually shifted due to wind and wave action along the Monterey Bay shoreline. Given the dynamic nature of the site and the previous disturbances, it is unlikely that it contains archaeological resources, and extensive surveys already conducted at the site have identified no such resources.[30] Nonetheless, the area is within an extensive reach of shoreline habitat known to have provided a rich bounty for the Ohlone-speaking Native Americans that lived in the Monterey Bay area. The City's General Plan has generally identified coastal beaches as areas of high archaeological sensitivity.

Additionally, parts of the sand mining facility are more than 50 years old and could be eligible to be considered a cultural resource. The City prepared a Cultural Resources Survey Report that identified features of the facility as part of a historic district eligible for listing in the state and national historic registers. These include several buildings and structures on site, some of which are close to the proposed Cal-Am activities.

As part of its project description, Cal-Am has included several mitigation measures to avoid and minimize potential effects to archaeological and cultural resources. Project activities will be located to avoid direct effects on known cultural resources, and all ground disturbance activities will be conducted in coordination with a qualified archaeologist. Cal-Am has also incorporated into its project description several proposed conditions that were developed by City staff during the City's project review. These include the following:

1) *The project shall be redesigned to avoid significant adverse effects to historic resources; in particular, direct impacts to the Lapis Siding that is identified as a contributor to the Lapis Sand Mining Plant Historic features shall be avoided. Because the Siding extends through the eastern portion of the construction footprint, the construction plans shall be redesigned to locate all project components and construction activities in adjacent areas*

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[30] See City of Marina *Draft Initial Study/Mitigated Negative Declaration*, Section V – Cultural Resources, May 2014, and SWCA Environmental Consultants, *Cultural Resources Survey Report for the California American Slant Test Well Project, Marina, Monterey County, California*, prepared for the City of Marina, May 2014.

that do not contain structures associated with the Lapis Sand Mining Plant historic features. Avoidance of impacts to historic district contributors in close proximity to construction activities shall be accomplished by installing flagging or safety fencing around, or covering with plywood, any adjacent buildings or structures that are within 5 feet of mechanized equipment.

2) *A qualified archaeologist that meets the Secretary of the Interior's professional qualifications standards in archaeology (National Park Service 1983) shall be retained to provide archaeological services for the project. Archaeological services for the project shall at minimum include the following:*
   a. *Prior to initiation of ground-disturbing activities, an archaeological monitor working under the direction of the qualified archaeologist shall conduct a brief awareness training session for all construction workers and supervisory personnel. The training shall explain the importance of and legal basis for the protection of significant archaeological resources. Each worker should learn the proper procedures to follow in the event that cultural resources or human remains/burials are uncovered during ground-disturbing activities, including those that occur when an archaeological monitor is not present. These procedures include work curtailment or redirection and the immediate contact of the site supervisor and the archaeological monitor. It is recommended that this worker education session include visual images or samples of artifacts that might be found in the project vicinity, and that the session take place on-site immediately prior to the start of ground-disturbing activities.*
   b. *An archaeological monitor working under the direction of the qualified archaeologist shall monitor all ground disturbance in areas within 100 feet of the historic buildings within the eastern portion of the project area. These include the Superintendent's Residence, Bunkhouse, Garage/Office, Maintenance Shop, and Scale House. The timing and duration of the monitoring may be adjusted during project implementation by the qualified archaeologist, in consultation with the City, whose decision shall be informed by the apparent sensitivity of the sediments in the project area once they are exposed.*
   c. *The project applicant shall coordinate with representatives from the Ohlone/Coastanoan-Esselen Nation and Amah Mutsun Tribal Band of Mission San Juan Bautista to designate a Native American monitor to be present during ground disturbing activities associated with the project. Documentation of such coordination shall be provided to MBMNS prior to construction activities. The timing and duration of the monitoring may be adjusted during project implementation by the qualified archaeologist, in consultation with MBNMS, whose decision shall be informed by the apparent sensitivity of the sediments in the project area once they are exposed.*

3) *If archaeological resources (artifacts or features) are exposed during ground-disturbing activities, construction activities in the immediate vicinity (25 feet) of the discovery shall be halted while the resources are evaluated for significance by the qualified archaeologist. Construction activities may continue in other areas. If the discovery proves to be significant, additional work, such as archaeological data recovery or project redesign, may be warranted and would be discussed in consultation with the City.*

In the event of inadvertent discovery of human remains, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner shall be notified of the find immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification, and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials. The California Health and Safety Code Section 7050.5 process shall be noted on project grading and construction plans and reviewed during the construction worker awareness training session.

With these mitigation measures and conditions, Cal-Am is expected to avoid causing adverse effects to archaeological and cultural resources and will be able to respond appropriately should any such resources be found during project activities.

L. VISUAL RESOURCES

The LCP's Preservation and Enhancement of Coastal Views policy states:

> *Views of the dunes from Highway 1 and the beach shall be protected by keeping development off of the primary ridgeline. Development below the ridgelines shall be limited in height and mass to blend into the face of the dunes: generally structures should be hidden from public view where physical and habitat constraints allow. Where this is not possible, structures shall be clustered and sited to be as inconspicuous as possible.*
>
> *In areas where mining activity or blowouts have removed sand dune landforms, new development shall not extend above the height of the nearest adjacent sand dunes and shall be clustered so as to preserve access views across its site from Highway One.*

The LCP's North of Reservation Road Planning Area requires proposed development consider:

> *Visibility of new uses from Highway 1 and from the water's edge.*

Coastal Act Section 30251 states:

> *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.*

The LCP generally requires that permitted development protect views to and along the coast. The LCP specifically requires that views of the dune area from Highway 1 and the beach be protected by keeping development below the dune ridgelines, limiting its height, and clustering structures to the extent allowed by physical and habitat constraints.

Some project activities will occur near to the Monterey Bay shoreline and will be visible from other nearby publicly-accessible shoreline areas, including the highly scenic Marina Dune Complex. These areas are valued in part for their views of the Bay, for wildlife and bird watching, and for recreational activities.

The main project activities that will affect visual resources are staging and operating the equipment needed for drilling and other related activities. These activities will cause some visual impacts, though they will be temporary. Most of the activities – e.g., the use of large construction equipment – are similar to those related to the ongoing sand mining activities already occurring over a portion of the site and are expected to be visually subservient to the mining operations. Some of the project's activities – e.g., ingress and egress, and some construction – may be viewed by passing motorists on Highway 1 or by beach users, though most are expected to be blocked by intervening dune formations and vegetation. The most visible activities will be lighting associated with the project, and construction of the discharge pipeline and connection to the existing outfall, which will be the closest activities to the beach; however, the area in which these activities will occur is also currently used and disturbed by CEMEX trucks and heavy equipment, so these activities are expected to blend in with CEMEX's industrial operations. Additionally, Cal-Am's construction activities will occur during the non-peak winter months when beach use is less.

To reduce the project's visual impacts, Cal-Am is not proposing to remove or alter landforms that will be visible from offsite, and it will restrict its activities to stay within the less than one-acre project footprint. To address potential lighting-related impacts, **Special Condition 10** requires Cal-Am to produce a lighting plan for Executive Director review and approval that identifies all lighting to be used during the project and describes all measures that will avoid or reduce effects of lighting on nearby public areas, such as using the minimum lighting necessary for safety purposes, directing all necessary lighting downward and inward to the extent feasible, ensuring light fixtures and poles are painted or colored to blend in with the area, and others.

Conclusion
For the reasons described above, the Commission finds that the proposed project, as conditioned, will be carried out in a manner that is protective of scenic and visual resources and is therefore consistent with the relevant LCP provisions and Coastal Act Section 30251.

M. COASTAL AGRICULTURE

LCP Policy 28 states:

To support agricultural use in the Coastal Zone.

LCP Policy 29 states:

To provide incentives to retain agricultural activities within the Coastal Zone.

The LCP requires that agricultural uses be supported in the coastal zone. There are no agricultural operations with the City, but other nearby coastal agricultural operations are heavily reliant on groundwater from the aquifers proposed to be used by the test well project. Thus, there is the potential that the project might not be consistent with agricultural uses in the coastal zone. However, as described below, water withdrawals during the test well project are not expected to result in diminished water supply or water quality for agricultural uses.

Background
The test slant well will remove up to about 3.6 million gallons per day of primarily seawater from a sub-seafloor extension of the 180-Foot Aquifer of the Salinas Valley Groundwater Basin. The Basin is a relatively long and narrow groundwater structure extending about 140 miles from the coast to the southeast along the Salinas River valley. Past groundwater pumping in nearby portions of the Basin for agriculture have exceeded 100,000 acre-feet per year, and have resulted in seawater intrusion that extends several miles inland. This has both reduced the quality of groundwater for agricultural use and reduced the amount of groundwater pumped from sites close to the CEMEX facility. Seawater intrusion has been estimated to occur at a baseline rate of about 10,000 acre-feet (equal to about three billion gallons) per year[31], though the Basin's groundwater management programs are attempting to significantly reduce this rate. The Basin is divided into eight sub-regions, with the project area within what is known as the 180/400-Foot Sub-Basin, which has an estimated groundwater storage capacity of about 6.8 million acre-feet. Due in part to the aquifer being seawater-intruded near the site, the closest active off-site wells in the Sub-Basin are about 5,000 feet from the proposed test well.[32]

Effects of test slant well groundwater withdrawal on coastal agriculture
For several reasons, the amount of water that will be withdrawn for the test project is expected to result in an insignificant effect on coastal agriculture. As noted above, total water withdrawal for the test well will be no more than just over 4,000 acre-feet per year over the two-year test period, most of which is expected to be seawater or seawater-intruded groundwater from the sub-seafloor. This represents only about 0.1 percent of the Sub-Basin's groundwater storage. Additionally, Cal-Am has modeled the expected "cone of depression" – that is, the area in which

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[31] See 2001 *Salinas Valley Water Project Environmental Impact Report*, published by Monterey County Water Resources Agency.

[32] As shown in City of Marina, *Draft Initial Study/Mitigated Negative Declaration for the California American Water Slant Test Well Project, Figure 11 – Preliminary Modeled Drawdown Contours*, May 2014.

groundwater levels are lowered due to this water withdrawal – to extend to about 2,500 feet from the well, where the drawdown is expected to be about four inches. The closest active agricultural wells are about twice that distance from the test well, and are therefore not expected to be significantly affected by the well tests. Nonetheless, Cal-Am has incorporated into its project description the following mitigation measure:

> *A drawdown of 1 foot above natural fluctuations on groundwater levels shall be considered a significant adverse effect on water supply. If pumping activities reflect a drawdown of 1 foot or greater on any adjacent well, compensatory mitigation shall be required. Feasible mitigation shall include consultation with the affected water user and implementation of compensatory mitigation measures, including monetary compensation (i.e., for increased pumping costs or for upgraded wells), or provision of replacement water from alternative sources. If compensation or other remediation is found to be unfeasible, pumping activities shall be adjusted so that no more than 1 foot of drawdown on usable water sources would result.*

Given the relatively small amount of water to be pumped, the distance to other active wells, and the above mitigation measure, the project is not expected to adversely affect coastal agriculture. As a mitigation measure included in its project description, Cal-Am will stop pumping if water levels in nearby wells drop one-and-one-half feet due to the pump tests. Additionally, and in recognition of the uncertain hydrogeologic characteristics of the substrate and aquifers beneath and near the project site that the project's tests are meant to address, the Commission imposes **Special Condition 11**, which requires Cal-Am to conduct monitoring during all pumping activities and to record all drawdown levels and changes in Total Dissolve Solids ("TDS") in its onsite wells and at one or more inland wells. **Special Condition 11** also requires that Cal-Am cease its pump tests if monitoring at its most inland onsite well (MW4) shows a drawdown of one-and-one-half foot or more or shows an increase of more than two thousand parts per million of TDS.

Cal-Am's MW4 monitoring well will be on the CEMEX site and within about 1500 feet of the test well, which is closer to the test well than any off-site wells that could potentially be used for irrigation.[33] **Special Condition 11** requires that the test well be shut down if this monitoring well detects a 2000 parts per million increase in TDS from TDS levels established at this monitoring well prior to commencement of pumping.[34] Once the well is shut down due to this trigger, the Hydrogeology Working Group will independently determine whether the increase in TDS was caused by a source other than the test well. The Hydrogeology Working Group will submit its findings to the Executive Director, and if the Executive Director concurs that the increase in TDS

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[33] As noted above, the nearby areas of the two aquifers Cal-Am will pump from already exhibit TDS significantly above levels considered to cause severe hazards to crops, so the closest off-site wells are not currently being used for irrigation.

[34] Seawater fluctuates from about 30,000 ppm TDS to 33,000 ppm TDS, representing a 3,000 ppm of TDS natural variability. The project is conditioned to require shut down of the test well when there is a change of 2,000 ppm of TDS, well below natural variability of ocean water. In addition, the proposed test well is accessing water that Cal-Am's preliminary tests show to be about 16,000 ppm TDS to 26,000 ppm TDS, so the 2,000 ppm of TDS shut down trigger is well below the existing variability of the water Cal-Am proposes to access and is therefore chosen as a conservative figure for when the monitoring wells may begin to detect an adverse effect.

was caused by a source or sources other than the test well, then the Executive Director may allow testing to resume. If, however, the Executive Director determines that the increase in TDS was caused at least in part by the test well, then Cal-Am may not resume testing until it obtains an amendment to this CDP.

This ensures that if there is a minor increase in TDS, excluding natural variability, at the inland-most monitoring well on the CEMEX site, then the test well will cease operating, thereby preventing the proposed project from adversely affecting wells further inland. So this minor allowable increase in TDS will not adversely affect agricultural water use or coastal agriculture but will provide an alert for possible increased seawater intrusion in the area.

As far as the drawdown in water levels, Special Condition 11 requires that if water levels drop one foot below a baseline established prior to the commencement of pumping, then the test well will be shut down. The baseline will be established by the Hydrogeology Working Group using established scientific protocols, laid out in a technical memo submitted by Cal-Am, that take into account factors such as changes in barometric pressure, tidal changes, offsite pumping, and rainfall events. Once the well is shut down due to the one-foot drop in water level, the Hydrogeology Working Group will determine whether the drop in water level was caused by a source or sources other than the test well, and it will submit its determination to the Executive Director. If the Executive Director agrees with the Hydrogeology Working Group that the cause of the drop in water level was a source or sources other than the test well, then the Executive Director may allow testing to resume. If, however, the Executive Director determines that the drop in water level was caused at least in part by the test well, then Cal-Am may not resume testing until it obtains an amendment to this CDP.

In order to further protect agricultural interests, Commission staff discussed with Cal-Am the potential for monitoring water levels and TDS at the site of the nearest wells currently used to support agriculture, as this would provide more direct data about the potential effects of the test well on agricultural interests. Cal-Am has informed Commission staff, however, that it does not have the permission to collect this data at the privately held wells closest to the project.

Conclusion
For the reasons described above, the Commission finds that the proposed project, as conditioned, will be carried out in a manner that is supportive of coastal agriculture and is therefore consistent with relevant provisions of the LCP.

N. Assessment of Alternatives

Overview
CEQA Guidelines Section 15126.6 provides direction for the discussion of alternatives to the proposed project. This section requires:

> *(1) a description of "...a range of reasonable alternatives to the project, or to the location of a project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." [15126.6(a)]*
> *(2) a setting forth of alternatives that "...shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the [CEQA document] need examine in detail only the ones that the lead agency determined could feasibly attain most of the basic objectives of the project." [15126.6(f)]*
> *(3) a discussion of the "no project" alternative, and "...if the environmentally superior alternative is the "no project" alternative, the [CEQA document] shall also identify an environmentally superior alternative among the other alternatives." [15126.6(e)(2)]*
> *(4) a discussion and analysis of alternative locations "...that would substantially lessen any of the significant effects of the project need to be considered in the [CEQA document]." [15126.6(f)(2)(A)]*

In defining feasibility, the Coastal Act, Section 30108, states that:

> *"Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.*

The CEQA Guidelines at Section 15126.6 also defines the feasibility of alternatives and states:

> *Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site.*

Alternative Methods, Alternative Locations, and "No Action" Alternative
As described above, Cal-Am has recognized the state's preference for using subsurface intakes, where feasible, to provide source water for its proposed desalination facility. Those types of intakes are generally less environmentally damaging than intakes that draw directly from the water column. Consideration of potential alternative locations for this project has therefore been focused on sites within the Monterey Bay region where geologic and hydrogeologic characteristics are likely to lend themselves to subsurface intake methods.

Some of the sites that had been formerly considered for water supply projects, such as the Moss Landing Power Plant and the Marina Coast Water District site, are either no longer available or have been the subject of regulatory changes that limit their feasibility. For example, the State Water Board's 2010 adoption of an Ocean Plan amendment that limits the use of once-through cooled power plant intakes reduces the potential that the Moss Landing Power Plant intake could provide source water for a desalination facility. Additionally, much of the Monterey Bay shoreline that might otherwise be suitable for subsurface intakes is protected as preserves, State Parks, or other designations that would limit or prohibit the proposed activities.

For this proposed project, Cal-Am identified a number of candidate sites between Marina and Moss Landing and conducted a hydrogeologic investigation to determine potential alternative locations for a subsurface intake.[35] This investigation was the product of the aforementioned Settlement Agreement prepared as part of Cal-Am's CPUC project review, and involved representatives from several involved parties and stakeholders.[36] The investigation included drilling test boreholes at several sites, including the CEMEX site, to determine the suitability of subsurface characteristics. The investigation concluded that slant wells would be feasible at the CEMEX site and identified a secondary site about eight miles further north near Moss Landing that might also be suitable for subsurface intakes. Cal-Am also prepared a biological assessment, consulted with state and federal wildlife agencies and other stakeholders, and considered other feasibility issues – e.g., availability of electrical service, proximity to acceptable discharge point for well water, effects on habitat, access, and other coastal resources – to narrow the set of potential sites. As noted above in Section IV.B – Project Background, a site in Moss Landing had been dismissed previously due in part to its distance to the Cal-Am service area on the Monterey Peninsula and its additional adverse impacts. The recent investigation included a single borehole at a site on Potrero Road, near Moss Landing. Data from that borehole identified the site as likely suitable for a slant well. Compared to the CEMEX site, the Potrero Road site presented higher hydraulic conductivity values but less available aquifer depth and a wider range of water quality in the underlying aquifer. The Potrero Road site is also within a parking lot used for public access to the Salinas River State Beach, and conducting test well construction and operation at this site would result in higher adverse effects on public access and recreation compared to the CEMEX site. The Potrero Road site is also closer to the Salinas River National Wildlife Refuge, which, along with the Salinas River State Beach, provides important habitat areas for the Western snowy plover and the Caspian tern, which could be adversely affected by well-related construction and operations. The Potrero Road site is also further from Cal-Am's separately proposed desalination facility, and if used as a site for permanent wells would require construction of several additional miles of pipeline that would adversely affect areas of sensitive habitat and coastal agriculture and would increase adverse impacts on public access to the shoreline.

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[35] Geosciences Support Services, Inc., *Monterey Peninsula Water Supply Project Hydrogeologic Investigation – Technical Memorandum (TM1)*, prepared for California American Water / RBF Consulting, July 8, 2014.

[36] The investigation was led by a Hydrogeology Working Group that consisted of representatives from the CPUC's CEQA team, Salinas Valley Water Coalition, and Monterey County Farm Bureau.

Within the CEMEX site, Cal-Am initially considered a location at the northern end of the sand mining facility; however, consultation with state and federal wildlife agencies and others showed that locating the test well there would have more significant potential impacts to nearby nesting Western snowy plovers, which are listed as federally-endangered. That site was also closer to the shoreline than the current site, and would have involved more excavation, required shoreline protective devices, and been subject to more erosion and associated coastal hazards. The focus then shifted to the current site at the south end of the CEMEX facility, which is within an already disturbed area, is further from the shoreline, and involves fewer coastal resource impacts.

"No Action" Alternative: For at least two reasons, the "no action" alternative is also likely to result in greater adverse environmental impacts than the currently proposed project. First, if the test slant well is not completed or is delayed, Cal-Am would not have the information needed to inform the CPUC's review of the potential full-scale project. A delay in that review would likely delay final consideration of the full-scale MPWSP or require significant modifications to that proposed project. Either of these options could extend the period of Cal-Am's excessive withdrawals from the Carmel River, thereby exacerbating the ongoing adverse effects of those withdrawals on fish and habitat in that watershed.

Not completing or delaying this test slant well could also lead to a reconsideration of what project might serve as an expected water supply project for the Monterey Peninsula. At this point, the other potential desalination projects in the Monterey Bay area are proposing to use open intakes, which are expected to result in greater adverse effects to marine life and coastal waters than the MPWSP. Those other projects are also not as far along in the review and permitting process as the MPWSP. Similar to the above, delays or reconsideration due to this option would also extend the adverse effects occurring on the Carmel River.

Conclusion

Thus, the Commission finds that the test well is necessary to assess whether a subsurface intake is a feasible source of water for Cal-Am's proposed desalination facility and that the proposed location for the test well is the environmentally preferred alternative.

P. COASTAL-DEPENDENT FACILITY

The City's LCP includes numerous policies identifying coastal-dependent industrial uses as priority uses.

LCLUP Policy 41:

> *To give priority to Coastal-dependent development on or near the shoreline and ensure that environmental effects are mitigated to the greatest extent feasible.*

LCLUP Geotechnical Policies, Policy 1 (first bullet)

> *Structural development shall not be allowed on the ocean-side of the dunes, in the area subject to wave erosion in the next 50 years, or in the tsunami run-up zone. The only exception to this would be essential support facilities to a coastally-dependent industry, and in these areas the city will not undertake liability for property damage due to hazards.*

The project is proposed on property designated as "Coastal Conservation and Development," a designation that prioritizes coastal-dependent industrial uses.

LCLUP Coastal Conservation and Development Uses, Policy 2 (second bullet)

> *Coastal Conservation and Development uses shall be allowed on the west side of Dunes Drive. These activities shall include, but not be limited to, marine agriculture (Mariculture); off-shore and surf-zone sand mining, and other commercial activities dependent for economic survival on proximity to the ocean, salt water or other elements available in this particular environment. Development in this area will be allowed in already disturbed areas.*

Uses allowed in areas designated Coastal Conservation and Development include (LCLUP p. 41):

> *such uses as are dependent upon salt water, the unique coastal-marine environment found in Marina, and/or on resources present only in this portion of Marina's Coastal Zone. Development shall be sited in already disturbed areas. Access roadways shall be kept to the minimum necessary to serve the proposed development and buildings shall be designed and sited to preserve sensitive habitats and views of the coastal dunes.*

The IP, in its regulations for Coastal Conservation and Development Districts, includes similar standards for allowed uses in this district. They include:

> *Coastal research and educational uses; developed public access and other coastally dependent recreation uses; coastal dependent industrial uses including but not limited to marine agriculture (mariculture), dredge pond, surf zone and offshore sand extraction;*

The LCLUP's policies relating to the North of Reservation Road Planning Area identify appropriate uses within the high Flandrian dune area, in which this project is proposed, to include "activities specifically dependent upon proximity to the ocean." LCLUP p. 37. It further states that the uses allowed in Coastal Conservation and Development districts are consistent with numerous Coastal Act policies, including section 30260. LCLUP p. 38, 44.

Coastal Act Section 30260 states:

> *Coastal-dependent industrial facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth where consistent with this division. However, where new or expanded coastal-dependent industrial facilities cannot feasibly be accommodated consistent with other policies of this division, they may nonetheless be permitted in accordance with this section and Sections 30261 and 30262 if (1) alternative locations are infeasible or more environmentally damaging; (2) to do otherwise would adversely affect the public welfare; and (3) adverse environmental effects are mitigated to the maximum extent feasible.*

Consistency Analysis
When it certified the City's LCP, the Coastal Commission acknowledged the importance of the City's dune ecosystem to provide habitat for rare and endangered species.[37] It nevertheless designated the area north of reservation road and west of Dunes Drive as Coastal Conservation and Development (CD), in which appropriate uses include "commercial activities dependent for economic survival on proximity to the ocean, salt water or other elements only available in this particular environment." LCLUP p. 15. The LCP states that this designation is consistent with section 30260. LCLUP p. 38, 44.

Coastal Act Section 30260 provides for special consideration of coastal-dependent industrial facilities that may otherwise be found inconsistent with coastal resource protection policies. Section 30260 provides for approval of such projects, notwithstanding the project's inconsistencies with those other policies, only if: alternative locations are infeasible or more environmentally damaging; to do otherwise would adversely affect the public welfare; and as long as adverse effects are mitigated to the maximum extent feasible.

Similarly, the LCP only allows approval of coastal-dependent industrial uses in dune habitat if they are appropriately sited in the most disturbed areas and the adverse impacts of the development are mitigated.[38] Thus, the Commission interprets these LCP provisions consistently with Section 30260 to determine if the proposed project is approvable, despite its inconsistency with the habitat protection policies of the LCP.[39]

[37] See, for example, Natural Habitats map, LCLUP p. 72, Disturbed Vegetation map, LCLUP p. 71, Potential Wildlife Habitats map, LCLUP p. 75, Discussion of dune habitat north of Reservation Road, LCLUP pp. 74-76, Habitat Protection Policies, LCLUP pp. 9-10.

[38] For example, LCLUP Uses allowed in the CD District, Policy 2, p. 41, LCLUP Habitat Protection Policy 1, LCLIP Regulations for CD Districts section b(2)(b).

[39] *McAllister v. California Coastal Commission*, (2009) 169 Cal.App.4th 912, 931.

Coastal-Dependent Industrial Facility: The initial question is whether the proposed project is a coastal-dependent industrial facility, such that it is an allowed use in the CD district and subject to 30260 and LCP provisions for coastal-dependent industrial uses. The LCP does not define the term coastal-dependent development, but the Coastal Act does. Coastal Act Section 30101 states:

> *Coastal-dependent development or use "means any development or use which requires a site on, or adjacent to, the sea to be able to function at all."*

The proposed test slant well is dependent on accessing seawater from beneath the Monterey Bay seafloor. Because slant wells are limited to no more than a few hundred feet in length, the well must be located on or adjacent to the sea in order to function and is therefore coastal-dependent. The test well is also considered a type of industrial facility. It falls within the standard definition of "industry" and "primary industry" because it involves the processing of raw materials, in this case water.[40] The purpose of the test well is to provide data regarding the environmental effects of withdrawing water at this location and that will enable Cal-Am to determine whether this site can be used to produce water for a full scale desalination facility that would provide water to consumers. It will be built within an active industrial site using similar equipment and methods as are currently occurring at the site. It falls within at least one category of the North American Industry Classification System ("NAICS") – i.e., NAICS #237110: Water and Sewer Line and Related Structures Construction.[41] Further, it is being implemented by Cal-Am, an entity that, along with being a publicly-regulated utility, is considered part of the water and wastewater industry. In addition, the Commission has previously recognized that public utilities conduct industrial activities – for example, in its 2013 certification of Santa Barbara County Local Coastal Program Amendment No. LCP-4-STB-13-0215-2 allowing natural gas exploration and production only by public utilities.

Application of Tests for Approval of Coastal-Dependent Industrial Facilities: Because the test slant well is a coastal-dependent industrial facility, and the LCP finds that the designation of dune areas as appropriate for coastal-dependent industrial uses is consistent with section 30260, the Commission may apply the LCP policies consistently with section 30260 to approve a project despite an inconsistency with other LCP policies.

- **Test 1 – Alternative Locations are Infeasible or More Environmentally Damaging and Development is Limited to Already-Disturbed Areas:** Section 30260's first test and LIP CD policy (b)(2)(c) require an assessment of alternative locations.[42] Section N

[40] The Oxford American English Dictionary, for example, defines "industry" as "economic activity concerned with the processing of raw materials and manufacturing of goods in factories," and defines "primary industry" as "industry, such as mining, agriculture, or forestry, that is concerned with obtaining or providing natural raw materials for conversion into commodities and products for the consumer.

[41] NAICS was formerly the Standard Industrial Classification, or SIC system. Both systems have been used by U.S. EPA, the State and Regional Water Boards, and others to categorize various industrial activities.

[42] By requiring findings that development in CD Districts is limited to already-disturbed areas, the LCP ensures that projects can only be allowed in environmentally preferable alternative locations.

of these Findings provides a more comprehensive assessment of alternatives, including an assessment of alternative locations. Applying those Findings to this first test of Section 30260 shows that other locations are infeasible or more environmentally damaging than the currently proposed location. The applicant has sited the project in areas that have been subject to continual disturbance by sand mining operations for at least several decades. Development associated with the proposed project is strictly limited to already-disturbed areas, consistent with the LIP and LCLUP Habitat Protection Policy 2. The Commission therefore finds that the proposed project meets the first test of Section 30260 and the applicable LCP policies.

- **Test 2 – To not permit the development would adversely affect public welfare:** Section 30260's second test provides that coastal-dependent industrial development may be permitted if to do otherwise would adversely affect the public welfare. Determining the public welfare considerations for the proposed project includes several benefits and concerns.

  As noted above, since 1995, Cal-Am and other entities in the Monterey Peninsula area have been seeking a water supply to replace that obtained from the Carmel River. Cal-Am is under an Order from the State Water Board that imposes a schedule for reducing its water withdrawals from the Carmel River by about two-thirds by 2016. The water to be replaced has represented up to about 75% of the water used on the Peninsula in Cal-Am's service area. The required reductions are meant to benefit the Carmel River watershed, particularly the federally-listed Central Coast steelhead.

  This proposed test well and its potential follow-up MPWSP represent the culmination of almost two decades of multiple public agencies and area stakeholders seeking alternative water sources to facilitate the required reductions. As noted above, the test well was identified within the Settlement Agreement negotiated as part of the CPUC's review process, in which area stakeholders recognized the need for the hydrogeologic data to be obtained from the test. Those stakeholders represent a wide range of public interests whose welfare relies on the Monterey Peninsula having a water supply to replace the Carmel River overdrafts. The pumping and water quality testing to be conducted during the slant well test is necessary to inform the design of a potential full-scale facility. Other actions, such as drilling additional boreholes or conducting additional modeling, would not be sufficient to characterize the site and its potential to provide source water.

  Based on the above, the Commission finds that not permitting the proposed project would adversely affect the public welfare, and that the project therefore meets the second test of Section 30260.

- **Test 3 – Adverse environmental effects are mitigated to the maximum extent feasible:** The third test of Section 30260 and LCLUP Habitat Protection Policy 1 require that the proposed project's adverse environmental effects be fully mitigated. With the exception of habitat protection, the special conditions required to ensure that the impacts of this project are fully mitigated are discussed and imposed in the section analyzing that resource. Because the proposed project was found to be inconsistent with the LCP's habitat protection policies, mitigation for the impacts of the project on habitat was not discussed in that section of this report. As a result, in order to meet this final test and to determine whether this coastal-dependent industrial project can be approved, the Commission must find that the biological impacts of this project will be fully mitigated.

Based on site-specific biological studies, Cal-Am and City staff developed a number of mitigation measures meant to avoid and minimize potential impacts to these coastal resources. Cal-Am has incorporated several of these measures as part of its project (see Exhibit 5) and the Commission has additionally imposed a number of Special Conditions that will add to and modify these measures to ensure any adverse effects are avoided or minimized and to allow conformity to relevant LCP provisions to the extent feasible (see **Special Conditions 12 – 16**). These include:

- Requiring project construction, well pack replacement, and decommissioning to occur primarily outside of the Western snowy plover breeding and nesting season, the active season for the Smith's blue butterfly, and the blooming period of the Monterey spineflower. Any work that occurs during plover breeding and nesting season will be subject to surveys, monitoring, noise mitigation, and possible work shutdown should active nests be potentially affected by project activities. Specifically, Special Condition 14 requires an approved biologist(s) to identify any active nest of any federally or state-listed threatened or endangered species, species of special concern, or any species of raptor or heron within 300 feet of construction activities (500 feet for raptors). This condition empowers the approved biologist(s) to ensure that construction activities are conducted in such manner that nesting birds are not disturbed. At a minimum, construction noise levels at any of these protected nests must be at or below a peak level of 65 dB. If this noise threshold cannot be met, construction activities are prohibited.
- Requiring a pre-construction survey to identify protected species that may be present at or near project work areas, and requiring measures to avoid or minimize effects on those species. The surveys are intended to identify and avoid potential impacts to sensitive animal and plant species at and near the site, including the Monterey spineflower, Western snowy plover, Coast horned lizard, legless lizard, and others.[43]
- Requiring a number of Best Management Practices during construction activities, such as providing training to on-site personnel, controlling noise, trash, and lighting at the site, and others
- Requiring preparation and implementation of a Hazardous Spill Management Plan to minimize the risks of spills and to properly respond to spills should they occur.
- Requiring preparation and implementation of a site restoration plan that is consistent with the detailed provisions developed by the City for such plans (see Exhibit 13 – City of Marina Municipal Code Section 17.41.100, Requirements for Habitat Restoration).
- Requiring project activities avoid adverse impacts to sensitive species that exist in the project area at the time of project activities. For sensitive species present in the

[43] See Zander Associates, *Biological Resources Assessment MPWSP Temporary Slant Test Well Project*, October 2013.

project area that are not within the breeding and nesting season and that do not exhibit reproductive behavior, Special Condition 14 requires project activities to avoid adverse impacts to such resources. It requires the approved biologist(s) to either salvage and relocate such species by hand to safe locations elsewhere along the project reach or to implement a resource avoidance program that will ensure no adverse impacts to the resource.

- Requiring proper storage and removal of construction equipment if Cal-Am must cease construction activities either due to the requirements of Special Condition 14 to protect sensitive species or if Cal-Am does not obtain landowner approval from the State Lands Commission prior to the time that it must drill beneath state tidelands.
- Requiring training of construction personnel by a qualified biologist to ensure that they can identify species of special concern, such as western snowy plovers and the California legless lizard so that construction activities will avoid disturbance of these and other sensitive species.

With Cal-Am's mitigation measures and with the imposition of the Commission's **Special Conditions**, the Commission finds that the project meets the third test of Section 30260.

Conclusion
The Commission finds that the proposed project meets all of the tests of section 30260 and the parallel LCP policies. It therefore exercises its discretion to approve this coastal-dependent industrial project, despite its inconsistency with the LCP's habitat protection policy prohibiting non-resource dependent development in primary habitat.

O. Cumulative Impacts

Applicable Policies
Based on the above analysis, the Commission finds that as conditioned herein the proposed project is consistent with the City's LCP and the relevant Coastal Act policies. It nevertheless considers whether the project could have a considerable cumulative adverse effect on the environment, after taking into account past and probable future projects in the area.

Coastal Act Section 30105.5 states:

> *"Cumulatively" or "cumulative effect" means the incremental effects of an individual project shall be reviewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.*

CEQA Guidelines Section 15355 states:

> *"Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.*

Analysis
The past and current projects in the project vicinity are the sand mining activities that have been ongoing at varying degrees of intensity since 1906 and the sewer outfall constructed just adjacent to and downcoast of the proposed test well project. The purpose of the proposed test well is to provide data that will allow Cal-Am and the California Public Utilities Commission (CPUC) to evaluate not only whether a well for a desalination facility is viable in the proposed location of the test well but to assess the potential adverse environmental effects of withdrawing water from this location for a full-scale desalination facility. A possible future project in the project vicinity is therefore a desalination facility.

Cal-Am has submitted an application for this desalination facility to the CPUC, which is in the process of preparing an EIR for that facility. Thus, at this stage, there is uncertainty about the potential adverse effects of the proposed desalination facility since some of the information needed to assess those impacts will only be available after the proposed test well project has operated for the planned two year test period. Nevertheless, the Commission must consider the interaction between the proposed project and the future desalination facility for potential impacts of which it is aware, which include additional adverse impacts to sand dune habitat, and potential coastal agricultural impacts.

Dune Habitat Impacts: If the proposed desalination facility withdraws water from the site of the test well, Cal-Am expects to construct several additional subsurface slant wells and pipelines to convey the source water from these wells to the facility, which is currently proposed to be several miles inland and outside of the coastal zone. It is likely that several wells would share a single wellhead and that all wells would share a single delivery pipeline to the facility. The precise location of these additional wells cannot be determined until the results of the test well are available, but the location of the test well could become permanent, rather than temporary, so the loss of dune habitat covered by the current test wellhead would be permanent. In a worst case scenario, if the full desalination plant drew all of its source water from within the vicinity of this test well, then the permanent dune habitat impacts would likely be approximately several thousand square feet from the wells and pipelines, with up to about five acres of additional temporary construction impacts. This estimate is based on assuming that there would need to be three to four similar 0.75 acre project footprint areas similar to the current project footprint, and additional areas needed to install the pipeline, although these figures will be assessed more accurately in the CPUC EIR being prepared for the full desalination facility.

The potential "cumulative" effect of the test well on dune habitat in this scenario is therefore about five acres of temporary impacts plus the future permanent loss of about one acre of dune habitat, on top of the existing impacts to about 120 acres of dune habitat caused by the current CEMEX operations and the existing outfall. The expected cumulative habitat loss of all of these projects together is therefore about 121 acres, with five acres of temporary impacts, within the approximately 400 acre CEMEX site. Much of this site is not currently being used by CEMEX for its sand mining operations but it is significantly degraded due to previous sand mining operations. As a result, there are opportunities for on-site restoration or habitat creation that could provide appropriate mitigation for the one acre of permanent dune habitat impacts and five acres of temporary impacts estimated to be caused by the test well and the potential future facility combined. While these potential impacts and mitigation will be assessed in the EIR for the desalination facility, the information available to the Commission at this time suggests that any cumulative adverse habitat impacts caused by the test well and the desalination facility, in combination with past impacts, can be mitigated to be less than significant.

Coastal Agriculture Impacts: At least one of the opponents of the test well project raises concerns that the test well and any full scale desalination facility using the test well as a source water well will have significant adverse environmental impacts on coastal agriculture, particularly on the quantity and quality of water available to neighboring agricultural interests.[44] They assert that the aquifer underlying their property is already subject to seawater intrusion and that the test well will exacerbate this effect.

As described more completely in Section IV.A of the above findings, one of the purposes of the test well is to evaluate this exact issue. By operating the test well, Cal-Am will be able to test its models to better determine the degree to which drawing water from an offshore extension of the underlying aquifers will affect inland areas of aquifer. The data gathered through operation of the test well will provide data the CPUC will consider in its evaluation of the full desalination facility.

In order to address these concerns, **Special Condition 11** requires Cal-Am to monitor both the quantity and quality of water in areas that may be affected by operation of its test well. If these monitoring wells show a reduction in water quantity of one foot above natural fluctuations or a minor increase in salinity, Cal-Am is required to stop its test well operations. The test well is therefore designed and conditioned to ensure that it will have no significant adverse environmental effect on water quantity or quality in the area surrounding the test project.

[44] See, for example, the October 29, 2014 letter from William Parkin on behalf of AgLand Trust.

In addition, the data produced through operation of the test well will allow the CPUC in its EIR to evaluate the potential adverse effects of converting this test well into a source water well for the full desalination facility. If the data produced by the test well demonstrate that conversion of the test well to a permanent well will have an adverse effect on the environment, then the CPUC will evaluate these potential effects in its EIR. Should the CPUC, or any other entity that must provide a permit or approval for the full desalination facility, find that the test well is not an appropriate location for a source water well, then Cal-Am is required to remove the test well and restore the area. **Special Condition 17** ensures that the funds needed to remove and restore the test well are available prior to commencement of construction of the test well, so there are additional assurances in this CDP that the location of the test well will not prejudice the ability to fully evaluate the potential adverse environmental effects of a full-scale desalination facility.

Conclusion

When considered against past, current and potential future projects at the CEMEX sand mining site, the proposed test well is not anticipated to have a cumulative adverse impact. The temporary construction impacts on dune habitat as well as permanent estimated habitat loss caused by the test well, if it becomes permanent, and the future permanent losses due to the full desalination facility are anticipated to be able to be mitigated through on-site habitat restoration and creation so that their effects are less than significant.

The test well is conditioned to ensure that it is shut down if adverse effects to water quality and availability are detected at any of its monitoring wells, thereby ensuring that the well itself will not have adverse effects on coastal agriculture. The data produced by the test well is necessary to evaluate the potential adverse impacts of the full desalination facility, so the test well is expected to allow a more complete evaluation of that proposed project to ensure that it will not have adverse impacts on water available for coastal agriculture either. Thus, at this time there is no basis for determining that the test well, together with a future desalination facility, will cumulatively create adverse impacts to water quality or quantity available for coastal agriculture.

Finally, the test well is conditioned to require, prior to commencement of construction, that the funds estimated to remove and restore the test well are available through a bond or equivalent surety. This ensures that if the test well is not needed as a source water well for a future desalination facility for any reason, the funds are available for removal of the test well and restoration of the site. Accordingly, approval of this test well will not prejudice the ability of the CPUC or any other entity to fully evaluate alternative locations for potential source water wells for the proposed desalination facility, as the cost for removal of this facility will be guaranteed from the start of construction.

V. CALIFORNIA ENVIRONMENTAL QUALITY ACT

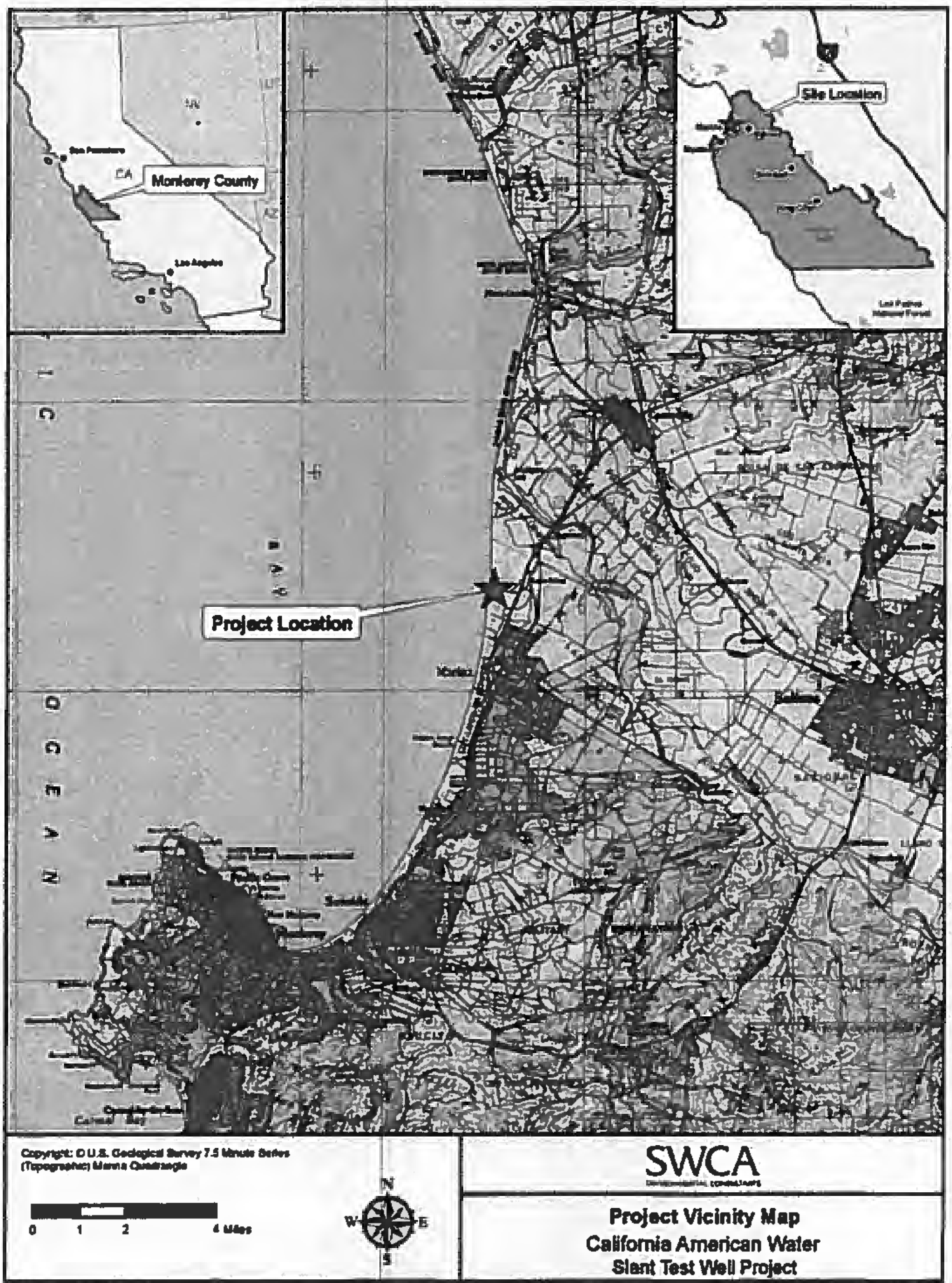
Section 13096(a) of the Commission's administrative regulations requires Commission approval of coastal development permit applications to be supported by a finding showing the application, as conditioned by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which will substantially lessen any significant adverse effect which the activity may have on the environment.

Because the proposed project has the potential to result in significant adverse environmental impacts, the Commission has identified and adopted seventeen special conditions necessary to avoid, minimize, or mitigate these impacts. With the inclusion of these special conditions, the Commission finds that, within the meaning of the California Environmental Quality Act of 1970, there are no further feasible alternatives or feasible mitigation measures available which will substantially lessen any significant adverse effect which the proposed project may have on the environment. Therefore, the proposed project, as conditioned, has been adequately mitigated and is determined to be consistent with CEQA.

A-3-MRA-14-0050 / 9-14-1735

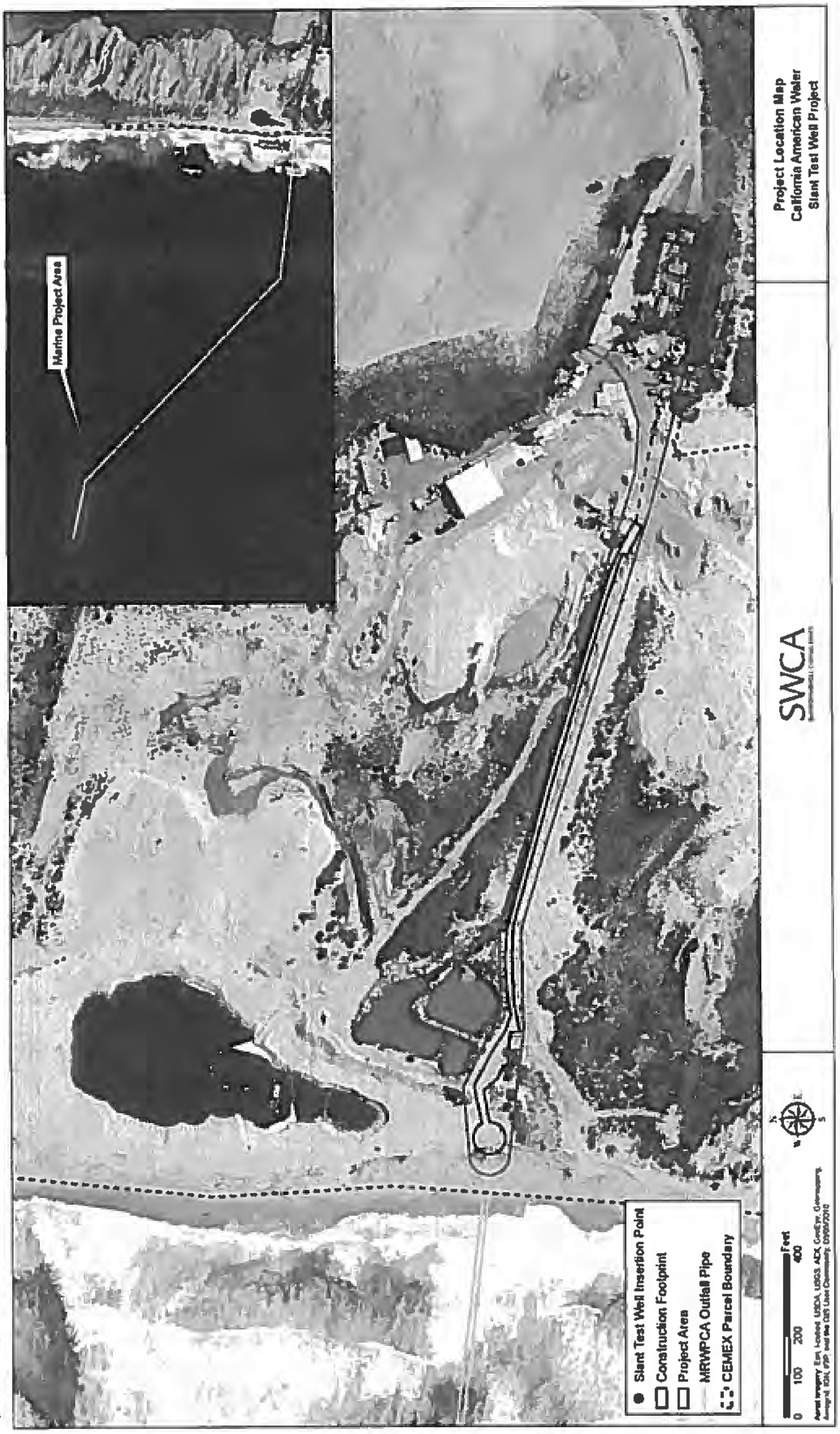
EXHIBITS

Figure 1. Project Vicinity Map



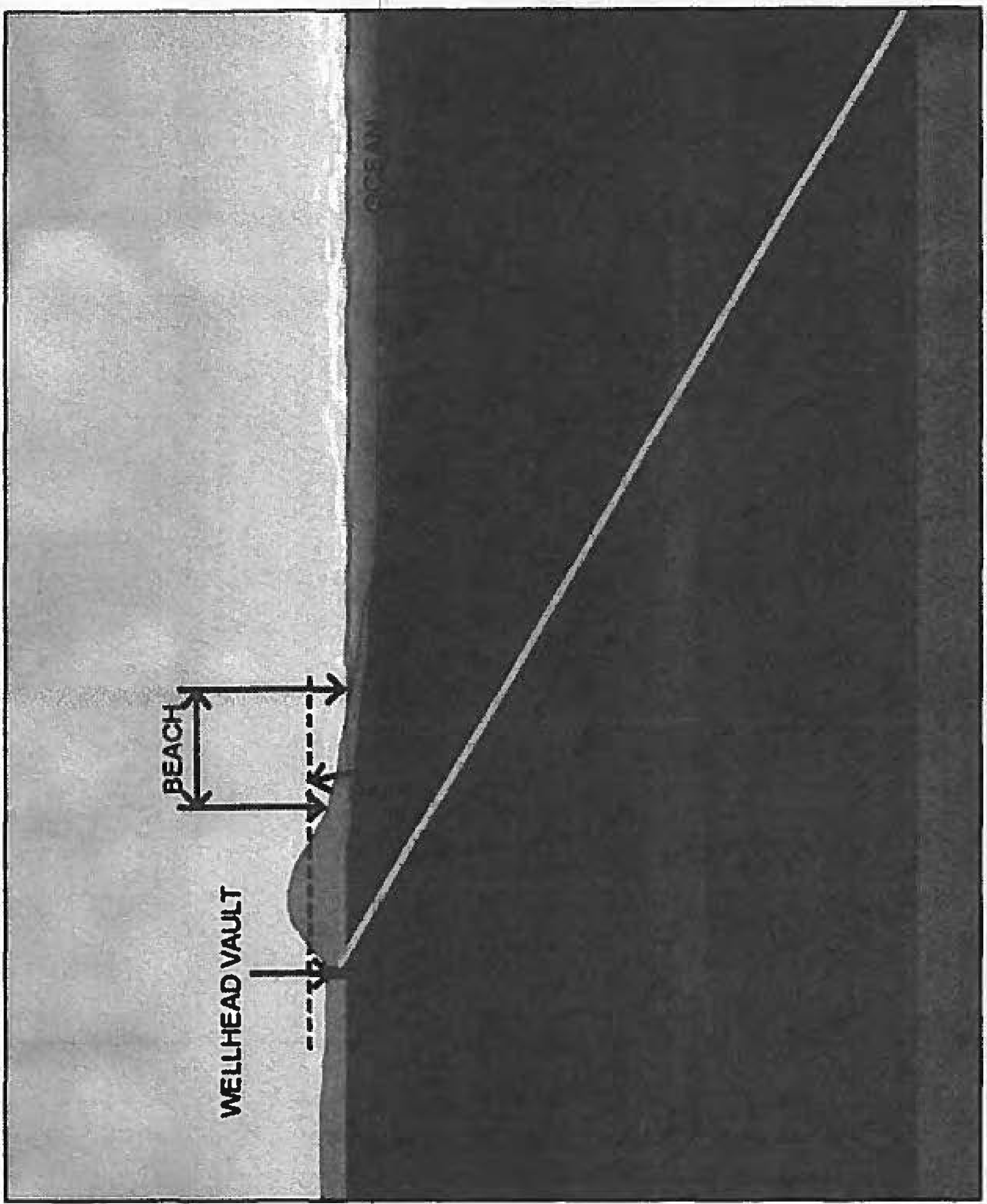
A-3-MRA-14-0050 / 9-14-1735
EXHIBIT 2

Figure 2. Project Location Map



Attachment 11, pg. 15

Figure 4. Slant Test Well – Representative Illustration (Not to Scale)



From MBNMS Cal-Am Slant Test Well Project, Draft Environmental Assessment, June 2014

A-3-MRA-14-0050 / 9-14-1735
EXHIBIT 3

Table 1. Proposed Water Quality Analytical Suite

Constituent	Units	Method Reporting Limit	Method
Physical Properties			
Color	Color Units	3.0	SM 2120B/EPA 110.2
Odor	T.O.N.		EPA 140.1
Oxidation-Reduction Potential (Field)	mV	-	Field Meter - Myron L 6PII
pH (Lab)	Units	0.10	SM 4500 H+B
pH (Field)	Units	-	Field Meter - YSI Pro Plus
Turbidity (Laboratory)	NTU	0.20	EPA 180.1/SM 2130B
Turbidity (Field)	NTU	-	Field Meter - Hach 2100P
Temperature (Field)	°C	-	Field Meter - YSI Pro Plus
Dissolved Oxygen (Field)	mg/L	-	Field Meter - YSI Pro Plus
Silt Density Index (Field)	-	-	ASTM D4189-07
Threshold Odor Number	T.O.N.	1.0	EPA 140.1/SM 2150
Total Dissolved Solids (Lab)	mg/L	10	SM 2540 C
Total Dissolved Solids (Field)	mg/L	-	Field Meter - YSI Pro Plus
Specific Conductance (Lab)	µmhos/cm	1	SM 2510 B
Specific Conductance (Field)	µS/cm	-	Field Meter - YSI Pro Plus
General Minerals			
Total Cations	meq/L		Calculation
Total Anions	meq/L	-	Calculation
Alkalinity as $CaCO_3$	mg/L	3	SM 2320 B
Bicarbonate Alkalinity as HCO_3	mg/L	3	SM 2320 B
Carbonate Alkalinity as $CaCO_3$	mg/L	3	SM 2320 B
Hydroxide Alkalinity as $CaCO_3$	mg/L	3	SM 2320 B
Total Hardness as $CaCO_3$	mg/L	3	Calculation
Aluminum	µg/L	1	EPA 200.7
Arsenic	µg/L	1	EPA 200.7 / EPA 200.8
Barium, Dissolved	µg/L	0.01	EPA 200.7
Boron, Dissolved	µg/L	0.5	EPA 200.8
Bromide, Dissolved	mg/L	0.1	EPA 326.0
Calcium, Dissolved	mg/L	1	EPA 200.7
Chloride, Dissolved	mg/L	2	EPA 300.0
Copper, Total	µg/L	50	EPA 200.7
Fluoride, Dissolved	mg/L	0.10	EPA 300.0 / SM 4500 FC
Iodide, Dissolved	mg/L	0.1	USGS I-2371 / EPA 9056A
Iron, Dissolved	µg/L	100	EPA 200.7 / EPA 200.8
Iron, Total	µg/L	100	EPA 200.7 / EPA 200.8
Lithium	µg/L	10	EPA 200.7 / EPA 6010B
Magnesium, Dissolved	mg/L	1	EPA 200.7
Manganese, Dissolved	µg/L	20	EPA 200.7 / EPA 200.8
Manganese, Total	µg/L	20	EPA 200.7 / EPA 200.8
MBAS	mg/L	0.050	SM 5540 C / EPA 200.8
Nitrogen, Nitrate as NO_3	mg/L	1	EPA 353.2 / EPA 300.0
Nitrogen, Nitrite, Dissolved	mg/L as N	1	SM 4500 NO_2B
Nitrogen, NO_2 + NO_3	mg/L as N	1	EPA 300.0
Nitrogen, Ammonia, Dissolved	mg/L as N	0.1	SM 4500 NH_3H / EPA 350.1
Nitrogen, Ammonia + Organic, Diss. (TKN)	mg/L as N	0.1	EPA 351.2
Phosphorus, Dissolved	mg/L as P	0.01	EPA 365.3
Phosphorus, ortho, Dissolved	mg/L as P	0.01	EPA 365.3
Potassium, Dissolved	mg/L	1	EPA 200.7
Silica, Dissolved	mg/L	1	SM 4500 Si E
Sodium, Dissolved	mg/L	1	EPA 200.7
Strontium, Dissolved	mg/L	0.1	EPA 200.7 / EPA 200.8
Sulfate as SO_4, dissolved	mg/L	0.5	EPA 300.0
Zinc, Total	µg/L	50	EPA 200.7

Constituent	Units	Method Reporting Limit	Method
Radiology / Age Dating Methods			
Delta-Deuterium	$\delta^{2}H$	-	TC/EA/IRMS
Delta Oxygen-18	$\delta^{18}O$	-	TC/EA/IRMS
Tritium	TU	-	-
Tritium, prec. est.	TU	-	-
Volatile Organic Compounds			
VOCs plus Oxygenates (MTBE)	µg/L	varies	EPA 524.2
EPA Organic Methods			
EDB and DBCP	µg/L	varies	EPA 504.1
Chlorinated Pesticides & PCB's as DCP	µg/L	varies	EPA 508
Chlorinated Acid Herbicides	µg/L	varies	EPA 515
Nitrogen & Phosphorus Pesticides DEHP, DEHA, Benzo(a)Pyrene	µg/L	varies	EPA 525
Carbamates	µg/L	varies	EPA 531.1
Glyphosate	µg/L	varies	EPA 547
Endothall	µg/L	varies	EPA 548.1
Diquat	µg/L	varies	EPA 549.1
Dioxin (2,3,7,8 TCDD)	µg/L	varies	EPA 1613

Each monitoring well cluster would include two or three individual monitoring wells, including two wells at different depths into the targeted Dune Sand and 180-FTE Aquifers. If a third monitoring well is included in a cluster, it would be drilled into the 400-Foot Aquifer, to evaluate the response of that aquifer to slant test well pumping. One of the monitoring well clusters would be located in the immediate vicinity of the slant test well insertion point and wellhead vault, and the others would be located further inland, either within the existing graded CEMEX access road or the disturbed area at the east end of the project area. As proposed, the monitoring well clusters would be decommissioned upon project completion consistent with DWR regulations.

Outfall Connection

The water pumped from the aquifers would be discharged into MBNMS waters via an existing ocean outfall pipeline used by the MRWPCA for treated wastewater disposal. The existing outfall pipeline is buried as it crosses the CEMEX property generally south of the access road (refer to Figure 3, which shows the 20-foot wide outfall easement). A 12-inch diameter discharge pipe would extend approximately 250 feet from the wellhead vault to an existing junction structure located on the MRWPCA outfall in the foredune area of the project site. The discharge pipe would be constructed approximately 3 feet below grade and would connect to the pressure lid on the junction structure, which is also currently below surface.

California American Water Slant Test Well Project

Mitigation Monitoring and Reporting Plan (includes Errata)

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
Aesthetic Resources				
AES/mm-1	Prior to issuance of a grading permit, a lighting plan shall be submitted to the City of Marina Planning Services Division for review and approval. The lighting plan shall be prepared by a qualified engineer and shall address any lighting proposed for the slant test well project. The lighting plan shall be prepared using guidance and best practices, as applicable and feasible. The lighting plan shall address all aspects of any new sources of lighting associated with the slant test well project, including but not limited to light towers, parking lots and pathway lighting, construction equipment, and safety lighting. The lighting plan shall also consider effects on wildlife in the surrounding area. The lighting plan shall include the following in conjunction with other measures as determined by the illumination engineer: a. The point source of all exterior lighting shall be shielded from off-site views towards ocean side or identified habitat. b. Light trespass from exterior lights shall be minimized by directing light downward and utilizing cut-off fixtures or shields. c. Lumination from exterior lights shall be the lowest level allowed by public safety standards. d. Any required lighting poles shall be colored dark to reduce reflectivity. The requirements of the lighting plan are not applicable to existing light sources at the project site associated with ongoing CEMEX mining activities and facilities.	Approval of Plan Periodic Site Inspections	Prior to Issuance of Permits Throughout Construction and Decommissioning Activities	City City

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
Air Quality				
AQ/mm-1	Prior to issuance of a grading permit, the following Best Management Practices and standard mitigation measures for reducing fugitive dust emissions shall be noted on project grading plans. All measures shall be adhered to during all project construction and decommissioning activities. a. Reduce the amount of disturbed area where possible. b. Water all sand/dirt stockpiles at least twice daily. Increased watering frequency may be required when wind speeds exceed 15 mph. c. Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site. d. All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least 2 feet of freeboard (minimum vertical distance between top of load and top of trailer). e. Plant appropriate vegetative ground cover in disturbed areas that are planned for habitat restoration as soon as possible. f. Cover inactive storage piles with methods approved in advance by U.S. Fish and Wildlife Service and California Department of Fish and Wildlife. g. Not necessary due to nature of site and activity, i.e. sand only.Sweep streets if visible soil material is carried out from the construction site. h. [Not necessary. Project site is an active surface sand mining site with far more disturbance than project and in remote location.]	Review of Project Plans Periodic Site Inspections	Prior to Issuance of Permits Throughout Construction and Decommissioning Activities	City City

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
AQ/mm-2	Prior to issuance of a grading permit, the following Best Management Practices and standard mitigation measures for reducing nitrogen oxides (NO_x), reactive organic gases (ROG) and diesel particulate matter (DPM) emissions from construction equipment shall be noted on project grading plans. All measures shall be adhered to during all project construction and decommissioning activities. a. Maintain all construction equipment in proper tune according to manufacturer's specifications. b. Diesel powered equipment shall be replaced by electric equipment whenever feasible to reduce NO_x emissions. c. Diesel-powered equipment shall be replaced by gasoline-powered equipment whenever feasible. d. Diesel construction equipment meeting the California Air Resources Board (CARB) Tier 1 emission standards for off-road heavy-duty diesel engines shall be used. Equipment meeting CARB Tier 2 or higher emission standards shall be used to the maximum extent feasible. e. Catalytic converters shall be installed on gasoline-powered equipment, if feasible. f. All on- and off-road diesel equipment shall not idle for more than 5 minutes. Signs shall be posted in the designated queuing areas and or job site to remind drivers and operators of the 5-minute idling limit. g. Diesel equipment idling shall not be permitted within 1,000 feet of sensitive receptors. h. The engine size of construction equipment shall be the minimum practical size when feasible. i. The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time. j. Construction worker trips shall be minimized where practical by providing options for carpooling.. Onsite meals	Review of Project Plans Periodic Site Inspections	Prior to Issuance of Permits Throughout Construction and Decommissioning Activities	City City
Biological Resources				
BIO/mm-1	Prior to construction, the applicant shall retain a qualified biological monitor(s) through or as approved by Point Blue, to ensure compliance with all measures	Approval of Biological	Prior to Construction	Point Blue

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
	identified in the project environmental documents and permits. Monitoring shall occur throughout the duration of construction and decommissioning activities, or as directed by relevant regulatory agencies. Monitoring may be reduced during project operation, as determined through consultation with the CCC, USFWS, and CDFW.	Monitor	Activities	
BIO/mm-2	A qualified biologist(s) shall conduct preconstruction surveys for special-status species as described below. a. Because of the dynamic nature of sand dunes and the tendency for Monterey spineflower to establish in recently-disturbed areas, surveys for Monterey spineflower and buckwheat (host plant for Smith's blue butterfly) shall be conducted within all project disturbance areas and within 20 feet of project boundaries during the blooming period for the spineflower (April-June) in the year prior to construction to identify and record the most current known locations of these species in the project vicinity. Surveys shall be conducted by a qualified botanist, and shall include collection of Global Positioning System (GPS) data points for use during flagging of sensitive plant species locations and avoidance buffers prior to construction. b. A preconstruction survey shall be conducted for special-status species no more than 14 days prior to construction. If project construction takes place during the avian nesting season (February 15th through September 1st), the survey shall encompass all suitable nesting habitat within 500 feet of the project. Should active nests be identified, avoidance buffers shall be established (250 feet for passerines and up to 500 feet for raptors) until a qualified biologist can confirm that nesting activities are complete. Variance from the no disturbance buffers may be implemented when there is compelling biological or ecological reason to do so. Any variance requested by the applicant shall be supported with a written statement by a qualified biologist and subject to USFWS and CDFW approval. c. One to two weeks prior to initiation of construction and decommissioning activities, a qualified biologist from Point Blue or in consultation with Point Blue, shall field evaluate the nature and extent of wintering snowy plover activity in the project area and shall make	Documentation by Biological Monitor	Prior to Construction and Decommissioning Activities	Biological Monitor

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
	avoidance recommendations regarding construction activities to minimize disturbance to plovers. The applicant shall comply with all Point Blue avoidance recommendations. d. Preconstruction surveys shall be conducted by a qualified biologist(s) for California legless lizard and coast horned lizard prior to disturbance of any suitable habitat. Surveys shall utilize hand search methods in areas of disturbance where these species are expected to be found (i.e., under shrubs, other vegetation, or debris on sandy soils). Any individuals located during the survey shall be safely removed and relocated in suitable habitat outside of the proposed disturbance area.			
BIO/mm-3	Prior to construction and decommissioning activities, a qualified biologist shall conduct an environmental awareness training for the lead (e.g. foreman, supervisor, manager) construction personnel that are on-site during activities, which at a minimum shall include: descriptions of the special-status species that have potential to occur in the project area; their habitat requirements and life histories as they relate to the project; the avoidance, minimization, and mitigation measures that will be implemented to avoid impacts to the species and their habitats; the regulatory agencies and regulations that manage their protection; and, consequences that may result from unauthorized impacts or take of special-status species and their habitats. The training shall include distribution of an environmental training brochure, and collection of signatures from all attendees acknowledging their participation in the training. Subsequent trainings shall be provided by the qualified biologist as needed for additional construction or operations workers through the life of the project.	Documentation by Biological Monitor	Prior to Construction and Decommissioning Activities	Biological Monitor
BIO/mm-4	Prior to construction, a qualified biologist shall coordinate with construction crews to identify and mark the boundaries of project disturbance, locations of special-status species and suitable habitat, avoidance areas, and access routes. GPS data collected during preconstruction surveys completed in 2012, 2013, and 2014 shall be used to flag the known locations of Monterey spineflower and buckwheat for avoidance during construction. Avoidance buffers shall be established and flagged or fenced as necessary to avoid surface disturbance or vegetation removal. The monitoring biologist shall fit the placement of flags and fencing to minimize impacts to any sensitive resources. At a minimum, the biologist shall direct the placement of highly visible exclusion fencing (snow fence or similar) at the	Field Verification	Prior to Construction and Decommissioning Activities	Biological Monitor

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
	following locations: a. Around sensitive snowy plover habitat areas that do not require regular access; b. Areas along the northern edge of the CEMEX access road in the vicinity of the settling ponds; and c. In between the work area and any identified occurrence of Monterey spineflower or buckwheat within 10 feet of the existing access road or work area. All delineated areas of temporary fencing shall be shown on grading plans and shall remain in place and functional throughout the duration of construction and decommissioning activities.			
BIO/mm-5	A qualified biologist(s) shall be present during all project construction and decommissioning activities on a periodic basis as determined necessary by the biologist, and as needed during operational activities as determined in accordance with BIO/mm-1, to monitor for special-status species and to limit potential impacts to suitable habitat. The biologist(s) shall monitor construction equipment access and shall have authority to halt work activities, if the potential for impacts to special-status species or habitat is identified, until the issue can be resolved. The qualified biologist(s) shall immediately report any observations of special-status species to the project applicant, the Coastal Commission and any additional relevant regulatory agencies (CDFW, USFWS), as necessary.	Documentation by Biological Monitor	Throughout the Duration of the Project	Biological Monitor
BIO/mm-6	During the operational phase, a qualified biologist shall consult with Point Blue monitors on a weekly basis during the plover nesting season to stay current with nesting activity in the vicinity of the slant test well. If active plover nests are located within 250 feet of the project or access routes, avoidance buffers shall be established to minimize potential disturbance of nesting activity, and the biologist shall coordinate with and accompany Cal Am operational staff as necessary during the nesting season to guide access and activities to avoid impacts to nesting plovers. The biologist shall contact the USFWS and CDFW immediately if a nest is found in areas near the wellhead that could be affected by project operations. Operations shall be immediately suspended until written authorization to proceed is provided by USFWS.	Documentation by Biological Monitor	Throughout Operational Testing Phase	Biological Monitor

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
BIO/mm-7	To ensure Point Blue has adequate staff and funding to complete necessary monitoring and coordination throughout development and operation of the slant test well project, Cal Am shall provide any necessary funding to Point Blue in an amount agreed upon by Point Blue and the applicant.	Documentation by Point Blue	Prior to Construction	Point Blue
BIO/mm-8	All construction and decommissioning activities shall be conducted between October 1st and February 28th, unless otherwise authorized by Coastal Commission and USFW, in order to be outside of the blooming period for Monterey spineflower, the active flight season for adult Smith's blue butterflies and active larval stage of the species, and the nesting season for western snowy plover and other avian species protected by the Migratory Bird Treaty Act. Construction activities shall be restricted to the designated construction areas and CEMEX access road. No construction equipment, materials, or activity shall occur outside of the specified areas. This measure shall be included on all construction and grading plan sets.	Field Verification	Throughout Construction and Decommissioning Activities	Biological Monitor
BIO/mm-9	In order to minimize potential for vehicular collision with special-status species, all construction, decommissioning, and operational traffic shall maintain speeds of 10 miles per hour or less on access roads within the CEMEX parcel. All personnel shall conduct a visual inspection for special-status species around and under all vehicles prior to moving them. This measure shall be included on all construction and grading plan sets.	Field Verification	Throughout Construction and Decommissioning Activities	Biological Monitor
BIO/mm-10	Noise blankets shall be installed to provide visual and sound attenuation during all drilling operations to minimize potential disturbance of wintering western snowy plover. This measure shall be included on all construction and grading plan sets.	Field Verification	Prior to Construction	Biological Monitor
BIO/mm-11	Wire excluders or similar anti-perching devices shall be incorporated into the top of all aboveground structures (e.g., electrical panel) to deter perching by avian predators. This measure shall be included on all construction and grading plan sets.	Field Verification	Prior to Construction	Biological Monitor

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
BIO/mm-12	Construction personnel shall be required to keep all food-related trash items in sealed containers and remove them daily to discourage the concentration of potential predators in snowy plover habitat. Following construction, all trash and construction debris shall be removed from work areas and properly disposed of at a certified landfill. All vegetation removed from the construction site shall be taken to a certified landfill to prevent the spread of invasive species. This measure shall be included on all construction and grading plan sets.	Field Verification	Throughout Construction and Decommissioning Activities	Biological Monitor
BIO/mm-13	Prior to issuance of grading permits, the applicant shall develop a Restoration Management Plan (Plan) consistent with the requirements of the City of Marina LCP. At a minimum, the Plan shall include a description of the following methods and metrics: ratios of plants to be replaced based on a minimum replacement of 3:1, or as otherwise directed by regulatory agencies; areas of habitat to be restored, which shall at minimum include all areas of temporary disturbance in identified Primary or Secondary Habitat, except for areas actively used by CEMEX for mining purposes; timing of restoration activities; monitoring of restoration success; and any required reporting to relevant agencies. The Plan shall also include all relevant conditions of approval or requirements related to site restoration from permits issued by regulatory agencies for the project. The applicant shall seek input and/or review of the Plan from relevant regulatory agencies prior to finalization, including at a minimum the USFWS, CDFW, and CCC. The Plan shall be implemented: 1) during and immediately following construction and prior to operation of the test well, and 2) during and immediately following decommissioning activities.	Approval of Plan	Prior to Issuance of Permits	City and Biological Monitor
BIO/mm-14	After construction, all disturbed areas shall be restored and revegetated to preconstruction contours and conditions to the extent feasible, in accordance with the Restoration Management Plan. Following decommissioning of the test well, all disturbed areas shall be re-contoured and revegetated as determined necessary and in coordination with applicable agencies and representatives of Point Blue to ensure that the optimum ground configuration is obtained for potential nesting plovers and other special-status species that may occur in the area.	Field Verification and Documentation by Biological Monitor	After Construction and Decommissioning Activities	Biological Monitor

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
BIO/mm-15	To ensure that restoration efforts are successful and unanticipated events are expeditiously managed, restored areas shall be monitored following planting and during operation of the test well and for 5 years following planting and decommissioning of the test well. This applies only if actual replanting are performed. [Dunes are disturbed active surface mining area, restoring to a level of adjacent dunes undisturbed dunes is not practical and the revegetation in this area is not applicable until Cemex ceases operation in this area.]	Field Verification and Documentation by Biological Monitor	After Decommissioning Activities	Biological Monitor
BIO/mm-16	During construction and decommissioning activities, the biological monitor(s) shall ensure that the spread or introduction of invasive plant species is avoided to the maximum extent possible through the following measures, which shall be included in all construction and grading plan sets: a. When practicable, invasive exotic plants in the project area shall be removed and properly disposed of at a certified landfill. b. The use of imported soils for fill shall be limited to the greatest extent feasible. Soils currently existing on-site shall be used for fill material to the extent feasible. If the use of imported fill material is necessary, the imported material must be obtained from a source that is known to be free of invasive plant species, or the material must consist of purchased clean material. c. The Restoration Management Plan shall include an invasive species control program to be implemented throughout the duration of the project and shall emphasize the use of native species expected to occur in the area.	Field Verification	Throughout Duration of the Project	Biological Monitor
BIO/mm-17	Prior to operation of the test well and any discharge of pumped test water into the Pacific Ocean, the project applicant shall provide the Coastal Commission with a valid NPDES permit or other RWQCB approval for the proposed slant test well discharge. The NPDES permit or approval shall incorporate all relevant standards of the California Ocean Plan.	Review of RWQCB Permit or Approval	Prior to Operation of Project	CCC
BIO/mm-18	Prior to issuance of grading permits, the applicant shall submit a grading plan identifying all stockpile and staging areas. Stockpiles and staging areas shall not be placed in areas that have potential to experience significant runoff during the rainy season. All project-related spills of hazardous materials within or adjacent to	Approval of Plan	Prior to Issuance of Permits	City

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
	project sites shall be cleaned up immediately. Spill prevention and cleanup materials shall be on-site at all times during construction. Cleaning and refueling of equipment and vehicles shall occur only within designated staging areas. The staging areas shall conform to standard Best Management Practices (BMPs) applicable and feasible to attaining zero discharge of storm water runoff. No maintenance, cleaning or fueling of equipment shall occur within Primary or Secondary Habitat areas, or within 50 feet of such areas. At a minimum, all equipment and vehicles shall be checked and maintained on a daily basis to ensure proper operation and to avoid potential leaks or spills. The grading plan shall be subject to review and approval by the City of Marina.			
Cultural Resources				
CR/mm-1	The project shall be redesigned to avoid significant adverse effects to historic resources; in particular, direct impacts to the Lapis Siding that is identified as a contributor to the Lapis Sand Mining Plant Historic features shall be avoided. Because the Siding extends through the eastern portion of the construction footprint, the construction plans shall be redesigned to locate all project components and construction activities in adjacent areas that do not contain structures associated with the Lapis Sand Mining Plant historic features. Avoidance of impacts to historic district contributors in close proximity to construction activities shall be accomplished by installing flagging or safety fencing around, or covering with plywood, any adjacent buildings or structures that are within 5 feet of mechanized equipment.	Review of Revised Development Plans	Prior to Issuance of Permits	City and Qualified Archaeologist
CR/mm-2	A qualified archaeologist that meets the Secretary of the Interior's professional qualifications standards in archaeology (National Park Service 1983) shall be retained to provide archaeological services for the project. Archaeological services for the project shall at minimum include the following: a. Prior to initiation of ground-disturbing activities, an archaeological monitor working under the direction of the qualified archaeologist shall conduct a brief awareness training session for all construction workers and supervisory personnel. The training shall explain the importance of and legal basis for the protection of significant archaeological resources. Each worker should learn the proper procedures to follow in the event that cultural resources or human remains/burials are uncovered during	Approval of Qualified Archaeologist and Documentation by Qualified Archaeologist	Prior to and Throughout Construction and Decommissioning Activities	MBNMS and Qualified Archaeologist

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
	ground-disturbing activities, including those that occur when an archaeological monitor is not present. These procedures include work curtailment or redirection and the immediate contact of the site supervisor and the archaeological monitor. It is recommended that this worker education session include visual images or samples of artifacts that might be found in the project vicinity, and that the session take place on-site immediately prior to the start of ground-disturbing activities. b. An archaeological monitor working under the direction of the qualified archaeologist shall monitor all ground disturbance in areas within 100 feet of the historic buildings within the eastern portion of the project area. These include the Superintendent's Residence, Bunkhouse, Garage/Office, Maintenance Shop, and Scale House. The timing and duration of the monitoring may be adjusted during project implementation by the qualified archaeologist, in consultation with the City, whose decision shall be informed by the apparent sensitivity of the sediments in the project area once they are exposed. c. The project applicant shall coordinate with representatives from the Ohlone/Coastanoan-Esselen Nation and Amah Mutsun Tribal Band of Mission San Juan Bautista to designate a Native American monitor to be present during ground disturbing activities associated with the project. Documentation of such coordination shall be provided to MBMNS prior to construction activities. The timing and duration of the monitoring may be adjusted during project implementation by the qualified archaeologist, in consultation with MBNMS, whose decision shall be informed by the apparent sensitivity of the sediments in the project area once they are exposed.[1]			
CR/mm-3	In the event that archaeological resources (artifacts or features) are exposed during ground-disturbing activities, construction activities in the immediate vicinity (25 feet) of the discovery shall be halted while the resources are evaluated for significance by the qualified archaeologist. Construction activities could	Documentation by Qualified Archaeologist	Throughout Construction and Decommissioning Activities	Qualified Archaeologist

[1] Added from Environmental Assessment for the California American Water Slant Test Well Project

A-3-MRA-14-0050 / 9-14-1735
EXHIBIT 5
Page 11 of 16
October 10, 2014

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
	continue in other areas. If the discovery proves to be significant, additional work, such as archaeological data recovery or project redesign, may be warranted and would be discussed in consultation with the City.			
CR-mm-4	In the event of inadvertent discovery of human remains, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner shall be notified of the find immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification, and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials. The California Health and Safety Code Section 7050.5 process shall be noted on project grading and construction plans and reviewed during the construction worker awareness training session.	Documentation by Qualified Archaeologist	Throughout Construction and Decommissioning Activities	Qualified Archaeologist
Geology and Soils				
GEO/mm-1	The project shall be designed to meet or exceed all applicable requirements of the CBC. Design and construction of the project shall meet or exceed all applicable feasible conclusions and recommendations in the Geotechnical Investigation for the California American Water Temporary Slant Test Well Project, Marina, Monterey County, California, dated April 3, 2014 (GeoSoils 2014).	Review of Grading and Engineering Documents and Construction Inspections and Testing As Required	Prior to and Throughout Construction	City
Hazards and Hazardous Materials				
HAZ/mm-1	Prior to construction, the applicant shall prepare a Hazardous Material Spill Prevention, Control and Countermeasure Plan to minimize the potential for, and effects of, spills of hazardous or toxic substances or the inadvertent discovery of buried hazardous materials during construction or decommissioning of the project. The plan shall be submitted for review and approval by the City, and shall	Approval of Plan	Prior to Construction	City

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
	include, at minimum, the following: a. A description of hazardous materials to be used, storage procedures and construction and decommissioning site maintenance and upkeep practices; b. Identification of a person or persons responsible for monitoring implementation of the plan and spill response; c. Identification of BMPs to be implemented to ensure minimal impacts to the environment occur, including but not limited to the use of containment devices for hazardous materials, training of construction staff regarding safety practices to reduce the chance for spills or accidents, and use of non-toxic substances where feasible; d. A description of proper procedures for containing, diverting, isolating, and cleaning up spills, hazardous substances and/or soils, in a manner that minimizes impacts on sensitive biological resources; e. Positive location of any past or current septic systems on the CEMEX parcel in the vicinity of construction activities, and a plan for avoiding impacts to any known or unknown buried refuse disposal locations;[2] f. A description of the actions required if a spill or inadvertent discovery occurs, including which authorities to contact and proper clean-up procedures; and g. A requirement that all construction personnel participate in an awareness training program conducted by qualified personnel approved by the City. The training must include a description of the Hazardous Materials Spill Prevention, Control and Countermeasure Plan, the plan's requirements for spill prevention, information regarding the importance of preventing spills, the appropriate measures to take should a spill or inadvertent discovery occur, and identification of the location of all clean-up materials and equipment.			
HAZ/mm-2	Prior to commencement of construction or decommissioning activities, the applicant shall consult with the property owner (CEMEX) regarding construction/	Documentation by Applicant	Prior to Construction and	CCC

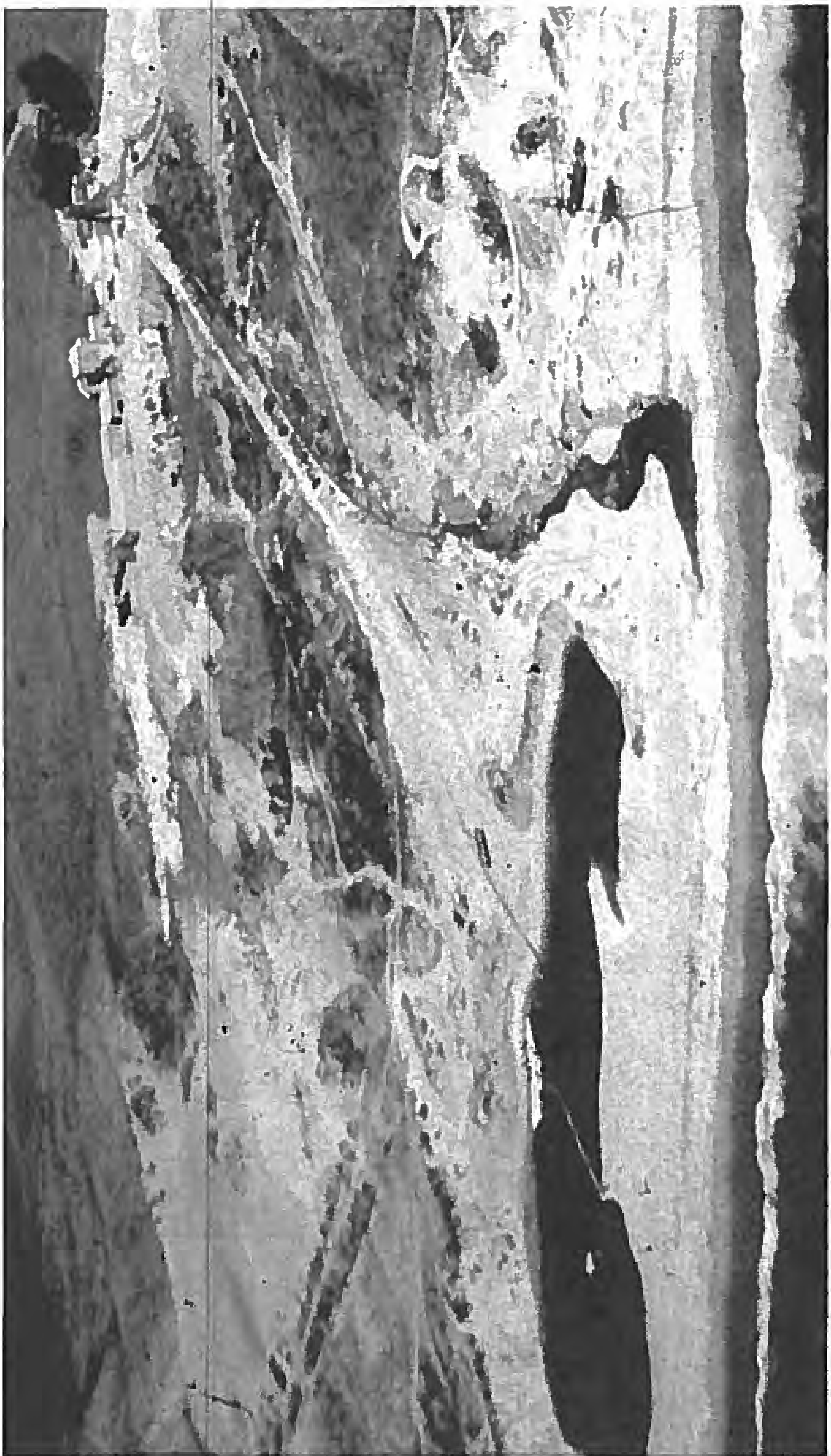
[2] Added from Environmental Assessment for the California American Water Slant Test Well Project

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
	decommissioning operations and schedule. In coordination, the project applicant shall provide advance notice of construction activities and construction shall be scheduled to avoid disruption of existing mining activities to the extent feasible. Coordination shall include construction and decommissioning phase parking needs and the number of on-site construction crewmember vehicles shall not be more than can be accommodated within the CEMEX parking area, as determined by the property owner. If the on-site parking area is insufficient to accommodate project crewmembers, the applicant shall implement carpooling, off-site parking, shuttle service to the site, or other similar measures to reduce the number of vehicles at the site consistent with property owner approval. If construction activities within the CEMEX access road would conflict with CEMEX operations, such construction shall be conducted during non-operational mining periods (i.e., nighttime or weekends). Construction activities shall be conducted to avoid any need for the grading of any new access roads for use by CEMEX.		Decommissioning Activities	
Hydrology and Water Quality				
HYD/mm-1	Prior to construction, the applicant shall prepare a groundwater monitoring plan for City review and approval. The plan shall determine, through preliminary monitoring and sampling prior to pumping activities, a baseline condition of groundwater levels and quality, including the reasonable range of natural fluctuations, in the Dune Sand, 180-FTE, and 400-Foot Aquifers. The effects of pumping activities on groundwater levels and quality in the Dune Sand, 180-FTE, and 400-Foot Aquifers shall be monitored throughout the duration of pumping activities. Monitoring activities shall be conducted through regular assessment of the proposed on-site monitoring wells, as well as through additional coordination with surrounding well owners, including CEMEX and adjacent agricultural water users, to identify changes in off-site water levels to the maximum extent feasible. A drawdown of 1 foot above natural fluctuations on groundwater levels shall be considered a significant adverse effect on water supply. If pumping activities reflect a drawdown of 1 foot or greater on any adjacent well, compensatory mitigation shall be required. Feasible mitigation shall include consultation with the affected water user and implementation of compensatory mitigation measures, including monetary compensation (i.e., for increased pumping costs or for upgraded wells), or provision of replacement water from	Approval of Plan	Prior to Construction	Monterey County Water Resources Agency

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
	alternative sources. If compensation or other remediation is found to be unfeasible, pumping activities shall be adjusted so that no more than 1 foot of drawdown on usable water sources would result. The plan shall designate a person or persons to monitor implementation of the monitoring plan and to order implementation of mitigation if necessary. The name and telephone number of the person(s) shall be listed in the monitoring plan and provided to the Monterey County Water Resources Agency (MCWRA) prior to the start of construction. The plan shall include a requirement for regular reporting (no less than annually) on the results of the monitoring activities, and the reports shall be submitted to the MCWRAand other relevant regulatory agencies.			
HYD/mm-2	Prior to issuance of grading permits, the applicant shall submit an erosion control plan for approval by the City Public Works Director. The plan shall be prepared by an appropriately certified professional and shall include a schedule for the completion of erosion- and sediment-control structures, which ensures that all such erosion-control structures are in place by mid-November of the year that construction begins. The plan shall identify standard Best Management Practices to be implemented to address both temporary and permanent measures to control erosion and reduce sedimentation. Site monitoring by the applicant's erosion-control specialist shall be undertaken and a follow-up report shall be prepared that documents the progress and/or completion of required erosion-control measures both during and after construction and decommissioning activities. No synthetic plastic mesh products shall be used in any erosion control materials. All plans shall show that sedimentation and erosion control measures are installed prior to any other ground disturbing work.	Approval of Plan	Prior to Construction	City
HYD/mm-3	The slant test well and wellhead vault shall be sited to avoid areas identified in the coastal erosion memorandum prepared by ESA-PWA (March 2014) as subject to coastal erosion during the duration of the project. The alternative slant test well location shall avoid all identified sensitive plant species and shall be limited to the graded area of the CEMEX access road to the maximum extent feasible. The slant test well location shall not encroach north of the graded roadway in closer proximity to the CEMEX settling ponds or Canal Flume. If test well is designated to be decommissioned because test well is determined to have no future use, the slant test well and all related infrastructure shall be removed to a depth of no less	Review of Revised Development Plans and Field Verification	Prior to Issuance of Permits and After Decommissioning	MCWRA

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party
	than 40 feet below ground surface to eliminate the possibility for future re-surfacing and exposure of submerged well casing or related project components as a result of coastal erosion and shoreline retreat. Removal of the well would take place upon decommissioning and/or in segments over time as mutually agreed upon by the MRWPCA, Cal Am, the California State Lands Commission, CEMEX, and other identified regulatory agencies. If removal to the total required depth of 40 feet below ground surface is not completed within 5 years following completion of the decommissioning, the applicant shall post a bond with the City to ensure future removal measures would be appropriately supported and timed to prevent any future resurfacing of the well casing or other project components.			
Utilities and Service Systems				
UTIL/mm-1	Prior to commencement of construction activities, the applicant shall provide the CCC with a copy of a negotiated agreement or memorandum of understanding between the applicant and the Monterey Regional Water Pollution Control Agency regarding connection and use of the ocean outfall. At minimum, the agreement shall include MRWPCA engineering design review, USA North 811 positive location of the outfall, construction trestle, and any related infrastructure, RWQCB approval or permits for discharge of seawater through the MRWPCA outfall, and access to flow meter data and alarm system triggers and signals.	Review of Agreement or Memorandum	Prior to ~~Issuance of Permits~~ Construction	CCC and RWQCB

1972 coastal records project

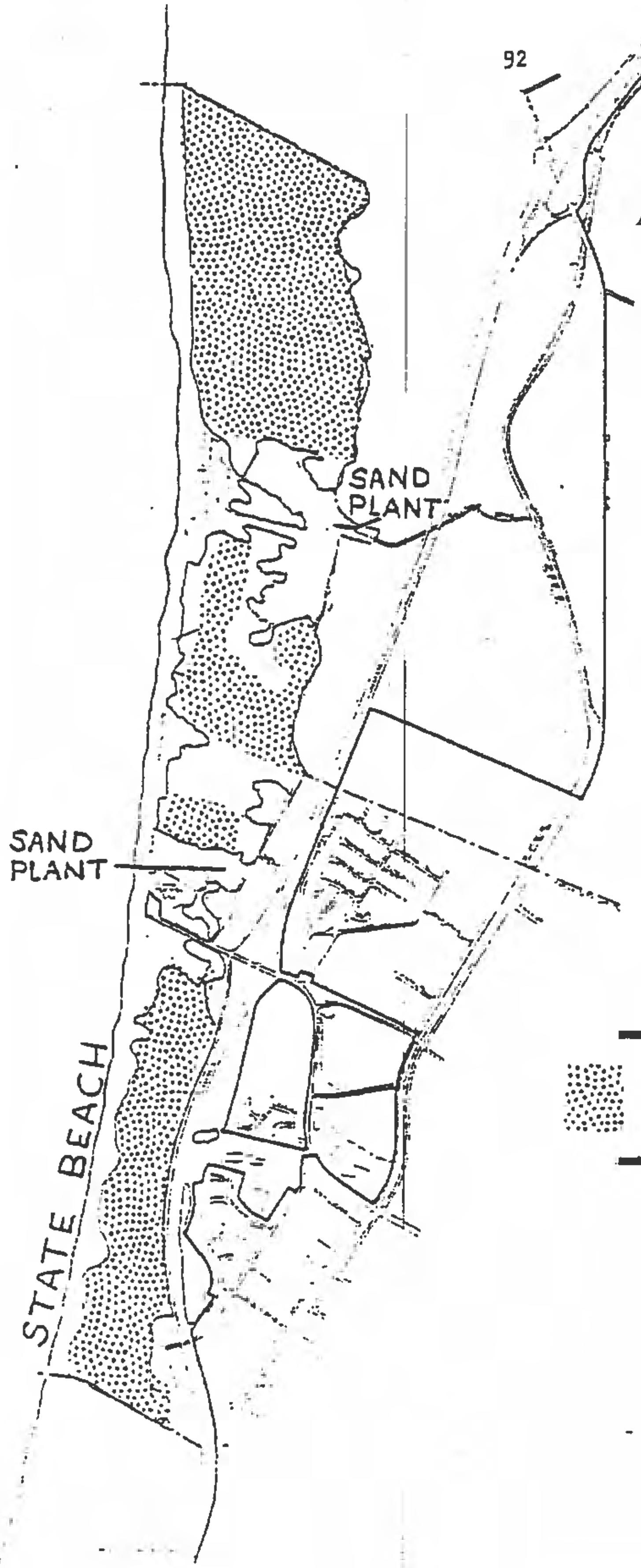


A-3-MRA-14-0050 / 9-14-1735
EXHIBIT 6

EXHIBIT 6

2013

A-3-MRS-14-0050 / 9-14-1735
EXHIBIT 7



LEAST-DISTURBED DUNE HABITAT AREAS
(Air Photo Interpretation By Coastal Commission Staff, October, 1981)

The Precise location and edges of these Least Disturbed Dune Habitat Areas shall be determined by ground investigation by a qualified biologist and mapped at the time use is proposed.

LEAST - DISTURBED DUNE HABITAT AREAS
MARINA LOCAL COASTAL PROGRAM

EXHIBIT
B

Michael Baker
INTERNATIONAL

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LCP Primary and Secondary Habitat Delineation

The purpose of this Memorandum is to discuss the delineation of Primary and Secondary Habitat for the Snowy Plover within the area examined by the Habitat Assessment. This delineation supersedes that of the habitat delineation in referenced in the Restoration Management Plan prepared by Zander Associates, dated July 2014. This delineation of Primary and Secondary Habitat stems from a finer grained evaluation of habitat quality in the project area.

The City of Marina LCP (1982) requires protection and preservation of "primary habitat areas," which includes "habitat for all identified plant and animal species which are rare, endangered, threatened, or are necessary for survival of an endangered species...", "vernal ponds and their associated wetland vegetation...", "all native dune vegetation, where such vegetation is extensive enough to perform the special role of stabilizing Marina's natural sand dune formations...", and "areas otherwise defined as secondary habitat that have an especially valuable role in an ecosystem for sensitive plant or animal life, as determined by a qualified biologist approved by the City." The secondary habitat referred to in the LCP is defined as "areas adjacent to primary habitat areas within which development must be sited and designed to prevent impacts which would significantly degrade the primary habitat" and includes "potential/known localities of rare and endangered plant species, potential wildlife habitats, and any areas within 100 feet of the landward boundary of a wetland primary habitat area."

The temporary project footprint lies wholly within the active mining area with much of the area being disturbed. The Draft Initial Study and Mitigated Negative Declaration for the project defined Primary Habitat as coastal dunes and sandy beach. Upon reexamination, it was noted that areas originally classified as Primary Habitat within the project area were in fact disturbed to a degree that would preclude them as Primary Habitat, altering the classification to Secondary Habitat. For instance areas south of the Mitigated Well Location previously classified as coastal dunes is in fact a stock pile for sand, is periodically graded by Cemex and is largely devoid suitable vegetation. The disturbance of habitat area stems from the operations of the Cemex mining area. The habitat within the Mitigated Well Location footprint is within the approved Cemex Restoration Plan.

Habitat was reevaluated using a combination of site photos from field reconnaissance and from satellite imagery. Areas with significant disturbance such as dirt roads, graded surfaces, areas disturbed by mining activities, and soils/sand stock piles were reclassified as Secondary Habitat. The reclassified habitat is shown in the attached Exhibit. As seen in the Exhibit, the area of the Mitigated test well footprint is within Secondary Habitat. Total Primary Habitat area within the Project Area is approximately .68 acres and is located on the western most end of the project area. Secondary Habitat accounts for the majority of the project area at 2.01 acres.

Habitat reclassifications were reviewed by Zander Associated and RBF biologists for concurrence.

A-3-MRA-14-0050 / 9-14-1735
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Attachments:

Attachment A: Primary and Secondary Habitat Map

Attachment B: Historic Aerials of Project Site

Attachment C: Project Site Photos

Attachment D: Existing Biological Conditions Map

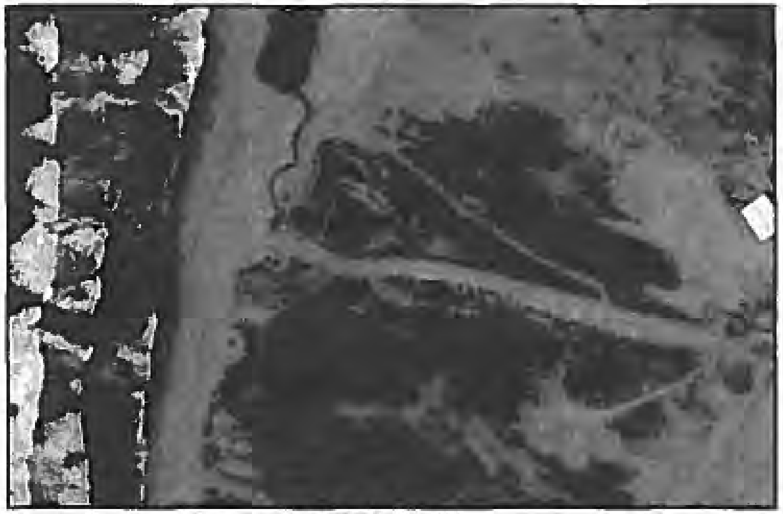

Image Date: 2006 (Source: Google Earth)

Image Date: 2007 (Source: Google Earth)

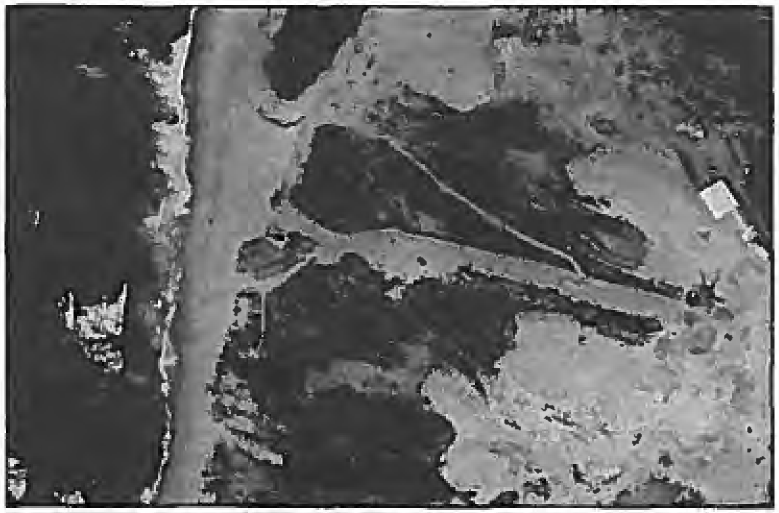

Image Date: 2012 (Source: Google Earth)

Image Date: 2013 (Source: Google Earth)

RBF CONSULTING

JN 136410

Cemex Test Slant Well

Historic Site Aerials

A-3-MRA-14-0050 / 9-14-1735
EXHIBIT 8

View of Cemex Access Road and Stockpiles Facing East. (Image Date: 10/30/2013)

View of Stockpiling and Cemex Access Road Facing East. (Image Date:10/22/2013)

View of Cemex Access Road and Stockpiling facing West. (Image Date: 10/30/2013)

View of Cemex Access Road and Stockpiling facing East.(Image Date: 10/30/2013)

Cemex Test Slant Well

Site Photos

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A-3-MRA-14-0050 / 9-14-1735
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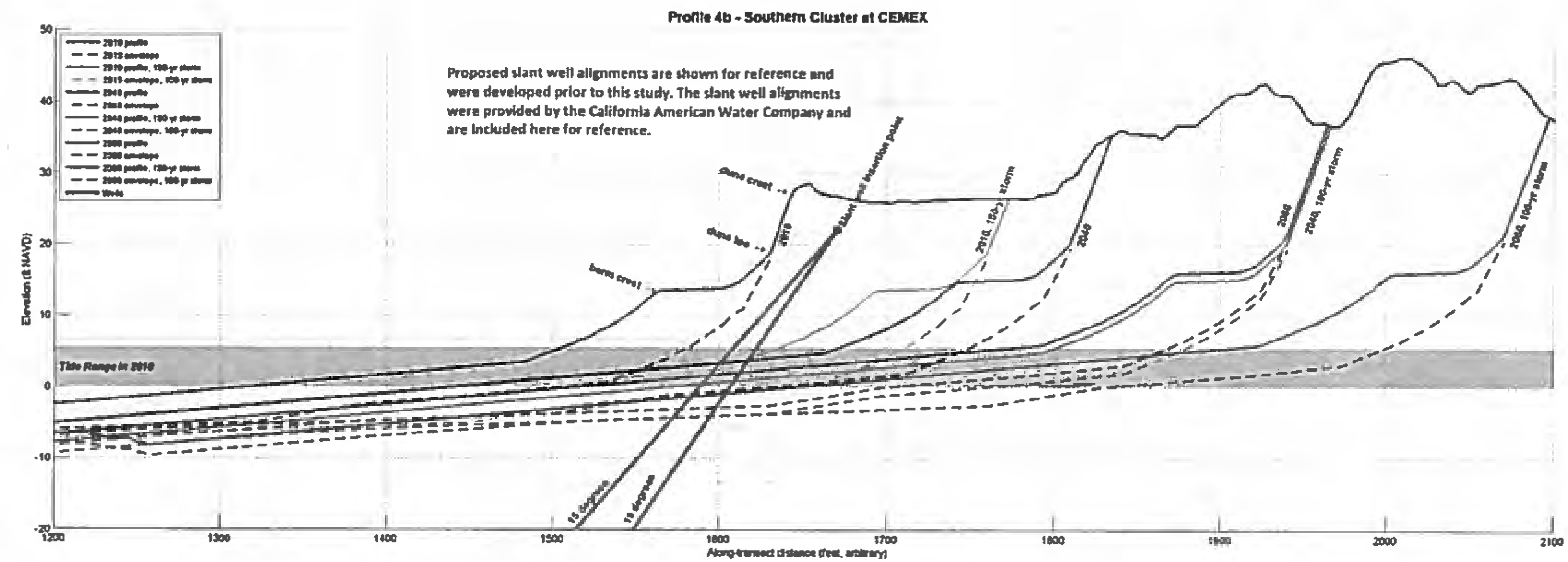
Figure 6. Existing Biological Setting

A-3-MRA-14-0050 / 9-14-1735
EXHIBIT 8



Notes.

1. These envelopes of erosion consider seasonal changes in beach width, localized erosion (rip currents), long-term erosion, and accelerated erosion caused by sea level rise.
2. The profile shape is linearly interpolated between the bathymetry data and the topography data (between x = 820 ft and x = 1480).
3. This profile is located immediately south of the CEMEX Pacifica Lapis sand mining plant. No data is available to quantify the uncertainty in adjacent beach and dune erosion related to sand mining activities. The potential for fluctuations in beach width associated with sand mining were not considered in this analysis.
4. Slant well location and angle are based on the "Well 3 Alignment" and "Well 3 Cross-Section" drawings provided by Geoscience on July 30, 2013.
5. The well input parameters in the table to the right were developed prior to this study and were provided by the California American Water.

Southern Cluster Parameters			Notes
type of well	Production Well	Production Well	
inputs			
angle (degrees from horizontal)	15	19	
length (feet)	800	800	
insertion pt elevation (feet NAVD)	22.0	22.0	AMSL to NAVD 88 conversion. 2.97 ft
insertion point loc (feet, arbitrary)	1670	1670	
calculations			
intake elevation (feet NAVD)	-185	-238	
intake loc (feet, arbitrary)	897	914	
Bed elevation at intake (ft NAVD)	-9	-9	*linearly interpolated btwn bathy and topo data*
Depth of sediment above intake (ft)	176	230	*difference between bed and intake elevation*

Monterey Peninsula Water Supply Project. 205335.01

Figure 9. Representative Profile #4b at CEMEX

A-3-MRA-14-0050 / 9-14-1735
EXHIBIT 9

Exhibit 10 – City of Marina Municipal Code Section 17.41.100, Requirements for Habitat Restoration

All direct and potential impacts to primary and secondary habitats shall be fully mitigated. Appropriate acreage replacement/restoration ratios for any unavoidable direct impacts to habitat areas and buffer areas shall be applied to fully protect identified habitat. Habitat restoration plans shall be prepared and approved prior to issuance of any grading or building permits.

A. Habitat Restoration Plan Requirement.

1. All habitat restoration, enhancement, and/or buffering plans shall be prepared by a qualified biologist and where appropriate, with the assistance of a qualified hydrologist. Plans shall be developed in consultation with the Department of Fish and Game and U.S. Fish and Wildlife Service in cases where these agencies have jurisdiction. The plans and the work encompassed in the plans shall be authorized by a coastal development permit. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the city. No changes to the approved final plans shall occur without a city-approved amendment.

2. The elements of such a plan shall include, at a minimum:

a. A detailed site plan of the entire habitat and buffer area with a topographic base map;

b. A baseline ecological assessment of the habitat buffer area, including but not limited to, assessment of biological, physical, and chemical criteria for the area;

c. The goals, objectives, performance standards, and success criteria for the site, including specific coverage and health standards for any areas to be planted. At a minimum, explicit performance standards for vegetation, hydrology, sedimentation, water quality and wildlife, and a clear schedule and procedure for determining whether they are met shall be provided. Any such performance standards shall include identification of minimum goals for each herbaceous species, by percentage of total plantings and by percentage of total cover when defined success criteria are met; and specification of the number of years active maintenance and monitoring will continue once success criteria are met. All performance standards shall state in quantifiable terms the level and extent of the attributes necessary to reach the goals and objectives. Sustainability of the attributes shall be a part of every standard. Each performance standard shall identify: (1) the attribute to be achieved; (2) the condition of level that defines success; and (3) the period over which success must be sustained. The performance standards must be specific to provide for the assessment of habitat performance over time through the measurement of habitat attributes and functions including, but not limited to, wetland vegetation, hydrology, and wildlife abundance;

d. The final design, installation, and management methods that will be used to ensure the mitigation site achieves the defined goals, objectives and performance standards;

e. Provisions for the full restoration of any impacts that are identifiable as temporary necessary to install the restoration or enhancement elements;

f. Provisions for submittal, within thirty days of completion of initial (and subsequent phases, if any) of restoration work, of "as built" plans demonstrating that the restoration and enhancement has been established in accordance with the approved design and installation methods;
g. Provisions for a detailed monitoring program to include, at a minimum, provisions for assessing the initial biological and ecological status of the site. The assessment shall include an analysis of the attributes that will be monitored pursuant to the program, with a description of the methods for making that evaluation;
h. Provisions to ensure that the site will be promptly remediated if monitoring results indicate that the site does not meet the goals, objectives and performance standards identified in the approved mitigation programs and provisions for such remediation. If the final report indicates that the mitigation project has been unsuccessful, in part, or in whole, based on the approved performance standards, the applicant shall submit a revised or supplemental mitigation program to compensate for those portions of the original program that did not meet the approved performance standards;
i. Provisions for submission of annual reports of monitoring results to the city of the first five years after all restoration and maintenance activities have concluded (including but not limited to watering and weeding, unless weeding is part of an ongoing long-term maintenance plan) and periodic monitoring after that time, beginning the first year after submission of the "as-built" assessment. Each report shall include a "Performance Evaluation" section where information and results from the monitoring program are used to evaluate the status of the project in relation to the performance standards. (Ord. 2007-11 § 3 (Exh. A (part)), 2007)

~~ATTACHMENT 2~~

STATEMENT OF REASONS SUPPORTING THE APPEAL

Appeal by California-American Water Company from the City of Marina Denial of Coastal Development Permit 2012-05 for Construction, Temporary Operation, and Decommissioning of a Slant Test Well Project

I. <u>Introduction and Summary</u>

California-American Water Company ("California American Water") appeals the September 4, 2014 decision of the City Council of the City of Marina, CA ("City"), denying Coastal Development Permit Application 2012-05 ("CDP") for development of a temporary slant test well to determine the feasibility of using subsurface slant wells for production of seawater to a proposed desalination facility. Prior to the City Council's decision, the City Planning Commission declined to issue or deny the CDP after conducting a public hearing on July 10, 2014.

This appeal is filed pursuant to Public Resources Code Section 30603(a)(5), which provides that the California Coastal Commission ("Commission") may hear an appeal of a local agency denial of a major public works project. The California American Water Slant Test Well Project ("Project") is a "public works project" because it is a facility for the production of water to be owned and operated by a public utility subject to the jurisdiction of the California Public Utilities Commission ("CPUC"). Cal. Pub. Res. Code § 30114. The proposed Project is a "major" public works project because, if approved, it would cost more than $100,000 to complete. 14 Cal. Code Regs. § 13012. The City notified the Commission of its action on the CDP on September 11, 2014 (see <u>Attachment 3</u>), so this appeal is timely filed. 14 Cal. Code Regs. § 13111(c), Cal. Pub. Res. Code § 30603(c)(setting ten working day appeal period).

Pursuant to Section 30603(b)(2), the grounds for an appeal of a denial of a permit for a major public works project "shall be limited to an allegation that the development conforms to the standards set forth in the certified local coastal program and the public access policies set forth in this division." As described in more detail below, the proposed Project fully conforms to the standards set forth in the City's certified local coastal program ("LCP") and the public access policies of the California Coastal Act (Cal. Pub. Res. Code §§ 30000, *et seq.*, "Coastal Act"). In denying the CDP, the City did not make any finding that the proposed Project fails to conform to the standards of the LCP or interferes with coastal access. In fact, the City's Planning Department Staff ("City Staff") and outside expert consultants found that the proposed Project is entirely consistent with the LCP and in no way restricts coastal access. Because the proposed Project conforms to the standards of the LCP and the public access policies in the Coastal Act, the Commission should grant this appeal and issue the CDP.

II. Background

a. Carmel River and the Monterey Peninsula Water Supply Project

In April 2013, California American Water filed an application with the CPUC for approval of the Monterey Peninsula Water Supply Project ("MPWSP"). If approved, the MPWSP would replace a significant portion of the existing public water supply from the Carmel River. Through two separate Orders (issued in 1995 and 2009), the State Water Resources Control Board ("SWRCB") directed California American Water to develop and implement a plan to replace more than 70% of the water it historically diverted each year from the Carmel River to serve drinking water to customers in its Monterey County service area. One of the primary purposes of reducing diversions from the Carmel River is to protect species that are listed as threatened under state and federal law, such as the South-Central California Coast Steelhead and the California Red-Legged Frog. If approved and constructed, the MPWSP will consist of slant intake wells, brackish water pipelines, a desalination plant, product water pipelines, brine disposal facilities, and related appurtenant facilities. Detailed background information on the MPWSP is included in Attachment 4 at 5-6. The overall MPWSP will be subject to a separate coastal development permit application that California American Water plans to submit to the Commission in 2015 after the CPUC completes and certifies an Environmental Impact Report and its own project approval.

b. Subsurface Intake Slant Wells

In connection with California American Water's application for approval of the MPWSP, a diverse set of parties filed a proposed settlement in July 2013 that sets certain technical, financial, governance, and other conditions for its completion. A copy of the parties' joint motion to approve the settlement agreement and the agreement itself are included together as Attachment 4. In addition to California American Water, the parties to the settlement agreement are:

- Citizens for Public Water;
- City of Pacific Grove;
- Coalition of Peninsula Businesses;
- County of Monterey;
- CPUC Division of Ratepayer Advocates;
- Landwatch Monterey County;
- Monterey County Farm Bureau;
- Monterey County Water Resources Agency;
- Monterey Peninsula Regional Water Authority;
- Monterey Peninsula Water Management District;
- Monterey Regional Water Pollution Control Agency;
- Planning and Conservation League Foundation;
- Salinas Valley Water Coalition;
- Sierra Club; and
- Surfrider Foundation.

Among other things, the settlement identifies the use of subsurface slant wells at the site where the proposed Project would be completed as the preferred alternative for intake of seawater, "subject to confirmation of the feasibility of this option by the test well results and hydro-geologic studies." Attachment 4 at 41-42[1]. California American Water and the settling parties are unified in their goal to complete the proposed slant test well Project to provide information that will inform whether it is feasible to use subsurface slant wells as intake sources for the MPWSP.

Subsurface intake wells, including slant wells, are also the preferred desalination intake methodology for multiple state and federal agencies with permitting and/or other regulatory authority over the MPWSP. These include the Commission (see Attachment 5 at 13, 70-72, 74), SWRCB (see Attachment 6 at 4, 6-10, 15, 28), and the National Oceanic and Atmospheric Administration, Monterey Bay National Marine Sanctuary ("MBNMS")(see Attachment 7 at 9, 11). In fact, the MBNMS's *GUIDELINES FOR DESALINATION PLANTS IN THE MONTEREY BAY NATIONAL MARINE SANCTUARY* state clearly and unconditionally that desalination project proponents "should investigate the feasibility of using subsurface intakes [including slant wells] as an alternative to traditional [i.e., open ocean] intake methods," and that is precisely the purpose of the proposed Project. Attachment 7 at 9. The Commission participated in the NOAA Desalination Working Group that was convened to develop an action plan to guide MBNMS's approach to desalination facility review and approval. Attachment 7 at 4, 19. Additionally, the Department of Water Resources recently awarded California American Water a $1,000,000 grant to partially fund the proposed Project, indicating that it "look[s] forward to working with [California American Water] to achieve a successful [slant test well] project in furtherance of water desalination as a viable water supply to meet California's needs." See Attachment 8 at 1.

c. Proposed Project Site

The parties to the settlement described above also agreed that California American Water should, if feasible, locate the slant test well within the active surface mining area of CEMEX, Inc.'s ("CEMEX's") Lapis Road Facility, which is the location of the proposed Project. Attachment 4 at 9. The CEMEX Lapis Road Facility has been used as an active surface mine for more than a century. Attachment 11 at 13, 83, 408. Based on input from the settling parties and numerous state and federal agencies, this location was deemed suitable for a number of reasons, including: geologic conditions; proximity to an existing outfall; and proximity to a potential alternative energy source (a landfill). Attachment 4 at 42.

The site was also selected to reduce the potential for impacts to environmentally sensitive habitat by locating the proposed Project entirely within an active surface mining area. Attachment 4 at 42. The proposed Project has been specifically located within areas of the parcel that already experience heavy levels of disturbance associated with ongoing mining activities and truck traffic. The majority of proposed development would occur within and directly adjacent to an existing access road that is used by heavy equipment and trucks on a daily basis. The access road is unpaved and regularly graded. *See* Attachment 11 at 13, 19-24 (Figures 3 – 3e), 26-27, 30-33, 52-72 for detailed discussion of proposed Project site, identified environmentally sensitive habitat, and how the proposed Project is designed to avoid significant impact to such habitat.

[1] All citations to Attachment page numbers refer to the overlay numbers found at the bottom left of each corresponding Attachment in red text.

CEMEX has agreed to allow California American Water to file applications for the coastal development permits needed to complete the proposed Project. Attachment 9 at 4-5.

III. Application for Coastal Development Permit to City of Marina

On August 23, 2012, California American Water filed an application for the CDP with the City, seeking authorization to construct, temporarily operate, then decommission a slant test well and related monitoring wells and infrastructure. The purpose of the proposed Project is to gather technical data related to the potential hydro-geologic and water quality effects of the proposed MPWSP, and ultimately to determine whether subsurface slant wells are feasible for use as production intake wells at the site. California American Water also filed a coastal development permit application (No. E-11-019) with the Commission for the portions of the slant test well that would be constructed in the Commission's original jurisdiction. If approved, the Project would be completed in a twenty-four to twenty-eight month period, with a maximum of twenty-four months of actual well operation. The slant test well would be constructed in approximately a four month period, and seawater would then be circulated through the well until sufficient data could be gathered. The well would then be shut down and decommissioned.[2] While the current plan is to fully abandon the slant test well in compliance with applicable laws and regulations once data collection is complete, if the results show that use of slant intake wells is feasible and additional approvals are obtained, it is possible that components of the slant test well could be converted into a production well to save expense and reduce environmental impacts of the MPWSP.

a. City of Marina Evaluation of Coastal Development Permit Application

A copy of the City Staff's Report regarding the proposed Project is included as Attachment 10.

In its analysis of the CDP application, the City Staff and outside expert consultants found that the proposed Project was consistent with the City's certified LCP, which is comprised of the Local Coastal Land Use Plan ("LCLUP") and Local Coastal Plan Implementation Plan ("LCPIP"), the latter of which is codified as Marina Zoning Ordinance Chapter 17.41. Attachment 10 at 4. City Staff found that the proposed Project is "both a coastal research and educational use and a coastal-dependent industrial use" for purposes of the LCLUP and the LCPIP. Attachment 10 at 4-5. In keeping with these designations and the requirements of the LCLUP and the LCPIP, the City Staff proposed that the City Planning Commission adopt a series of detailed findings demonstrating how the proposed Project conforms to the standards set forth in the certified LCP. Attachment 10 at 9-14 (Findings 2-5). The City Staff considered and specifically analyzed, among others, the following applicable factors:

- Protection of public access (lateral and from roadway to coastline);
- Restriction of development to disturbed area;

[2] As discussed in detail in Attachment 11 (see. e.g., pages 31, 54), construction and decommissioning activities would be limited to approximately October through February due to the potential presence of protected western snowy plover (*Charadrius nivosus*) during March through September. Should construction or decommissioning not be completed before the western snowy plover return in approximately March 2015, the applicant would like the ability to complete drilling once the plover vacate the site in approximately October 2015.

- Identification and protection of rare and endangered plants and animals and habitat;
- Preservation of views, visibility of project infrastructure from Highway 1 and coastline;
- Protection of public safety and vulnerability to wave erosion;
- Protection of project infrastructure against tsunami and other coastal hazards;
- Identification and mitigation of any significant environmental effects; and
- Minimization of grading and roadway construction.

Attachment 10 at 9-14 (Findings 2-5).

With respect to the public access policies set forth in the Coastal Act, the City Staff found that:

> *The proposed project will be located on private property. No activity will take place on the beach and lateral beach access will not be restricted. The slant test well insertion point and wellhead vault would be situated approximately 450 feet inland of mean sea level. During construction and decommissioning of the project there will be 7 to 15 construction crew onsite with drilling rigs, trucks, cranes, forklift, excavators and other equipment. During the operational testing phase of the project the slant test well, wellhead vault and almost all other project infrastructure would be located below surface, with disturbed surface areas re-contoured and restored to as close to their original condition as possible.*

Attachment 10 at 10 (Finding 3(a)).

As Lead Agency for purposes of the California Environmental Quality Act ("CEQA"), the City Staff and outside CEQA experts prepared an Initial Study and Mitigated Negative Declaration ("IS/MND"), a copy of which is included (together with its own Appendices A-E) as Attachment 11. As part of the CEQA process, the City Staff consulted the following Responsible Agencies: the Commission; MBNMS; Central Coast Regional Water Quality Control Board; Monterey Bay Unified Air Pollution Control District; Monterey County Environmental Health Bureau, Drinking Water Protection Services Unit; California State Lands Commission; Monterey Regional Water Pollution Control Agency; and the United States Fish and Wildlife Service. Attachment 11 at 34. The City Staff and outside CEQA experts, the Sierra Club, and each of the Responsible Agencies, agreed that the proposed Project "had the potential to result in significant adverse effects on the environment, but that any such effects could be avoided or reduced to a less than significant level through project design modifications and development and implementation of feasible mitigation." Attachment 11 at 10. The City also circulated a draft of the IS/MND for public review and comment, and responded to each of the eight written comments it received. Copies of the eight "agency comment" and one "non-agency comment" letters that the City received, as well as the City Staff's responses to those comments, can be found at pages 42-114 of Attachment 10.

The City Staff prepared and recommended that the City Planning Commission adopt a resolution certifying the IS/MND and approving the CDP. Attachment 10 at 7-14.

b. Actions by the City of Marina Planning Commission and City Council

The City Planning Commission held a public hearing July 10, 2014. After consideration, the City Planning Commission declined to certify the IS/MND and neither approved nor denied the CDP. California American Water appealed the City Planning Commission's action to the City Council.

The City Council held a public hearing to consider the appeal on September 3, 2014 and a continued public hearing on September 4, 2014. At the conclusion of the hearing, the City Council declined to follow City Staff's recommendation, and approved (on a 3-2 vote) a resolution: (1) rejecting the IS/MND; and (2) denying the CDP. Attachment 12 at 2.

Neither the City Planning Commission nor the City Council made any findings regarding the proposed Project's consistency with the certified LCP or the public access policies set forth in the Coastal Act.

IV. Conclusion

Because the proposed Project conforms to the standards set forth in the City's certified LCP and the public access policies set forth in the Coastal Act, the Commission should grant California American Water's request for the CDP. Issuing the CDP would allow completion of a critical test well program that will further the policies and interests of numerous State and Federal agencies, and will help ensure protection of the critical Carmel River ecosystem while addressing the significant water supply crisis that the Monterey Peninsula is facing. As described above, the proposed Project has broad support among State agencies and environmental organizations, and would help inform decision-making on critical statewide water supply questions.

APPENDIX A

Substantive File Documents

California American Water, Appeal of City of Marina Denial of CDP, September 2014.

California American Water, Application for Coastal Development Permit 9-14-1735.

California American Water, Application to California Public Utilities Commission for Approval of the Monterey Peninsula Water Supply Project and Authorization to Recover All Present and Future Costs in Rates, April 2012.

City of Marina, Final Local Action Notice and accompanying documentation, September 2014.

City of Marina, Draft Initial Study/Mitigated Negative Declaration, May 2014.

Geoscience Support Services, Inc., *Monterey Peninsula Water Supply Project Hydrogeologic Investigation: Technical Memorandum (TM1) Summary of Results – Exploratory Boreholes*, prepared for California-American Water and RBF Consulting, July 8, 2014.

Monterey Bay National Marine Sanctuary, *Draft Environmental Assessment*, June 2014.

Monterey Bay National Marine Sanctuary, *Finding of No Significant Impact*, October 2014.

SWCA Environmental Consultants, *Environmental Assessment for the California American Water Slant Test Well Project*, prepared for Monterey Bay National Marine Sanctuary, June 2014.

Marina Coast Water District (MCWD)
Attachment

Scenario A

CAL-AM'S TOTAL WATER PORTFOLIO OPTIONS with 100% CDO Compliance and Meeting 2016 Actual Demand

Beginning January 1, 2022

All amounts are in Acre Feet per Year unless a percentage	NO MPWSP	6.4 MGD desal	9.6 MGD desal
Carmel River Legal Limit	3,376	3,376	3,376
Seaside Adjudicated Supply*	1,474	774	774
Sand City Desal Plant (300 AFY capacity)**	230	230	230
ASR Phase 1 & 2***	1,920	1,920	1,920
GWR	3,700	3,700	3,700
Alternate Water Sources (Alt Water)****	-	-	-
6.4 MGD Desal Plant		7,167	
9.6 MGD Desal Plant			10,750
Total Water Supply Available	10,700	17,167	20,750
2016 demand	9,285	9,285	9,285
Water Supply Reserve Margin	1,415	7,882	11,465
Reserve Margin Percentage (10% assumed needed)	15.2%	84.9%	123.5%

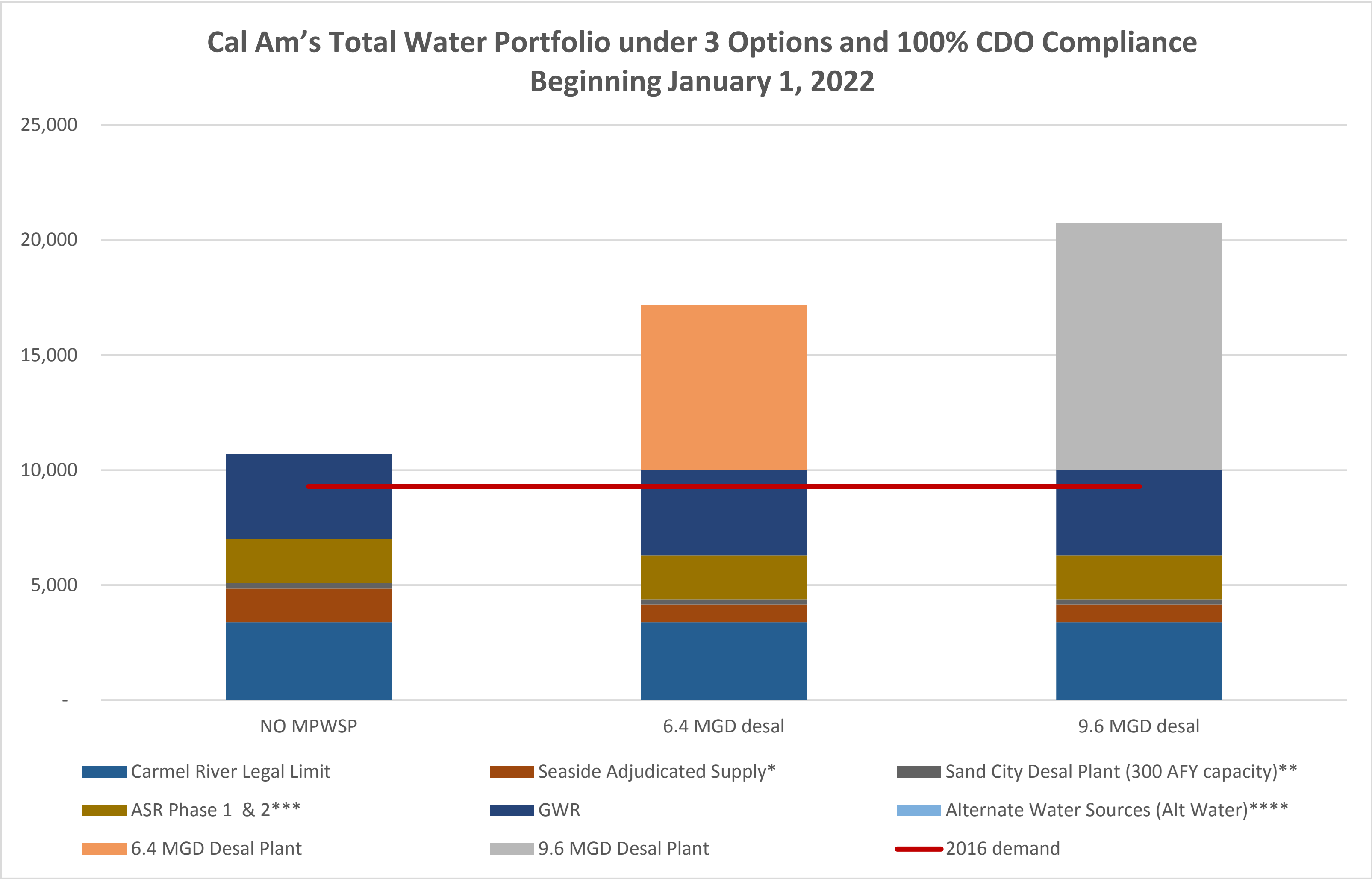
*For NO MPWSP, assumes that CAW's 700 AFY in annual payback for Seaside Basin overpumping is met by CalAm paying the Seaside Watermaster to purchase 700 AFY of GWR advanced treated water from MCWD for delivery to MCWD customers within Adjudicated Basin

**From DEIR/DEIS page 5.4-7

***MPWMD states combined Phase 1 and 2 yield of 1,970 AFY; however, the SWRCB's average annual yield of 1,920 AFY is being used here. CAW uses an ASR Average Annual Yield of only 1,300.

****Alternate Water Sources can consist of additional GWR water, ASR water, Salinas River stormwater capture, small desalination plant, etc.

Marina Coast Water District (MCWD)
Attachment



Marina Coast Water District (MCWD)
Attachment

Scenario B

CAL-AM'S TOTAL WATER PORTFOLIO OPTIONS with 100% CDO Compliance + 2016 Demand + PB Water Entitlements + Legal Lots of Record + 25% Hospitality Industry Rebound

Beginning January 1, 2022

All amounts are in Acre Feet per Year unless a percentage	NO MPWSP	6.4 MGD desal	9.6 MGD desal
Carmel River Legal Limit	3,376	3,376	3,376
Seaside Adjudicated Supply*	1,474	774	774
Sand City Desal Plant (300 AFY capacity)**	230	230	230
ASR Phase 1 & 2***	1,920	1,920	1,920
GWR	3,700	3,700	3,700
Alternate Water Sources (Alt Water)****	1,305	-	-
6.4 MGD Desal Plant		7,167	
9.6 MGD Desal Plant			10,750
Total Water Supply Available	12,005	17,167	20,750
2016 demand + PB Water Entitlements + LOR + 25% Hospitality Industry Rebound	10,915	10,915	10,915
Water Supply Reserve Margin	1,090	6,252	9,835
Reserve Margin Percentage (10% assumed needed)	10.0%	57.3%	90.1%

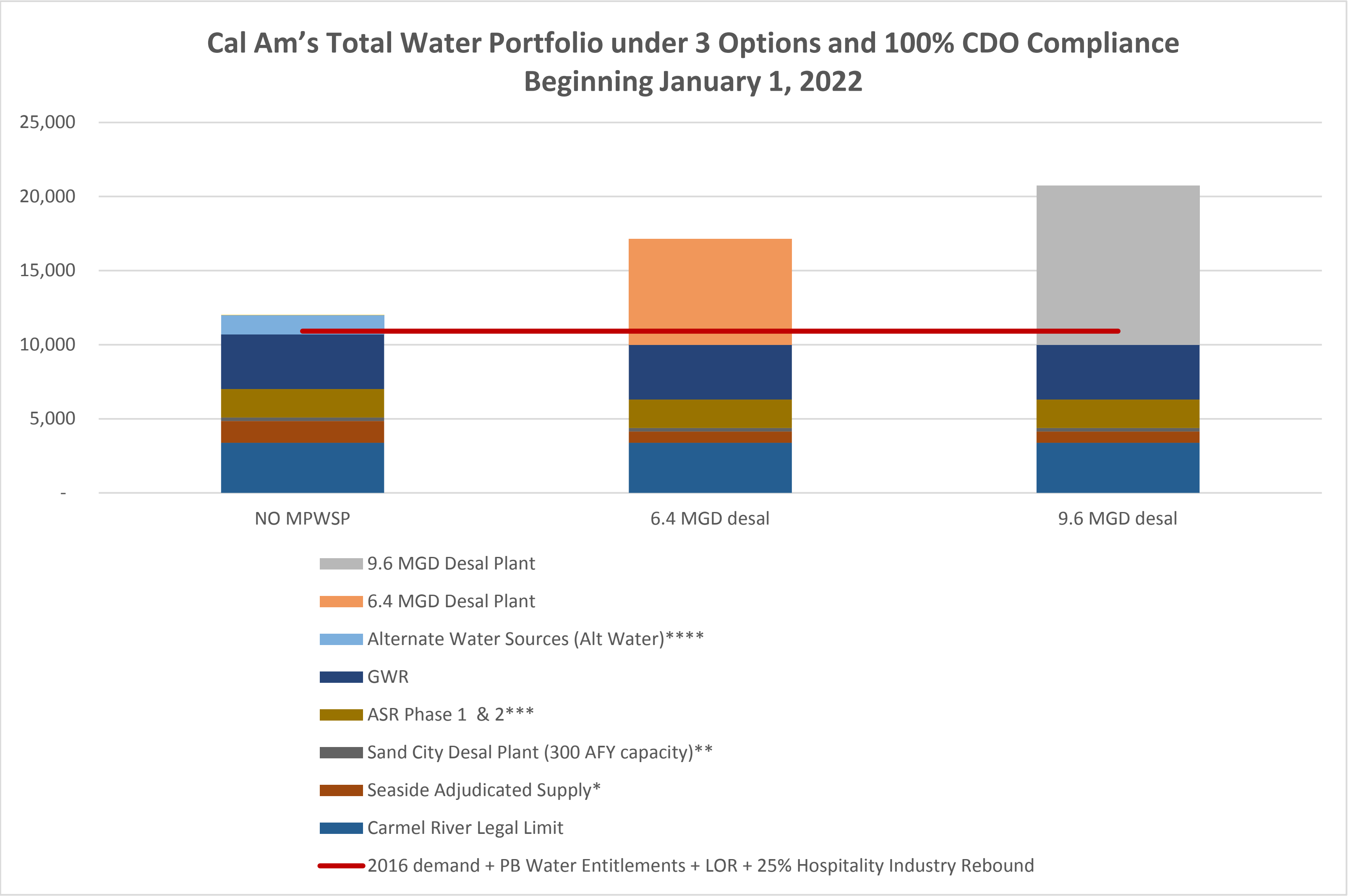
*For NO MPWSP, assumes that CAW's 700 AFY in annual payback for Seaside Basin overpumping is met by CalAm paying the Seaside Watermaster to purchase 700 AFY of GWR advanced treated water from MCWD for delivery to MCWD customers within Adjudicated Basin

**From DEIR/DEIS page 5.4-7

***MPWMD states combined Phase 1 and 2 yield of 1,970 AFY; however, the SWRCB's average annual yield of 1,920 AFY is being used here
CAW uses an ASR Average Annual Yield of only 1,300.

****Alternate Water Sources can consist of additional GWR water, ASR water, Salinas River stormwater capture, small desalination plant, etc.

Marina Coast Water District (MCWD)
Attachment



Resume

HOPKINS GROUNDWATER CONSULTANTS

Curtis J. Hopkins
Principal Hydrogeologist

EDUCATION:

B.A. Geological Sciences, University of California Santa Barbara, 1986
Credential in Ground Water Science, Ohio State University, National Water Well Association, 1991

QUALIFICATIONS:

Professional Geologist, California No. 5695
Certified Engineering Geologist, California No. EG1800
Certified Hydrogeologist, California No. HG 114

EXPERIENCE:

Mr. Hopkins has over 27 years of experience as the manager and/or lead investigator of groundwater development projects. These projects include groundwater basin resource availability and management studies, artificial recharge and recovery programs, brackish and saline groundwater supply development studies for desalination projects, and forensic groundwater studies utilizing isotope geochemistry and surface geophysical methods. Mr. Hopkins' technical experience has focused on constructing groundwater models, providing well design and well construction specifications for public bid, and directing construction management for numerous production and injection well projects. His work throughout central and southern California has included hydrogeologic study in coastal areas where seawater intrusion into aquifer systems is a significant concern and impacts of groundwater extractions and/or the design of abatement programs must be considered.

Mr. Hopkins has served as an expert witness and provided technical support for cases involving well construction disputes, impacts from groundwater pumping, groundwater management, water quality impacts, and water rights issues. He has provided responsible hydrogeologic services for numerous water resource projects that include groundwater development and monitoring programs, and basin safe yield studies in both fractured bedrock and sedimentary basin aquifer systems. He has extensive experience in conducting aquifer tests and performing data analysis to determine aquifer parameters and groundwater supply availability. Mr. Hopkins' has considerable experience evaluating well performance and the suitability of rehabilitation and/or redevelopment options to cost effectively repair or increase production in aging wells.

Before focusing his education on groundwater resources, Mr. Hopkins was a geophysical technician and conducted borehole geophysical surveys for Water Well Surveys and subsequently, Westech Geophysical, of Ventura California. During his 2-1/2 years with Westech, he operated geophysical exploration equipment and provided field interpretation of borehole and cased hole geophysical logs that were conducted for production, injection, and monitoring well projects. Mr. Hopkins' also worked on numerous water well rehabilitation or redevelopment projects for aging wells with structural problems or declining production.

Hopkins Groundwater Consultants, Inc. was incorporated in August 2001. The following project list is partly experience gained by Mr. Hopkins, while working over

Resume

HOPKINS GROUNDWATER CONSULTANTS

Curtis J. Hopkins

Principal Hydrogeologist

the previous 14 years (1987 to 2001) with his former employer, Fugro West, Inc.

Santa Paula Basin Technical Advisory Committee, Professional Support to City of San Buenaventura (2009 to Present). Participate in TAC meetings and TAC Working Group Technical evaluations of the Santa Paula Groundwater Basin conditions and historical changes in basin conditions. Contribute technical review of annual basin conditions reports submitted to the Court, and provided a study of historical changes in the Santa Paula Basin that contribute to long-term water level variations.

Foster Park Well Field Water Supply Master Plan, City of San Buenaventura, Ventura River Basin. Project manager and lead investigator for evaluation of the City of Ventura Foster Park well field located in the Upper Ventura River alluvial groundwater basin. A detailed study of the historical river supply was conducted and included construction of a Modflow groundwater flow model to estimate the potential to discontinue use of the City surface diversion structure and produce the entire river supply from a well field. Existing well facilities were evaluated and tested to determine their structural condition, production potential, aquifer properties, and future well placement alternatives. The findings of the study concluded the City could produce the historical supply from wells and provided potential well construction locations. This study was performed in conjunction with design engineering provided by Kennedy Jenks Consultants.

City of Santa Paula Water System Master Plan, Santa Paula and Fillmore Basins. Project manager and lead investigator for evaluation of the City of Santa Paula well field located in the eastern Santa Paula groundwater basin. Conducted a detailed study of the historical municipal supply and provided an update of anticipated groundwater conditions in the basin that would affect the proposed City scheme of water and wastewater treatment. The study developed an understanding of water quality and well yields that could be obtained from the shallow, intermediate, and deep aquifer zones. Existing well facilities were evaluated to determine their structural condition, production potential, aquifer properties, and the anticipated remaining service life of each well facility. The findings of the study concluded that a failure of Well 12 would virtually render 1 of the 2 City water treatment plans inoperable. In addition, the study estimated the frequency of well rehabilitation requirements and projected the timing for future well construction. The findings of the study were incorporated in the comprehensive master plan and utilized to develop the City's water system capitol improvements and operations budgets. This study was performed in conjunction with design engineering provided by Boyle Engineering Corporation.

City of Santa Paula Municipal Groundwater Supply Wellfield Alternatives Study, Santa Paula Basin. Project manager and lead investigator for evaluation of the City of Santa Paula well fields located in the eastern Santa Paula groundwater basin and evaluated the adequacy of the produced water quality to meet the proposed City water and wastewater treatment strategy. The findings of the study concluded the City could produce the required low chloride groundwater supply from

Resume

Curtis J. Hopkins

Principal Hydrogeologist

wells located east of Santa Paula Creek. The study also prioritized well facility needs in the existing wellfield locations.

City of Camarillo Groundwater Production Alternatives and Well Siting Study, Pleasant Valley Basin. Project manager and lead investigator for evaluation of the City of Camarillo well fields located in the northern Pleasant Valley Groundwater Basin and evaluated the adequacy of the produced water quality to meet the proposed City water supply strategy. The findings of the study concluded the City could produce substantially more groundwater in the vicinity of its northern most wellfield, but the quality of produced groundwater was superior at its southern wellfield location. Both locations were subject to the Fox Canyon Groundwater Management Agency ordinance.

Northeast Pleasant Valley Basin Surface Water and Groundwater Study, Calleguas Municipal Water District. Project manager and lead investigator for evaluation of the groundwater conditions in the northeastern Pleasant Valley Groundwater Basin. The study evaluated the effluent dominated source of recharge to the basin from the Arroyo Las Posas/Calleguas Creek flows. The study documented the gradual degradation in produced water quality during the approximate 200-foot rise in groundwater levels, which occurred over an approximate 10-year period.

City of Oxnard Blending Station No. 3 Well Site Relocation Project and Emergency Aquifer Storage and Recovery Project, Oxnard Plain Basin. Project manager and lead investigator for evaluation of the groundwater conditions in the Oxnard Plain Groundwater Basin for establishment of a municipal supply. The study evaluated the hydrogeology in the northeast area of the City and determined 4 wells could be constructed on the same site into the Oxnard Aquifer, Mugu Aquifer, and upper Hueneme Aquifer zones without mutual interference impacts during pumping. Hopkins provided subsequent well construction inspection services and summarized the production potential and aquifer condition encountered by each well. Provide professional development and oversight of City emergency ASR program utilizing Well No. 29, which was designed for this purpose in the upper Hueneme Aquifer. The program conducted successful operations of storage and subsequent recovery of 1,200 acre-feet of imported water supply from Calleguas Municipal Water District.

Well Site Evaluation, Groundwater Supply Development Project, Alameda County Flood Control and Water Conservation District, Zone 7 Water Agency. Contract Manager and lead investigator for groundwater development project. Zone 7 is increasing its capability to produce groundwater for emergency supply and drought period shortfalls. The groundwater expansion project incorporates seasonal groundwater injection, storage, and extraction of surplus surface water supplies. Test wells were constructed to obtain water quality data and aquifer parameters that were used to estimate well design capacities and provide well interference analyses. Six well sites in the Pleasanton/Livermore area were evaluated to determine the suitability of the aquifer system for proposed groundwater development.

Resume

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Principal Hydrogeologist

Reclaimed Water Injection/Extraction Alternatives, Las Virgenes Municipal Water District. Contract Manager and lead investigator for development of groundwater conjunctive use options considered in an environmental impact assessment for LVMWD Malibu Creek Discharge Avoidance Study. The project included the conceptual design and study of groundwater injection and extraction options that would prevent discharge to Malibu Creek and augment the reclaimed water supply to balance with peak summer demands. Mr. Hopkins evaluated groundwater quality impacts, aquifer storage capacities, and operational limitations of proposed injection/extraction facilities for each of the viable groundwater alternatives. This study was performed in conjunction with design engineering provided by Boyle Engineering Corporation.

Saline Groundwater Supply Study, Cooperative Desalination Study, Central Basin Municipal Water District. Project Manager and lead investigator for the study managed by the Central Basin District on behalf of the City of Long Beach Water Department, Metropolitan Water District of Southern California, Southern California Edison Company (SCE), Water Replenishment District of Southern California (WRD), and West Basin Municipal Water District. Mr. Hopkins developed conceptual project alternatives for producing saline groundwater to supply raw water to a desalination facility to be located at the SCE Los Alamitos Generation Station in Long Beach. The study included installation and testing of demonstration wells and a canal infiltration assessment to model the multiple aquifer system beneath the site. The comprehensive model evaluated the amount of infiltration that could be induced from groundwater production located between the SCE ocean water intake canals and the San Gabriel River, and assessed the impacts on the WRD groundwater injection barrier (for seawater intrusion). This study was performed in conjunction with design engineering provided by Black and Veatch.

Hydrogeological Evaluation of Groundwater Supply Alternatives for the Integrated Water Plan Project EIR, City of Santa Cruz. Project manager and lead investigator for the evaluation of impacts of the groundwater production scenarios in the coastal Purisima Formation aquifer system. The study evaluated the impacts of continued operation of the Beltz well field in a historically manner that varied annually based on climatic conditions. Annual production ranged from 30 to 1,200 acre-feet per year and impacts evaluated included subsidence, seawater intrusion, depletion of storage, well interference, and surface water body or stream depletion. This study was performed in conjunction with the project environmental planning study provided by EDAW.

North Coast Brackish Groundwater Desalination Project and Hydrogeologic Evaluation of Groundwater Supply Alternatives, City of Santa Cruz. Project manager and lead investigator for the evaluation of brackish groundwater in a coastal bedrock aquifer system for use as a raw water supply to a desalination facility. Subsequent redirection of this project expanded the scope to include hydrogeologic evaluation of all the coastal groundwater supply options available to the City. Each option was evaluated to determine the water quality, seasonal

Resume

Curtis J. Hopkins
Principal Hydrogeologist

availability, safe yield, and extraction facility requirements. This study was performed in conjunction with design engineering provided by Carollo Engineers.

North Las Posas Basin Aquifer Storage and Recovery Demonstration Project, Groundwater Supply Investigation, Metropolitan Water District of Southern California and Calleguas Municipal Water District. Project manager and lead investigator of the hydrogeologic assessment of aquifer conditions used in a comprehensive study and conceptual design of a 250,000 acre-foot groundwater injection and storage project. The comprehensive data review and summary of the Las Posas Groundwater Basin conditions were used to recommend the optimal location of the proposed injection well field and identify existing wells that were appropriate for immediate injection pilot testing. This study was performed in support of a comprehensive conceptual program study provided by CH2MHILL.

Desalination Water Supply Study, Saline Groundwater Alternative, City of San Buenaventura. Project manager and lead investigator for a coastal groundwater study to assess the technical feasibility of using saline groundwater wells to provide a feed water supply for a desalination facility. Test wells were constructed at three locations along the City beach to provide data to assess groundwater quality issues, aquifer properties of the beach sands, and allow flow modeling of groundwater production scenarios. Production scenarios incorporated a shoreline collection system of multiple well points and radial collector wells with horizontal screens that would extend offshore beneath the surf zone. This study was performed in conjunction with design engineering provided by Boyle Engineering Corporation.

Desalination Water Supply Study, Saline Groundwater Alternative, City of Santa Cruz. Principal in charge and lead investigator for a coastal groundwater study to assess the technical feasibility of using saline groundwater produced from shoreline well facilities as feed water for a desalination plant. A detailed study of the coastal hydrogeology was performed to develop a preliminary understanding of the production potential. Production scenarios included a shoreline collection system of multiple well points and/or radial collector wells with horizontal screens that would extend offshore beneath the surf zone. The findings of the study indicated that the required supply could not be provided from conventional coastal wells or lateral collector wells along the shore. This study was performed in conjunction with design engineering provided by Carollo Engineers.

City of Santa Paula Well Facility Siting Study. Project manager and lead investigator for evaluation of potential well sites located within and proximate to the City boundary. The study provided a detailed evaluation of over 30 potential well sites and rated and ranked the sites with criteria developed to identify site suitability. The findings of the study concluded the City should construct wells in three different locations to maintain a stable supply until construction of the proposed water softening/treatment facility. The study also scored the well sites in each wellfield location and identified the highest ranking sites that would provide the greatest benefits to the City water system.

Resume

Curtis J. Hopkins

Principal Hydrogeologist

City of Ventura Well Rehabilitation Projects; Saticoy Well No. 2, Victoria Well No. 2, and Nye Well No. 7. Hopkins conducted a well conditions review study, developed a well repair and rehabilitation program and project specifications for solicitation of contractor bids, and provided construction management inspection services for a 400-foot deep well, 2,000 gpm capacity (Saticoy Well No. 2, included swage patch repair and cement seal prior to rehabilitation), 1,200-foot deep well 3,000 gpm capacity (Victoria Avenue Well No. 2), and 75-foot deep 1,500 gpm capacity (Nye Well No. 7, included installation of a stainless steel liner during rehabilitation).

Well Rehabilitation Projects. Hopkins conducted well conditions review studies, developed well repair and rehabilitation programs and prepared technical specifications for solicitation of contractor bids, and provided construction management inspection service for numerous municipal water supply well projects. Well repair methods have included reperforation of the original well casing and installation of well liners and swage patches. Well rehabilitation methods utilized for each well is unique based on specific well conditions and included chemical (acid wash treatments), mechanical (brushing, bailing, swabbing, and jetting), detonation, and hydraulic well redevelopment methods. Well rehabilitation services were provided for clients that include: **Crestview Mutual Water Company**; Well No. 5 (1,400-foot deep well, 1,000 gpm capacity); **City of Santa Cruz**; Beltz Well Nos. 8 and 9 (200-foot deep wells, 800 gpm capacity); **Del Norte Mutual Water Company**; Greenhill Well No. 10 (1,200-foot deep well, 600 gpm capacity); **City of South Gate**; Well No. 27 (900-foot deep well, 1,500 gpm capacity) and Well No. 25 (1,300-foot deep well, 2,500 gpm capacity); **United Water Conservation District**; PTP Well No. 2 (1,100-foot deep well, 1,800 gpm capacity) and El Rio Well No. 11 (300-foot deep well, 2,500 gpm capacity); **City of Modesto** FMC Well No. 6 (270 feet deep well, 1,500 gpm capacity); **Willdan/Morongo Band of Indians** Morongo Well No. 5 (450 feet deep well, 1,200 gpm capacity); **City of Santa Paula**; Well No. 12 (700 feet deep well, 2,000 gpm capacity); **County of Ventura**; Well Nos. 2, 15, 95, 96, 97, and 98 (depths of up to 1,500 feet and capacities in the range of 1,000 to 1,800 gpm); **Hiji Brothers**; Freidrick Well No. 4, Kotaki Well No. 1, Montoalvo Well, Round Mountain, and Cawelti Wells (400- to 900-foot deep wells, 600 to 1,200 gpm capacities); **Grether Farming Company**: Rancho Roberto Well No. 2, Rancho Medio Dia Well No. 3 (1,000 and 1,400-foot deep wells, 600 to 1,200 gpm capacities).

Well Siting, Design, Specifications Preparation, and Construction Management of Water Supply Wells for Municipal Water Agencies. Clients included the cities of San Buenaventura, Oxnard, Santa Barbara, and Santa Cruz; County of Ventura; United Water Conservation District; Las Virgenes Municipal Water District; Alameda County Zone 7 Water Agency; and Carpinteria County Water District. Conduct well siting studies to determine optimal well locations and provide construction manager for municipal well projects in both fractured bedrock and sedimentary basin aquifer

Resume

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Principal Hydrogeologist

systems. Well construction methods used for test hole and/or final well completion include cable tool, direct air rotary, dual-air rotary (casing advancement), air hammer, direct and reverse circulation mud rotary drilling methods. Well design capacities range up to 4,000 gpm with completion depths of over 1,200 feet.

TECHNICAL ADVISORY GROUPS

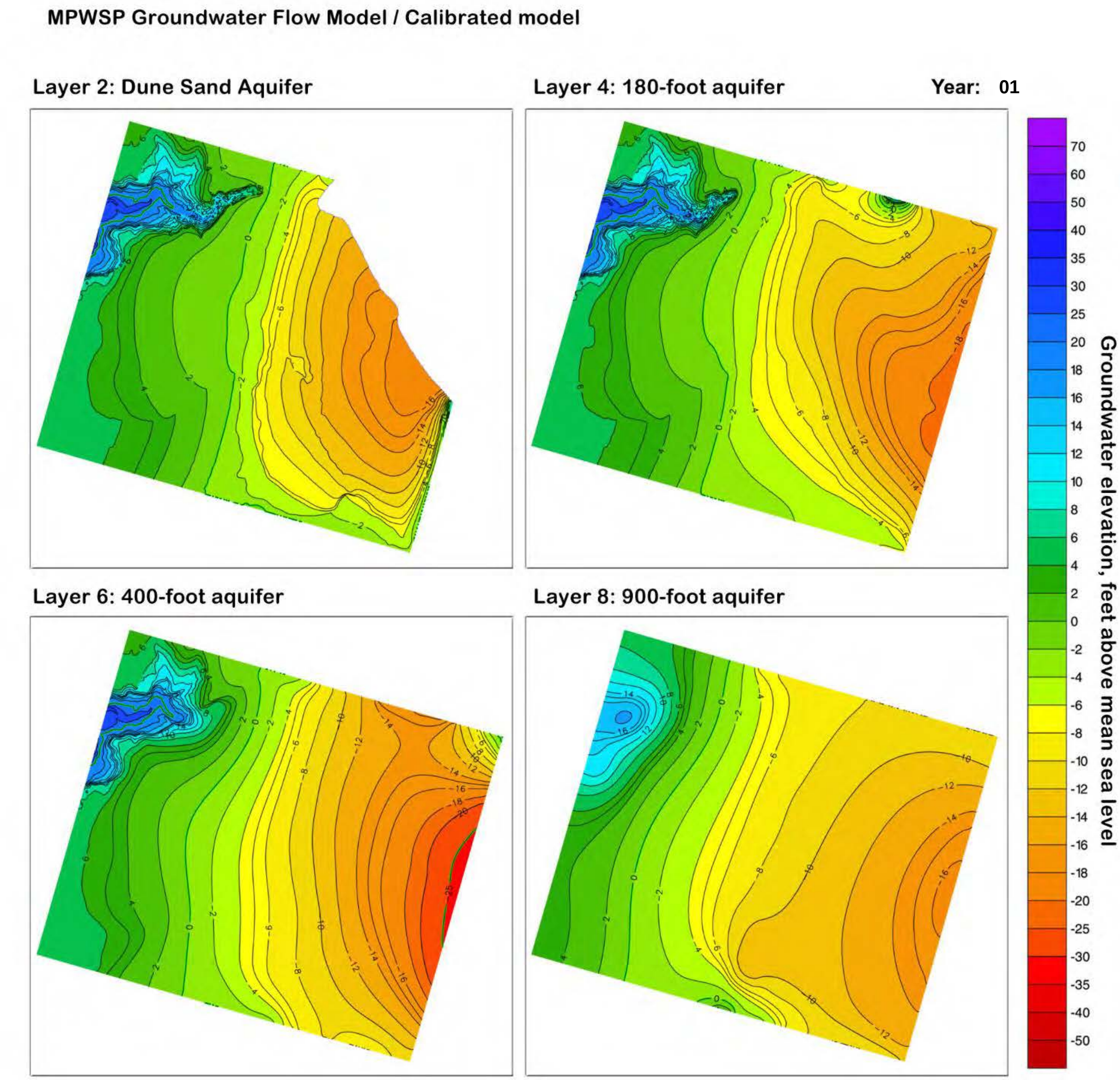
Antelope Valley Well Technical Advisory Committee, Los Angeles County Department of Public Works, Waterworks Division, Lancaster California. Provided professional advice on the technical aspects of the County well construction specifications being used in the Antelope Valley. Meetings were conducted between February and May 2008.

Fox Canyon Groundwater Management Agency, Technical Advisory Group, Ventura, California. Provide professional, review, analysis, and advice on the technical issues related to ongoing groundwater management agency strategies to achieve groundwater basin management objectives (2008 to 2010).

PROFESSIONAL AFFILIATIONS:

American Public Works Association
American Water Works Association
Association of California Water Agencies
Association of Ground Water Scientists and Engineers
Association of Water Agencies of Ventura County
California Groundwater Association, Technical Division
Channel Counties Water Utilities Association
Coast Geologic Society
Groundwater Resources Association of California

Appendix 1
Groundwater Surfaces Exported from the 2016 NMGWM after each Year of the 32-Year Simulation Period


MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 01
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
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18
16
14
12
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8
6
4
2
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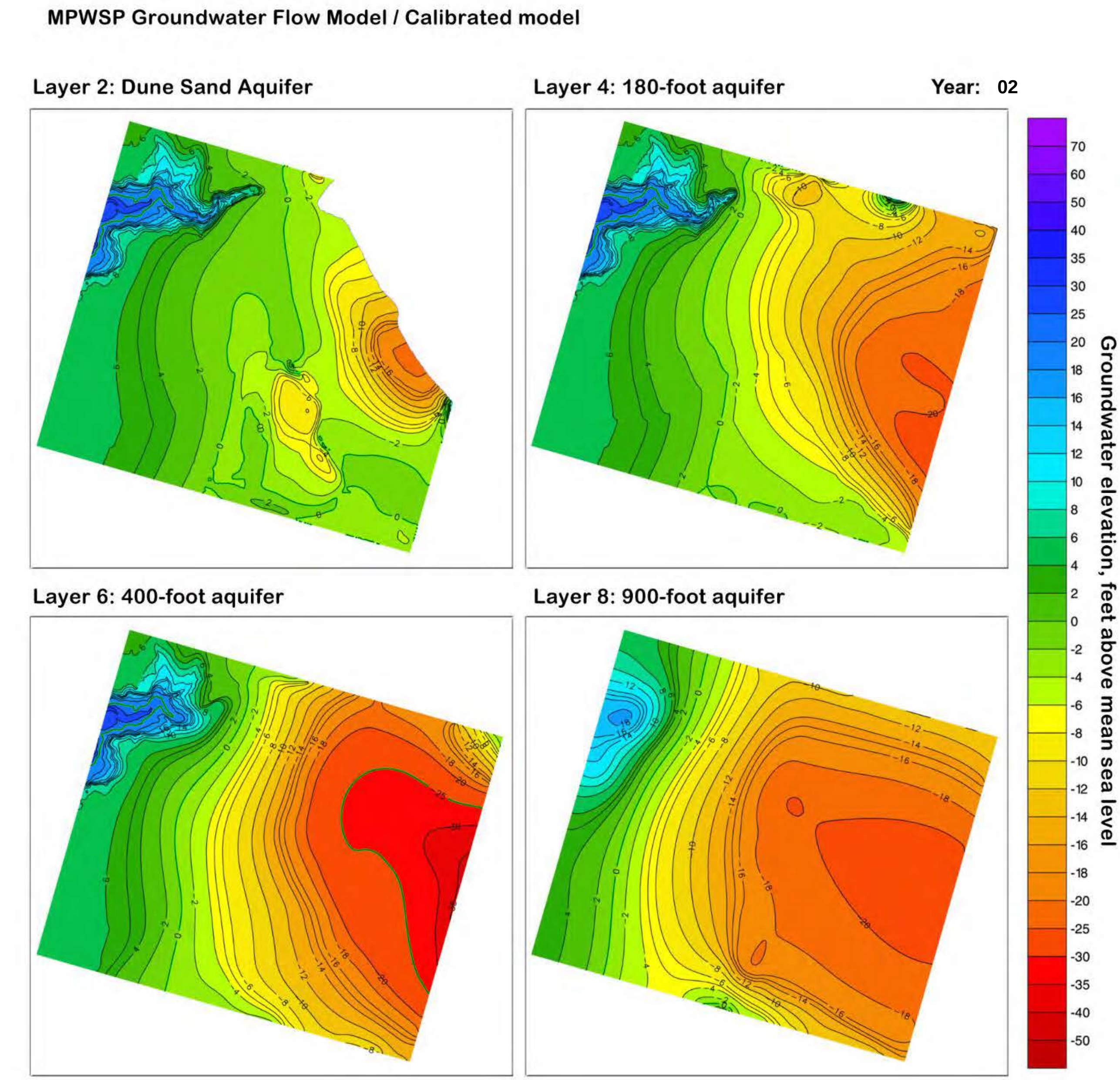
MPWSP Groundwater Flow Model / Calibrated model
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Layer 4: 180-foot aquifer
Year: 02
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
0
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-25
-30
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-40
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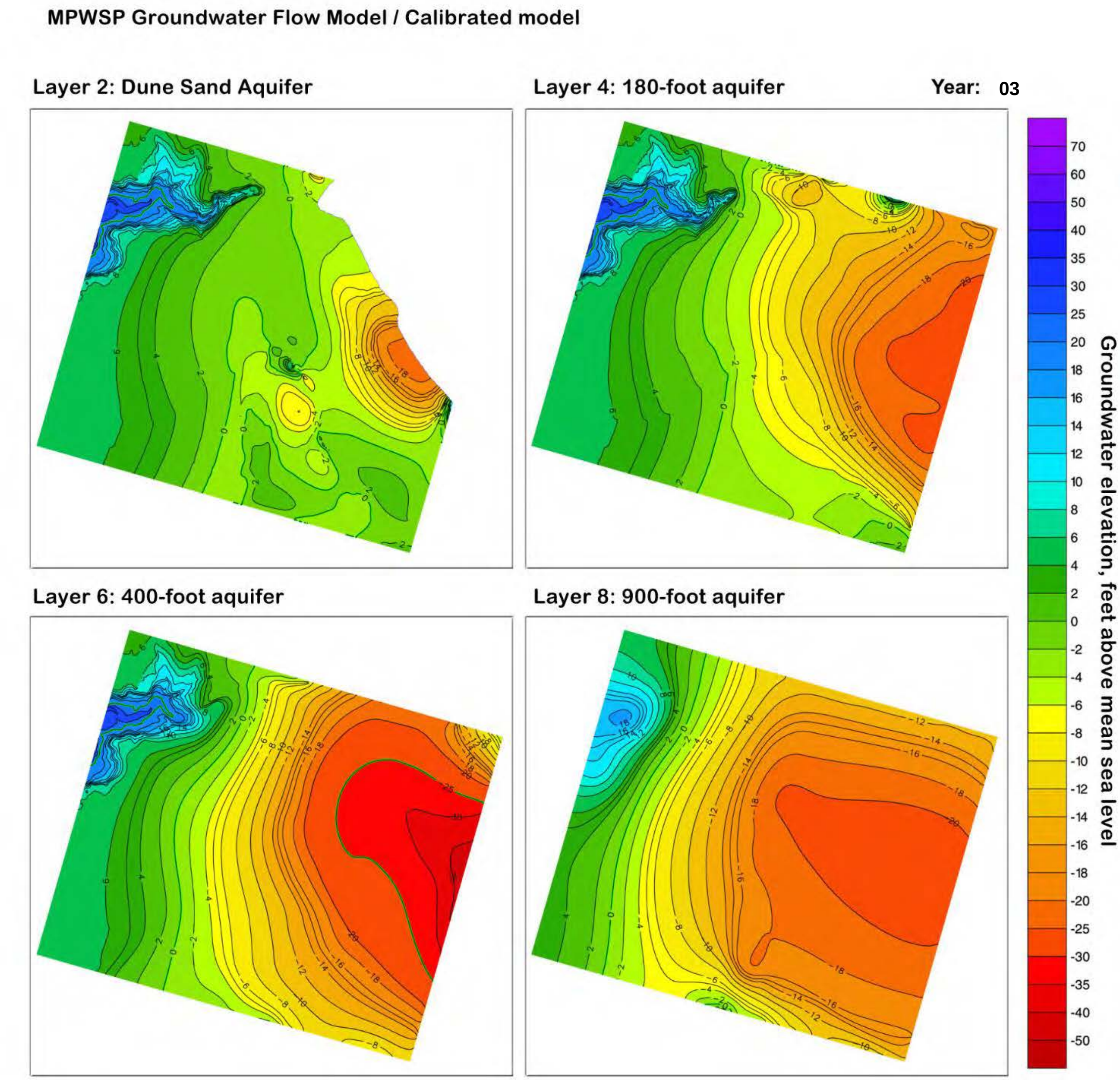
MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 03
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
0
-2
-4
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-16
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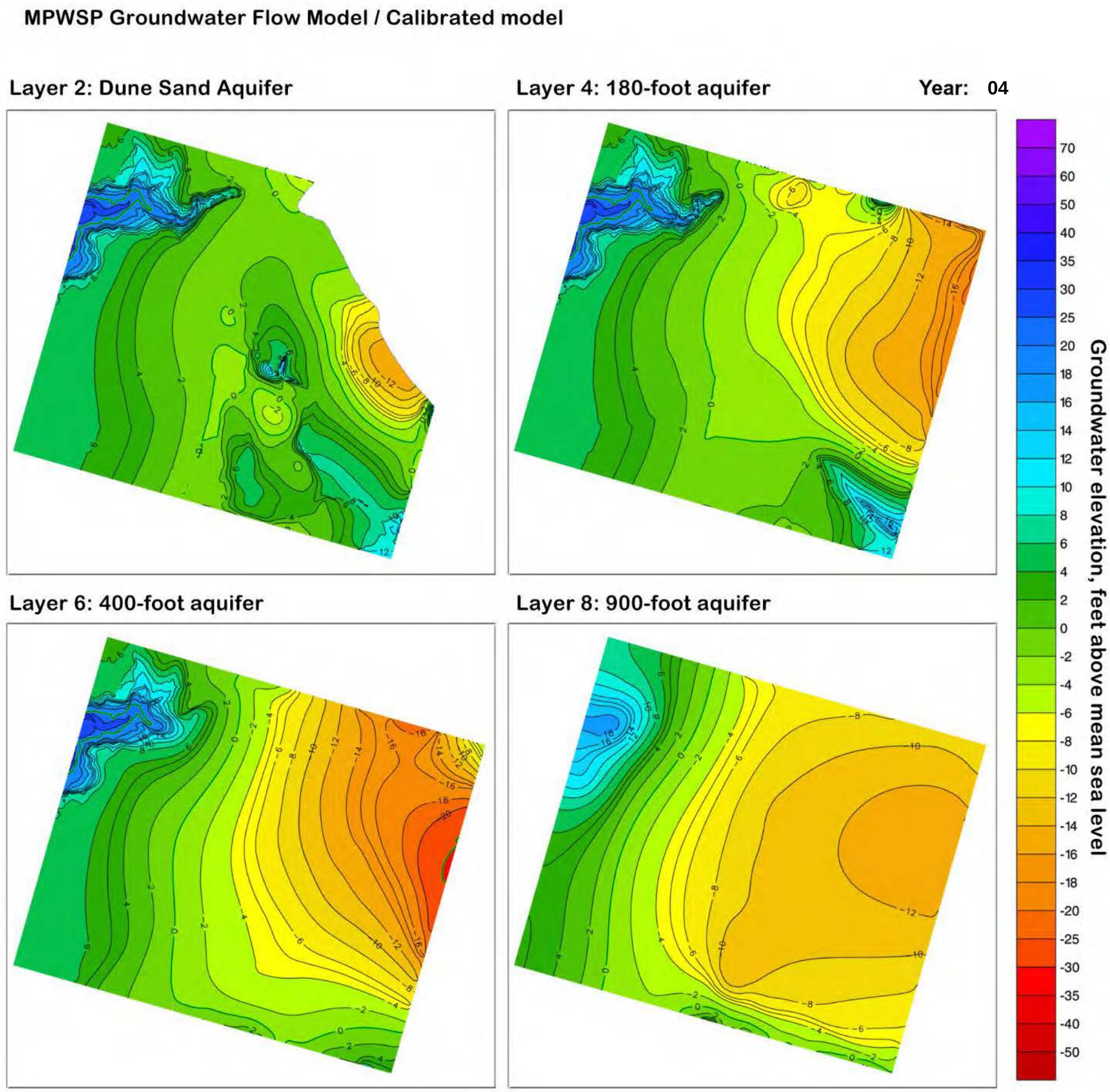
-25
-30
-35
-40
-50


MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 04
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
70
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30
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18
16
14
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6
4
2
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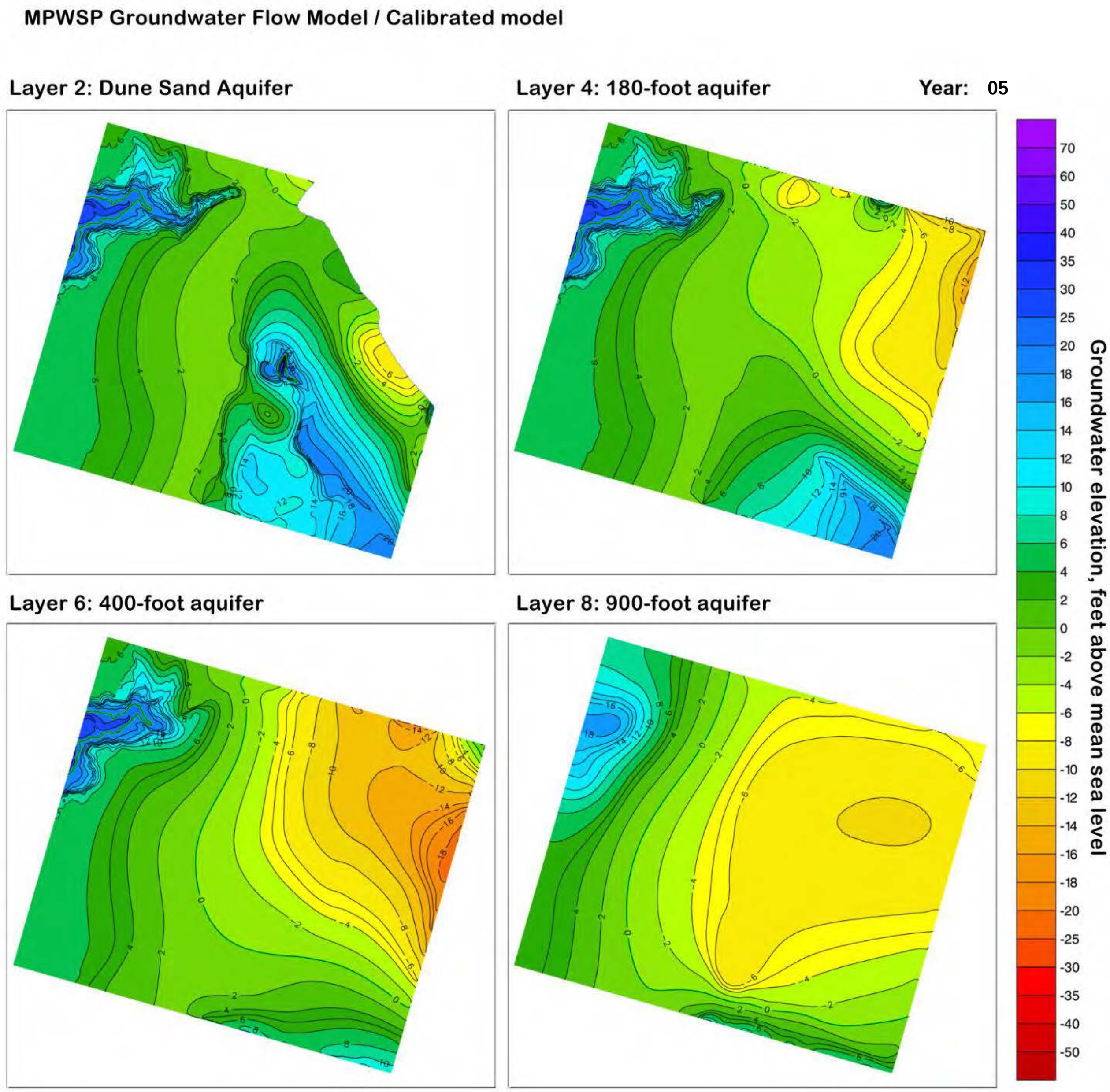
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-25
-30
-35
-40
-50
Groundwater elevation, feet above mean sea level


MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 05
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
70
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25
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18
16
14
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8
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4
2
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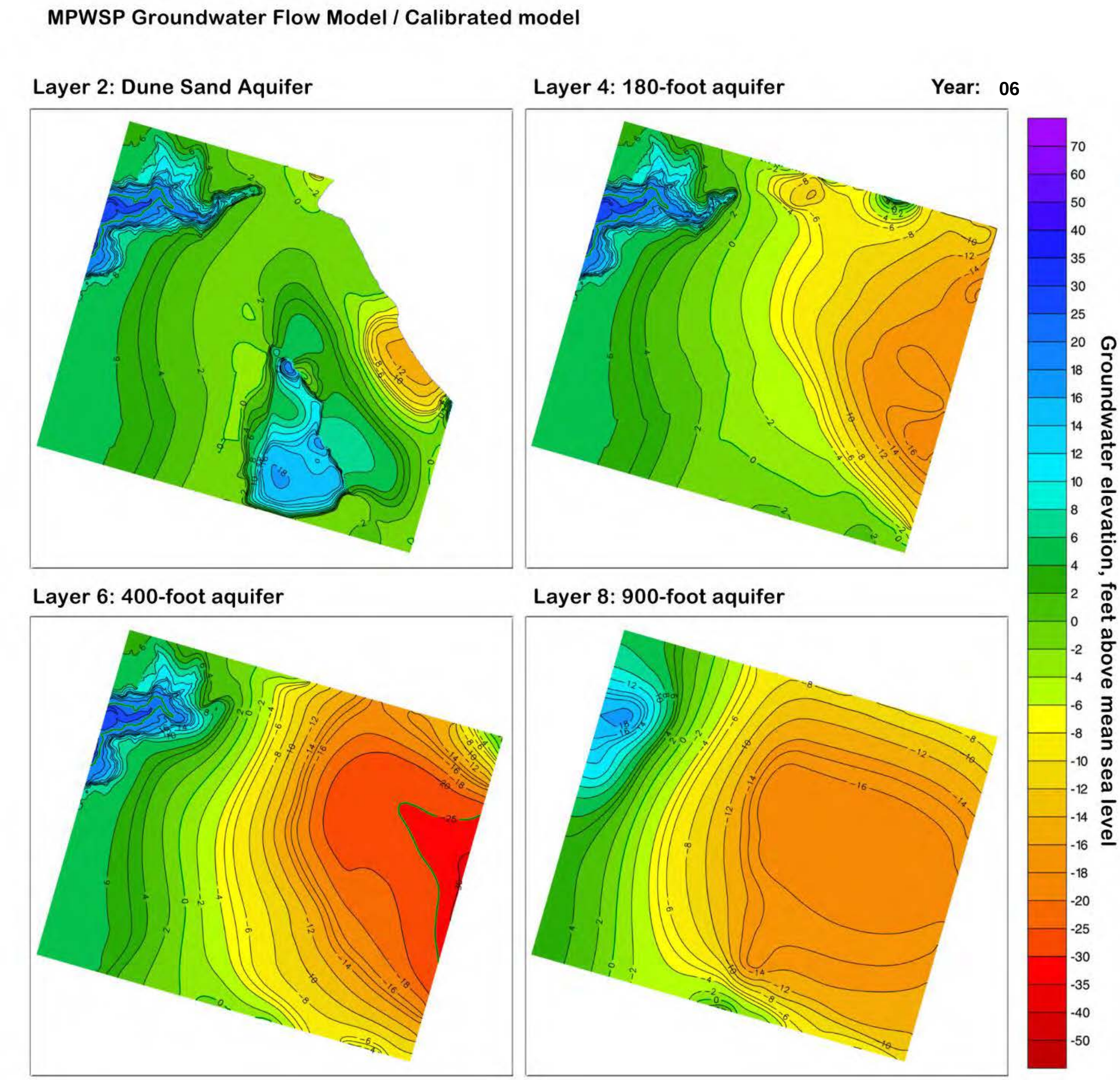
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-25
-30
-35
-40
-50
Groundwater elevation, feet above mean sea level


MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 06
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
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18
16
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12
10
8
6
4
2
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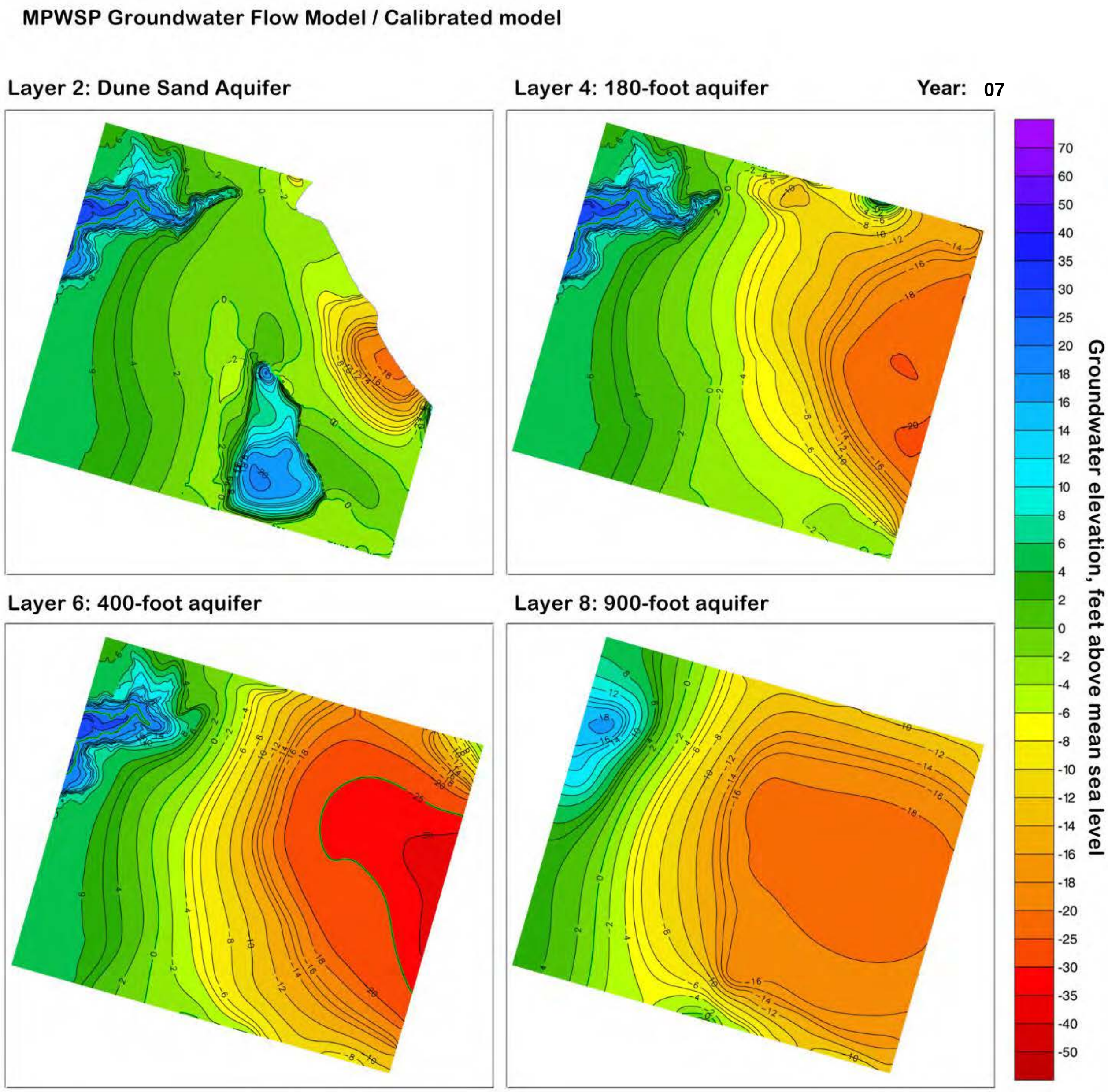
MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 07
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
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25
20
18
16
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12
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8
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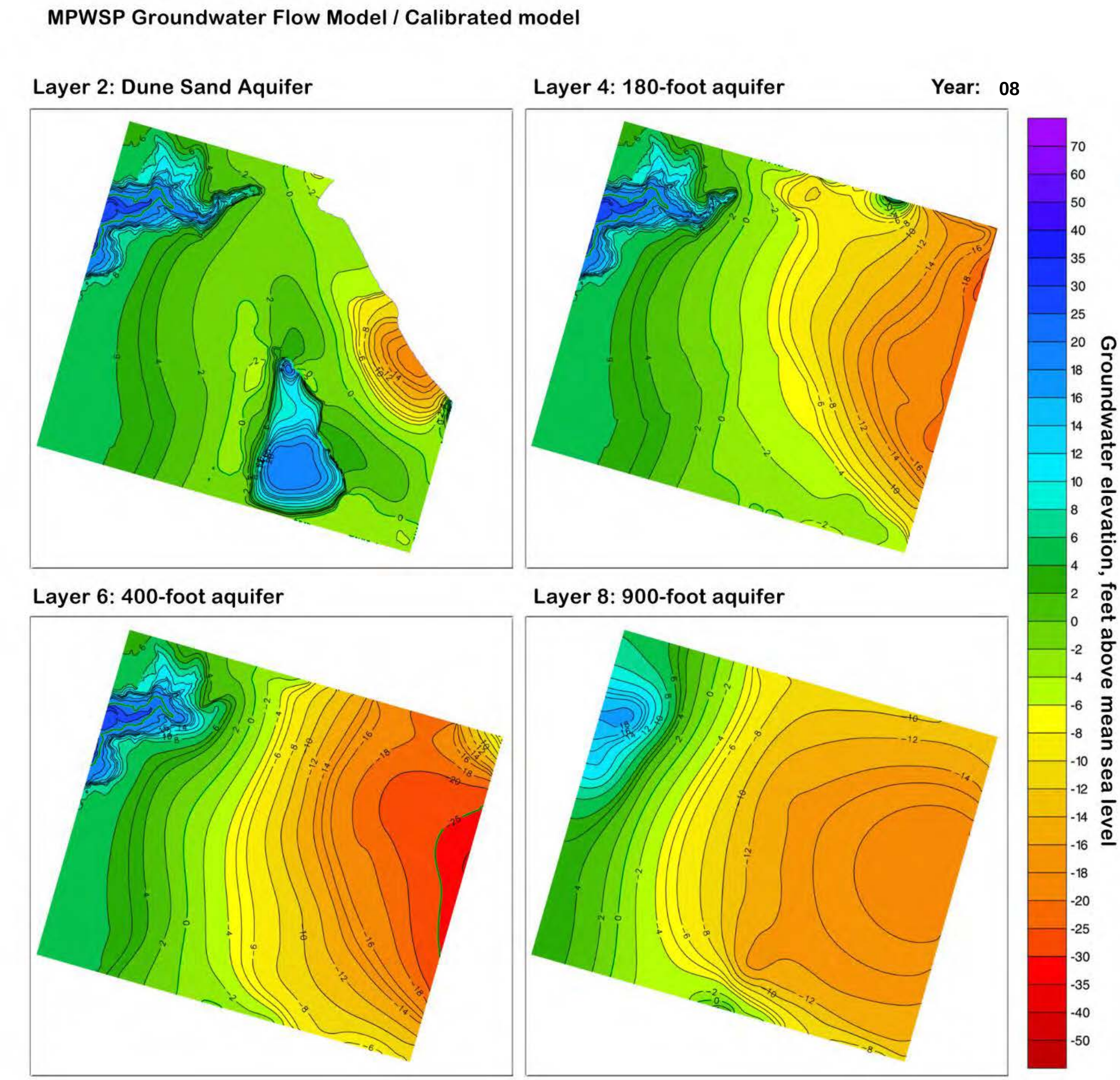
MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 08
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
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18
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12
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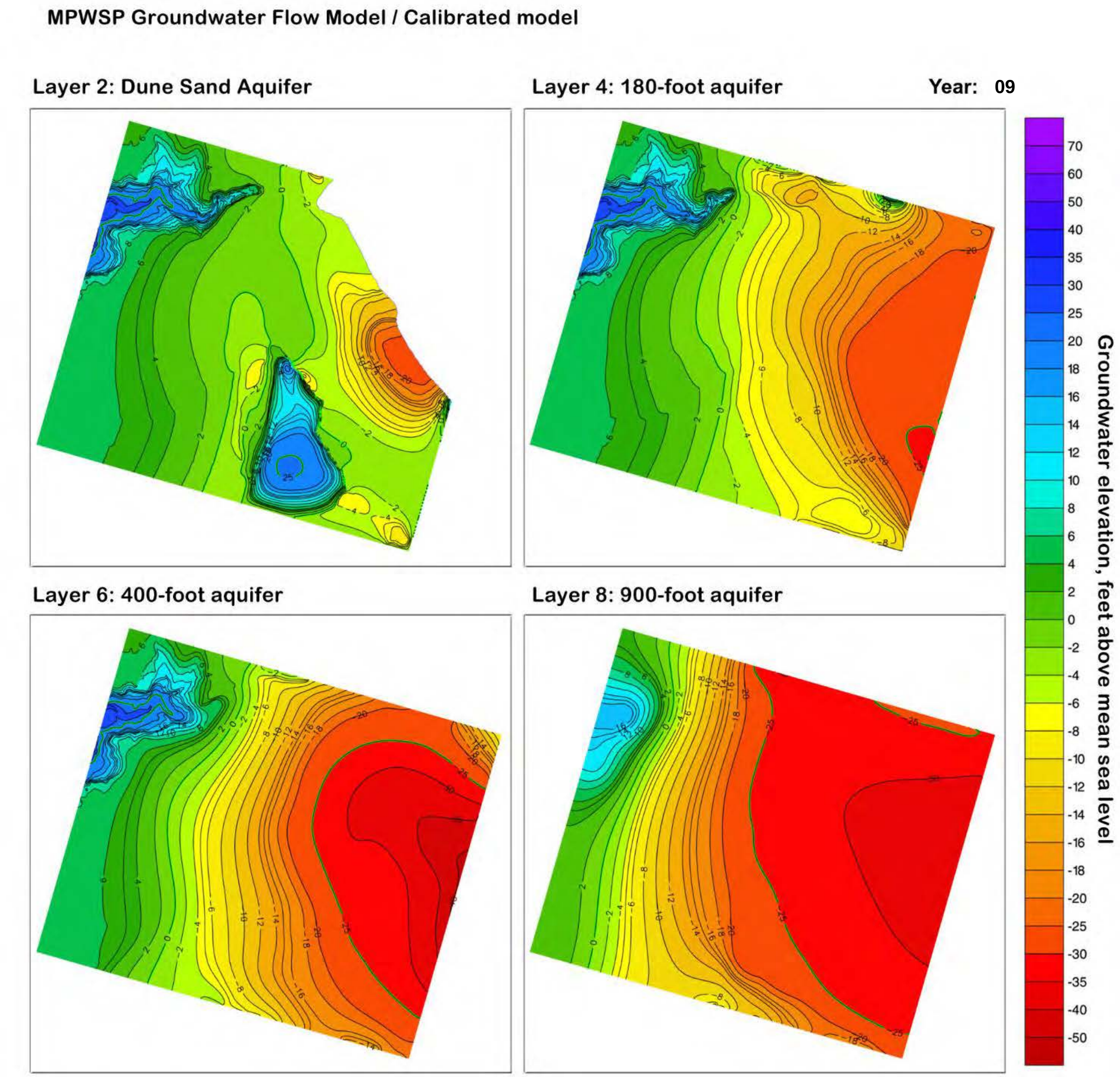
MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 09
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
70
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50
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25
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18
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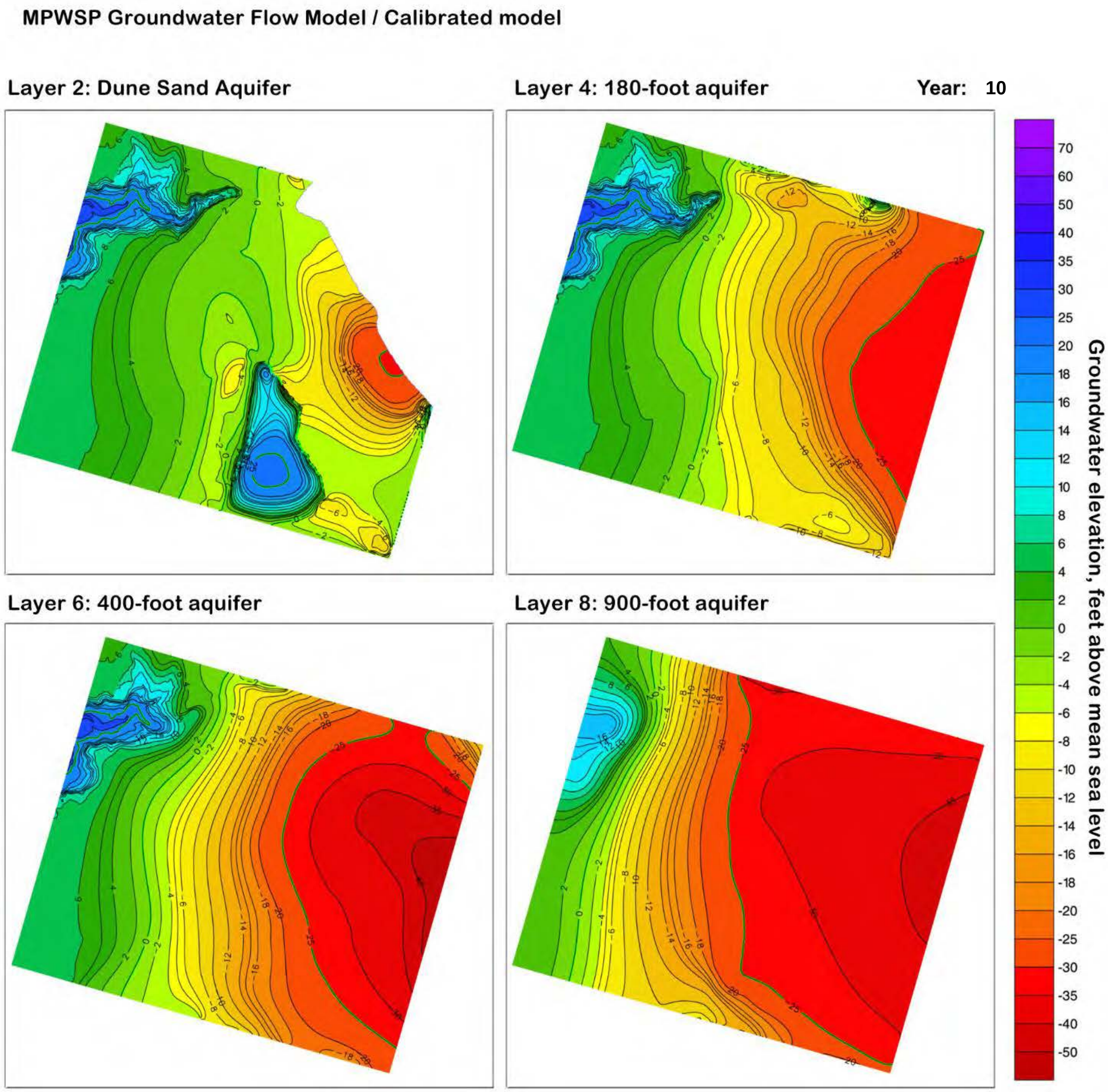
-50
Groundwater elevation, feet above mean sea level


MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 10
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
70
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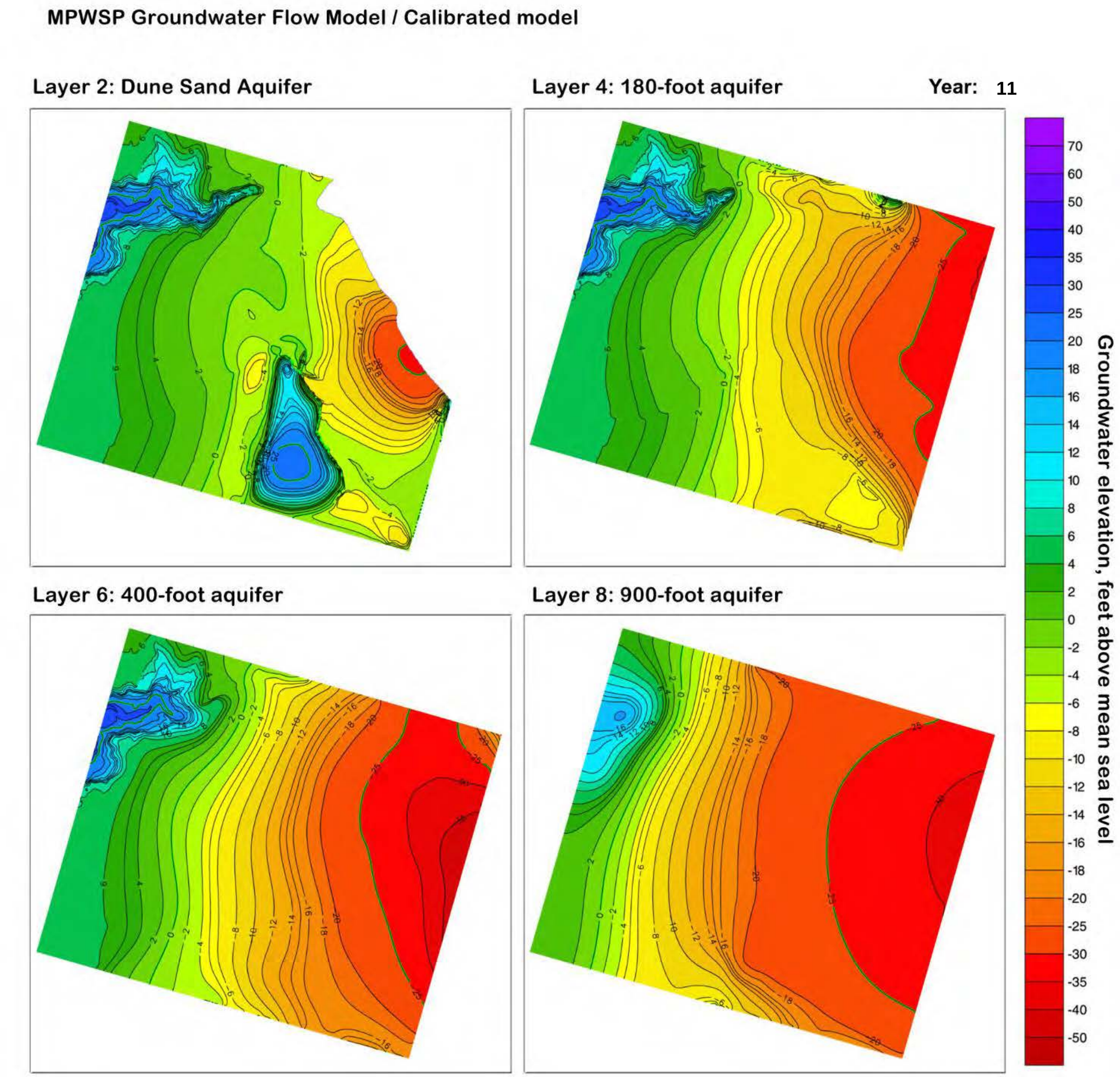
Groundwater elevation, feet above mean sea level


MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 11
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
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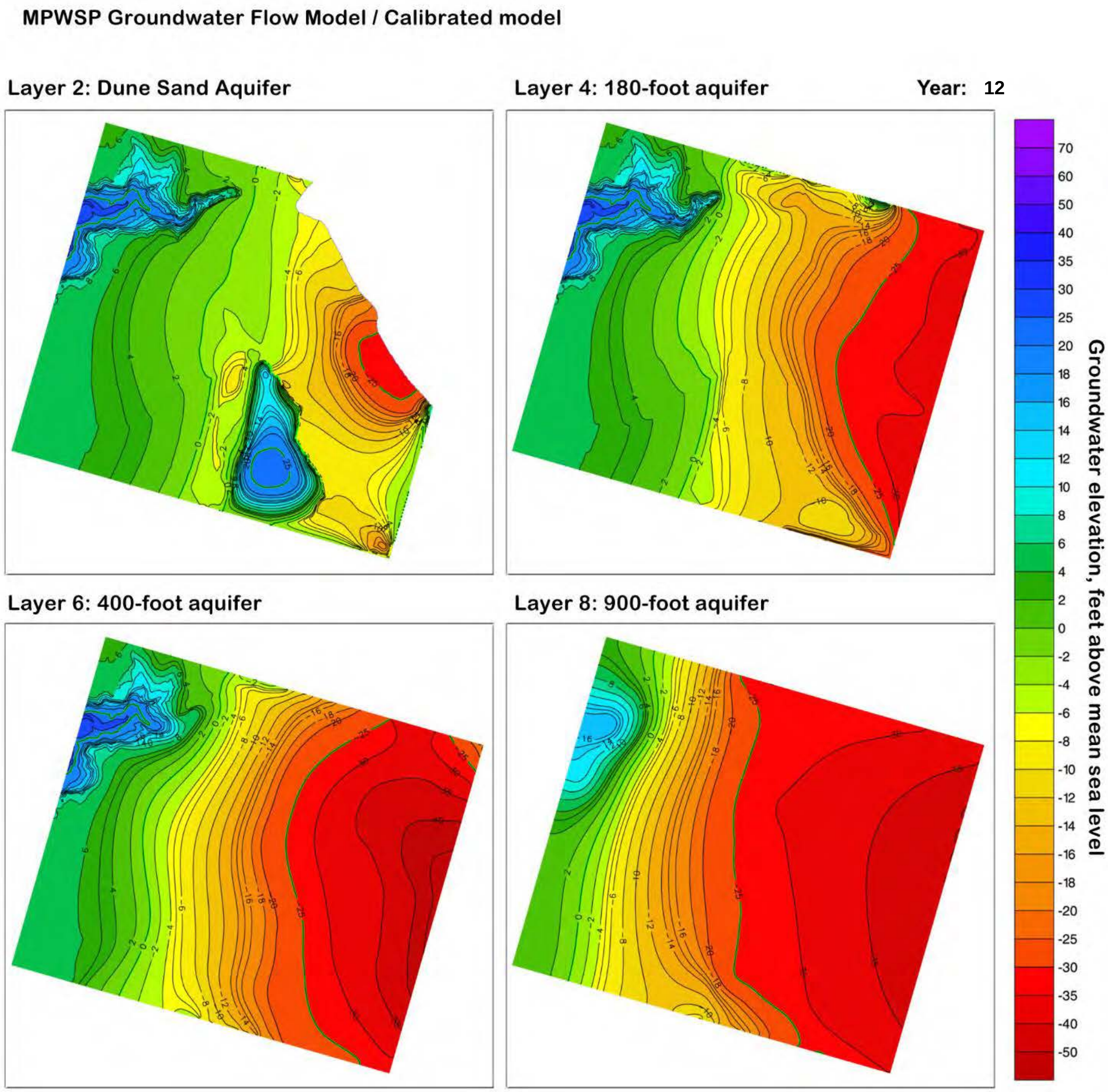
MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 12
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
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35
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18
16
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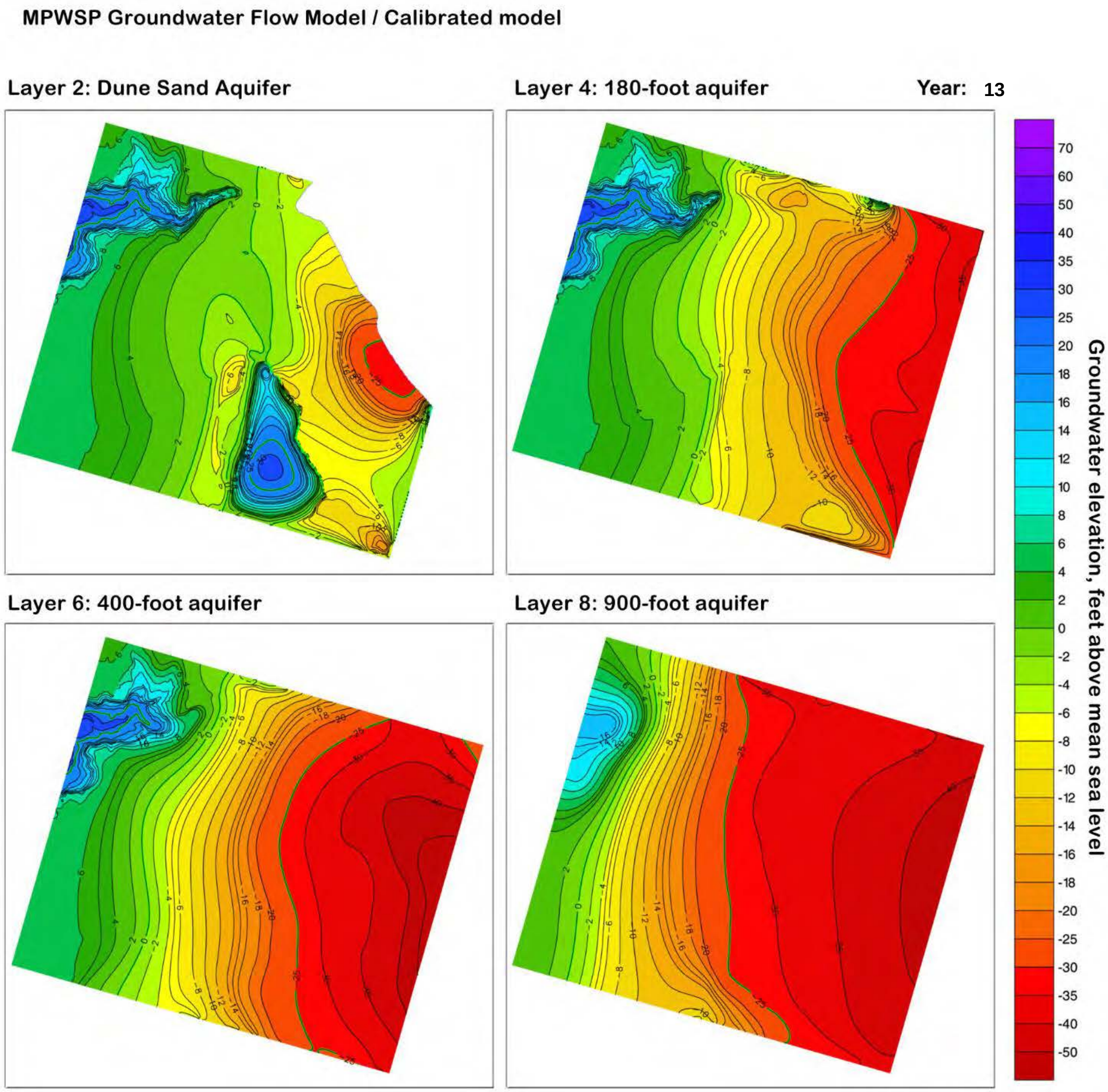
MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 13
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
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18
16
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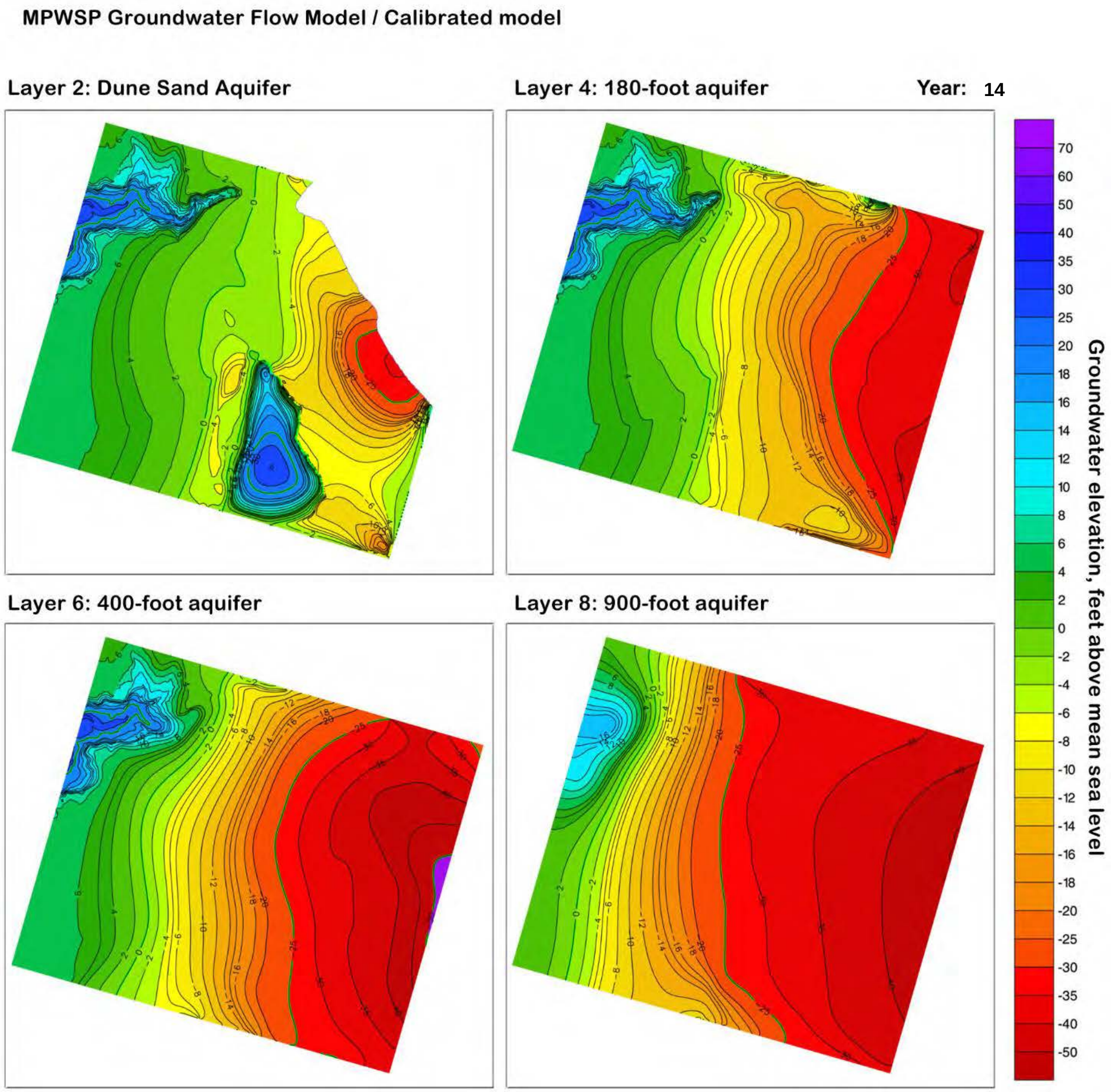
MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 14
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
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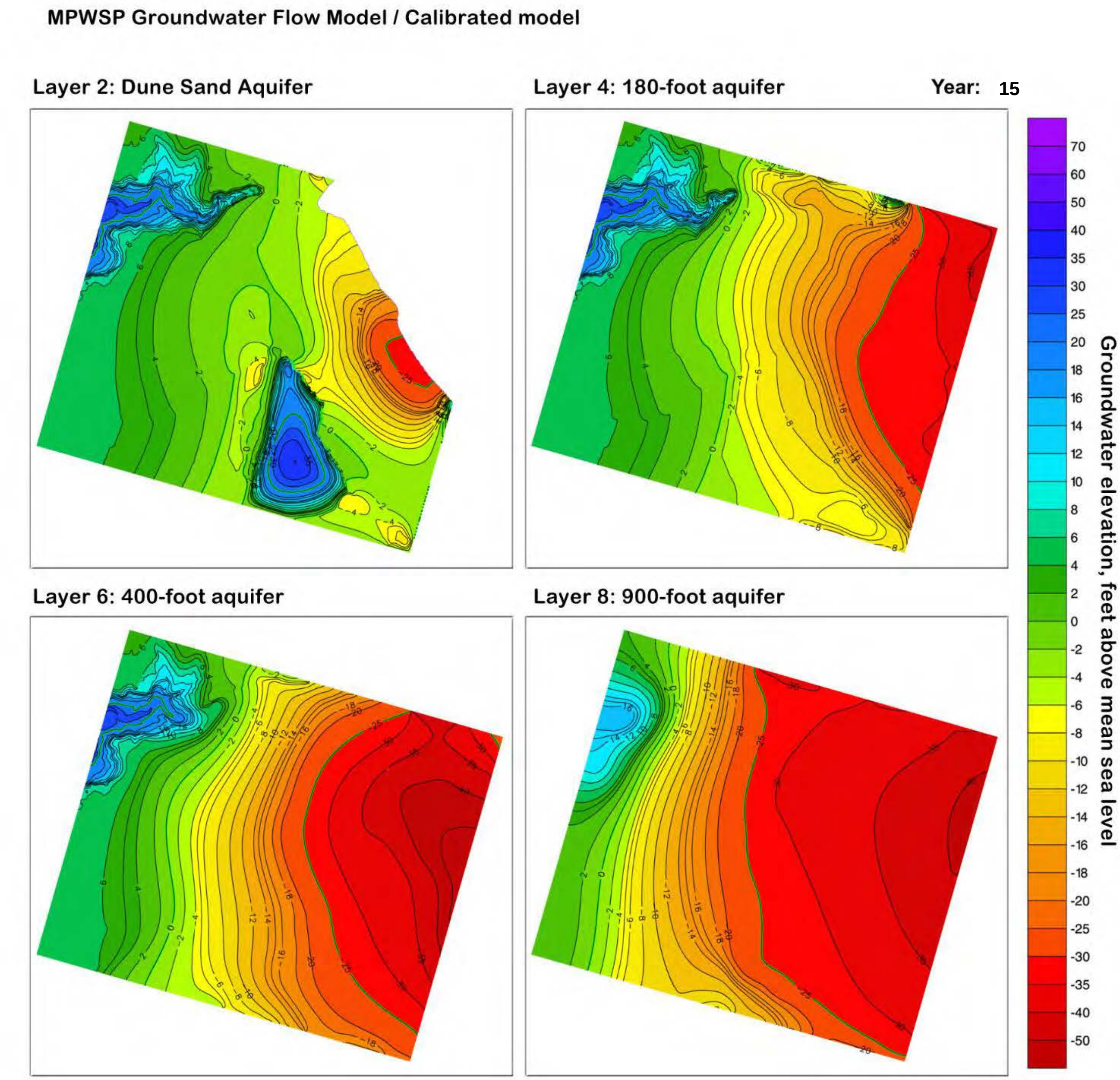
MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 15
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
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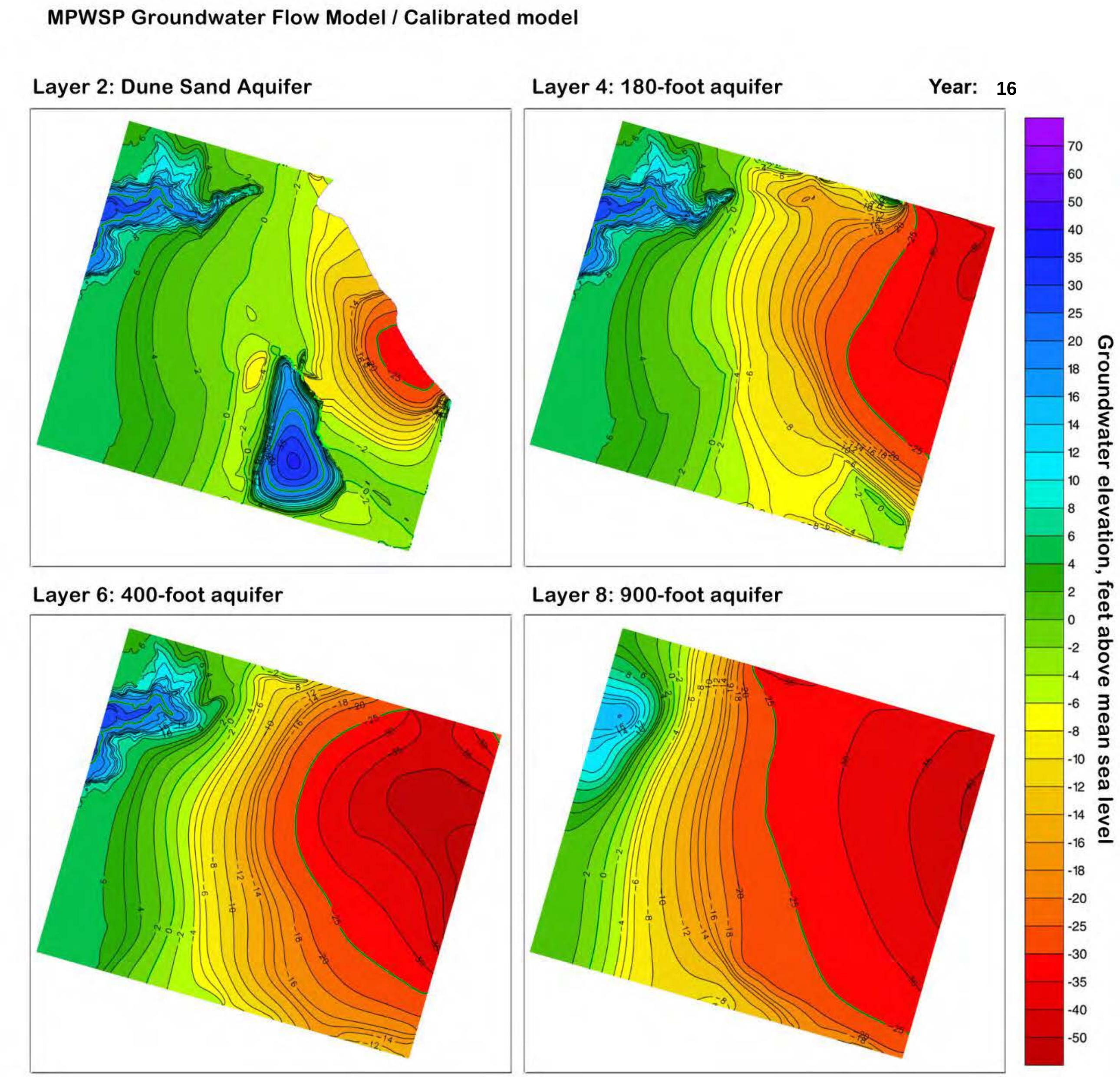
MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 16
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
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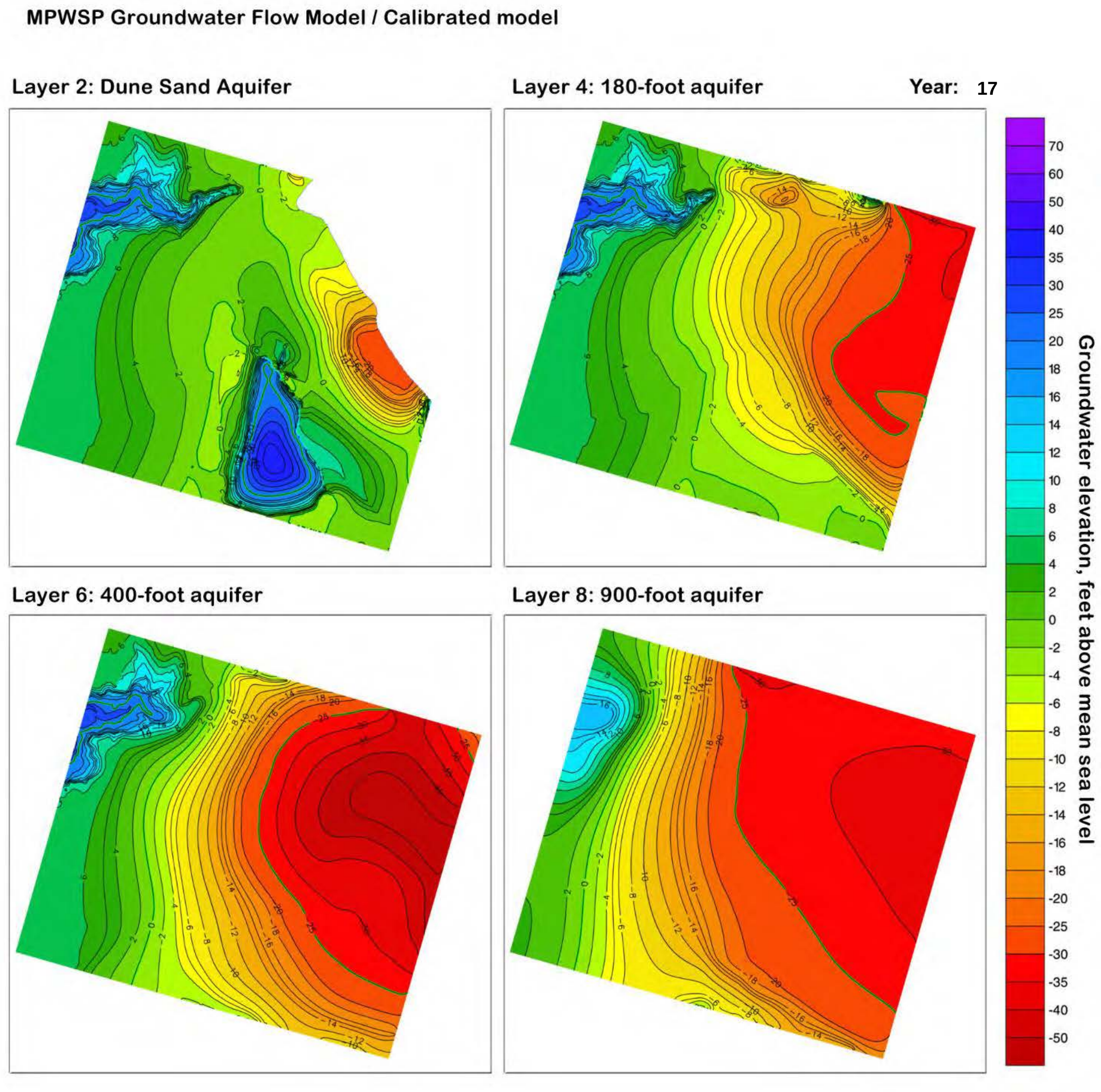
MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 17
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
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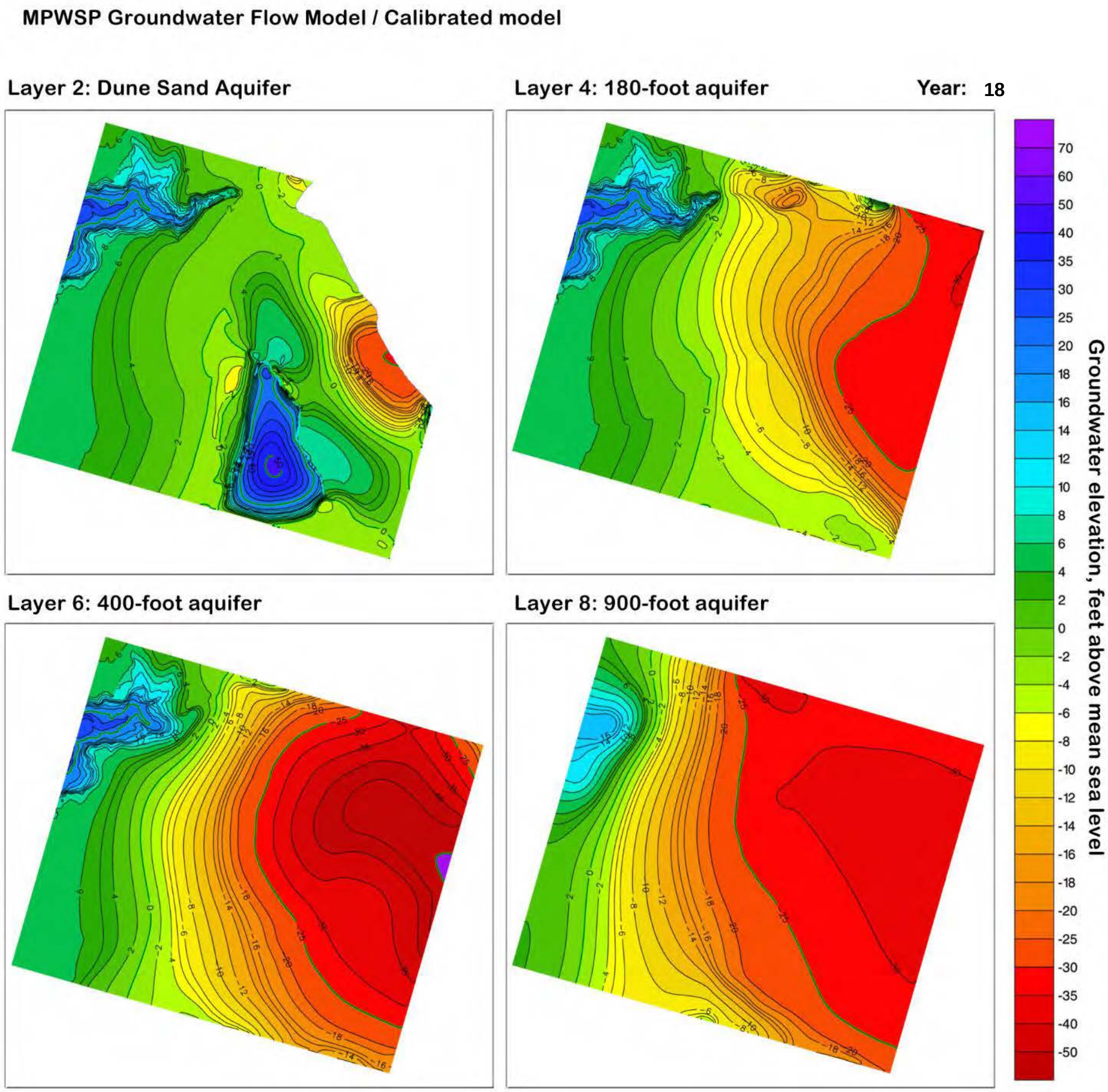
MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 18
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
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35
30
25
20
18
16
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12
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8
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2
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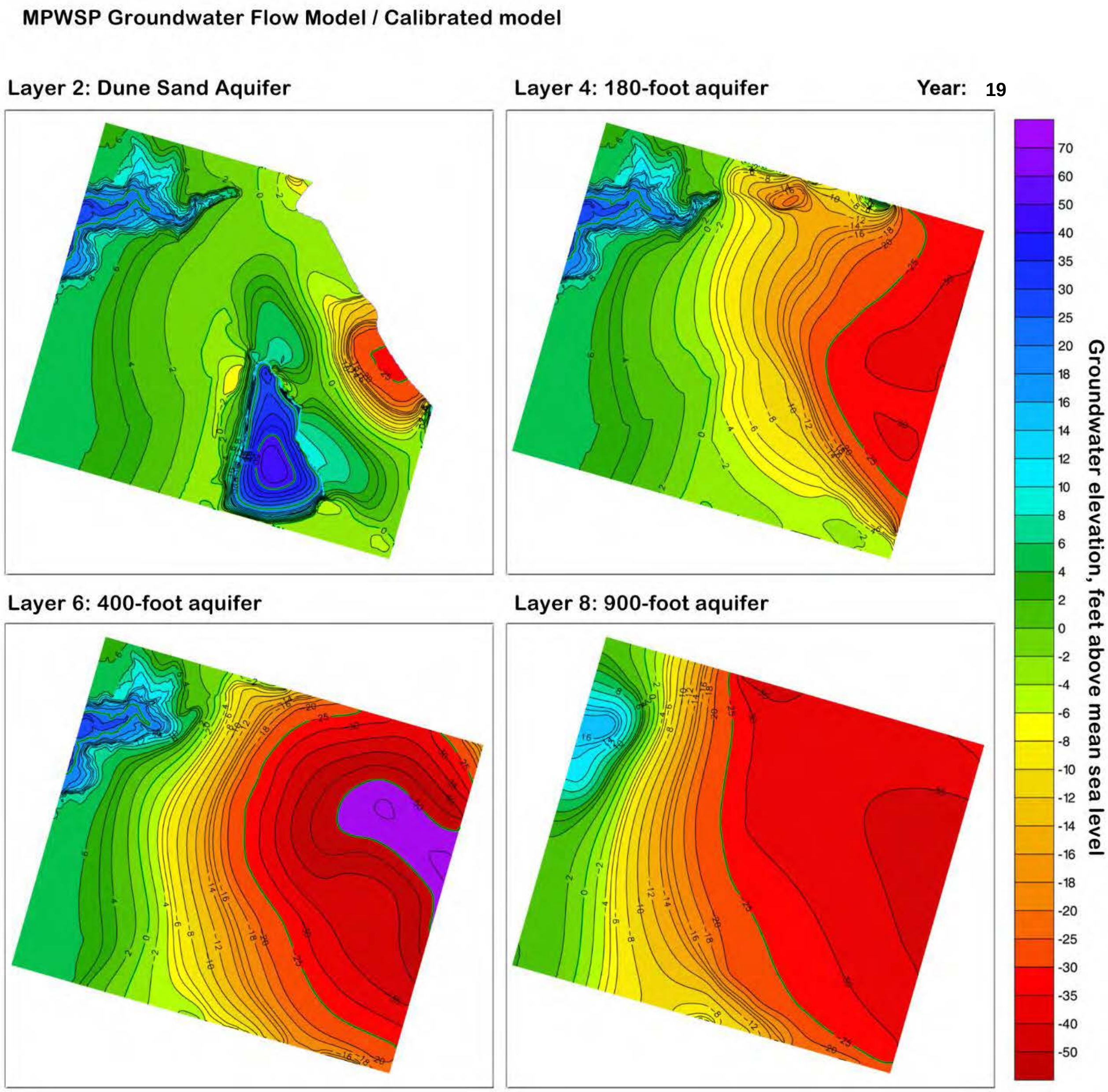
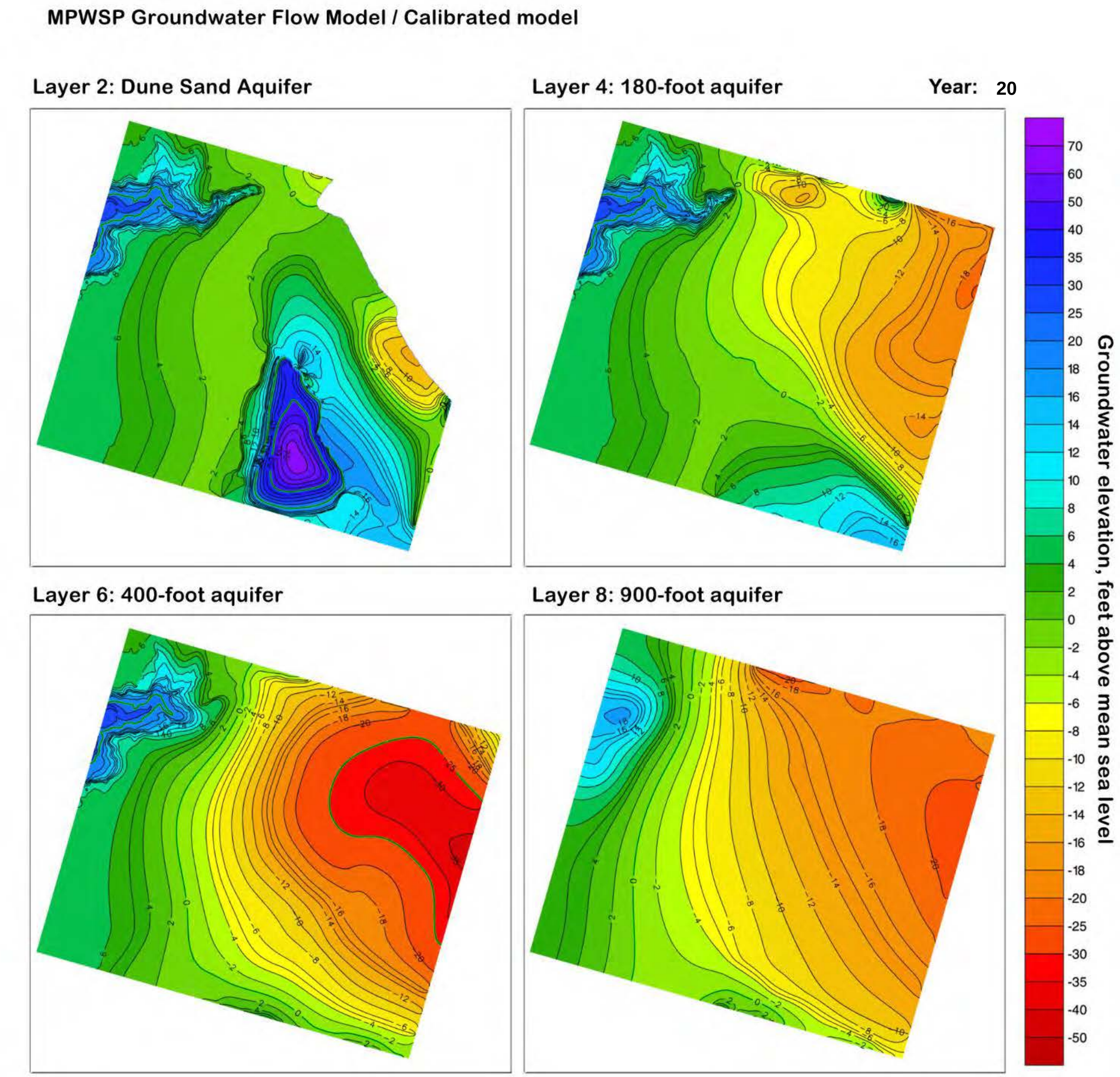
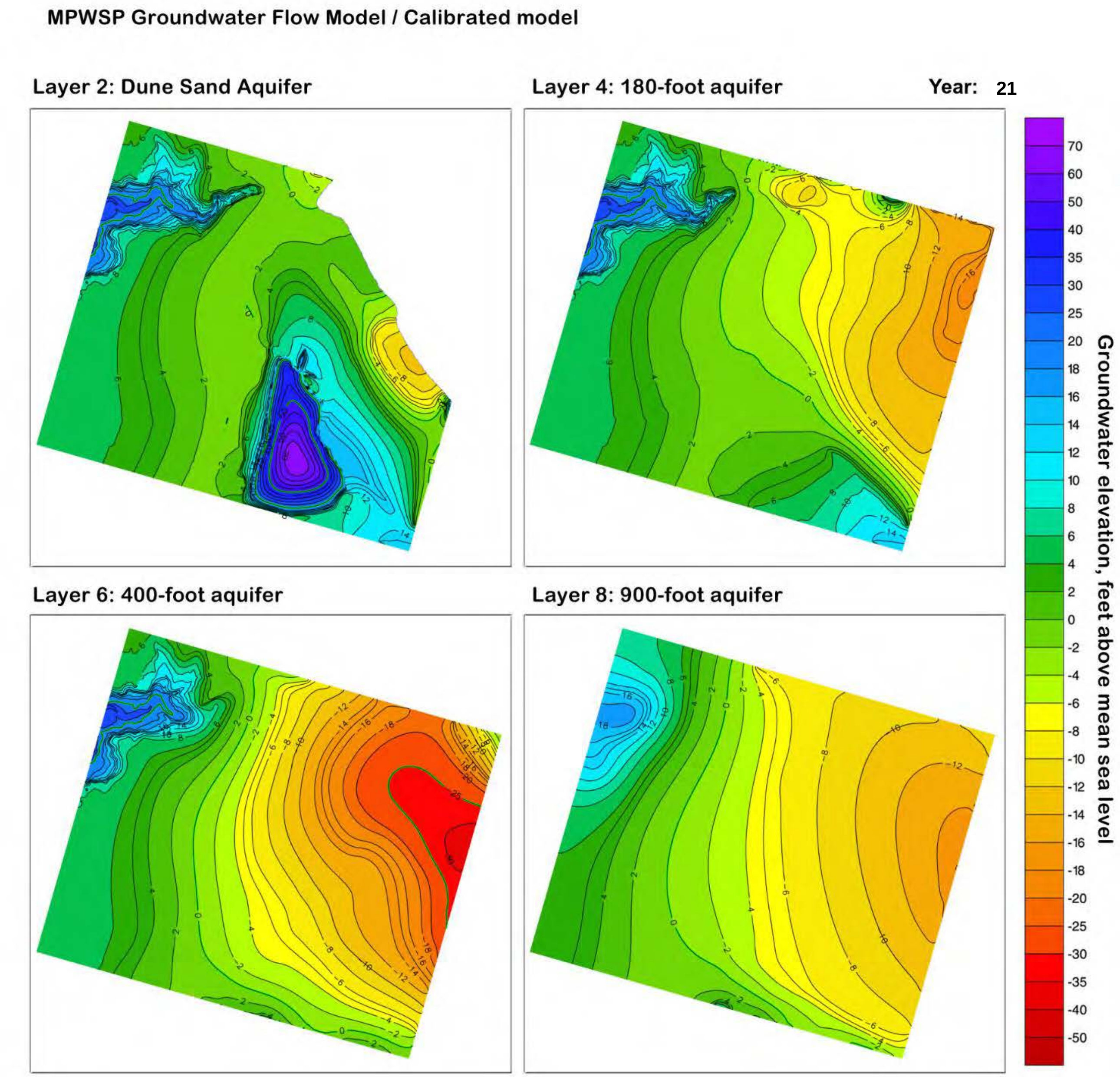
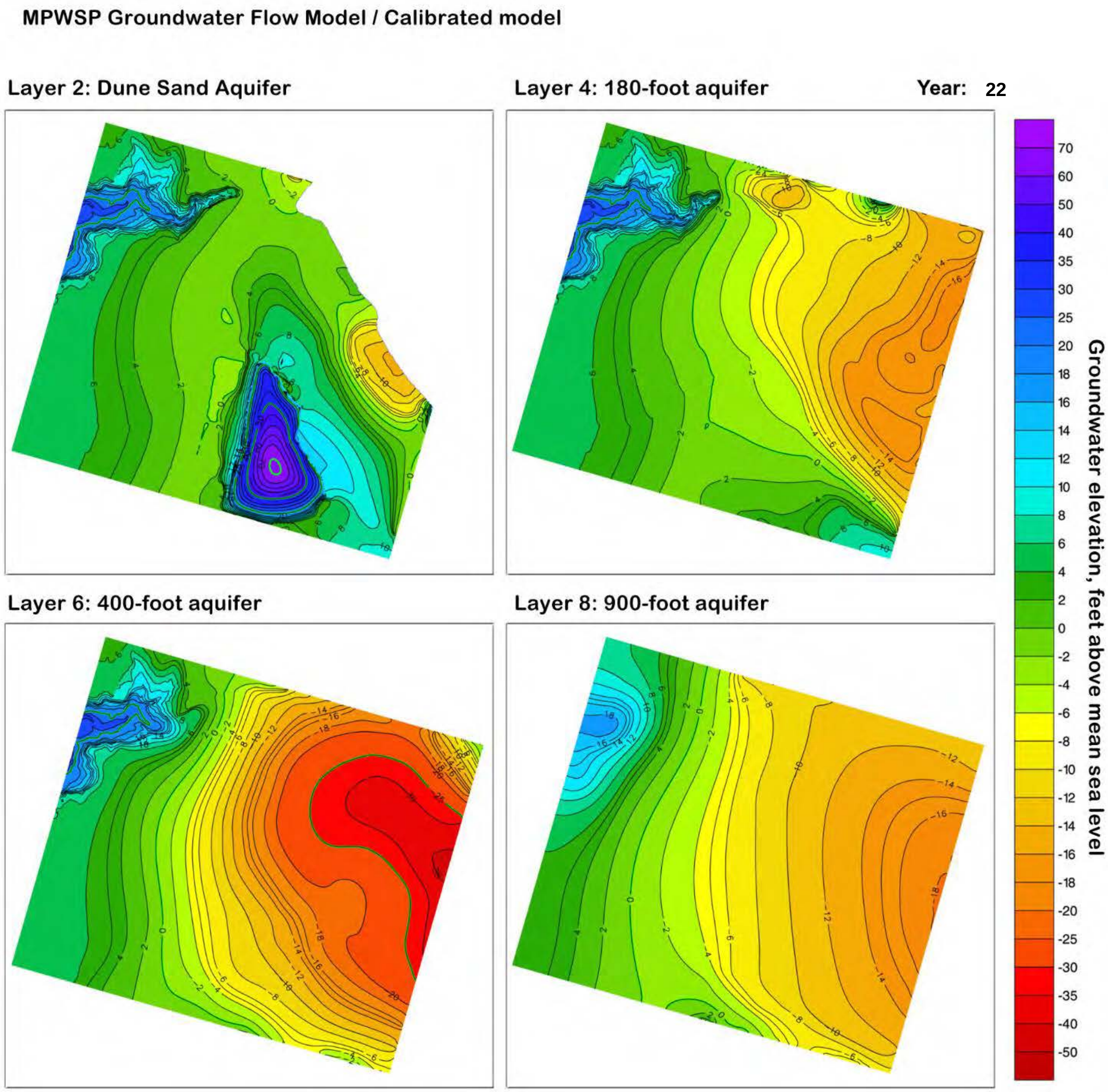
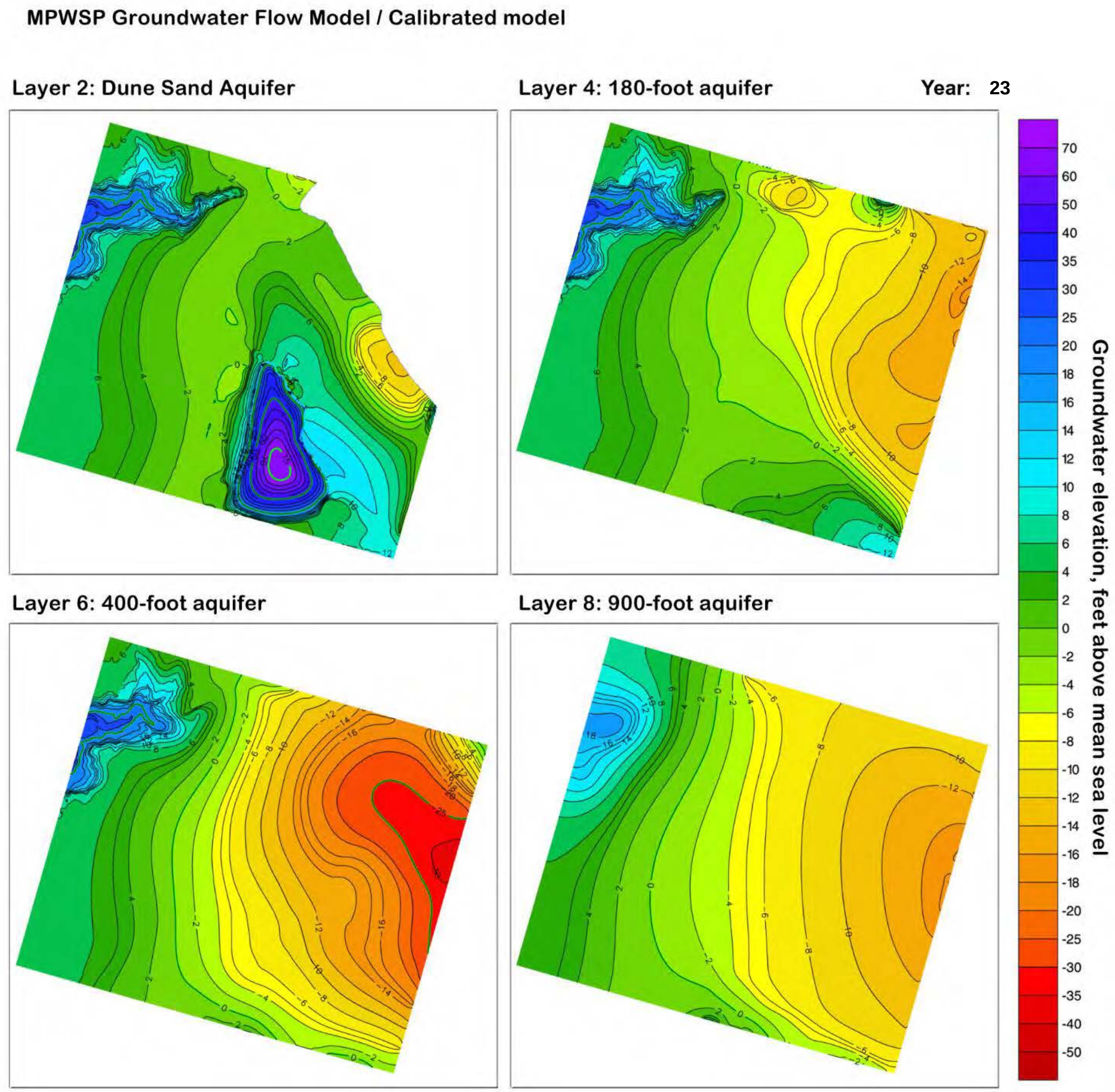
-40
-50

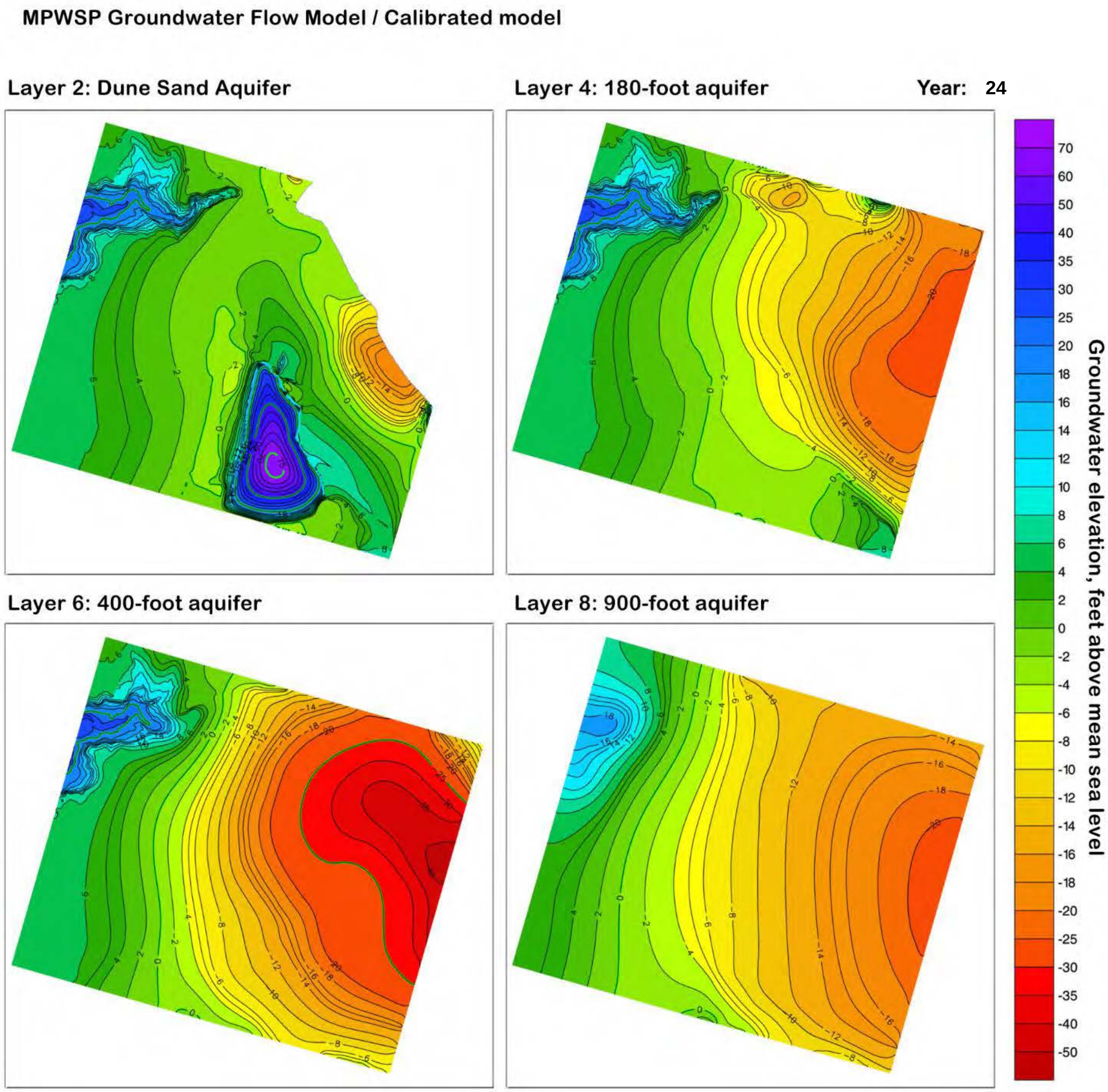

MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 19
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-25
-30
-35
-40
-50

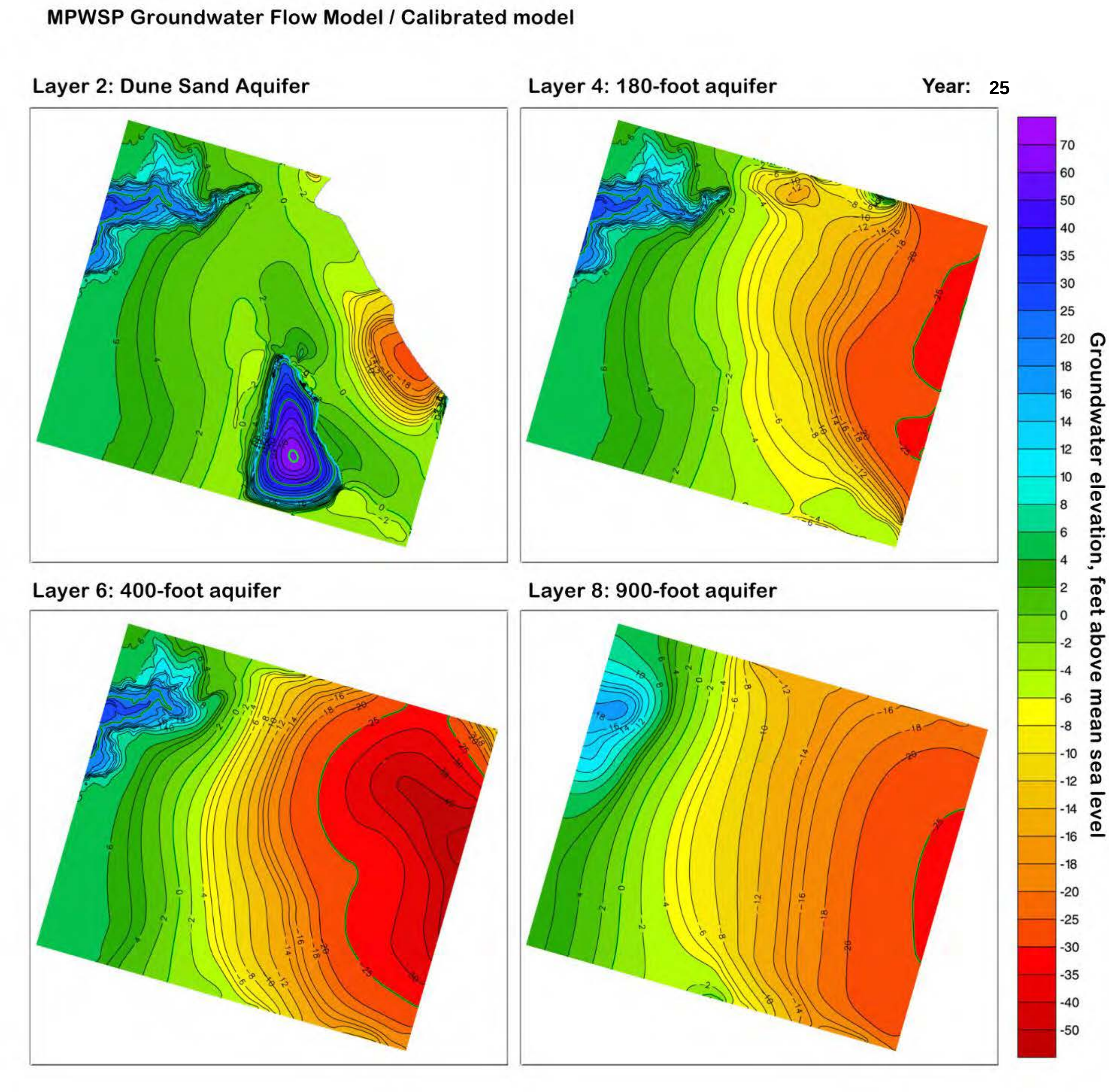

MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 20
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-25
-30
-35
-40
-50

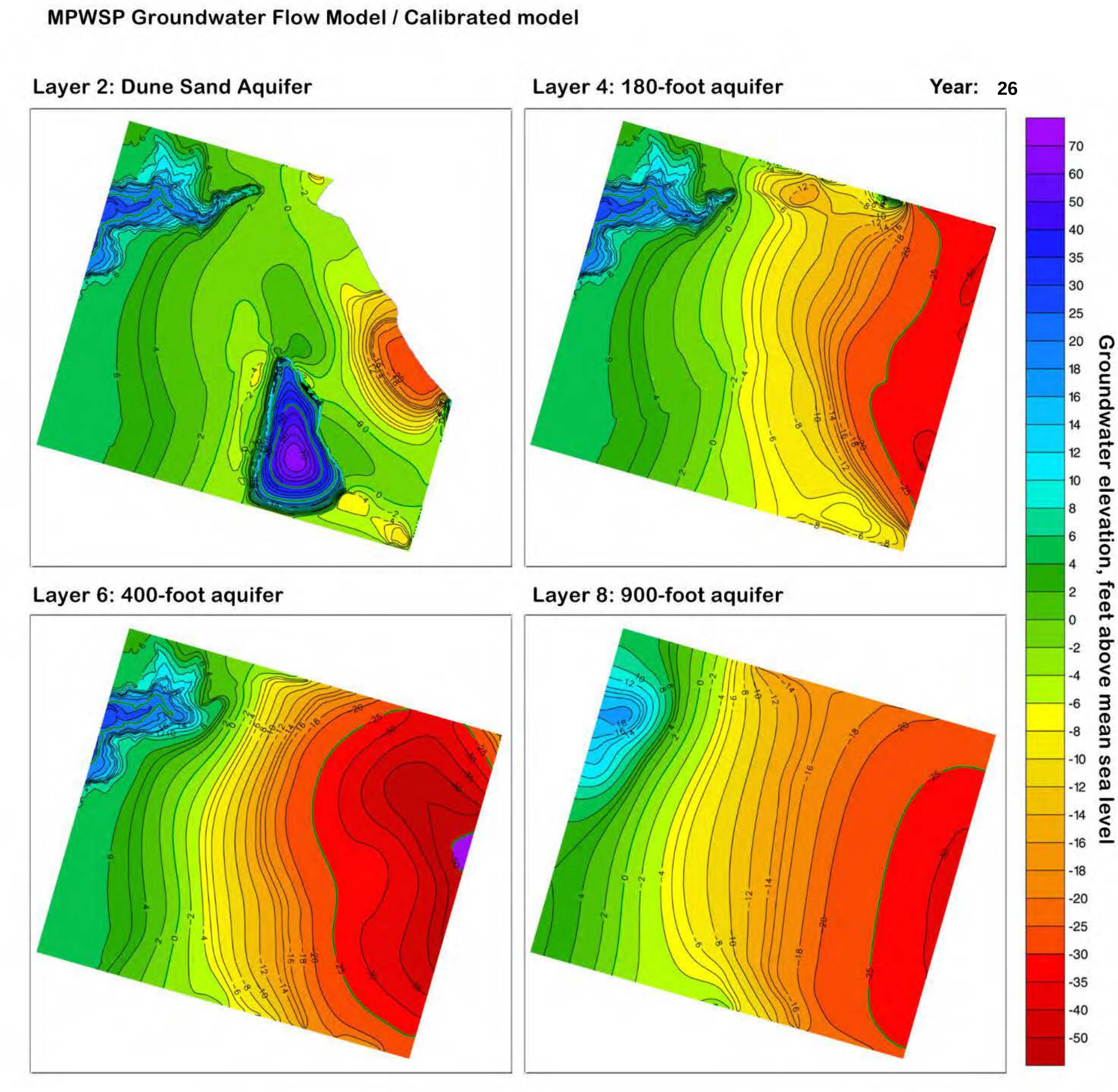

MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 21
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-25
-30
-35
-40
-50

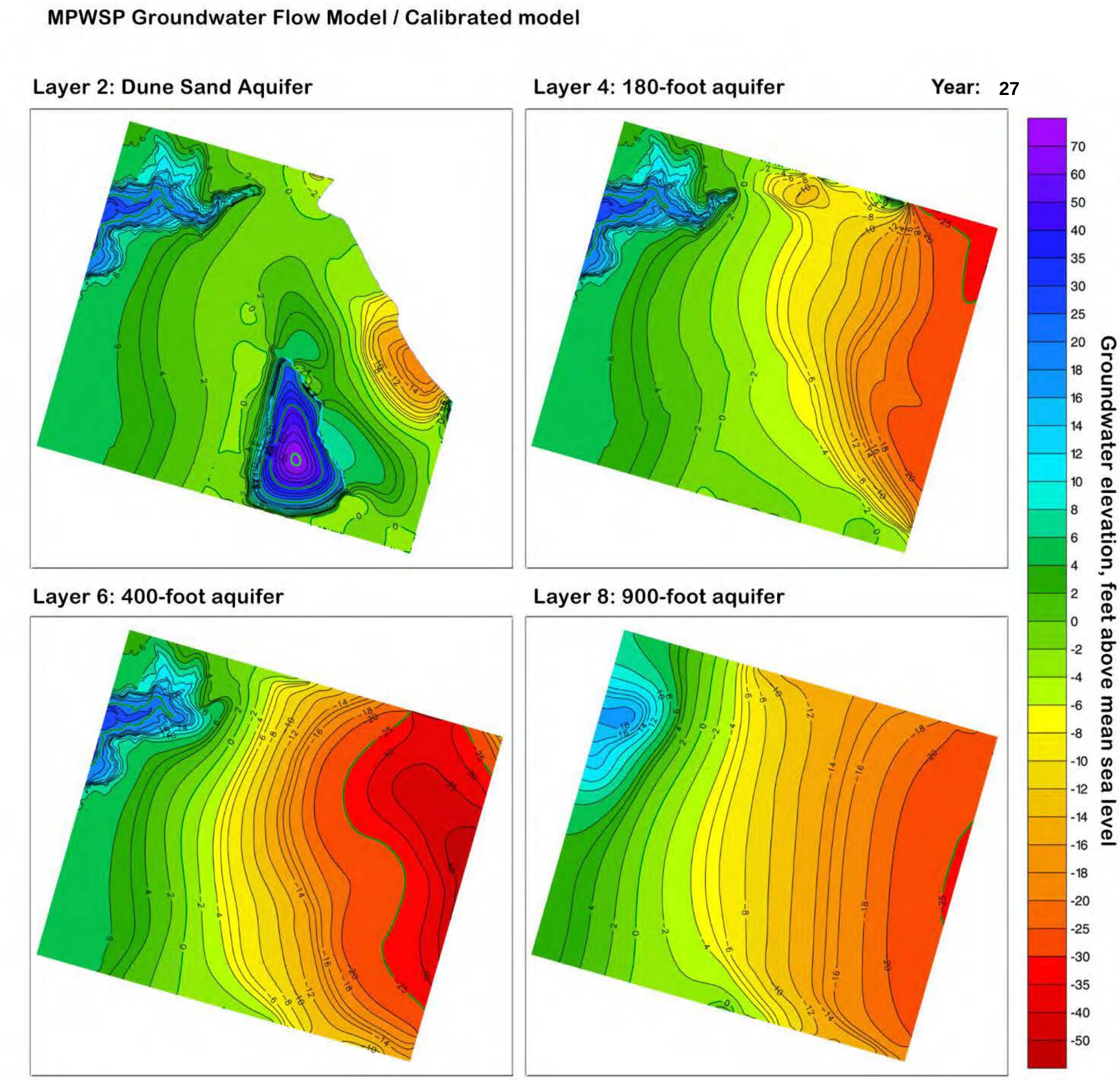

MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 22
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-25
-30
-35
-40
-50

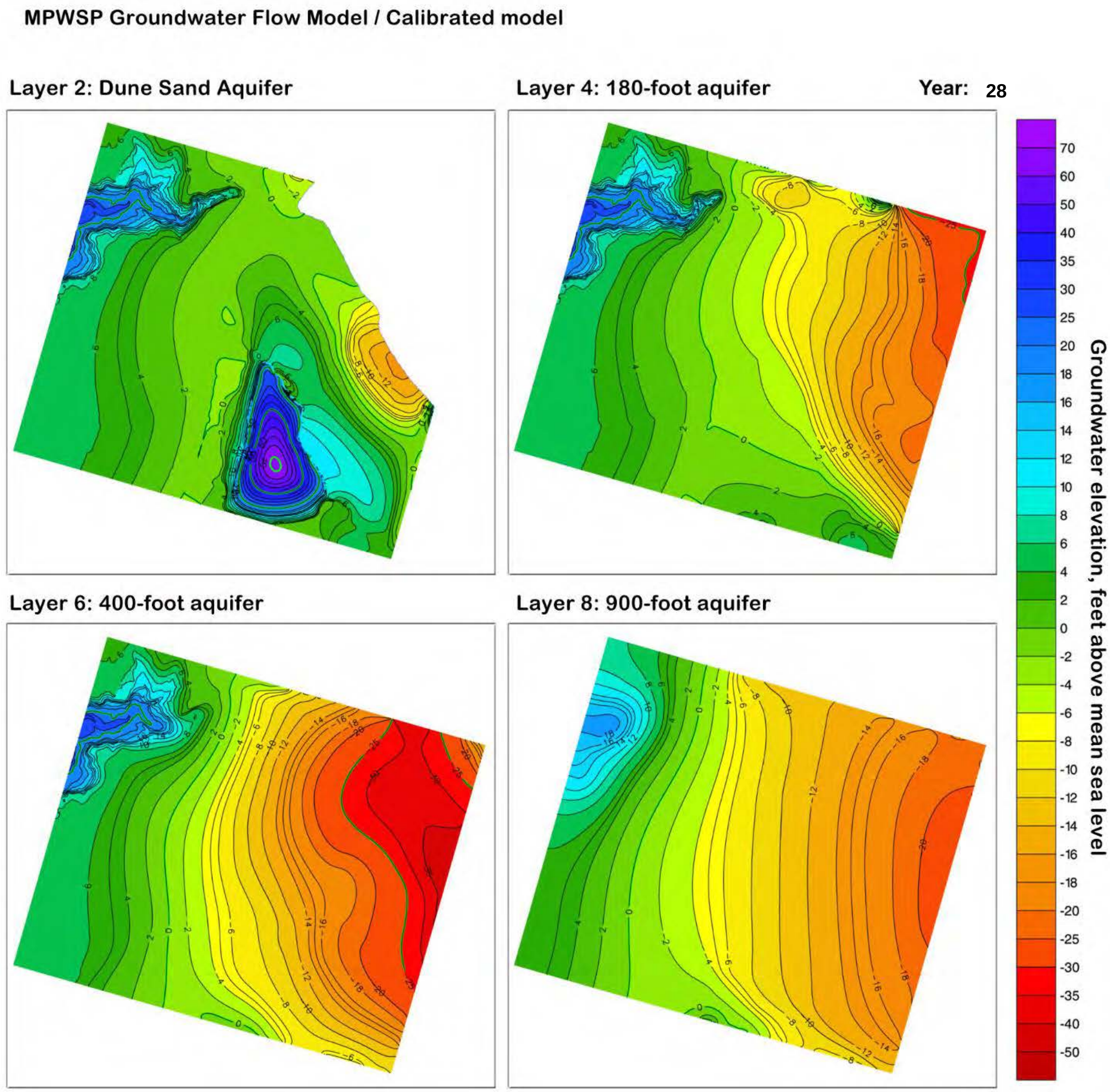

MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 23
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-25
-30
-35
-40
-50

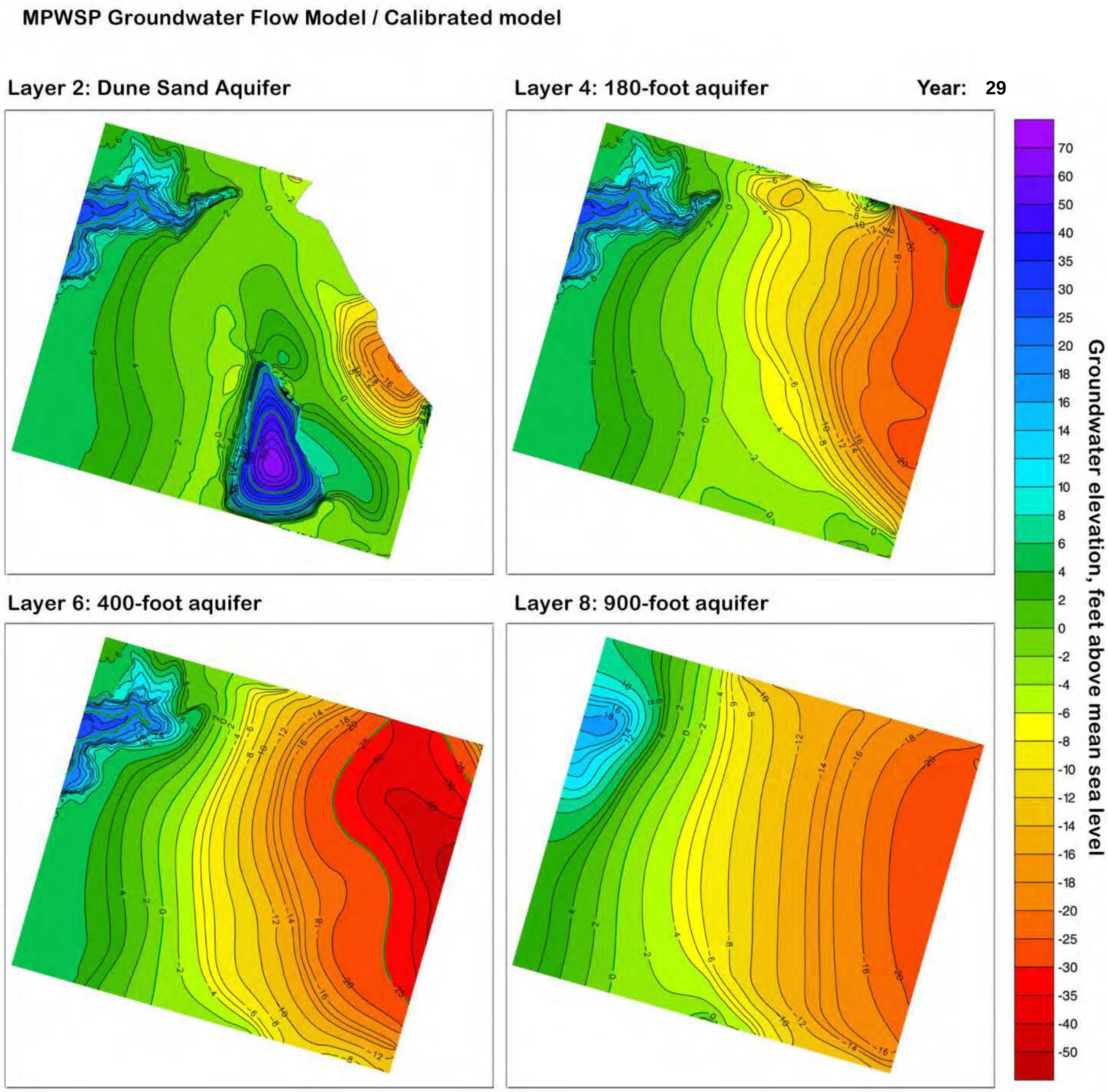

MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 24
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-25
-30
-35
-40
-50


MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 25
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-25
-30
-35
-40
-50

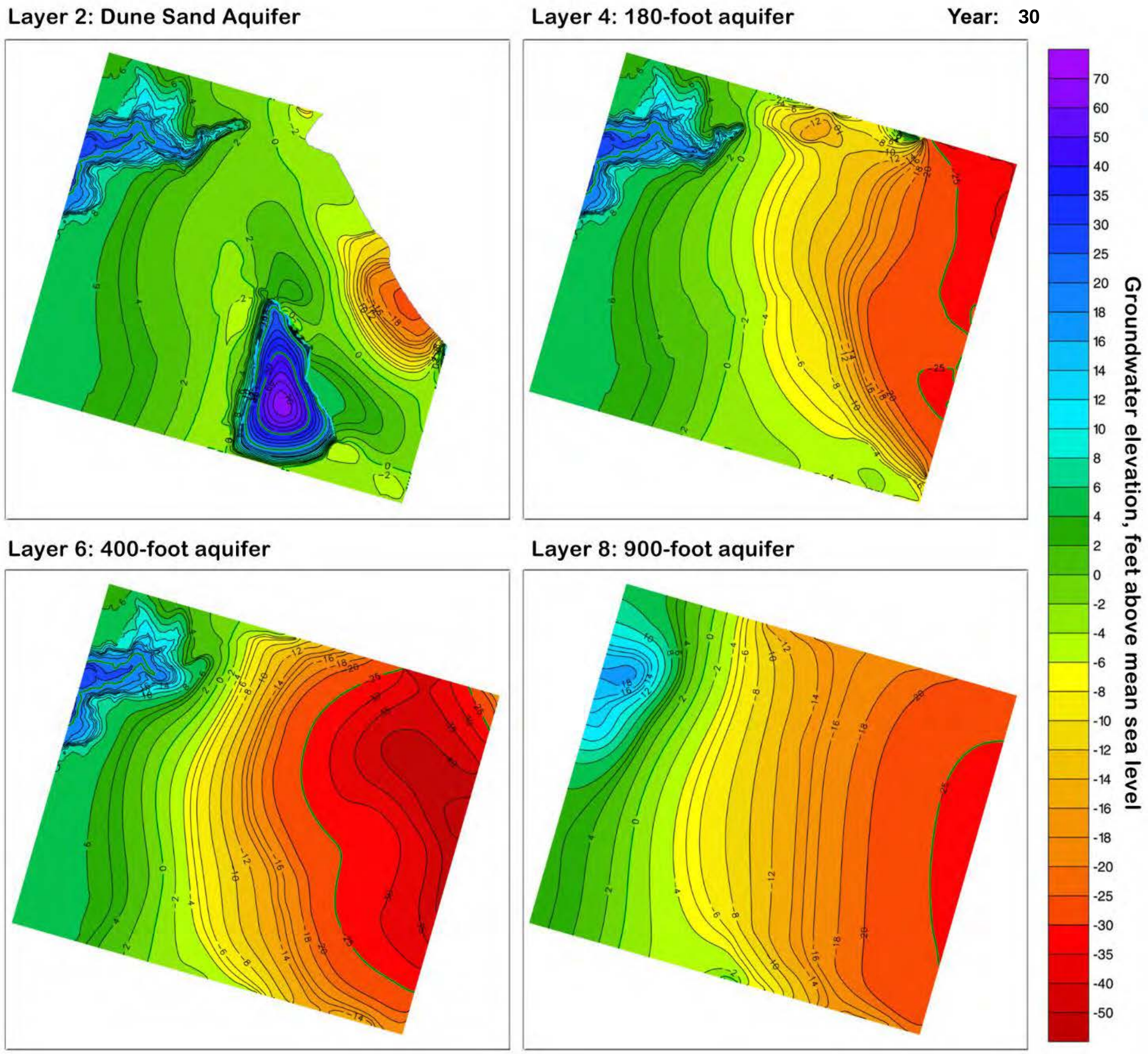

MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 26
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-25
-30
-35
-40
-50
Groundwater elevation, feet above mean sea level

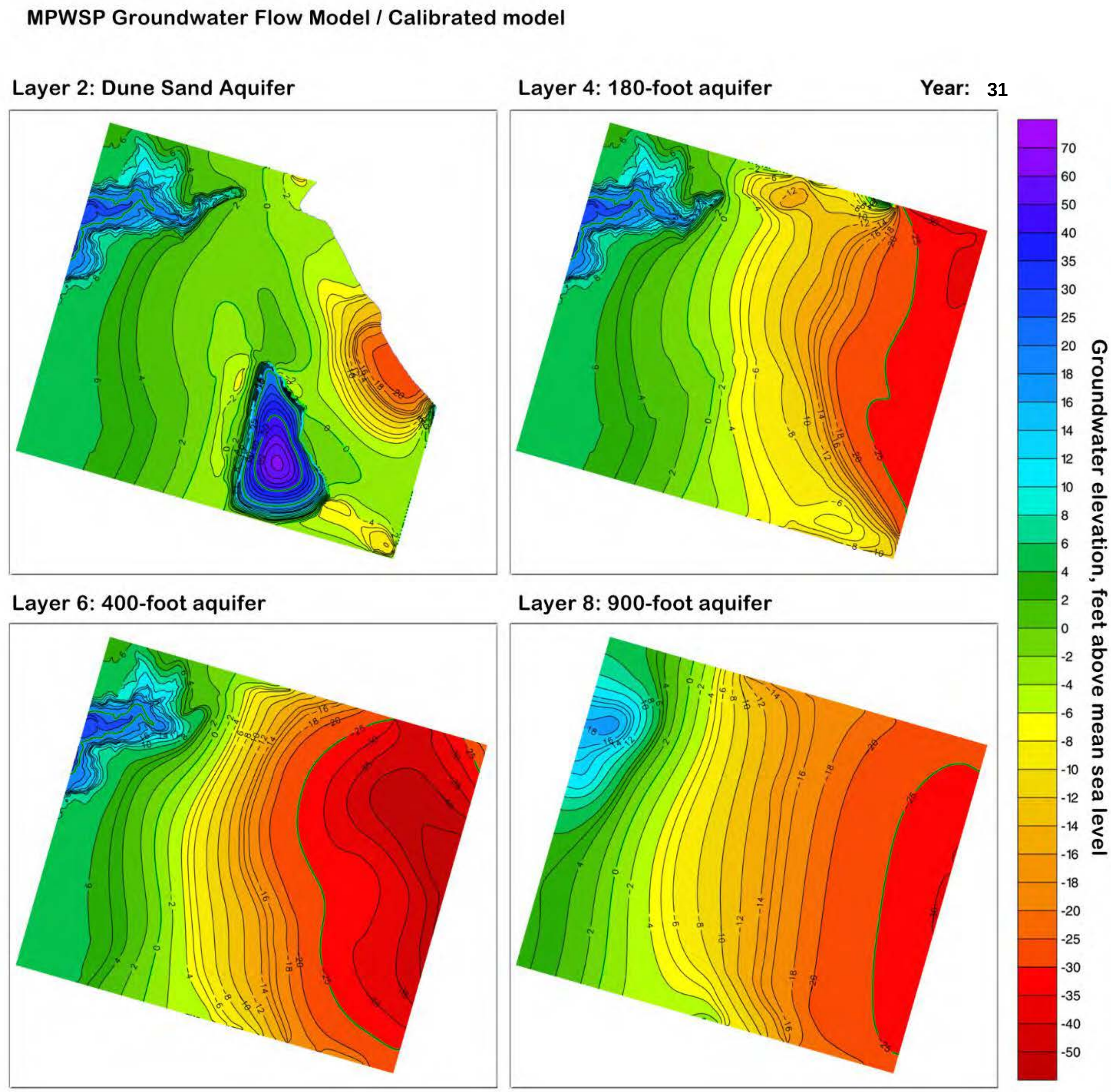

MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 27
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-25
-30
-35
-40
-50

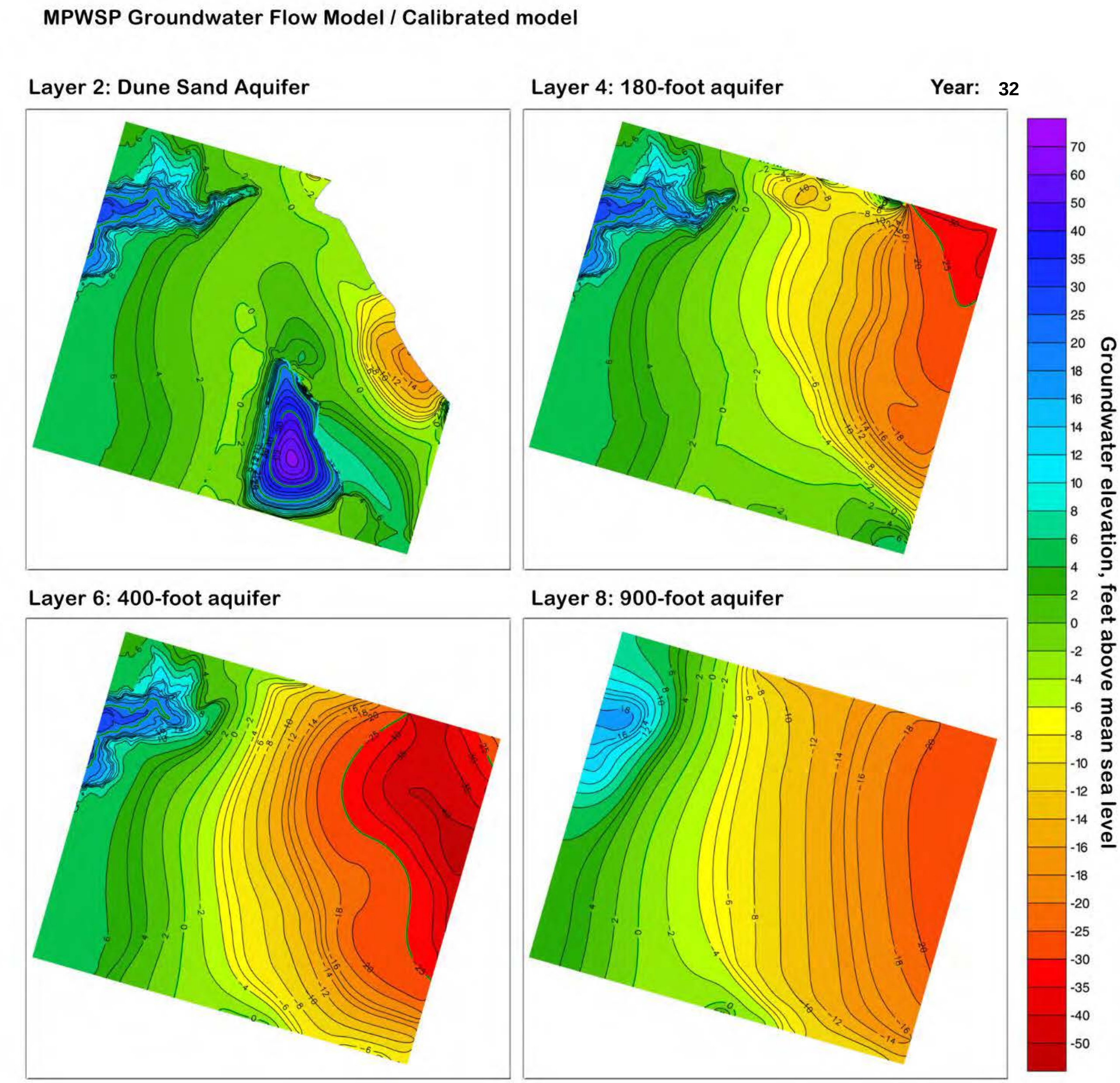

MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 28
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-25
-30
-35
-40
-50
Groundwater elevation, feet above mean sea level


MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 29
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-25
-30
-35
-40
-50

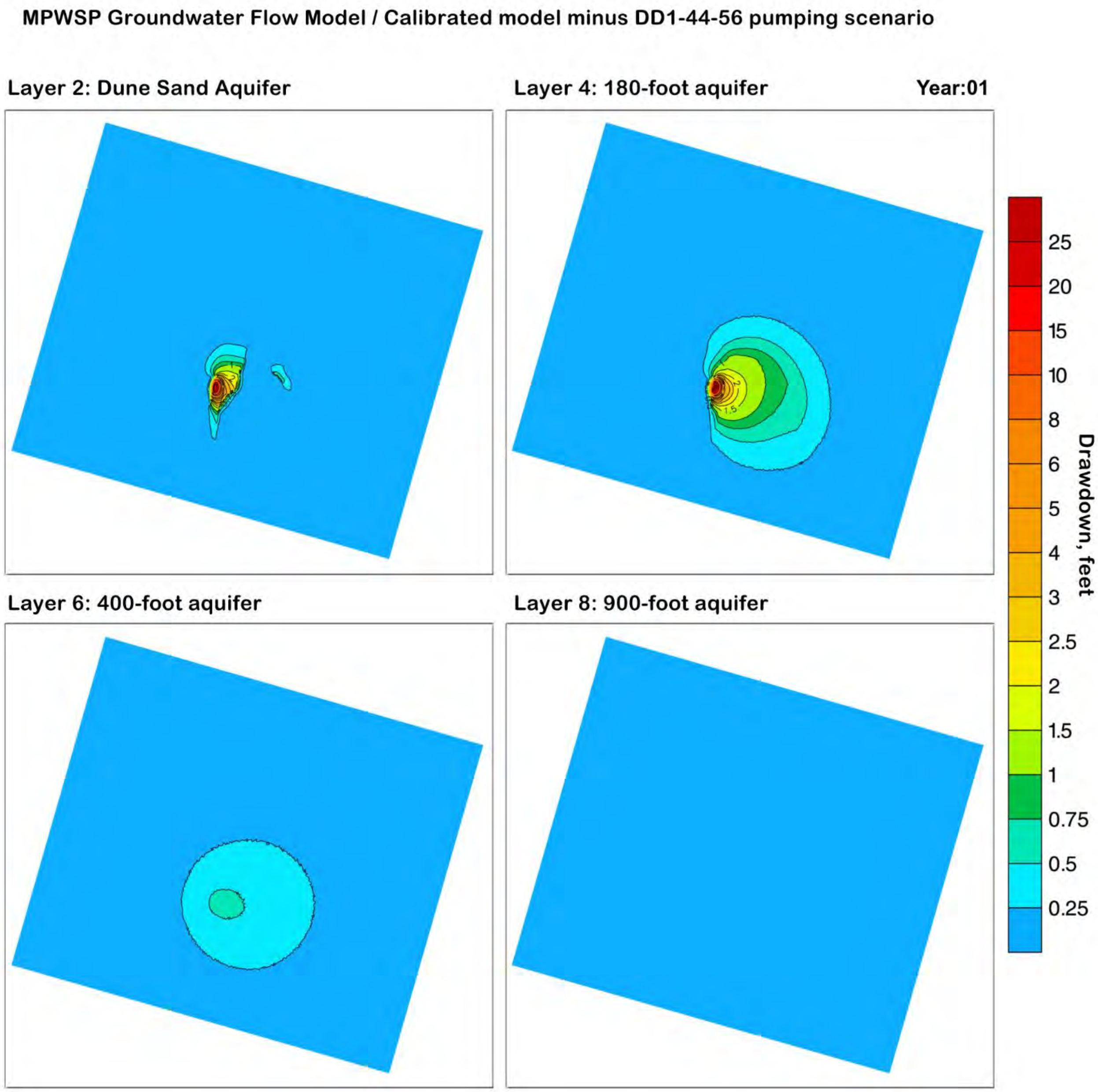
MPWSP Groundwater Flow Model / Calibrated model

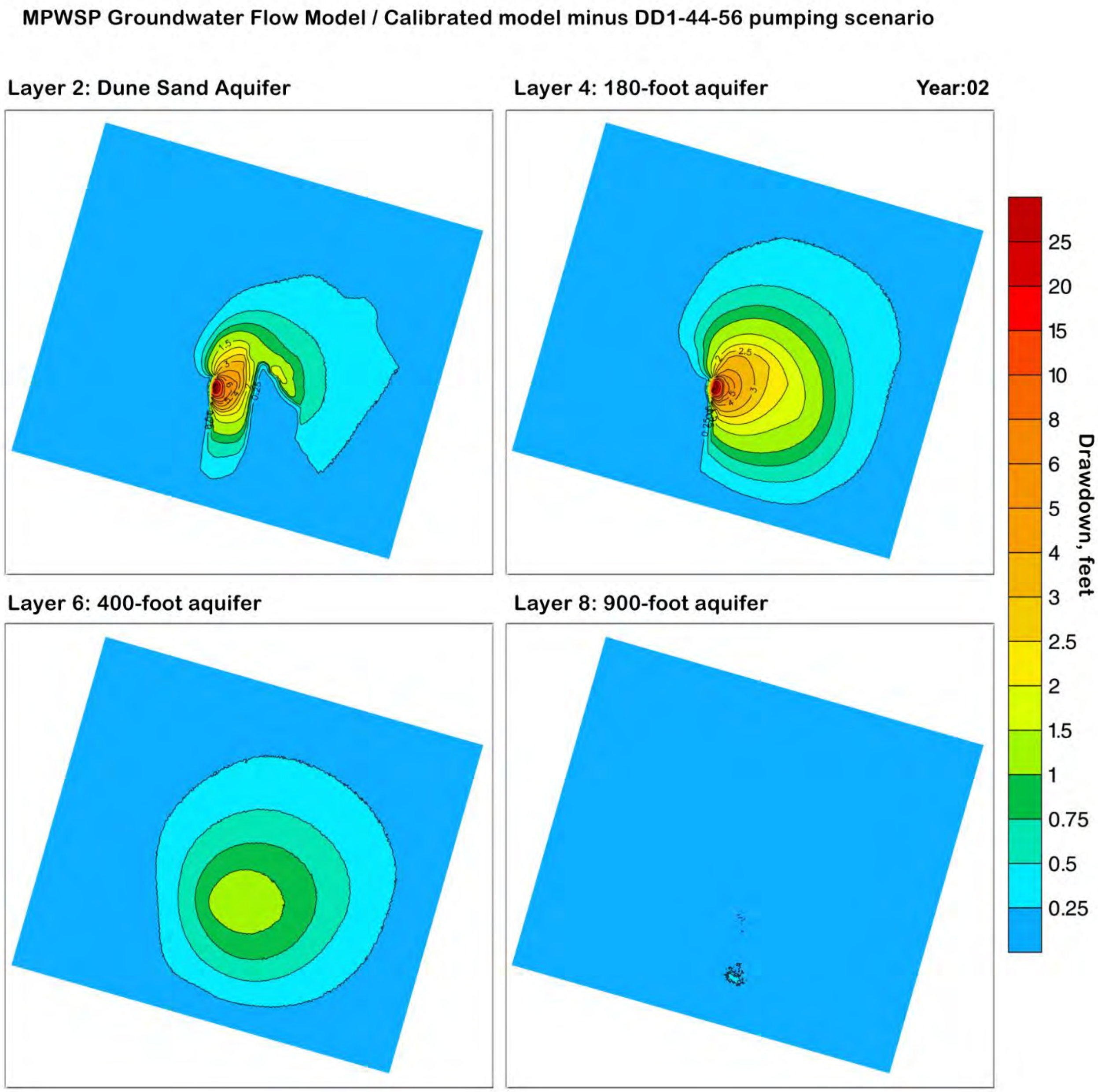


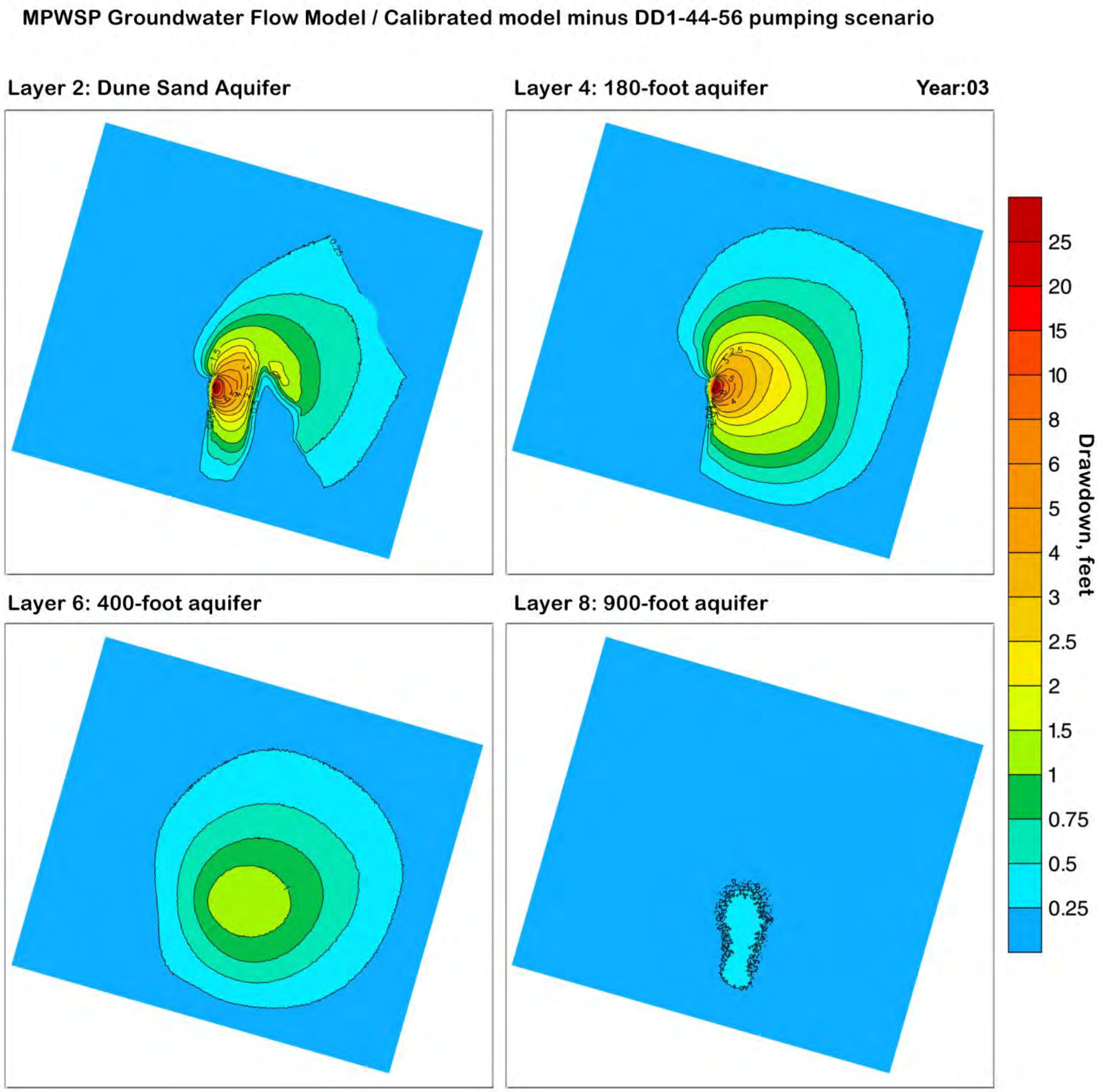

MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 31
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-25
-30
-35
-40
-50

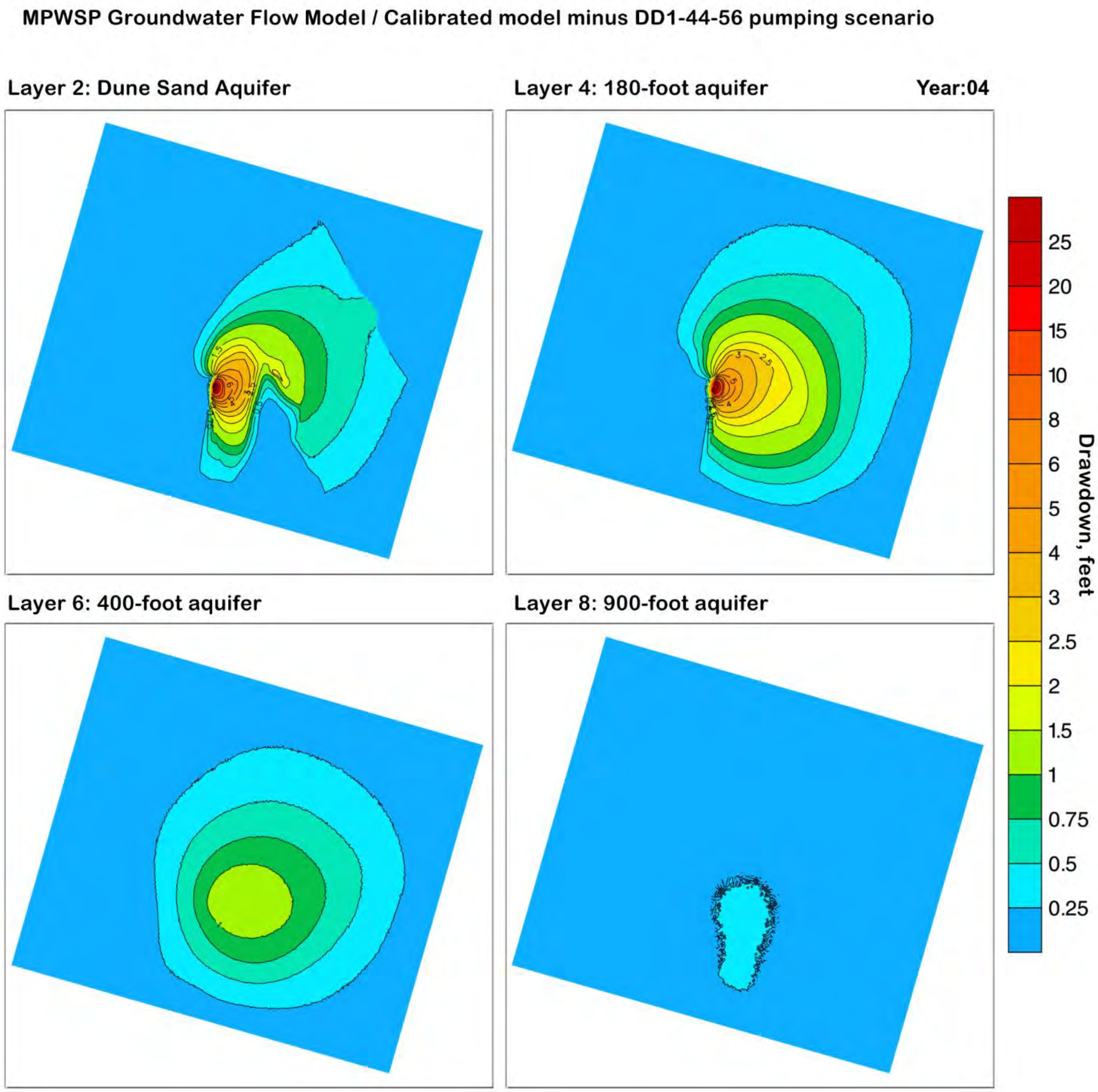

MPWSP Groundwater Flow Model / Calibrated model
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year: 32
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Groundwater elevation, feet above mean sea level
70
60
50
40
35
30
25
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-25
-30
-35
-40
-50

Appendix 2
Simulated Cone-of-Depression in the Dune Sand, 180-FT, 400-FT, and 900-FT aquifers calculated from the DD1-44/56 and Calibrated scenarios of the 2016 NMGWM after each Year of the 32-Year Simulation Period

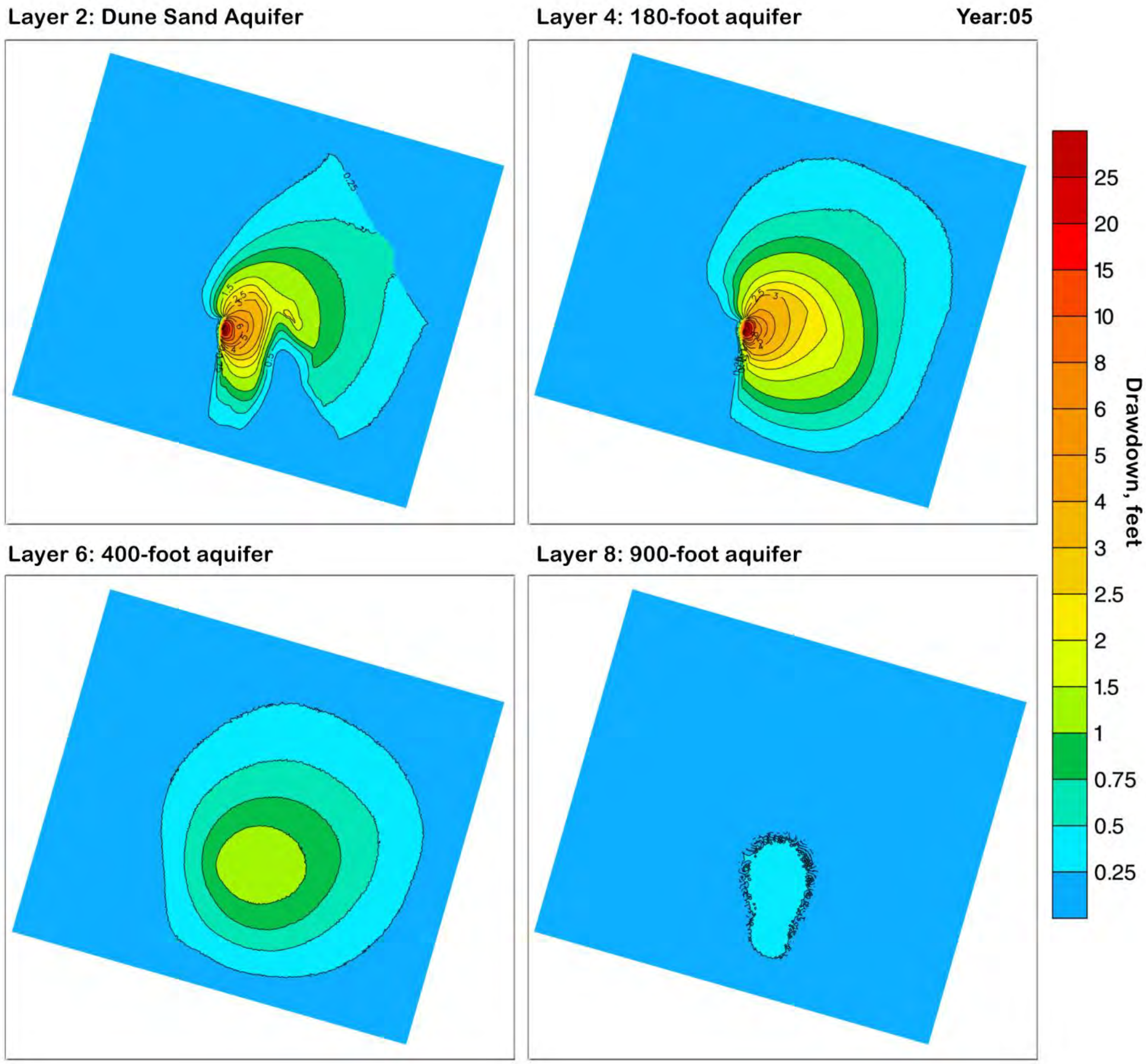

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:01
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25
Drawdown, feet

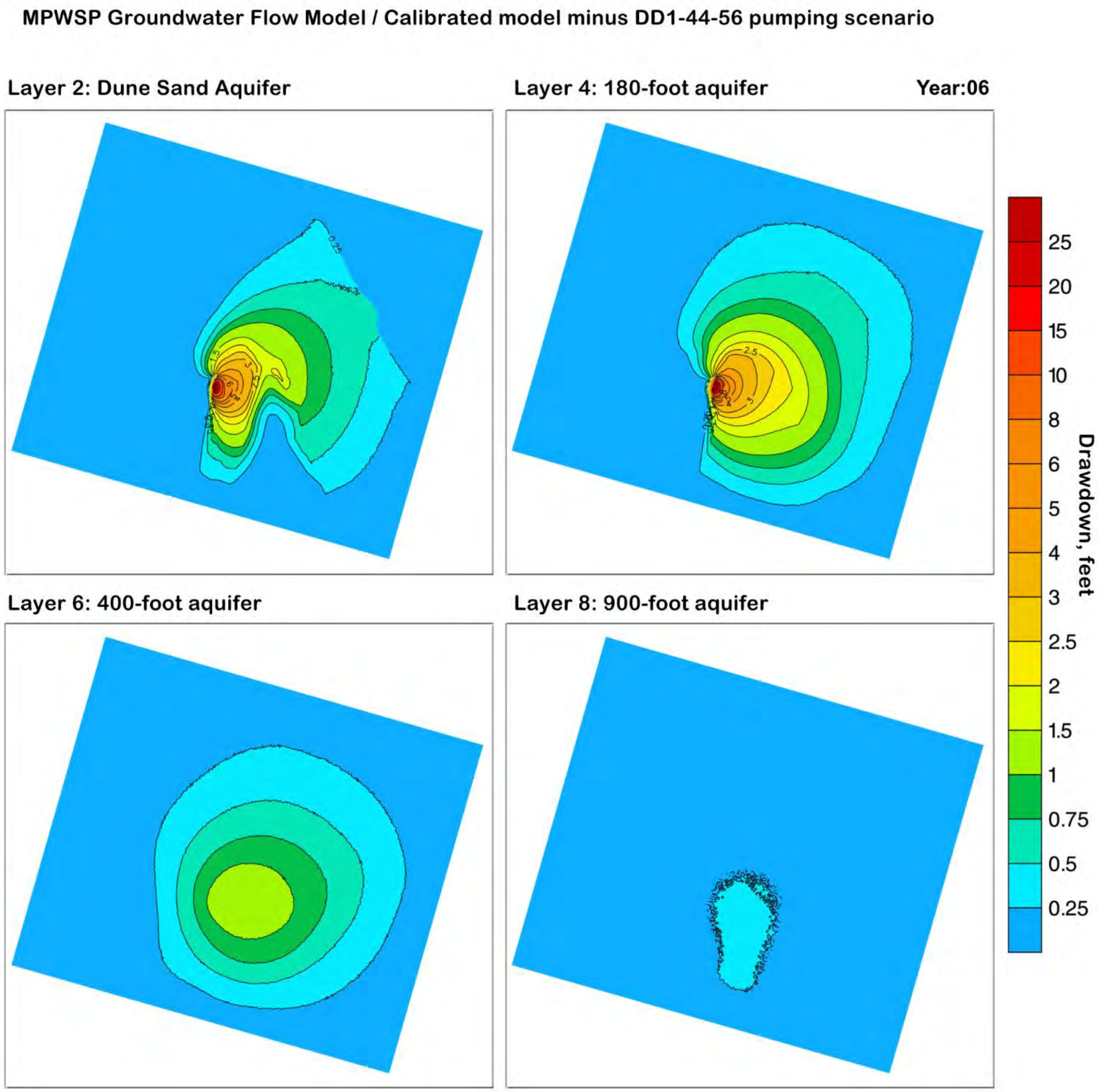

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:02
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25
Drawdown, feet

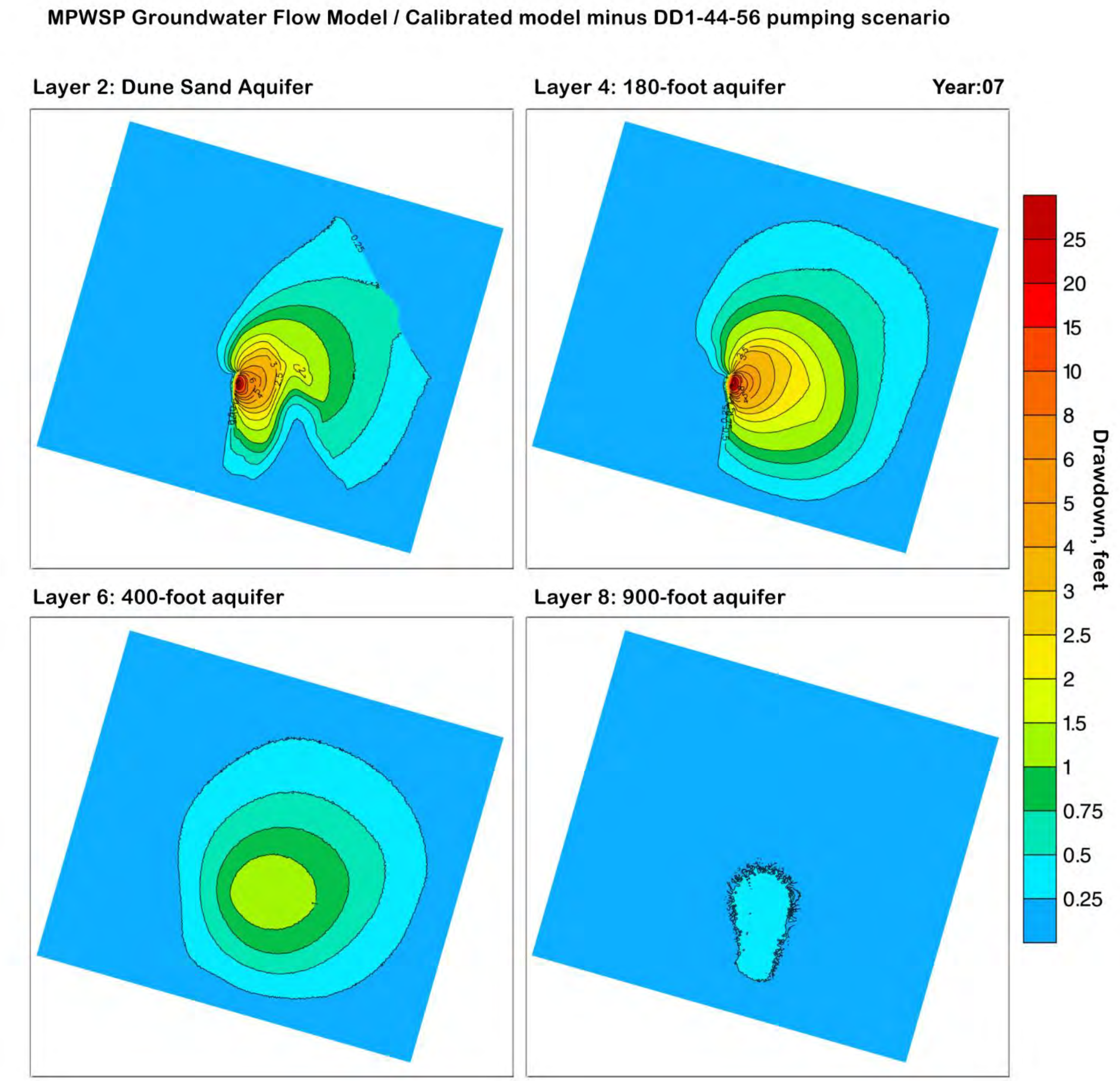

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:03
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25
Drawdown, feet

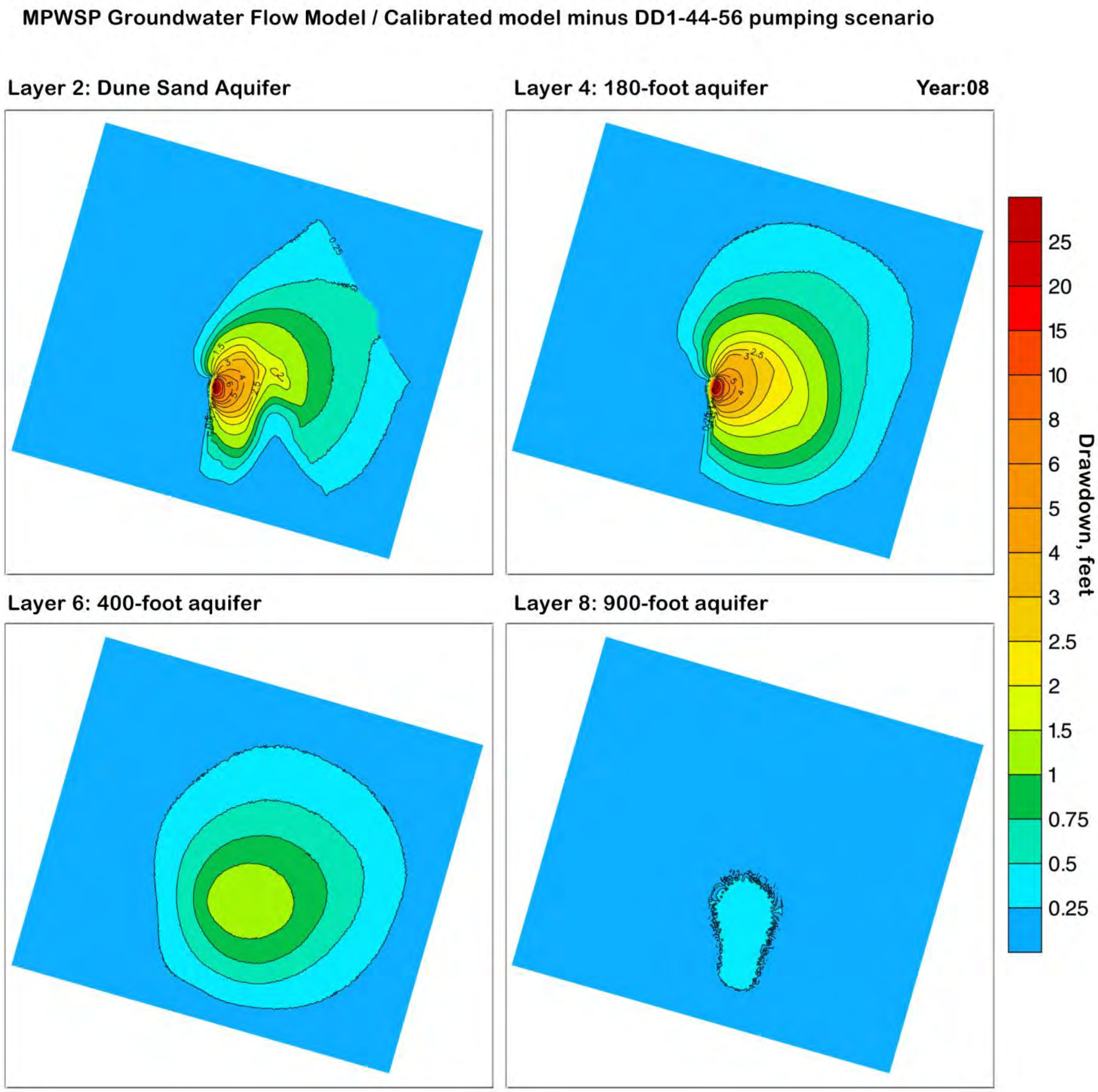

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:04
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25
Drawdown, feet

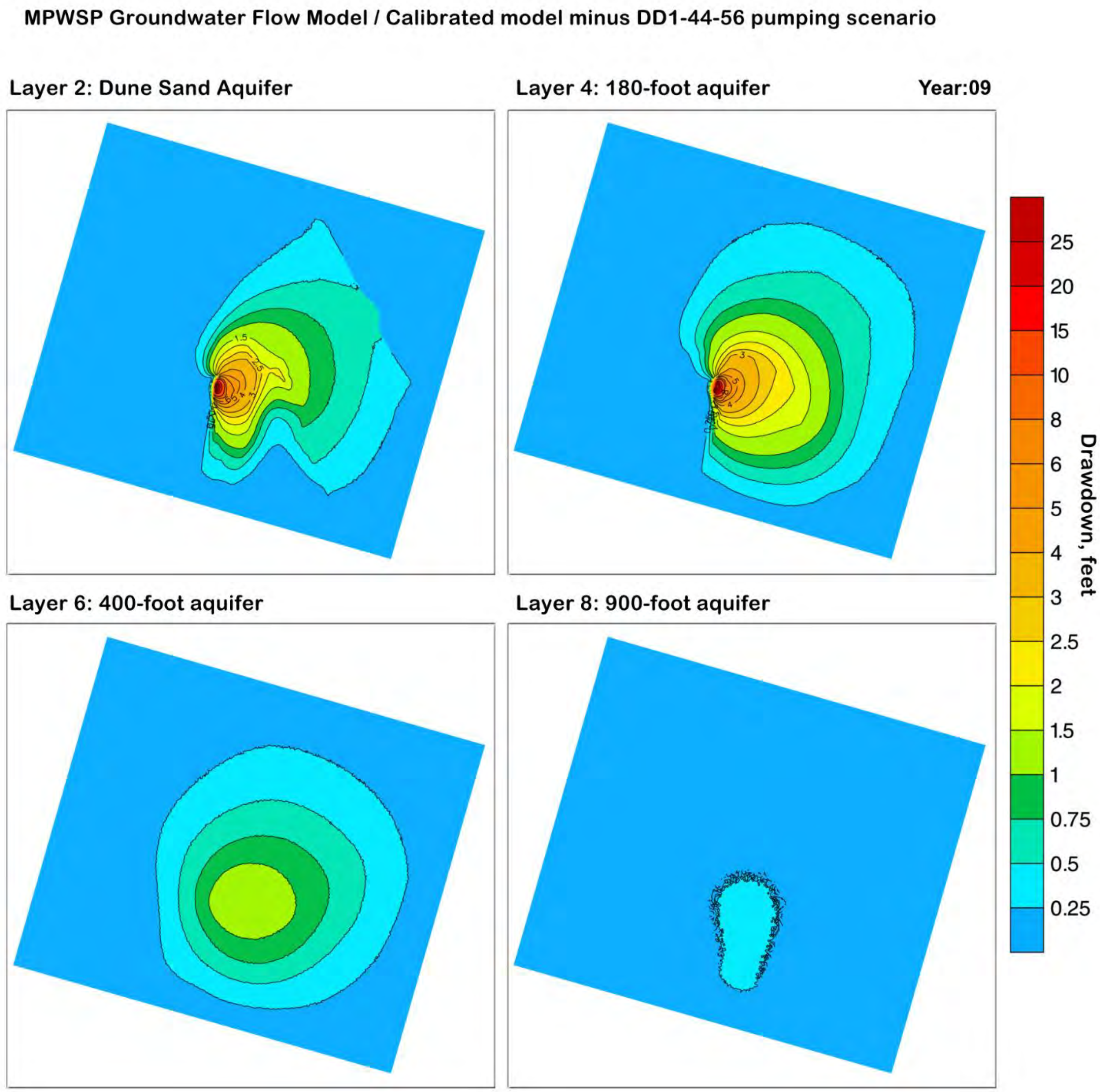
MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario

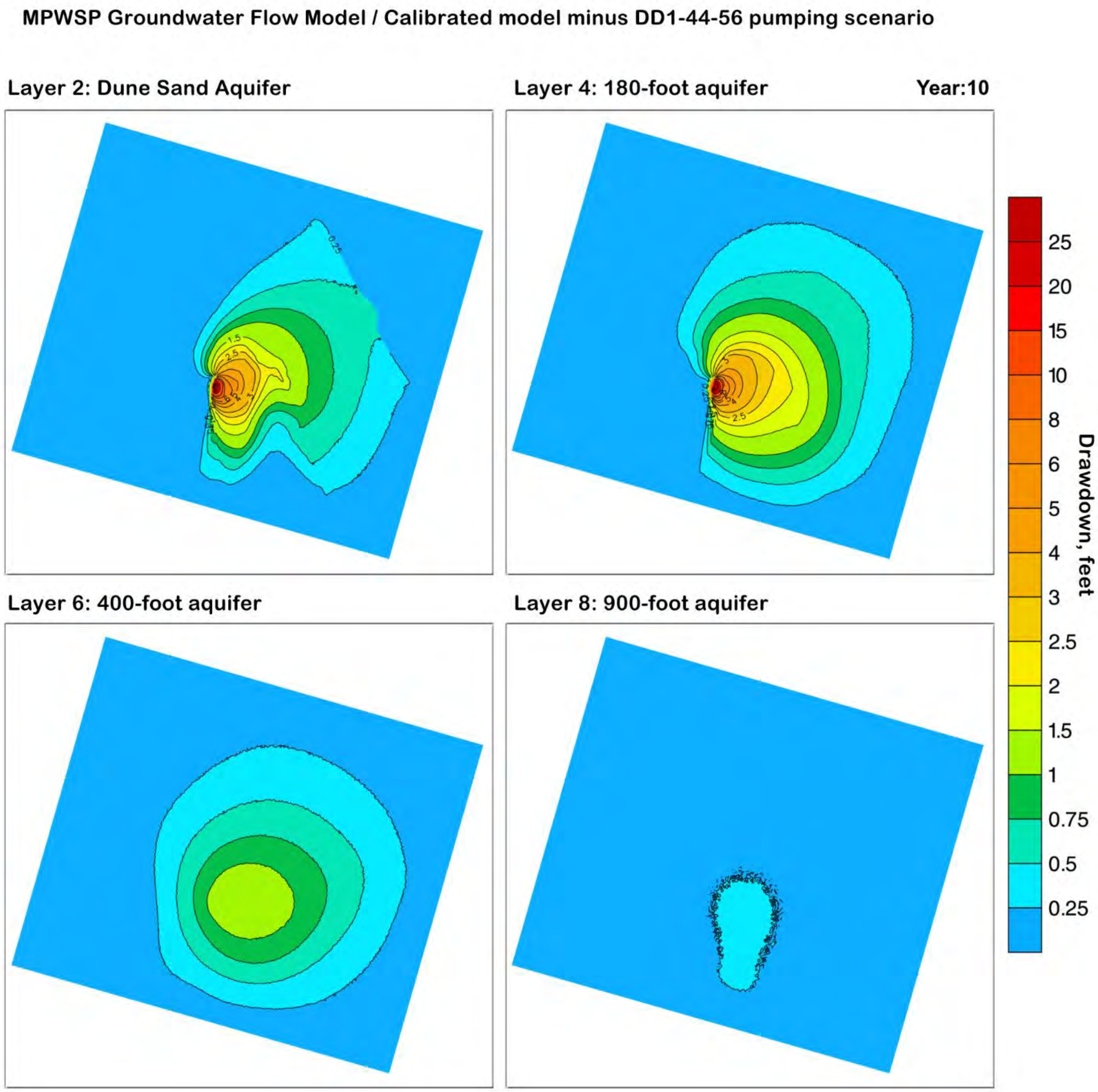


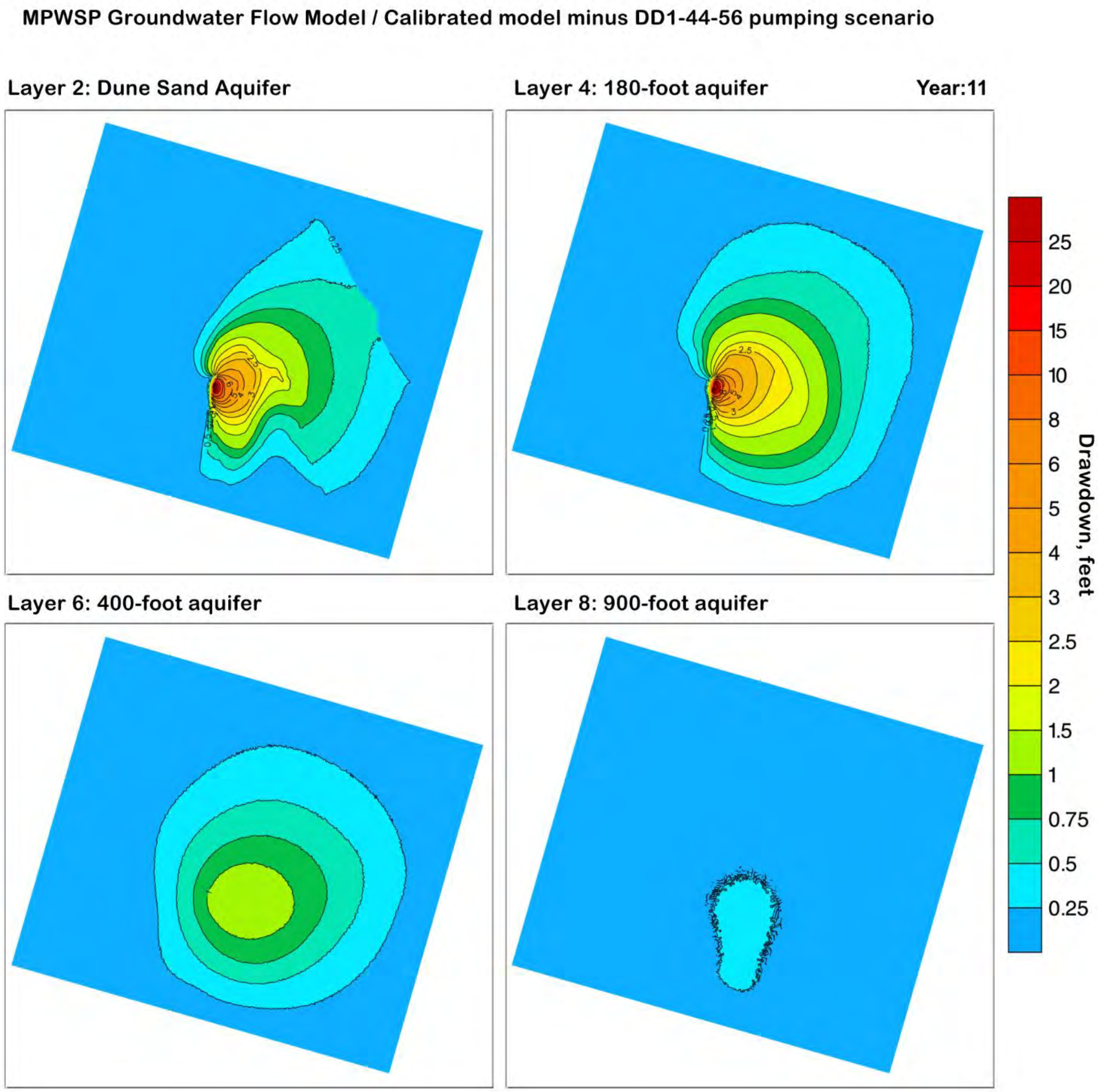

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:06
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25
Drawdown, feet

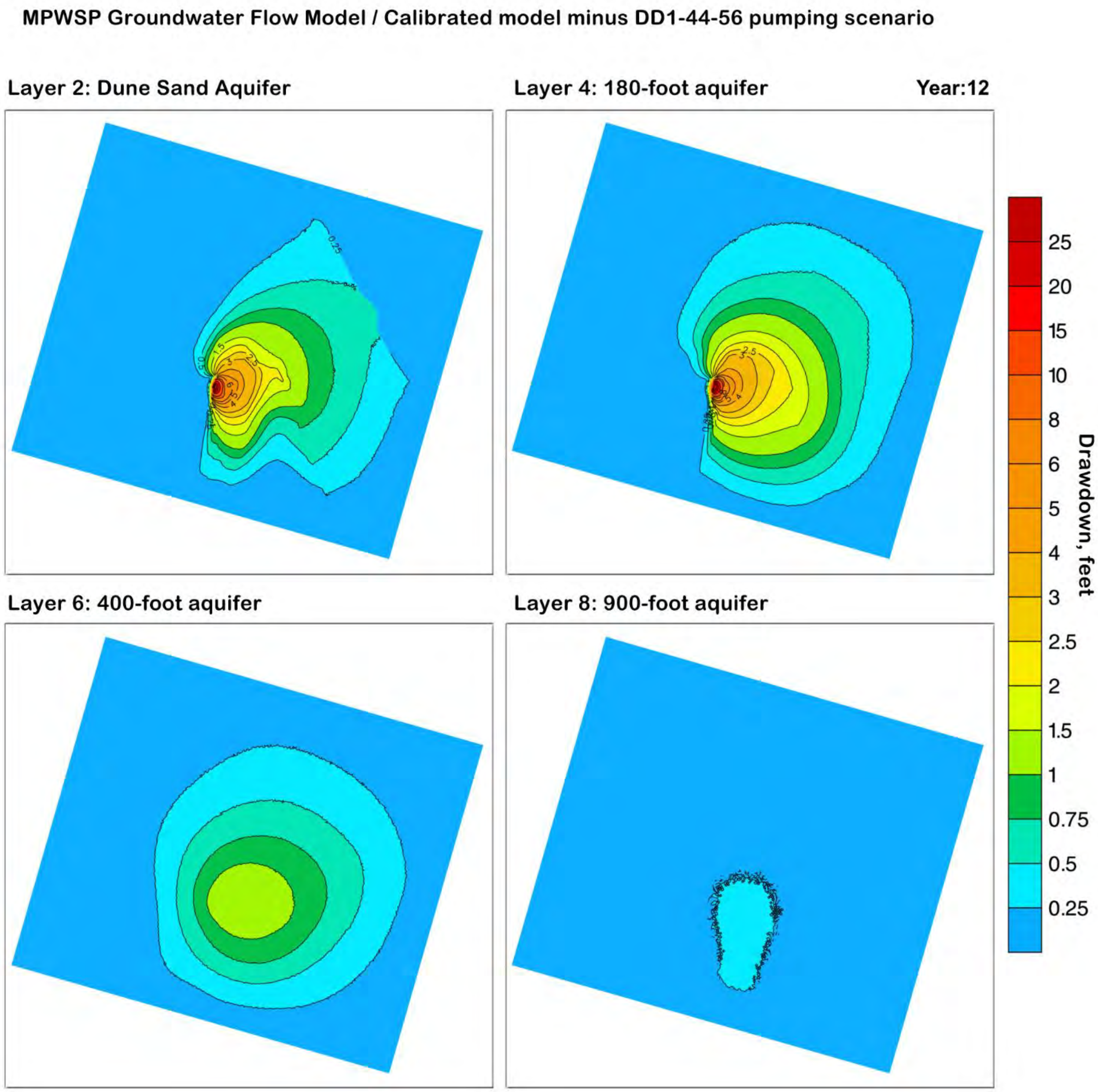

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:07
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25
Drawdown, feet

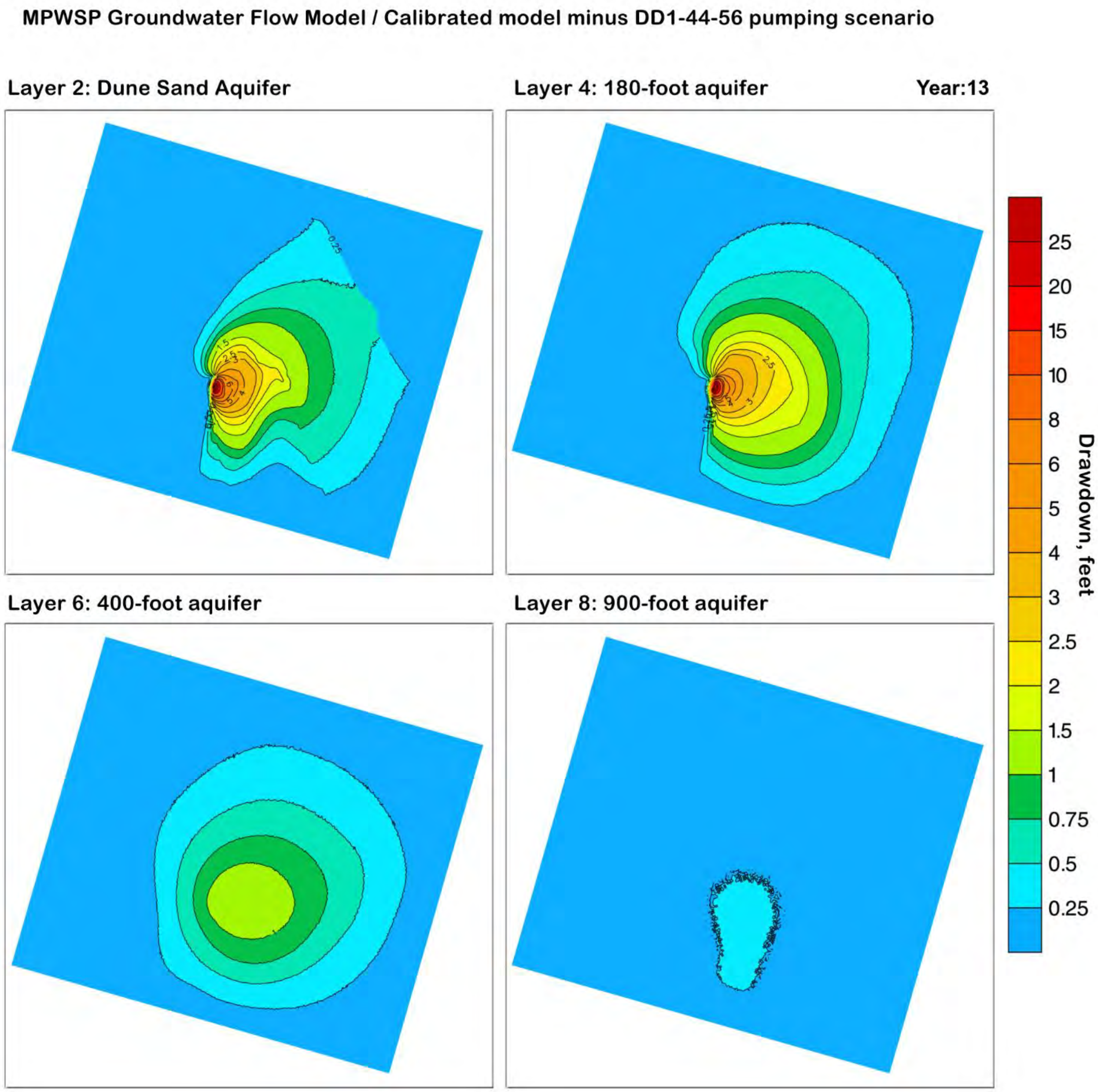

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:08
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25
Drawdown, feet

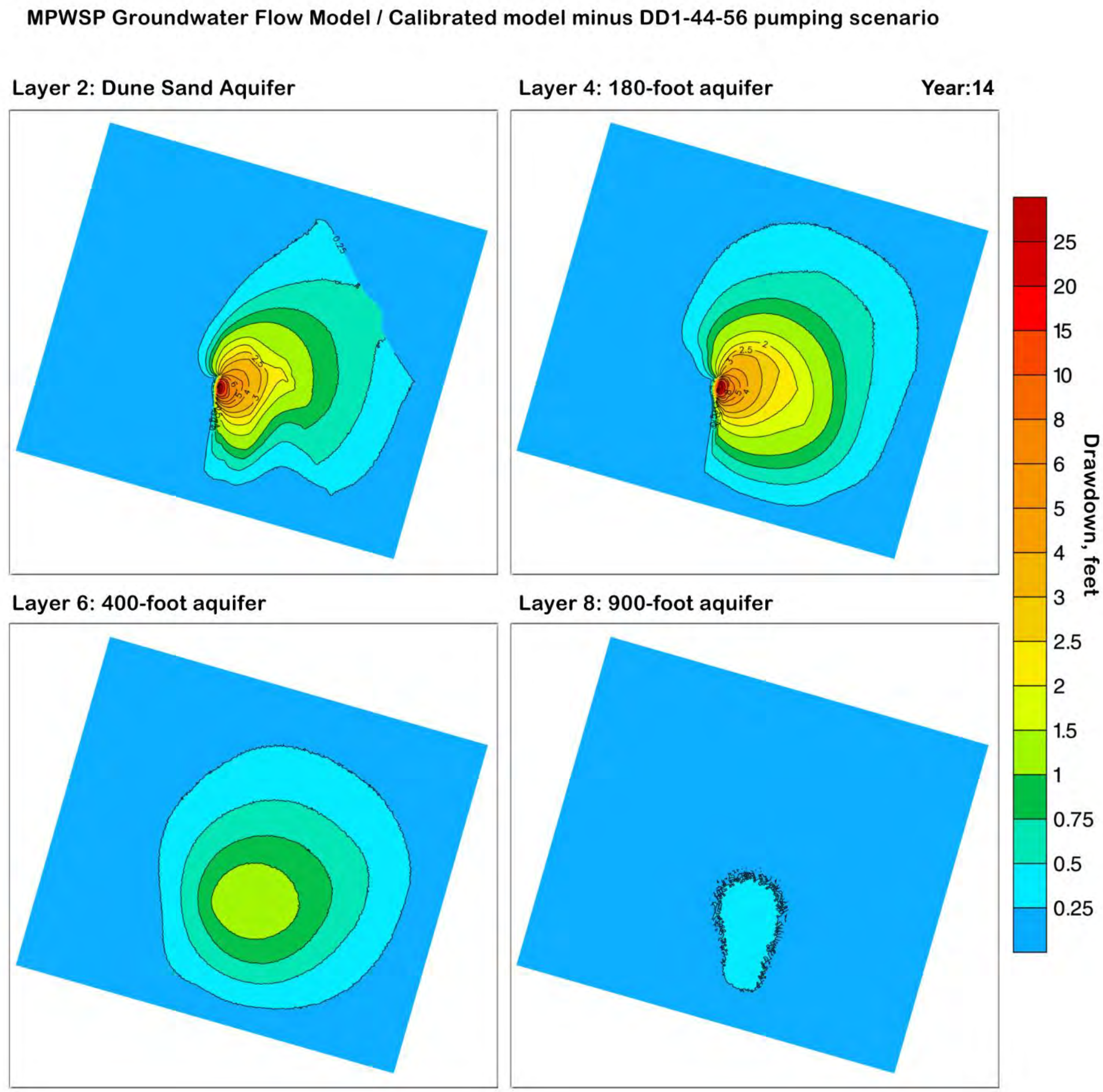

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:09
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

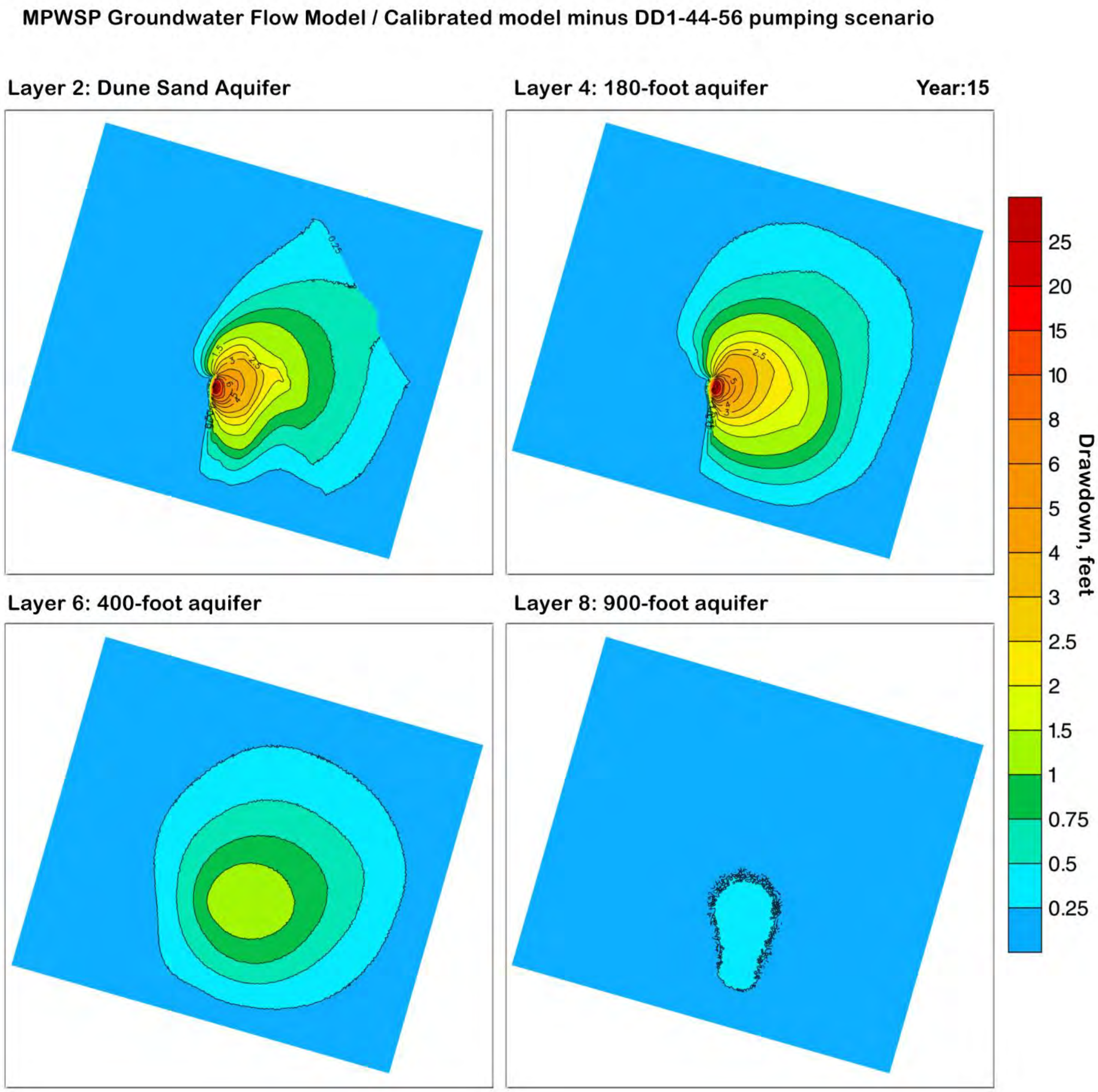

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:10
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

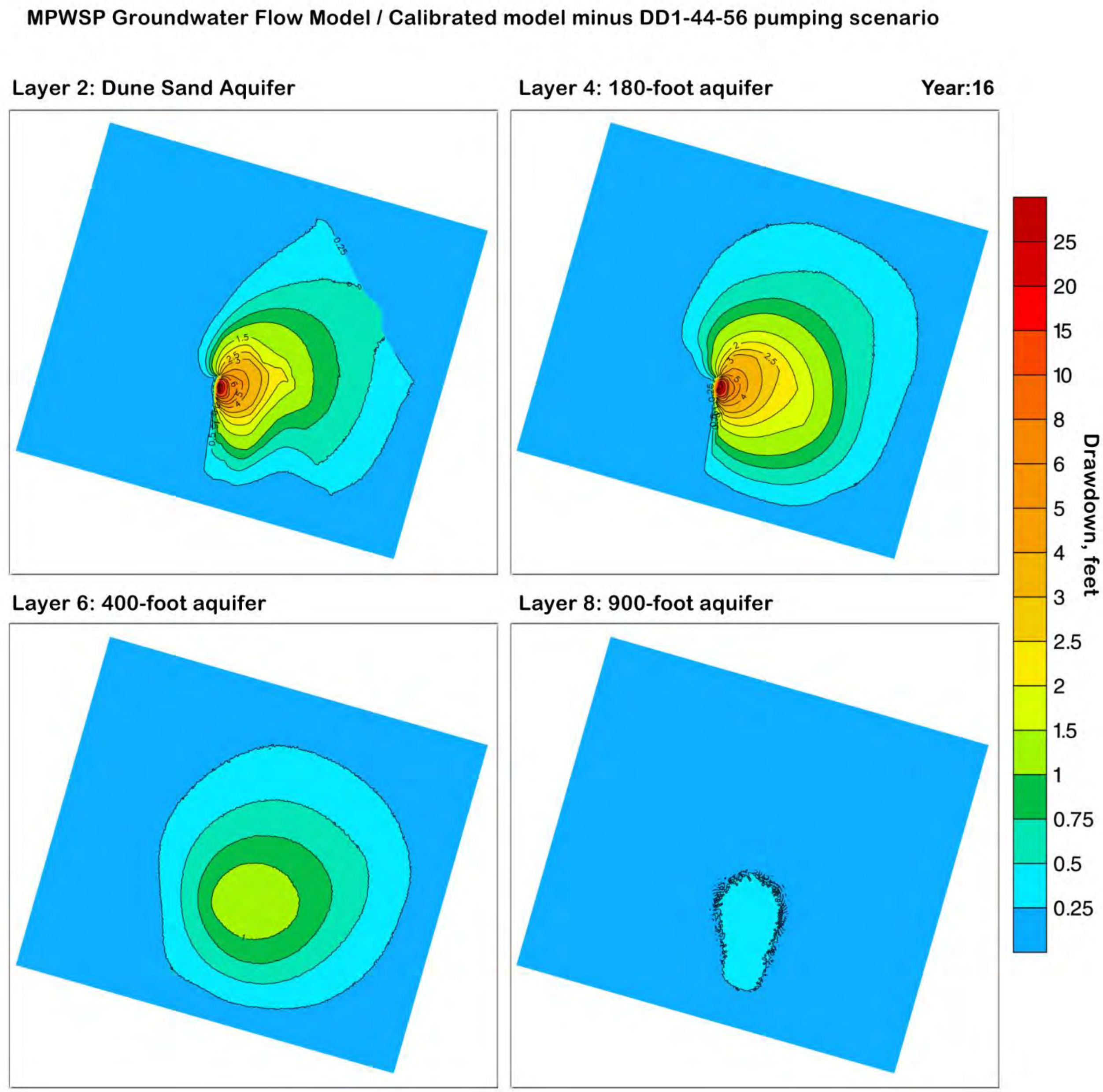

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:11
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

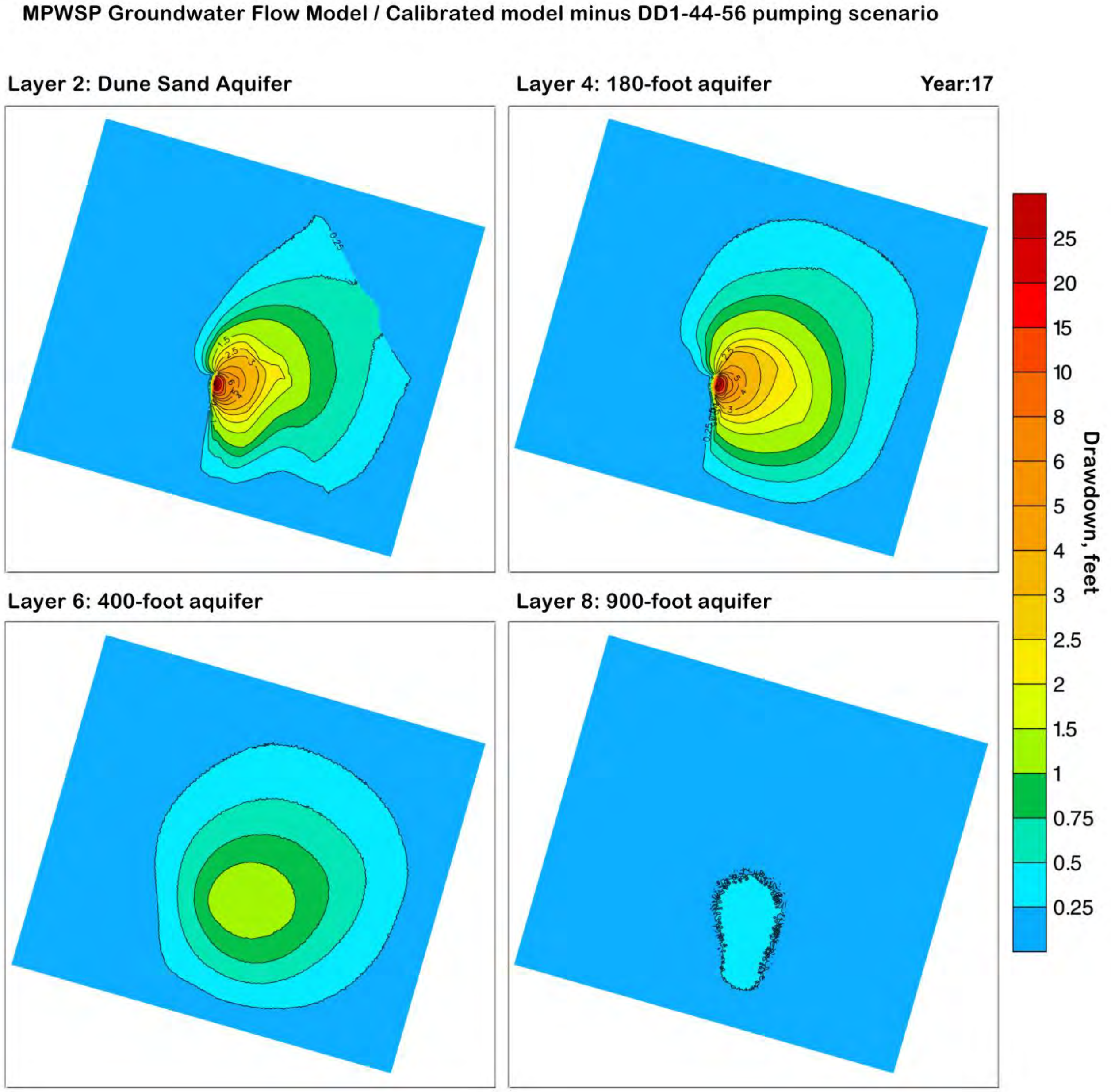

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:12
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

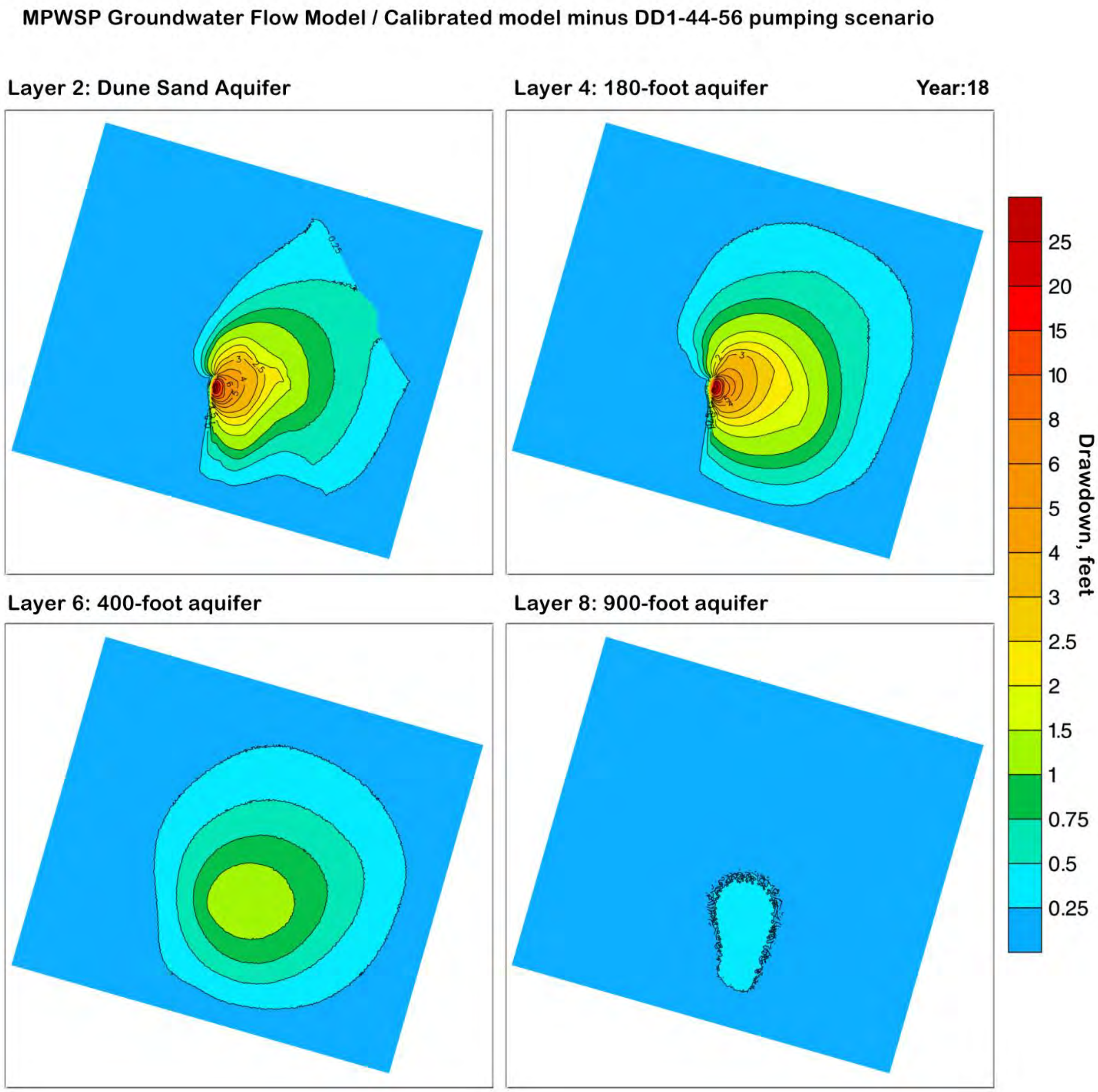

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:13
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

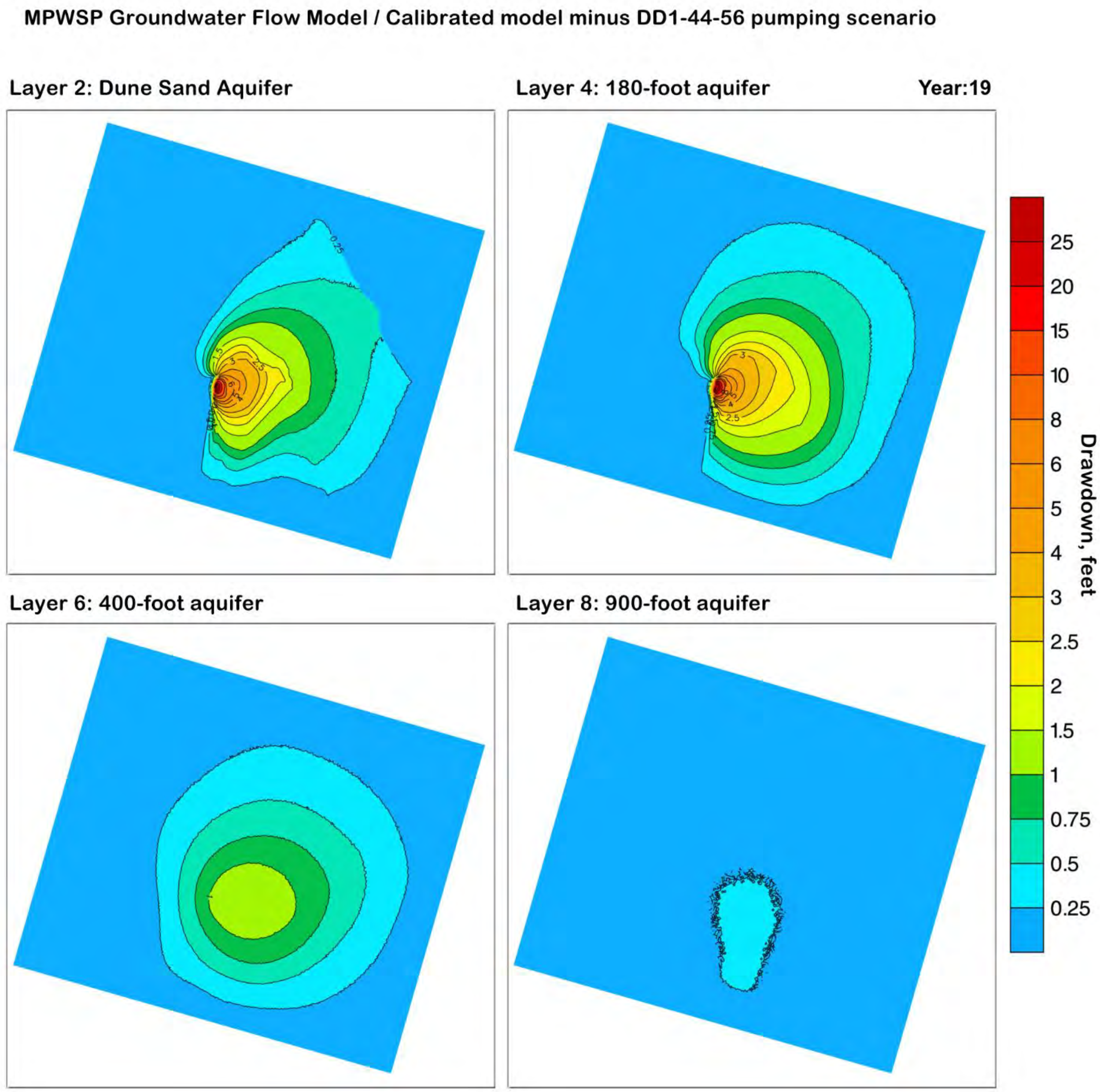

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:14
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

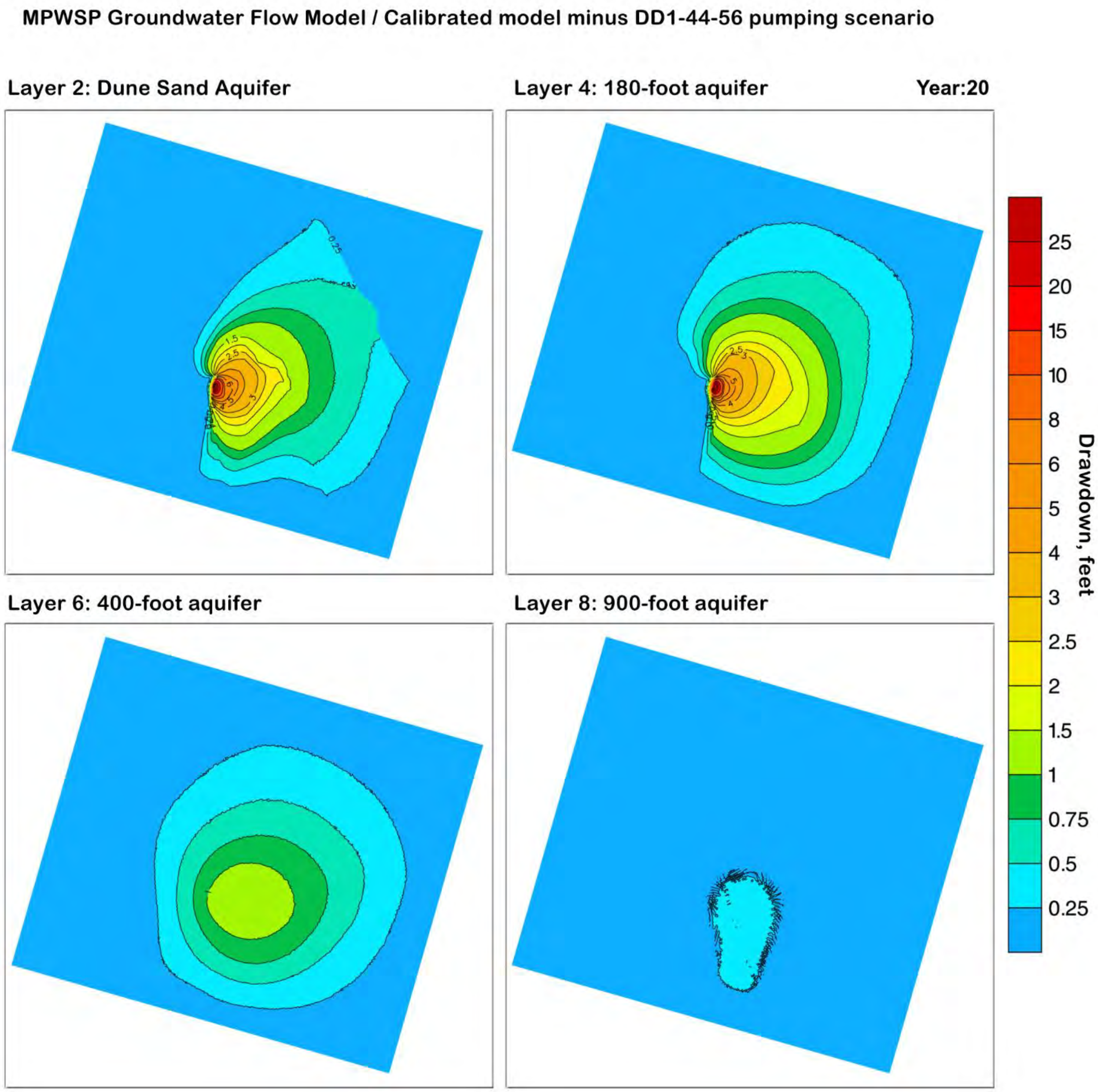

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:15
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25
Drawdown, feet


MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:16
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

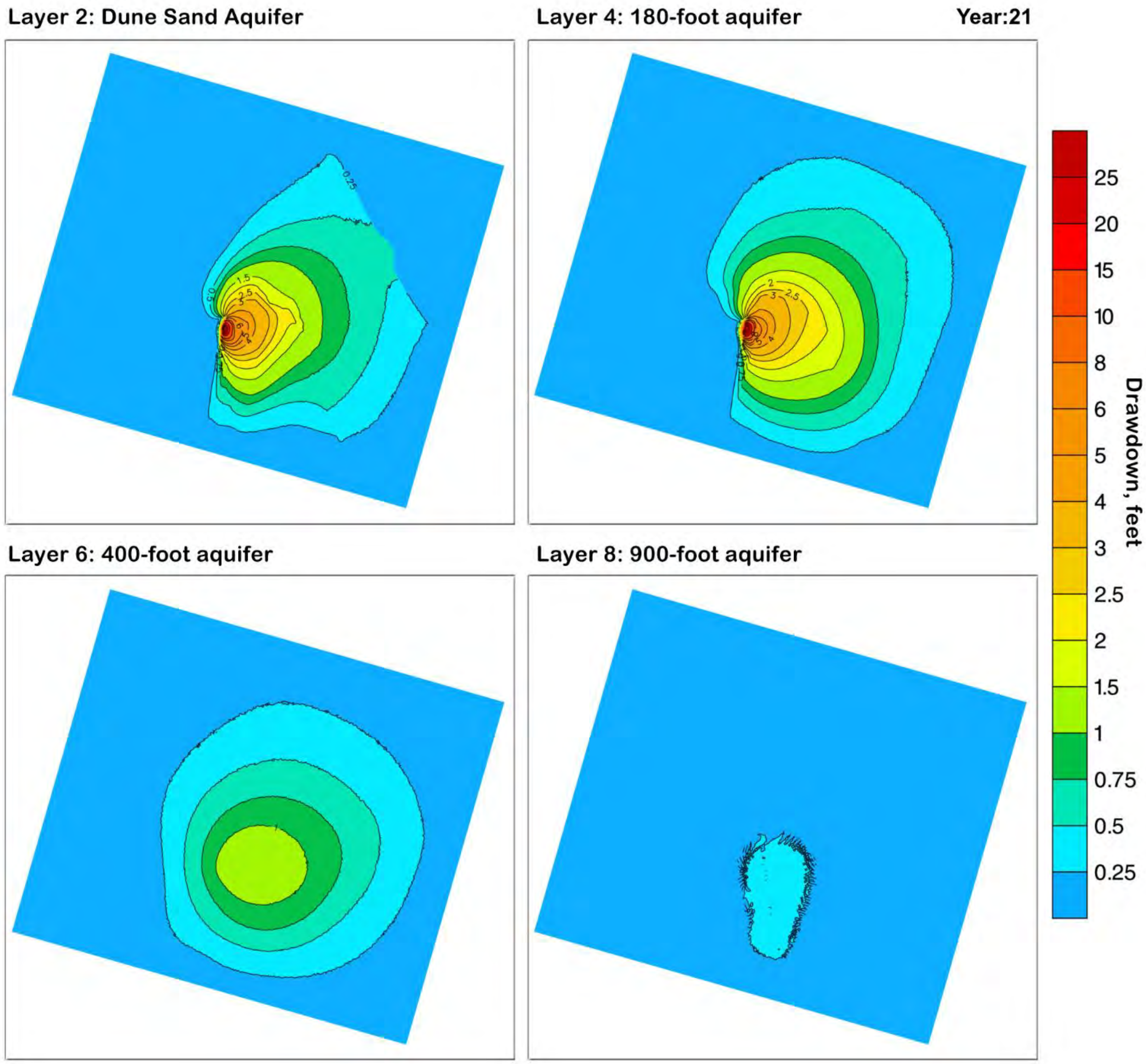

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:17
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

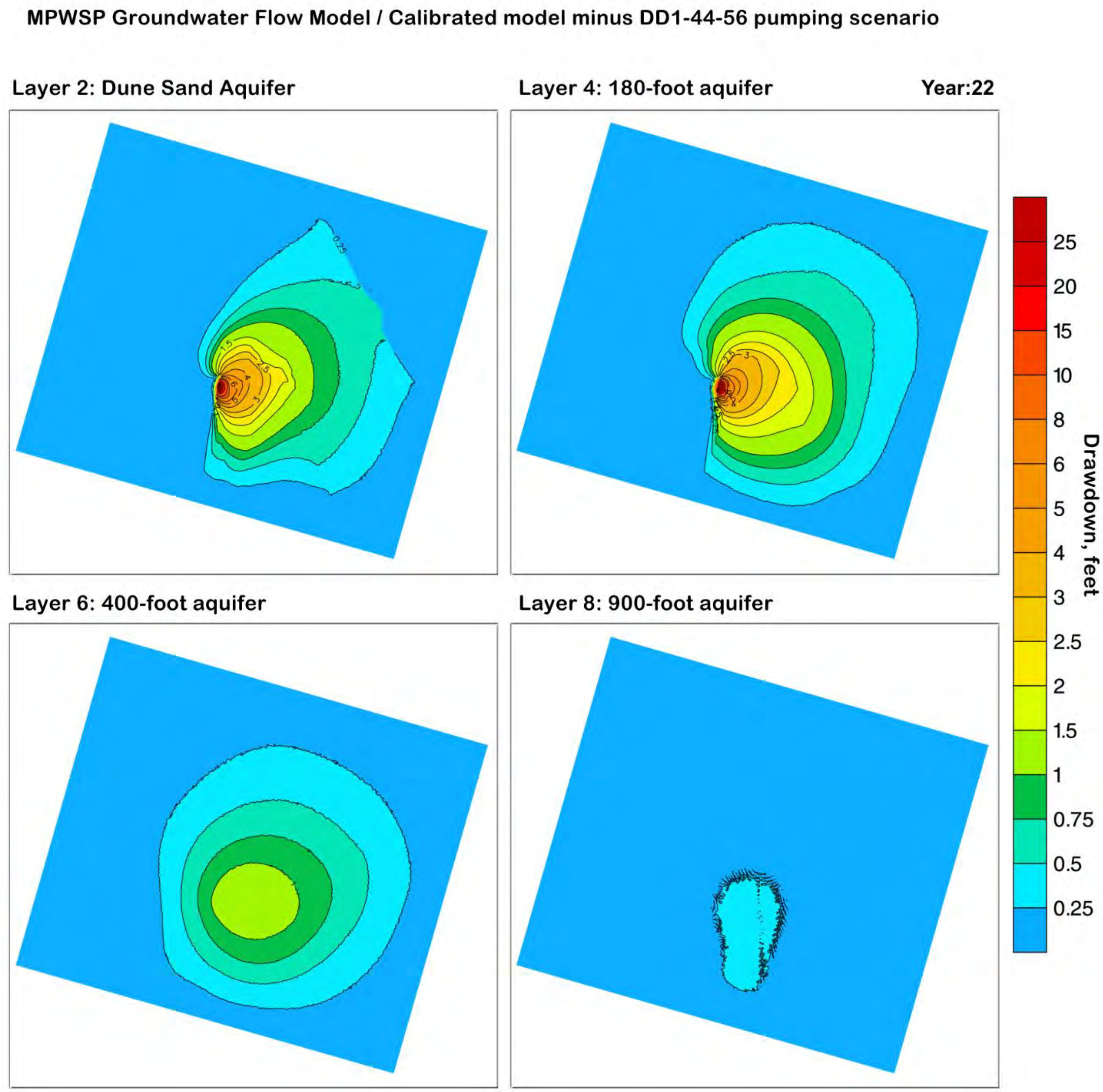

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:18
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25
Drawdown, feet

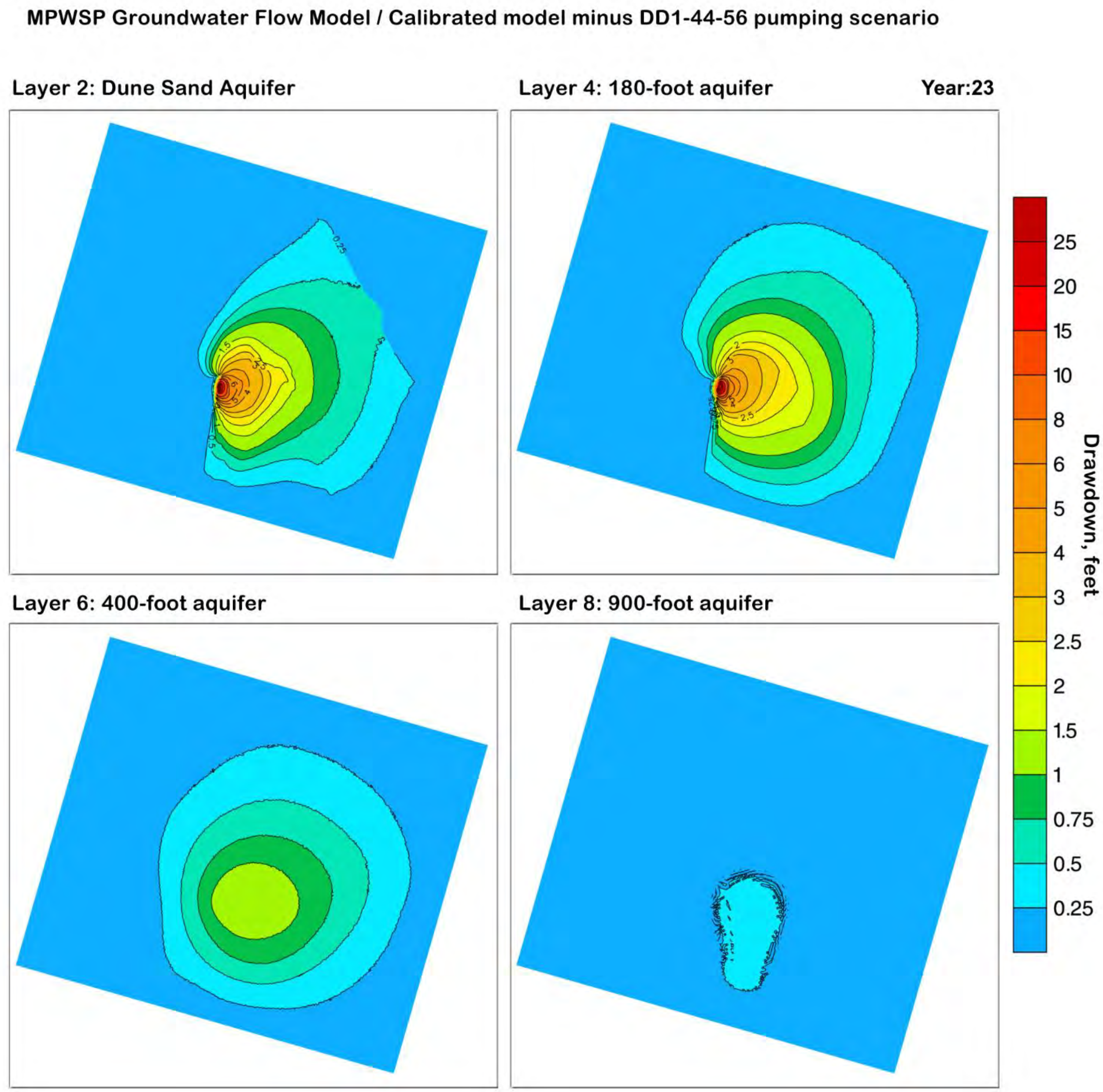

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:19
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25
Drawdown, feet

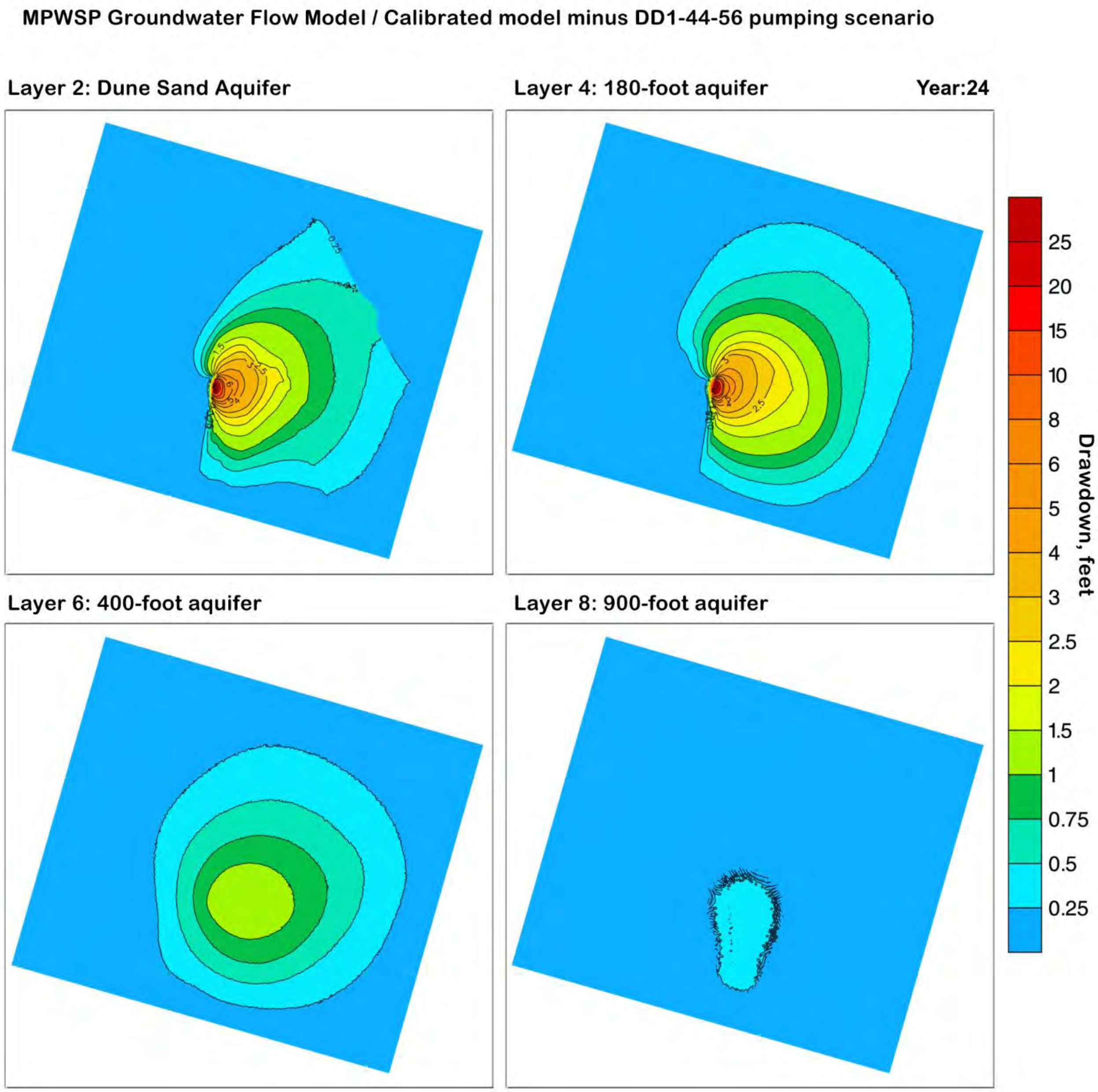

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:20
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

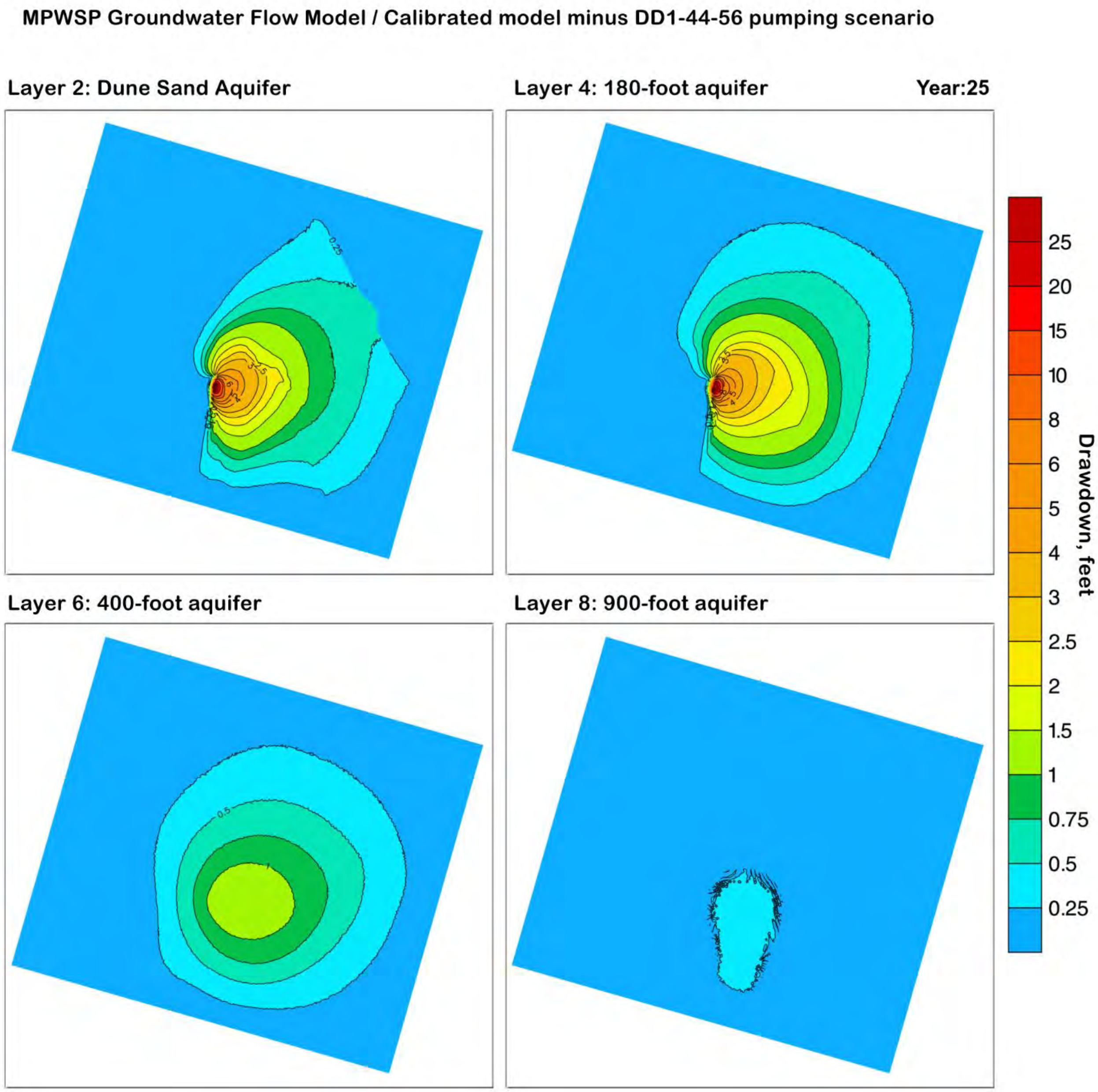
MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario

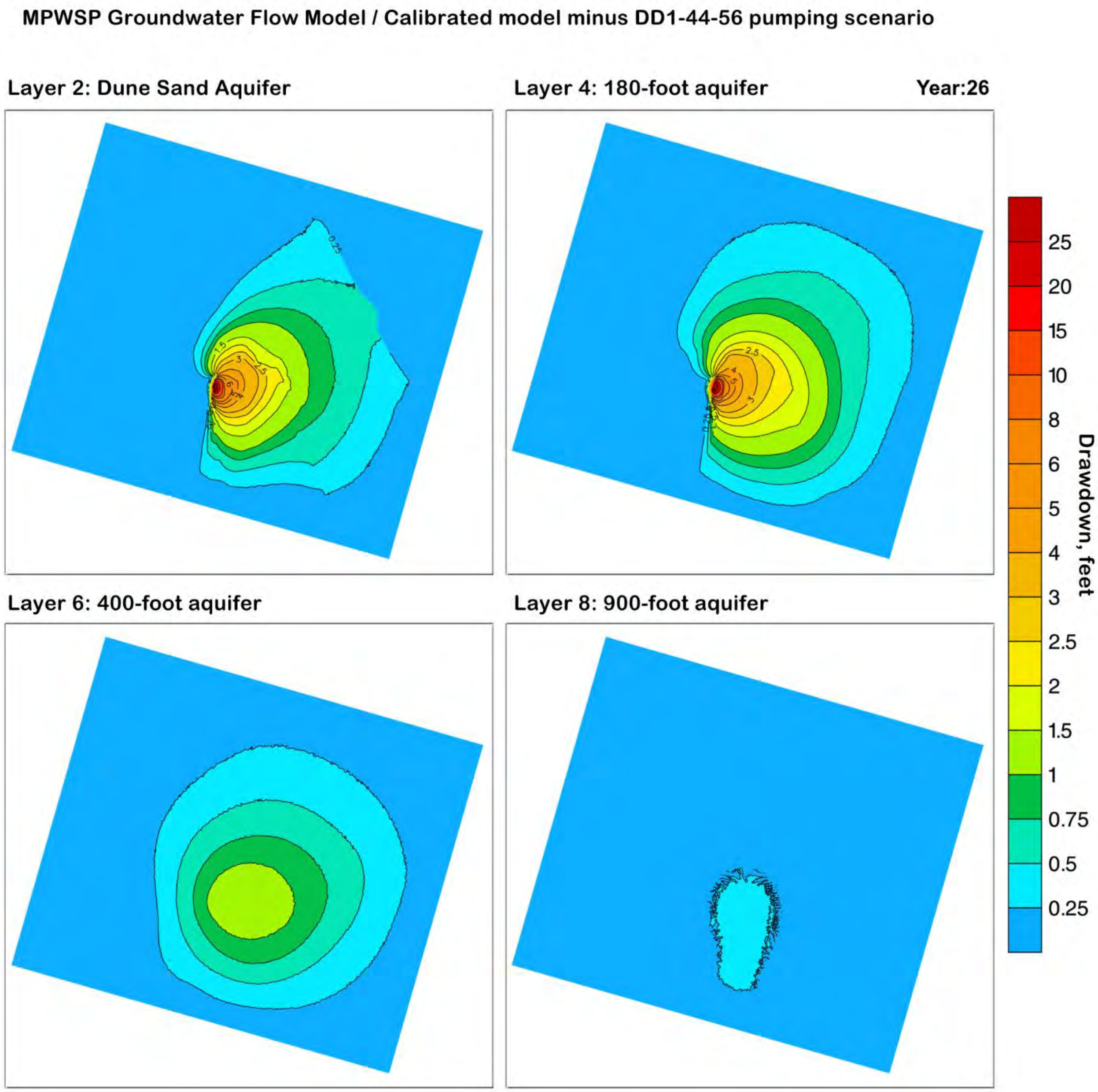


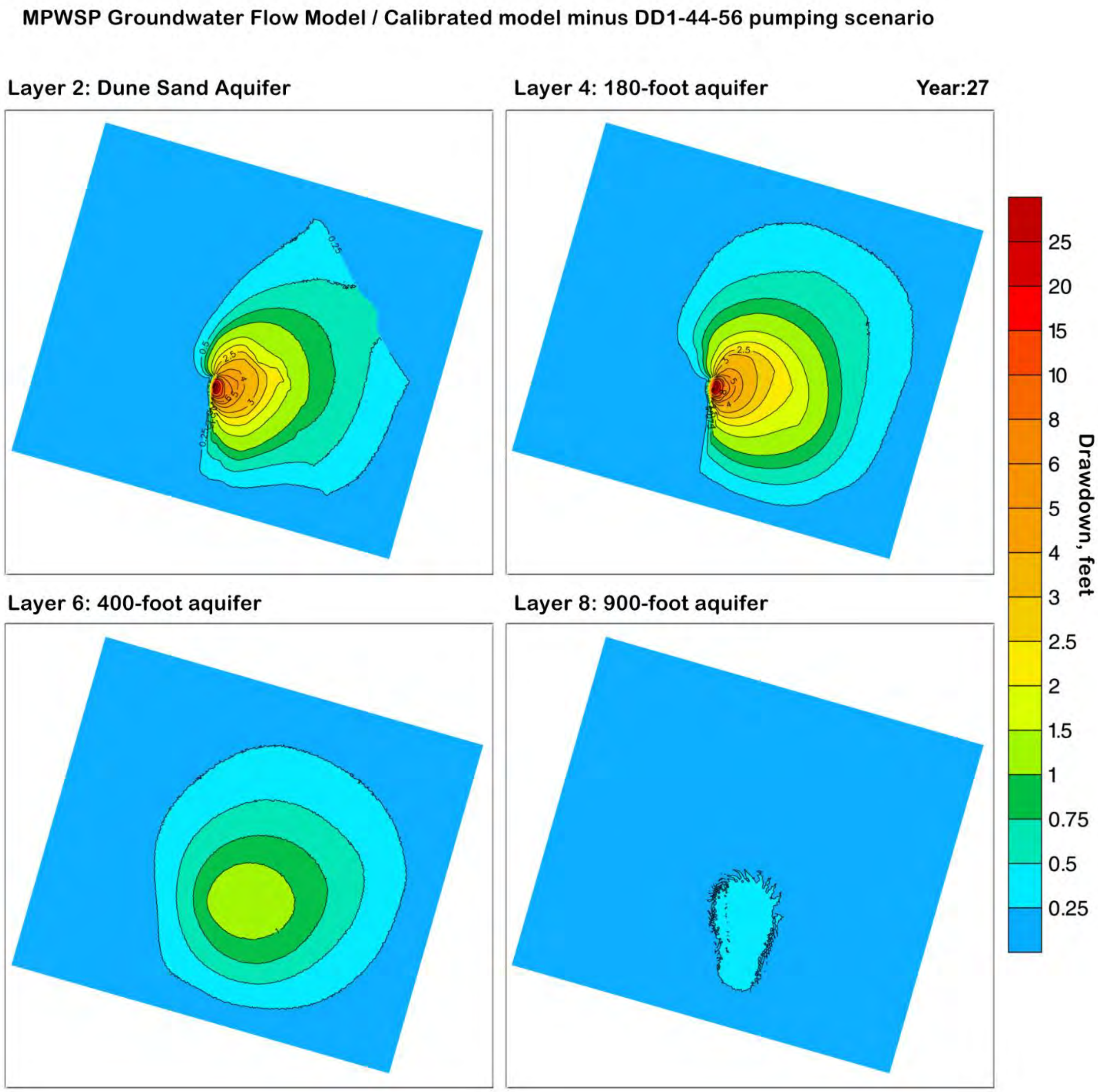

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:22
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

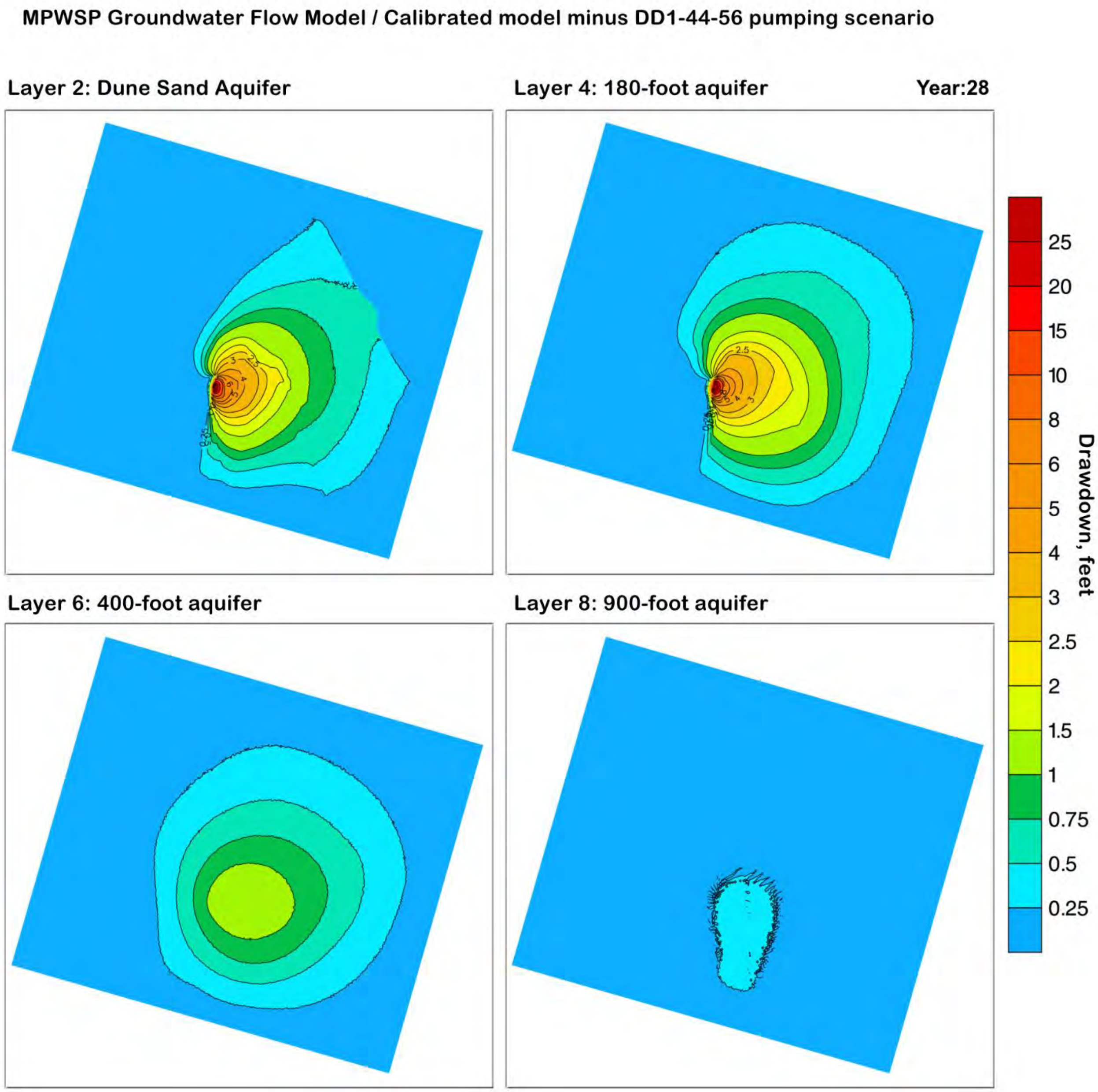

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:23
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

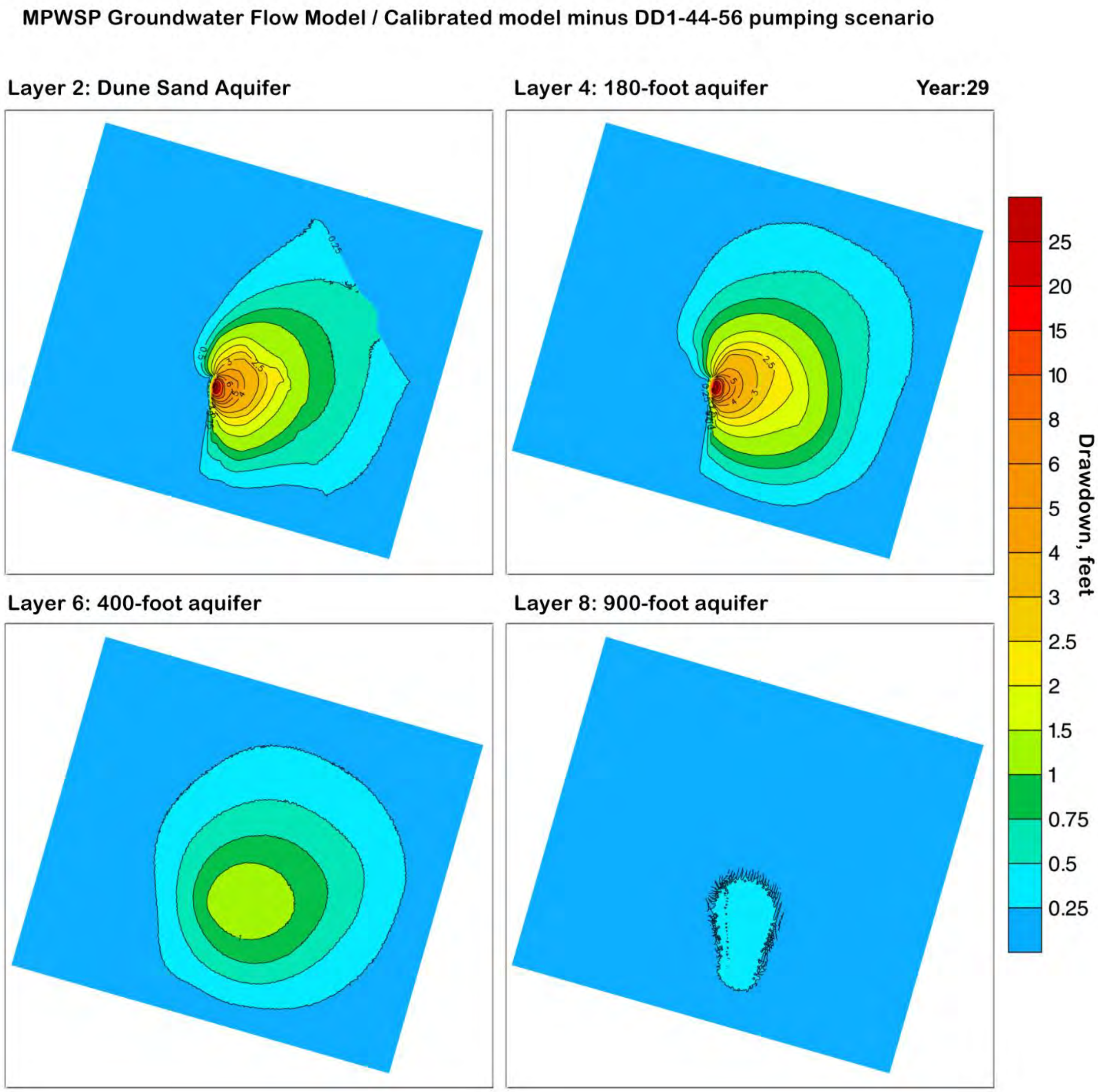

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:24
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25


MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:25
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

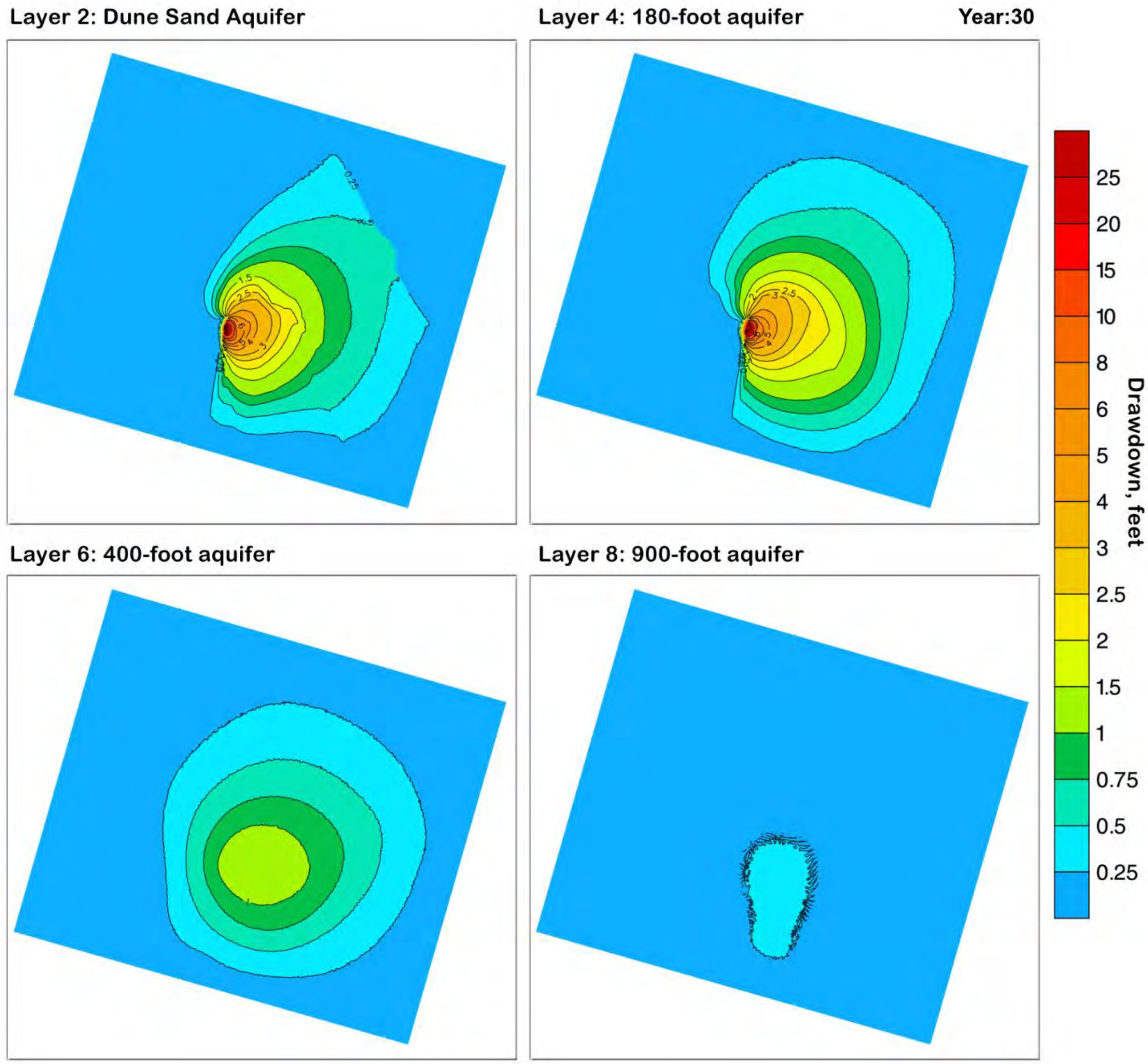

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:26
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

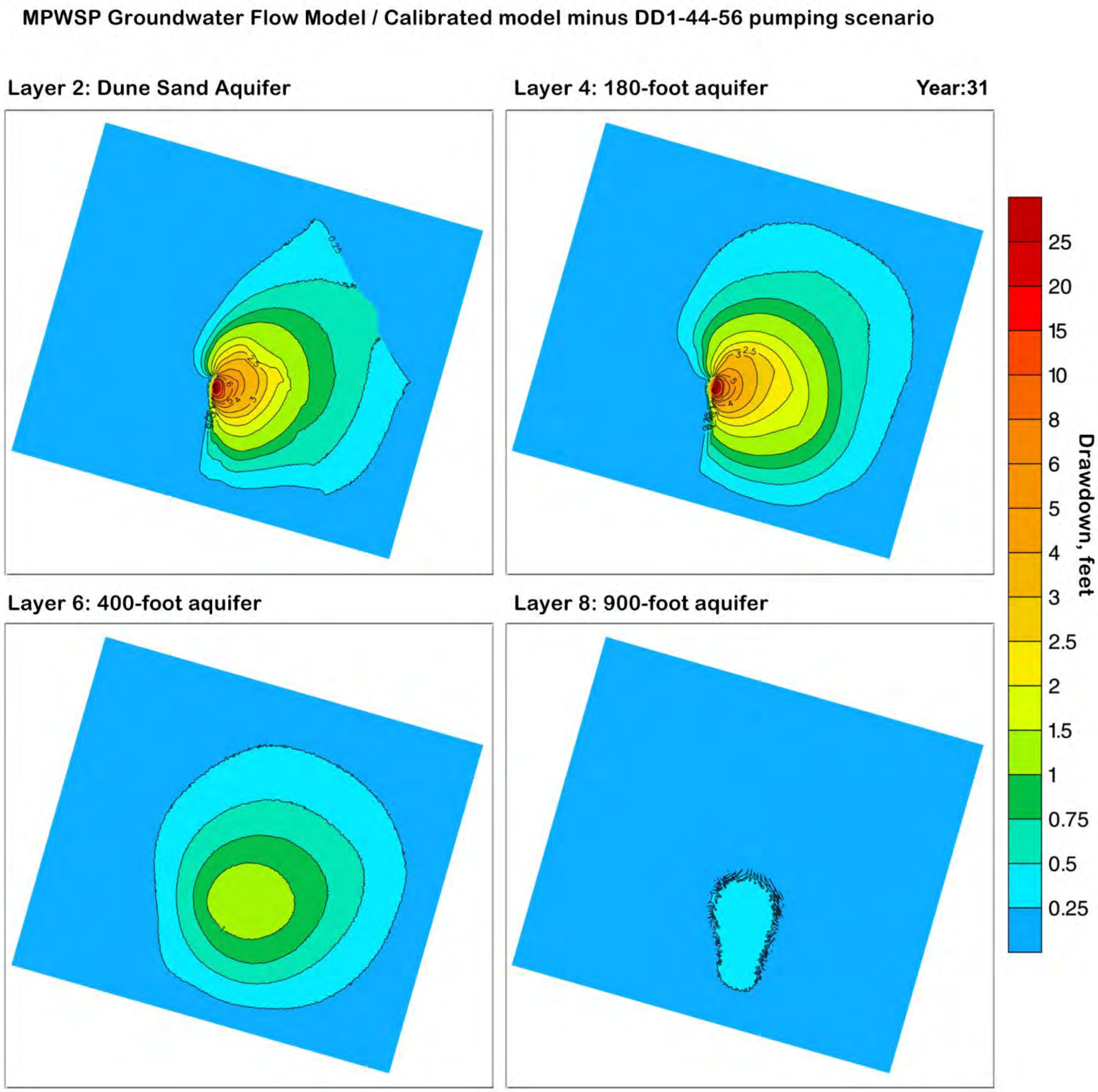

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:27
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25


MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:28
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

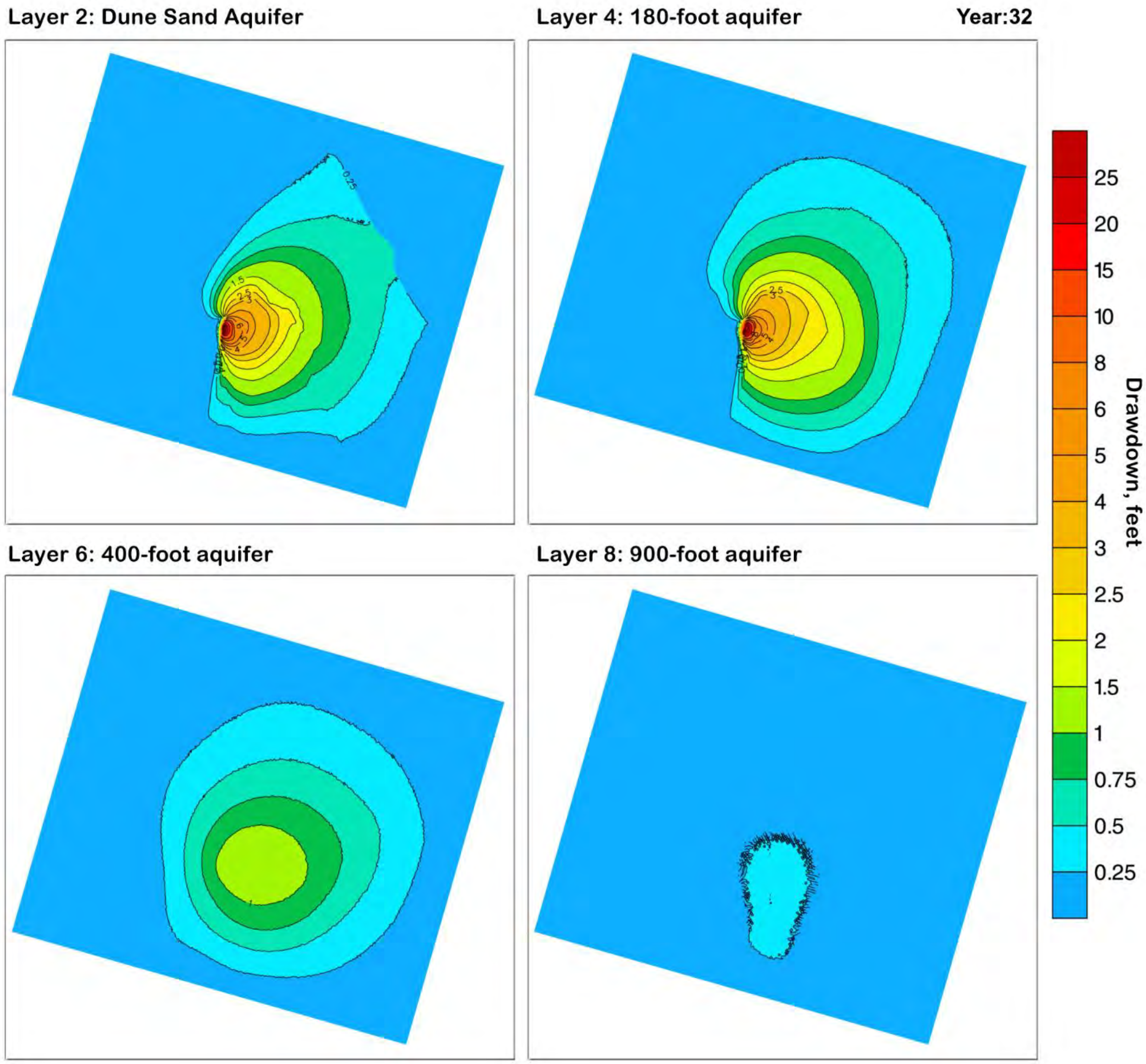

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:29
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario




MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario
Layer 2: Dune Sand Aquifer
Layer 4: 180-foot aquifer
Year:31
Layer 6: 400-foot aquifer
Layer 8: 900-foot aquifer
Drawdown, feet
25
20
15
10
8
6
5
4
3
2.5
2
1.5
1
0.75
0.5
0.25

MPWSP Groundwater Flow Model / Calibrated model minus DD1-44-56 pumping scenario



Appendix 3
Water Budget Reports Exported from the Calibrated and DD1-44/56 Scenarios of the 2016 North Marina Groundwater Model

Timestep-01	Calibrated Scenario							
	Layer 1		Layer 2		Layer 3		Layer 4	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	0	0	285,362	-21,350,041	35,265	-813,813	47,404	-1,332,685
Constant Head	18,291,851	-252,152	522,346	-5,766	53,715	-2,102	52,810	-2,323
Wells	0	0	0	0	0	0	61,253	-273,653
Head Dep Bndys	0	0	8,585,979	-86,368	3,538	-2,534,304	1,076,366	-3,095,653
Recharge	0	0	2,293,857	-168,838	0	0	790,915	0
Total Source/Sink	18,291,851	-252,152	11,687,544	-21,611,012	92,518	-3,350,219	2,028,748	-4,704,314
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	252,152	-18,291,851	995,332	-9,058,885	931,571	-5,738,041	442,563	-2,552,887
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	0	0	18,291,851	-252,152	9,058,885	-995,332	5,738,041	-931,571
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	252,152	-18,291,851	19,287,183	-9,311,037	9,990,456	-6,733,373	6,180,604	-3,484,458
Total Zone Flow	18,544,003	-18,544,003	30,974,727	-30,922,049	10,082,975	-10,083,591	8,209,352	-8,188,772
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	18,039,699	195	-9,923,469	-60	-3,257,700	-189	-2,675,566	-79
Cell To Cell	-18,039,699	-195	9,976,146	70	3,257,084	39	2,696,146	56
Total	0	0	52,677	0	-617	0	20,579	0

Timestep-01	DD1-44/56 Scenario							
	Layer 1		Layer 2		Layer 3		Layer 4	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	0	0	803,292	-21,164,332	128,006	-772,231	69,247	-1,285,492
Constant Head	20,492,924	-226,834	522,420	-5,764	53,726	-2,100	52,823	-2,320
Wells	0	0	0	-1,417,549	0	0	61,253	-2,077,806
Head Dep Bndys	0	0	8,599,595	-86,142	3,573	-2,534,285	1,101,153	-3,075,884
Recharge	0	0	2,293,857	-168,838	0	0	790,915	0
Total Source/Sink	20,492,924	-226,834	12,219,164	-22,842,624	185,305	-3,308,617	2,075,390	-6,441,502
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	226,834	-20,492,924	1,132,123	-10,721,638	1,005,780	-7,470,415	458,584	-2,535,945
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	0	0	20,492,924	-226,834	10,721,638	-1,132,123	7,470,415	-1,005,780
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	226,834	-20,492,924	21,625,047	-10,948,472	11,727,418	-8,602,539	7,929,000	-3,541,725
Total Zone Flow	20,719,758	-20,719,758	33,844,211	-33,791,096	11,912,723	-11,911,156	10,004,390	-9,983,227
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	20,266,089	196	-10,623,460	-61	-3,123,312	-179	-4,366,112	-103
Cell To Cell	-20,266,089	-196	10,676,575	66	3,124,879	31	4,387,274	76
Total	0	0	53,115	0	1,568	0	21,162	0

Timestep-01	Calibrated Scenario							
	Layer 5		Layer 6		Layer 7		Layer 8	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	4,164	-28,249	2,732	-360,236	1,993	-58,716	63,599	-248,736
Constant Head	18,968	-2,021	848,797	-49,241	0	0	0	0
Wells	0	0	0	-1,049,332	0	0	0	-705,723
Head Dep Bndys	213,356	-27,647	1,431,812	-2,036,502	31,148	-103,923	400,874	-468,934
Recharge	0	0	0	0	0	0	0	0
Total Source/Sink	236,489	-57,917	2,283,341	-3,495,312	33,141	-162,639	464,473	-1,423,393
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	406,574	-2,699,485	215,709	-1,298,085	321,704	-1,280,043	0	0
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	2,552,887	-442,563	2,699,485	-406,574	1,298,085	-215,709	1,280,043	-321,704
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	2,959,461	-3,142,049	2,915,194	-1,704,659	1,619,789	-1,495,752	1,280,043	-321,704
Total Zone Flow	3,195,950	-3,199,966	5,198,535	-5,199,971	1,652,929	-1,658,391	1,744,517	-1,745,097
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	178,571	121	-1,211,970	-42	-129,499	-132	-958,920	-102
Cell To Cell	-182,588	-6	1,210,535	52	124,037	8	958,339	120
Total	-4,016	0	-1,436	0	-5,462	0	-581	0

Timestep-01	DD1-44/56 Scenario							
	Layer 5		Layer 6		Layer 7		Layer 8	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	4,690	-27,324	3,139	-353,924	2,165	-58,124	65,868	-247,197
Constant Head	18,970	-2,018	849,432	-49,152	0	0	0	0
Wells	0	0	0	-1,049,332	0	0	0	-705,723
Head Dep Bndys	213,455	-27,658	1,437,590	-2,029,932	31,113	-103,837	403,729	-465,453
Recharge	0	0	0	0	0	0	0	0
Total Source/Sink	237,116	-57,000	2,290,161	-3,482,340	33,278	-161,961	469,597	-1,418,373
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	417,110	-2,678,577	217,833	-1,288,926	324,081	-1,272,040	0	0
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	2,535,945	-458,584	2,678,577	-417,110	1,288,926	-217,833	1,272,040	-324,081
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	2,953,054	-3,137,161	2,896,410	-1,706,036	1,613,007	-1,489,873	1,272,040	-324,081
Total Zone Flow	3,190,170	-3,194,161	5,186,572	-5,188,376	1,646,286	-1,651,834	1,741,637	-1,742,454
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	180,116	122	-1,192,179	-41	-128,682	-132	-948,775	-101
Cell To Cell	-184,107	-6	1,190,375	52	123,134	8	947,959	119
Total	-3,991	0	-1,804	0	-5,548	0	-817	0

Timestep-12	Calibrated Scenario							
	Layer 1		Layer 2		Layer 3		Layer 4	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	0	0	666,724	-565,431	57,993	-56,347	24,418	-434,394
Constant Head	3,648,328	-1,182,875	256,953	-16,579	34,628	-3,777	33,904	-3,968
Wells	0	0	0	0	0	0	157,361	-1,110,258
Head Dep Bndys	0	0	3,872,397	-582,040	9,069	-1,507,699	1,901,715	-2,619,369
Recharge	0	0	2,503,451	-144,743	0	0	772,866	0
Total Source/Sink	3,648,328	-1,182,875	7,299,524	-1,308,793	101,690	-1,567,824	2,890,262	-4,167,989
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	1,182,875	-3,648,328	388,127	-8,853,283	308,312	-7,302,997	236,153	-5,936,700
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	0	0	3,648,328	-1,182,875	8,853,283	-388,127	7,302,997	-308,312
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	1,182,875	-3,648,328	4,036,455	-10,036,158	9,161,595	-7,691,124	7,539,150	-6,245,012
Total Zone Flow	4,831,203	-4,831,203	11,335,979	-11,344,952	9,263,285	-9,258,948	10,429,412	-10,413,001
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	2,465,453	102	5,990,731	139	-1,466,134	-176	-1,277,727	-36
Cell To Cell	-2,465,453	-102	-5,999,704	-85	1,470,471	17	1,294,138	19
Total	0	0	-8,972	0	4,337	0	16,412	0

Timestep-12	DD1-44/56 Scenario							
	Layer 1		Layer 2		Layer 3		Layer 4	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	0	0	703,712	-535,507	58,352	-54,804	24,509	-432,495
Constant Head	6,433,352	-1,101,044	257,094	-16,557	34,644	-3,770	33,921	-3,959
Wells	0	0	0	-1,417,549	0	0	157,361	-2,914,410
Head Dep Bndys	0	0	3,905,888	-566,265	9,173	-1,507,205	1,984,234	-2,546,840
Recharge	0	0	2,503,451	-144,743	0	0	772,866	0
Total Source/Sink	6,433,352	-1,101,044	7,370,145	-2,680,620	102,168	-1,565,778	2,972,891	-5,897,705
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	1,101,044	-6,433,352	680,702	-10,711,404	603,879	-9,166,663	247,487	-5,869,116
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	0	0	6,433,352	-1,101,044	10,711,404	-680,702	9,166,663	-603,879
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	1,101,044	-6,433,352	7,114,055	-11,812,447	11,315,283	-9,847,366	9,414,150	-6,472,995
Total Zone Flow	7,534,396	-7,534,396	14,484,199	-14,493,068	11,417,451	-11,413,144	12,387,041	-12,370,700
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	5,332,309	142	4,689,524	93	-1,463,610	-175	-2,924,814	-66
Cell To Cell	-5,332,309	-142	-4,698,393	-50	1,467,917	14	2,941,155	37
Total	0	0	-8,869	0	4,308	0	16,340	0

Timestep-12	Calibrated Scenario							
	Layer 5		Layer 6		Layer 7		Layer 8	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	129	-25,277	106	-258,109	12	-35,729	0	-373,154
Constant Head	14,700	-3,449	881,909	-56,255	0	0	0	0
Wells	0	0	0	-5,461,332	0	0	0	-1,992,236
Head Dep Bndys	384,273	-29,193	2,482,252	-2,085,848	57,918	-101,789	1,132,110	-216,082
Recharge	0	0	0	0	0	0	0	0
Total Source/Sink	399,101	-57,918	3,364,267	-7,861,543	57,930	-137,518	1,132,110	-2,581,472
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	245,632	-6,288,568	311,733	-1,859,550	400,058	-1,857,534	0	0
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	5,936,700	-236,153	6,288,568	-245,632	1,859,550	-311,733	1,857,534	-400,058
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	6,182,332	-6,524,721	6,600,301	-2,105,182	2,259,608	-2,169,267	1,857,534	-400,058
Total Zone Flow	6,581,433	-6,582,639	9,964,568	-9,966,726	2,317,538	-2,306,786	2,989,644	-2,981,530
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	341,183	149	-4,497,276	-80	-79,589	-81	-1,449,362	-78
Cell To Cell	-342,389	-5	4,495,119	103	90,341	4	1,457,476	129
Total	-1,206	0	-2,158	0	10,752	0	8,115	0

Timestep-12	DD1-44/56 Scenario							
	Layer 5		Layer 6		Layer 7		Layer 8	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	129	-25,238	106	-257,863	12	-35,706	0	-373,026
Constant Head	14,704	-3,438	884,556	-55,887	0	0	0	0
Wells	0	0	0	-5,461,332	0	0	0	-1,992,236
Head Dep Bndys	385,061	-29,190	2,509,147	-2,064,130	58,175	-101,311	1,151,768	-210,390
Recharge	0	0	0	0	0	0	0	0
Total Source/Sink	399,894	-57,866	3,393,808	-7,839,212	58,187	-137,017	1,151,768	-2,575,652
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	249,993	-6,214,853	320,048	-1,841,657	408,049	-1,840,066	0	0
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	5,869,116	-247,487	6,214,853	-249,993	1,841,657	-320,048	1,840,066	-408,049
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	6,119,109	-6,462,339	6,534,901	-2,091,650	2,249,706	-2,160,115	1,840,066	-408,049
Total Zone Flow	6,519,003	-6,520,205	9,928,710	-9,930,862	2,307,893	-2,297,132	2,991,834	-2,983,701
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	342,028	149	-4,445,404	-79	-78,830	-81	-1,423,884	-76
Cell To Cell	-343,230	-5	4,443,252	103	89,591	4	1,432,017	127
Total	-1,203	0	-2,152	0	10,761	0	8,134	0

Timestep-24	Calibrated Scenario							
	Layer 1		Layer 2		Layer 3		Layer 4	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	0	0	581,013	-576,166	31,736	-69,683	79,957	-476,477
Constant Head	3,741,203	-1,159,359	257,210	-16,554	34,662	-3,769	33,943	-3,958
Wells	0	0	0	0	0	0	457,842	-1,134,834
Head Dep Bndys	0	0	2,877,965	-1,077,859	13,683	-561,589	2,322,621	-2,969,355
Recharge	0	0	2,807,304	-143,631	0	0	738,605	0
Total Source/Sink	3,741,203	-1,159,359	6,523,492	-1,814,210	80,081	-635,042	3,632,969	-4,584,625
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	1,159,359	-3,741,203	374,180	-7,665,915	293,746	-7,031,153	236,223	-6,020,790
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	0	0	3,741,203	-1,159,359	7,665,915	-374,180	7,031,153	-293,746
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	1,159,359	-3,741,203	4,115,382	-8,825,274	7,959,661	-7,405,332	7,267,375	-6,314,536
Total Zone Flow	4,900,562	-4,900,562	10,638,874	-10,639,485	8,039,742	-8,040,374	10,900,344	-10,899,161
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	2,581,843	105	4,709,282	113	-554,961	-155	-951,656	-23
Cell To Cell	-2,581,843	-105	-4,709,892	-73	554,328	7	952,840	14
Total	0	0	-610	0	-632	0	1,183	0

Timestep-24	DD1-44/56 Scenario							
	Layer 1		Layer 2		Layer 3		Layer 4	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	0	0	593,706	-565,444	31,877	-69,226	80,029	-475,984
Constant Head	6,554,718	-1,083,217	257,361	-16,530	34,679	-3,760	33,962	-3,949
Wells	0	0	0	-1,417,548	0	0	457,842	-2,938,987
Head Dep Bndys	0	0	2,923,668	-1,068,598	13,855	-561,080	2,403,884	-2,884,928
Recharge	0	0	2,807,304	-143,631	0	0	738,605	0
Total Source/Sink	6,554,718	-1,083,217	6,582,040	-3,211,751	80,411	-634,067	3,714,321	-6,303,847
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	1,083,217	-6,554,718	669,317	-9,511,744	596,166	-8,885,527	247,353	-5,946,026
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	0	0	6,554,718	-1,083,217	9,511,744	-669,317	8,885,527	-596,166
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	1,083,217	-6,554,718	7,224,036	-10,594,960	10,107,910	-9,554,844	9,132,880	-6,542,192
Total Zone Flow	7,637,935	-7,637,935	13,806,076	-13,806,712	10,188,321	-10,188,911	12,847,202	-12,846,039
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	5,471,502	143	3,370,289	69	-553,656	-155	-2,589,526	-52
Cell To Cell	-5,471,502	-143	-3,370,925	-38	553,066	6	2,590,688	33
Total	0	0	-636	0	-590	0	1,163	0

Timestep-24	Calibrated Scenario							
	Layer 5		Layer 6		Layer 7		Layer 8	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	579	-25,723	281	-260,069	25	-37,193	0	-396,339
Constant Head	14,707	-3,438	891,586	-55,017	0	0	0	0
Wells	0	0	0	-5,579,112	0	0	0	-1,993,812
Head Dep Bndys	380,034	-30,583	2,519,733	-2,070,622	58,020	-112,020	1,164,608	-249,811
Recharge	0	0	0	0	0	0	0	0
Total Source/Sink	395,320	-59,743	3,411,600	-7,964,820	58,045	-149,213	1,164,608	-2,639,963
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	245,663	-6,369,127	324,061	-1,895,802	415,839	-1,893,929	0	0
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	6,020,790	-236,223	6,369,127	-245,663	1,895,802	-324,061	1,893,929	-415,839
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	6,266,453	-6,605,349	6,693,188	-2,141,465	2,311,642	-2,217,990	1,893,929	-415,839
Total Zone Flow	6,661,773	-6,665,092	10,104,788	-10,106,285	2,369,686	-2,367,202	3,058,537	-3,055,802
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	335,577	147	-4,553,220	-80	-91,168	-88	-1,475,355	-78
Cell To Cell	-338,896	-5	4,551,722	103	93,652	4	1,478,089	128
Total	-3,319	0	-1,497	0	2,484	0	2,734	0

Timestep-24	DD1-44/56 Scenario							
	Layer 5		Layer 6		Layer 7		Layer 8	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	579	-25,713	281	-260,003	25	-37,187	0	-396,309
Constant Head	14,712	-3,427	894,399	-54,630	0	0	0	0
Wells	0	0	0	-5,579,112	0	0	0	-1,993,812
Head Dep Bndys	380,913	-30,573	2,549,731	-2,046,884	58,295	-111,483	1,185,999	-244,062
Recharge	0	0	0	0	0	0	0	0
Total Source/Sink	396,205	-59,712	3,444,411	-7,940,630	58,320	-148,670	1,185,999	-2,634,184
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	249,832	-6,288,319	333,487	-1,877,250	424,862	-1,875,787	0	0
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	5,946,026	-247,353	6,288,319	-249,832	1,877,250	-333,487	1,875,787	-424,862
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	6,195,858	-6,535,672	6,621,806	-2,127,082	2,302,113	-2,209,273	1,875,787	-424,862
Total Zone Flow	6,592,062	-6,595,385	10,066,217	-10,067,712	2,360,432	-2,357,944	3,061,786	-3,059,046
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	336,492	148	-4,496,219	-79	-90,350	-87	-1,448,185	-76
Cell To Cell	-339,814	-5	4,494,723	103	92,839	4	1,450,924	126
Total	-3,322	0	-1,496	0	2,489	0	2,740	0

Timestep-120	**Calibrated Scenario**							
	Layer 1		**Layer 2**		**Layer 3**		**Layer 4**	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	0	0	97,372	-2,441,540	5,869	-218,374	1,722	-1,522,707
Constant Head	4,535,111	-934,634	259,734	-16,413	35,053	-3,723	34,401	-3,904
Wells	0	0	0	0	0	0	1,375,102	-596,273
Head Dep Bndys	0	0	16,952,122	-1,099,441	10,403	-6,467,503	2,454,062	-11,756,591
Recharge	0	0	3,656,579	-141,595	0	0	677,091	0
Total Source/Sink	4,535,111	-934,634	20,965,806	-3,698,989	51,324	-6,689,600	4,542,379	-13,879,475
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	934,634	-4,535,111	320,065	-21,162,596	262,003	-14,464,242	227,133	-5,094,727
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	0	0	4,535,111	-934,634	21,162,596	-320,065	14,464,242	-262,003
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	934,634	-4,535,111	4,855,176	-22,097,230	21,424,599	-14,784,307	14,691,375	-5,356,730
Total Zone Flow	5,469,745	-5,469,745	25,820,982	-25,796,219	21,475,924	-21,473,907	19,233,754	-19,236,205
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	3,600,476	132	17,266,817	140	-6,638,276	-197	-9,337,096	-101
Cell To Cell	-3,600,476	-132	-17,242,054	-128	6,640,292	37	9,334,645	93
Total	0	0	24,763	0	2,016	0	-2,451	0

Timestep-120	**DD1-44/56 Scenario**							
	Layer 1		**Layer 2**		**Layer 3**		**Layer 4**	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	0	0	98,887	-2,441,163	5,904	-218,414	1,722	-1,522,784
Constant Head	7,380,119	-880,592	259,890	-16,389	35,070	-3,714	34,421	-3,894
Wells	0	0	0	-1,417,549	0	0	1,375,102	-2,400,426
Head Dep Bndys	0	0	17,001,394	-1,090,385	10,572	-6,466,943	2,496,362	-11,627,057
Recharge	0	0	3,656,579	-141,595	0	0	677,091	0
Total Source/Sink	7,380,119	-880,592	21,016,749	-5,107,081	51,545	-6,689,071	4,584,698	-15,554,161
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	880,592	-7,380,119	604,879	-22,989,304	575,604	-16,320,497	238,874	-5,016,757
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	0	0	7,380,119	-880,592	22,989,304	-604,879	16,320,497	-575,604
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	880,592	-7,380,119	7,984,998	-23,869,896	23,564,909	-16,925,376	16,559,371	-5,592,361
Total Zone Flow	8,260,710	-8,260,710	29,001,747	-28,976,977	23,616,454	-23,614,447	21,144,070	-21,146,522
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	6,499,527	157	15,909,669	122	-6,637,525	-197	-10,969,462	-109
Cell To Cell	-6,499,527	-157	-15,884,899	-100	6,639,533	33	10,967,010	99
Total	0	0	24,770	0	2,007	0	-2,452	0

Timestep-120	Calibrated Scenario							
	Layer 5		Layer 6		Layer 7		Layer 8	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	18	-71,762	67	-704,956	7	-113,477	0	-1,415,491
Constant Head	14,778	-3,382	1,027,847	-40,939	0	0	0	0
Wells	0	0	0	-2,796,903	0	0	0	-996,753
Head Dep Bndys	274,740	-30,821	2,384,892	-2,440,057	118,583	-62,425	961,802	-953,995
Recharge	0	0	0	0	0	0	0	0
Total Source/Sink	289,535	-105,966	3,412,806	-5,982,856	118,590	-175,902	961,802	-3,366,238
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	237,979	-5,287,175	49,855	-2,525,109	99,227	-2,508,550	0	0
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	5,094,727	-227,133	5,287,175	-237,979	2,525,109	-49,855	2,508,550	-99,227
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	5,332,706	-5,514,308	5,337,030	-2,763,088	2,624,337	-2,558,405	2,508,550	-99,227
Total Zone Flow	5,622,241	-5,620,274	8,749,835	-8,745,944	2,742,926	-2,734,306	3,470,352	-3,465,466
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	183,570	93	-2,570,050	-55	-57,312	-39	-2,404,437	-111
Cell To Cell	-181,602	-3	2,573,942	64	65,932	3	2,409,323	185
Total	1,968	0	3,891	0	8,620	0	4,886	0

Timestep-120	DD1-44/56 Scenario							
	Layer 5		Layer 6		Layer 7		Layer 8	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	18	-71,764	67	-704,963	7	-113,478	0	-1,415,496
Constant Head	14,783	-3,371	1,030,841	-40,637	0	0	0	0
Wells	0	0	0	-2,796,903	0	0	0	-996,753
Head Dep Bndys	275,641	-30,782	2,412,076	-2,410,733	119,018	-62,004	977,619	-941,692
Recharge	0	0	0	0	0	0	0	0
Total Source/Sink	290,442	-105,917	3,442,984	-5,953,236	119,025	-175,482	977,619	-3,353,941
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	242,950	-5,203,395	51,015	-2,497,321	101,347	-2,482,570	0	0
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	5,016,757	-238,874	5,203,395	-242,950	2,497,321	-51,015	2,482,570	-101,347
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	5,259,707	-5,442,270	5,254,411	-2,740,271	2,598,668	-2,533,585	2,482,570	-101,347
Total Zone Flow	5,550,149	-5,548,187	8,697,395	-8,693,507	2,717,693	-2,709,067	3,460,189	-3,455,288
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	184,525	93	-2,510,252	-53	-56,457	-38	-2,376,322	-110
Cell To Cell	-182,563	-3	2,514,140	63	65,083	3	2,381,223	184
Total	1,962	0	3,888	0	8,626	0	4,901	0

Timestep-Final	Calibrated Scenario							
	Layer 1		Layer 2		Layer 3		Layer 4	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	0	0	1,493,643	-75,099	105,683	-741	150,264	-2,274
Constant Head	3,067,336	-1,562,586	254,395	-16,584	34,260	-3,775	33,478	-3,966
Wells	0	0	0	0	0	0	448,919	-2,615,651
Head Dep Bndys	0	0	2,691,823	-2,734,378	19,185	-210,247	3,958,045	-3,046,621
Recharge	0	0	3,659,107	-170,568	0	0	1,157,863	0
Total Source/Sink	3,067,336	-1,562,586	8,098,968	-2,996,628	159,128	-214,764	5,748,568	-5,668,512
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	1,562,586	-3,067,336	499,346	-7,110,039	402,314	-6,959,091	225,908	-6,868,378
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	0	0	3,067,336	-1,562,586	7,110,039	-499,346	6,959,091	-402,314
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	1,562,586	-3,067,336	3,566,682	-8,672,626	7,512,353	-7,458,437	7,184,999	-7,270,692
Total Zone Flow	4,629,922	-4,629,922	11,665,650	-11,669,254	7,671,481	-7,673,201	12,933,567	-12,939,204
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	1,504,749	65	5,102,340	92	-55,636	-30	80,056	1
Cell To Cell	-1,504,749	-65	-5,105,944	-83	53,916	1	-85,693	-1
Total	0	0	-3,604	0	-1,720	0	-5,637	0

Timestep-Final	DD1-44/56 Scenario							
	Layer 1		Layer 2		Layer 3		Layer 4	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	0	0	1,492,812	-75,062	105,440	-748	150,152	-2,285
Constant Head	5,801,528	-1,395,636	254,551	-16,559	34,277	-3,767	33,497	-3,956
Wells	0	0	0	-1,417,549	0	0	448,919	-4,419,804
Head Dep Bndys	0	0	2,717,696	-2,701,592	19,416	-209,732	4,068,866	-2,985,210
Recharge	0	0	3,659,107	-170,568	0	0	1,157,863	0
Total Source/Sink	5,801,528	-1,395,636	8,124,166	-4,381,329	159,133	-214,247	5,859,296	-7,411,255
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	1,395,636	-5,801,528	790,116	-8,942,457	687,304	-8,786,232	235,751	-6,788,329
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	0	0	5,801,528	-1,395,636	8,942,457	-790,116	8,786,232	-687,304
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	1,395,636	-5,801,528	6,591,645	-10,338,093	9,629,761	-9,576,348	9,021,982	-7,475,633
Total Zone Flow	7,197,165	-7,197,165	14,715,811	-14,719,421	9,788,894	-9,790,595	14,881,279	-14,886,889
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	4,405,892	122	3,742,837	60	-55,114	-30	-1,551,959	-23
Cell To Cell	-4,405,892	-122	-3,746,448	-44	53,413	1	1,546,349	19
Total	0	0	-3,611	0	-1,701	0	-5,610	0

Timestep-Final	**Calibrated Scenario**							
	Layer 5		**Layer 6**		**Layer 7**		**Layer 8**	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	8,146	-46	72,198	-55	7,499	-4	45,401	-8
Constant Head	14,633	-3,442	781,988	-69,137	0	0	0	0
Wells	0	0	0	-8,394,231	0	0	0	-105,375
Head Dep Bndys	471,534	-30,619	4,228,025	-3,286,935	77,969	-152,026	830,881	-1,156,039
Recharge	0	0	0	0	0	0	0	0
Total Source/Sink	494,313	-34,107	5,082,211	-11,750,358	85,468	-152,030	876,282	-1,261,422
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	235,117	-7,342,435	669,878	-1,113,133	744,701	-1,128,194	0	0
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	6,868,378	-225,908	7,342,435	-235,117	1,113,133	-669,878	1,128,194	-744,701
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	7,103,495	-7,568,343	8,012,313	-1,348,250	1,857,834	-1,798,072	1,128,194	-744,701
Total Zone Flow	7,597,808	-7,602,450	13,094,525	-13,098,608	1,943,302	-1,950,102	2,004,476	-2,006,123
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	460,206	174	-6,668,147	-79	-66,561	-56	-385,141	-36
Cell To Cell	-464,848	-6	6,664,063	142	59,761	3	383,493	41
Total	-4,642	0	-4,084	0	-6,800	0	-1,647	0

Timestep-Final	**DD1-44/56 Scenario**							
	Layer 5		**Layer 6**		**Layer 7**		**Layer 8**	
Sources/Sinks	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out	Flow In	Flow Out
Storage	8,143	-46	72,184	-55	7,497	-4	45,387	-8
Constant Head	14,638	-3,431	784,801	-68,649	0	0	0	0
Wells	0	0	0	-8,394,231	0	0	0	-105,375
Head Dep Bndys	472,454	-30,576	4,262,666	-3,264,912	78,328	-151,517	841,325	-1,138,320
Recharge	0	0	0	0	0	0	0	0
Total Source/Sink	495,234	-34,053	5,119,651	-11,727,847	85,825	-151,521	886,711	-1,243,703
Zone Flow								
Flow Right Face	0	0	0	0	0	0	0	0
Flow Front Face	0	0	0	0	0	0	0	0
Flow Lower Face	237,649	-7,256,038	695,390	-1,109,652	769,497	-1,124,847	0	0
Flow Left Face	0	0	0	0	0	0	0	0
Flow Upper Face	6,788,329	-235,751	7,256,038	-237,649	1,109,652	-695,390	1,124,847	-769,497
Flow Back Face	0	0	0	0	0	0	0	0
Total Zone Flow	7,025,979	-7,491,789	7,951,428	-1,347,302	1,879,149	-1,820,237	1,124,847	-769,497
Total Zone Flow	7,521,213	-7,525,842	13,071,079	-13,075,149	1,964,974	-1,971,758	2,011,559	-2,013,200
Summary	In - Out	% difference	In - Out	% difference	In - Out	% difference	In - Out	% difference
Sources/Sinks	461,181	174	-6,608,196	-78	-65,695	-55	-356,992	-34
Cell To Cell	-465,810	-6	6,604,126	142	58,912	3	355,351	38
Total	-4,629	0	-4,070	0	-6,783	0	-1,641	0

Kevin E. Day, M.S., P.G. – *Senior Hydrogeologic Modeler*

Years with Firm:	15 years
Industry Experience:	19 years
Education:	M.S., Geohydrology, University of Wyoming, 2000 B.S., Geology, Colgate University, 1993
Expertise:	Geologic Modeling, Groundwater Flow Modeling, Data Visualization, Database Development, Computer Programming

GeoHydros LLC, Reno Nevada (formerly Hazlett-Kincaid, Inc) *2001 – Present*
Senior Hydrogeologic Modeler

Responsibilities for all entities have included: all phases of geologic structural and groundwater modeling using EarthVision, MODFLOW and FEFLOW; geospatial analysis using GIS; database design and administration; near surface geophysical survey design and deployment; groundwater well production and performance testing; geospatial software application development, user interface development and Linux / Windows systems administration. Projects addressed a diverse set of problems, including structural and stratigraphic geologic investigations, geotechnical parameter and soils modeling, and groundwater flow and contaminant transport modeling.

LeanAg Technologies, LLC *2014 – Present*
Vice President - Development

Co-founder of LeanAg Technologies, LLC providing data driven crop intelligence. Responsible for development of analytics and process automation for crop specific spectral data collected using UAV platforms.

Integral Development Corporation*, Mountain View, California – Release Manager* *2000 – 2001*

TriHydro Corporation*, Laramie, Wyoming – Field Technician, Hydrogeologist* *1997 – 2000*

EarthVision Projects of Note

Geological Modeling, Flow & Transport Modeling - Navarro-Intera, USDOE (Las Vegas, NV)
Currently serving as Geologic Modeling Consultant for EarthVision™ structural geologic model development and migration in support of process (Flow and Transport) modeling teams. The most complex of these Hydrostratigraphic models articulate more than 75 Hydrostratigraphic Units traversed and offset by over 100 faults over hundreds of square kilometers. The geologic models comprise thrust faults, extensional faults, caldera collapse features and transverse faults. In addition to development of automated model production, output and quality control routines, the framework models have been translated and exported to specialized process simulators developed by national laboratories. Model development requires integration of multiple forms of data including surface geology, remote sensing, borehole lithology and borehole geophysics, seismic survey, gravity and aeromagnetic survey data.

DSCP Hydrogeologic Modeling – Philadelphia, Pennsylvania – Tetra Tech EC, USDOD
Developed site- and regional-scale 3D geologic framework models (GFM) in EarthVision™ for a heterogeneous multi-aquifer system beneath the former DSCP facility that has been impacted by more than two million gallons of light non-aqueous phase liquid. Model includes several structural surfaces created from borehole stratigraphic data, geostatistically defined 3D lithologic zones created from borehole lithology data, 3D parameter distributions created from soil contaminant data, and underground structures created from GIS, CAD, and map engineering data. As part of this work, developed a set of software programs to address and capitalize on wells that do not fully penetrate the recognized stratigraphic units that statistically distributes model uncertainty such that all stratigraphic units are more accurately modeled. This software was used to constrain model boundaries and identify discontinuities in the key confining layer. Created a routine for exporting the 2D and 3D components of the GFM from EarthVision into FEFLOW for subsequent groundwater flow and fate and transport modeling currently being performed to support site closure under Pennsylvania Act 2.

Fairbanks Disposal Pit 3D Conceptual Model – Gainesville, Florida – WRS Inc, FDOT
Coupled seismic, resistivity and borehole data to build a 3D GFM in a karst setting to identify potential conduits between the surficial and water-supply aquifers. Constructed the model using the EarthVision™ software by compiling numerous data streams into a central database from which lithologic and seismic data were extracted, correlated, and incorporated into the GFM. Model described the structural surface of key aquifers and confining units, as well as the probable location of karst collapse features thought to be contaminant pathways to the water

supply aquifers. Used geophysical and field testing data to delineate hydraulic conductivity distributions within heterogeneous surficial units and evaluate the competency of shallow clay lenses as barriers to vertical contaminant migration.

Pennridge Water Resource Protection Model – Bucks County, PA – Borton Lawson Engineering
Generated a GFM of the regional fractured bedrock aquifer that was used as the basis for groundwater flow modeling to support a basin-wide wellhead protection program. The GFM simulated a complex faulted, folded and intruded structural setting consisting of 65 stratigraphic units and 2 fault blocks. The GFM was constructed from a rich set of outcrop structural measurements that were used to project stratigraphic and structural surfaces to depth. The surfaces were then extracted and used to construct the framework for a 35-layer finite-element groundwater flow model using the FEFLOW software.

Indian Refinery Geologic & Contaminant Characterization Model – Lawrenceville, Illinois – TriHydro Corp.
Developed a series of 3-D Probability Models for areas of concern within the refinery to predict the location of buried wastes relative to permeable soils and groundwater. Various data sets were incorporated into the model to better characterize the extent of impacted materials, including ground penetrating radar surveys, electrical conductivity surveys and borehole logs.

Rapid Site Characterization Modeling – Kansas City, Kansas – Delta Environmental Consultants
Produced volumetric and probability modeling of impacted soils and groundwater correlating geophysical, borehole and analytical data to produce a rapid characterization of the site of a former refinery. This modeling effort was performed to support the EPA Triad approach to Rapid Site Characterization.

MODFLOW Projects of Note

Groundwater Flow and Contaminant Transport Modeling – Various Sites, North Carolina – Duke Energy
Designed and calibrated 3-D groundwater flow and fate-and-transport models using MODFLOW-GMS, PEST, and MT3D to predict performance of coal ash pond closure scenarios. Groundwater models were optimized and calibrated to support models of various constituents of interest (COI) in transport modeling. Project deliverables included 250 year forecasts of COI concentrations at on and offsite receptor locations, sensitivity analyses and new tools to facilitate data extraction and processing from model output binaries.

Dissolved-phase Contaminant Transport Modeling – High Springs, Florida – The Coca-Cola Company
Developed 2-D and 3-D groundwater flow and fate-and-transport models using MODFLOW-GMS, PEST, and MT3D to assess the impact on groundwater and surface water quality associated with the infiltration of effluent from a reverse osmosis facility. Several different realizations of the model were developed to predict the possible range in transport pathways and times associated with known but undefined karst conduit pathways. The goal of the modeling effort was to ensure that effluent disposal would not adversely impact water quality at the production well or nearby springs.

Rapid Infiltration & Water Supply Impact Modeling – Florida – Apex Companies
Developed numerous 2-D and 3-D groundwater models to address the impacts of both recharge to and withdrawal from the aquifer systems underlying small communities throughout Florida. The models were required for permitting by regulatory agencies to determine whether proposed changes in water usage due to growth would result in unacceptable change to the groundwater system, and were developed using the GMS – MODFLOW software platform in conjunction with EarthVision.

Dissolved-phase Contaminant Transport Modeling – Pennsylvania – SSM Inc
Developed several 2-D and 3-D groundwater flow / fate-and-transport models using MODFLOW-GMS, MT3D, and RT3D to characterize the transport of dissolved-phase volatile organic compounds released to surficial aquifers from leaking underground storage tanks at various locations in Pennsylvania. The models were required under Pennsylvania Act 2 as part of the site investigation and closure process.

Database Projects of Note

Nevada Department of Environmental Protection – Carson City, Nevada
Developed an Adobe Flex based product for cataloging and executing air quality modeling program (AERMOD) in support of permit application evaluation. Desktop application was designed to include an ArcSDE based model result rendering component providing a visual analytical tool to support the permitting process.

Woodville Karst Plain Hydrogeologic Characterization – Tallahassee, Florida – Florida Geologic Survey
Developed a web-based interactive database to store, manage, and disseminate hydrologic data being continuously collected in the Woodville Karst Plain by the Florida Geological Survey. The database currently contains flow, temperature, and conductivity data from seven hydraulic meters deployed in large underwater cave

systems as well as groundwater level data from 13 transducers deployed in wells, springs, and sinkholes. Developed a user interface that provides for graphical analysis and download of data via the internet.

FDEP Hazardous Waste Database – Florida – Florida Department of Environmental Protection
Developed a desktop database application for use by FDEP to store and access historical hazardous waste records. The application was written in Visual Basic and Microsoft Access, and was formatted in compliance with EPA's STORET database. The primary purpose of the database was to provide better access to data through stored procedures and dynamic queries, and to establish spatial indexing of environmental data.

Field Projects of Note

Guantanamo Bay – Cuba – United States Navy Construction Battalion
Planned and deployed a geophysical survey of Naval Base perimeter patrol road in support of planned bridge building and low water crossing design to solve access issues during high precipitation events. The project planners required knowledge of bedrock depth and potential karst features in the vicinity of proposed bridge pilings. Geophysical methods included ground penetrating radar and electrical resistivity.

Texaco Refineries – Casper, Wyoming; Sunburst, Montana; Lawrenceville, Illinois
Planned and deployed geophysical surveys of decommissioned oil refineries to identify and locate underground objects with the potential to contain petroleum product. Project required integration of data from Trimble GPS and Geonics EM-61 induced conductivity survey tools to produce georeferenced map products for excavation contractors to remove identified objects.

Technical Skills and Certifications

Computer Software Proficiency

- PC, Mac, Unix (Solaris) and Linux environments
- Software proficiency includes: EarthVision, GMS (MODFLOW, MODPATH, MT3DMS, RT3D, PEST), ArcGIS, FEFLOW, Adobe suite, MS Access (VBA Development), Excel, MySQL, Adobe Flex/Flash, LabTech
- Programming skills include experience in MATLAB, R, Visual Basic, Perl, PHP, SQL, Actionscript , JavaScript, c and bourne shell scripting
- Web Server and web development has included Apache, Qmail and Postfix mail server administration, Flash, PHP/MySQL and Javascript

Certifications

- February 2008: Florida Professional Geologist Certification received
- May 2005: California Professional Geologist Certification received
- July 2000: Solaris System Administrator I Certification received
- December 1999: Trimble GPS Certification received
- December 1997: ESRI ArcView GIS Certification received
- July 1997 OSHA: 40 hr. HAZWOPPER Certification received

Selected Peer Reviewed Articles

Lance Prothro, Margaret Townsend, Heather Huckins-Gang, Dawn Reed, Sigmund Drellack, Kevin Day and Todd Kincaid, 2015, Developing a 3-D Seismic-Attribute Framework Model of Yucca Flat, Nevada National Security Site.

Day, K.E., Kincaid, T.R., 2013, A New Hydrostratigraphic Framework Model (HFM) of Pahute Mesa, Nevada, MODFLOW and More 2013: Translating Science into Practice, Colorado School of Mines, Golden, Colorado.

Day, K.E., Kincaid, T.R., 2013, Benefits of Automation in Hydrostratigraphic Framework Modeling: A New HFM for Pahute Mesa, Nevada, UGTA TIE Annual Meeting, Furnace Creek, Death Valley, NV.

Day, K.E., Kincaid, T.R., 2009, 3-D Solids & Parameter Modeling to Facilitate TRIAD-Compliant Rapid Site Characterization, American Society of Civil Engineers 24th Central PA Geotechnical Conference.

Day, K.E., Kincaid, T.R., 2007, A Web-Based Tool for Analytical Comparison of Hydrologic Data in the Woodville Karst Plain, NGWA 4th Conference on Hydrogeology, Monitoring and Management of Ground Water in Karst Terrains.

Todd R. Kincaid, PH.D. – *Principal Hydrogeologic Modeler*

Years with Firm:	17 years
Industry Experience:	24 years
Education:	Ph.D., Geohydrology, University of Wyoming, 1999 M.S., Hydrogeology, University of Florida, 1994 B.S., Geology, University of Florida, 1991 U.S. Airforce Academy, 1986-1987
Expertise:	Karst Hydrogeology, Groundwater Tracing, Geologic Modeling, Groundwater Flow Modeling, Data Visualization

GeoHydros LLC, Reno Nevada (formerly Hazlett-Kincaid, Inc) *1999 – Present*
President, Principal Hydrogeologic Modeler

Dr. Kincaid co-founded Hazlett-Kincaid, Inc. in 1999 to provide highly specialized modeling, visualization, and data analysis professional services to the groundwater resources communities. He reorganized the business in 2010 as GeoHydros, LLC. Services include groundwater and geologic modeling, 3D data visualization, and karst aquifer characterization. Current and previous clients include: USDOD, USDOE, USACE, FL and NV Dept of Env. Protection, FL Geological Survey, North FL Water Management District, Alachua Co FL, Charlotte Co FL, Bucks Co PA, Hardin Co OH, Cities of Tallahassee FL, Punta Gorda FL, and Ada OH, New York Metropolitan Transit Authority, Puget Sound Energy, Votorantim Metais Brazil, Tarmac America, Buzzi USA, Exxon-Mobile, The Coca Cola Company, Ginnie Springs Outdoors, St. Johns Riverkeeper, the Sierra Club, Tetra Tech, Arcadis, ERM, Antea, Delta, STV Inc, Parsons Brinkerhoff Quade and Douglas, and numerous other small environmental and geotechnical consulting firms. Dr. Kincaid's responsibilities include: scientific oversight of all modeling work, solids and parameter modeling, hydrogeological assessments, groundwater tracing, presentation development and delivery, and expert testimony as well as program and business development, and financial oversight.

Global Underwater Explorers (GUE), High Springs Florida *2000 – Present*
Vice President / Board of Directors

Dr. Kincaid currently serves as *Vice President & Science Director* for this international non-profit organization whose goal is to protect sensitive underwater environments through exploration, research, and public education. Dr. Kincaid's work for GUE has focused on promoting cooperation and collaborations between private, government, and diving communities that contribute to protecting underwater environments. He has organized workshops, field trips, and seminars; regularly authors articles for trade journals; and is also responsible for developing financial support for continued research and education efforts. He currently leads the organizations primary conservation effort: *Project Baseline* (*www.projectbaseline.org*), which aims to empower divers to observe and record long term environmental conditions at diving sites around the world and share those observations with the public through a web-based geospatial database.

***Woodward-Clyde Federal Services**, Las Vegas, Nevada – Geologic Modeler* *1998*
***University of Wyoming**, Laramie, Wyoming – Graduate Assistant, Hydrogeology* *1994 – 1999*
***Project KarstDive**, Antalya Turkey – Project Leader & Chief Scientist* *1995 – 1996*
***GeoSolutions, Inc.**, Gainesville, Florida – Hydrogeologist I* *1992 – 1994*
***University of Florida**, Gainesville, Florida – Graduate Assistant, Geology* *1991 – 1993*

Projects of Note – Last 5 Years

Geological Modeling, Flow & Transport Modeling - Navarro-Intera, USDOE (Las Vegas, NV) *2009 - Present*
Leads a group of scientists tasked with developing a set of geological framework models for the USDOE to characterize the extent and magnitude of contamination resulting from historical underground nuclear testing. The models are created in EarthVision™. Modeled areas vary from 570 to 2700 km2 and extend to depths of between 6500 and 9500 m and simulate multiple extensional faults that offset approximately 60 different discontinuous and variably thick hydrostratigraphic units, including carbonates, lava flows, welded and non-welded tuffs, and alluvial sediments. Designed and implemented automated model development processes that allow rapid model revisions, and methodologies for rapidly exporting EarthVision frameworks to flow modeling codes including FEHM and FEFLOW™. His team also developed simulations for radionuclide transport through the carbonate hydrostratigraphic units using FEFLOW.

Groundwater Tracing & Numerical Modeling – Puget Sound Energy (Concrete WA) *2014 – 2015*
Designed, constructed, and managed a groundwater tracing program at the Lower Baker Dam in 2015 that successfully traced leakage flow paths and water velocities between the forebay and the plunge pool and between several discrete zones within boreholes drilled adjacent to the dam and the plunge pool. Managed the design and development of a numerical groundwater flow model constructed with the software FEFLOW™ that simulated leakage along discrete fracture flow pathways identified in a Leapfrog™ 3D geologic model and verified through groundwater tracing that calibrated to the tracer-defined water velocities along the flow paths, the total discharge measured in the plunge pool, and an estimated distribution of discharge from a series of discrete vents in and above the plunge pool.

Water Budget Analysis - Alachua County (Gainesville, FL) *2014 - 2015*
Led an effort to define aquifer recharge in surficial aquifer and Floridan aquifer basins in north-central Florida that relied on streamflow data and a compilation of groundwater extraction records and estimates, swallet flow and lake storage measurements, and reported return flows to define recharge to surficial aquifer where present and unconfined portions of the upper Floridan aquifer as well as leakage from the surficial aquifer through the upper confining layers into the upper Floridan aquifer.

Numerical Model Review - Ginnie Springs Outdoors (High Springs, FL) *2013 - 2014*
Led an effort to test the validity and reliability of the predicted impacts of groundwater pumping to spring and river flows and upper Florida Aquifer groundwater levels generated by the Suwannee River Water Management District's North Florida numerical groundwater model. Evaluations included: 1) assigned recharge vs. verifiable groundwater discharge at sub-watershed scale; 2) flow paths and travel-times vs. results of numerous groundwater tracer tests; 3) assigned transmissivity vs. values derived from aquifer performance tests; 4) unreported residuals at rivers and springs vs. target heads defined in river and drain nodes; 5) deviations between simulated and measured drawdowns at large municipal well fields; and 6) spatial trends in calibration residuals. Report on the results and findings were formally presented to the State water management districts, and the Florida Department of Environmental Protection.

Groundwater Tracing - Votorantim Matais (Vazante, Brazil) *2013*
Led the development and execution of a groundwater tracing project to identify the locations of river water losses within an approximately 10 km stretch of a river flowing over karstic carbonate rocks and trace the fate of those losses within 5 km of underground mine tunnels spanning six elevation levels. Performed 6 separate tracer injections; continuously monitored 17 stations within the underground mine, mine discharge, and the river; successfully established connections to 11 stations and the lack of connection to 6 stations; and developed tracer recovery curves and calculated corresponding mass recoveries at the mine discharge and river sampling stations. Developed conceptual model describing mechanisms for the discharge of river water into the mine tunnels.

Groundwater Flow Modeling - ERM, Exxon-Mobile (Ontario, CA) *2012*
Led an effort to develop a 3D digital conceptual site model and 3D numerical groundwater flow model of the West Coast Groundwater Basin surrounding Torrance, California using EarthVision™ and FEFLOW™. The model addressed hydrostratigraphic and structural relationships between five aquifers two regional faults. Developed a CSM using EarthVision that became the framework for the FEFLOW groundwater flow model as well as a platform for the visualization of hydraulic communication between the aquifers through intervening confining layers. Capture zones and the influence of the fault and regional wells were evaluated with 3D particle tracks exported from the FEFLOW model and visualized in GIS and the EarthVision CSM.

Groundwater Tracing - Florida Geologic Survey (Tallahassee, FL) *2001 - 2012*
Lead scientist and project manager for a multi-faceted karst aquifer characterization and public education effort in the Woodville Karst Plain of North Florida funded by the FL Geological Survey and the FL Dept of Env Protection. Designed and managed a quantitative groundwater tracing program that successfully established hydraulic connections between several sinking streams and the City of Tallahassee's wastewater spray field, and Wakulla Spring. Managed the development of a comprehensive and interactive database for cave and hydraulic data (www.geohydros.com/FGS/) and a basin-scale groundwater flow model designed to specifically simulate flow through mapped and traced karst conduits. Organized public education programs that included workshops, short courses, field trips, and public presentations focusing on spring and aquifer protection.

Geologic, Parameter, and Groundwater Modeling - Tetra Tech EC, USDOD (Philadelphia, PA) *2001 - 2012*
Led the development of a linked geological-groundwater flow model that simulates a 3D heterogeneous multi-aquifer system beneath the former DSCP facility in Philadelphia, PA that has been impacted by more than two million gallons of light non-aqueous phase liquid (LNAPL). Developed regional and site-scale 3D geologic framework models (GFMs) to define the geospatial relationship between the LNAPL plume, 26 discrete discontinuous soil and rock zones, and buried utilities. Co-developed a method for using the Van Genuchten

equation and parameter grids extracted from the GFM to estimate total recoverable LNAPL on a synoptic basis. Exported GFM to FEFLOW and developed a 28-layer regional groundwater flow model. Exported 3D particle tracks to demonstrate flow paths for benzene from the LNAPL plume to property boundaries and into the deep aquifer to support site closure under Pennsylvania Act 2 regulations.

Recent Expert Testimony / Litigation Support

Mike Laudicina and Don DeMaria vs. DEP File No.: FLA671932-003-DW1P, etc. Florida Department of Environmental Protection, and Florida Keys Aqueduct Authority; Monroe County FL — 2015

Sierra Club, Inc., and St. Johns RiverKeeper, Inc. with Florida Defenders of the Environment, Inc., vs. Sleepy Creek Lands, LLC and St. Johns River Water Management District, Case No. 14-2608; and Karen Alhers and Jeri Baldwin with Florida Defenders of the Environment, Inc. vs. Sleepy Creek Lands, LLC and St. Johns River Water Management District, Case No. 14-2609; Palatka FL — 2014

Joseph Glisson vs. City of Tallahassee and the Florida Department of Environmental Protection: DOAA Case No.: 11 2953 — 2011

Professional Associations & Awards

Wakulla Springs Alliance (www.wakullaspringsalliance.org): Board of Directors	2014 – Present
Florida Springs Institute (floridaspringsinstitute.org/): Advisory Board	2011 – Present
Global Underwater Explorers (www.gue.com): Vice President, Board of Directors	2000 – Present
Hydrogeology Consortium (www.hydrogeologyconsortium.org): Board of Directors	2002 – 2014
Southeastern Geological Society (www.segs.org): President	2007 – 2008
Southeastern Geological Society (www.segs.org): Vice President	2006 – 2007
Florida Springs Protection Award (Florida Department of Environmental Protection)	2005

Selected Peer Reviewed Articles

Kincaid, T. and Meyer, B., 2015. A Dual-Calibrated, Hybrid Model of Conduit Flow to Springs in a Portion of the Floridan Aquifer in North-Central Florida. MODFLOW and More 2015: Modeling a Complex World, Proceedings, eds. R Maxwell, M. Hill, C. Zheng, and M. Tonkin. Integrated Ground Water Modeling Center (IGWMC), Colorado School of Mines, Golden CO.

Kincaid, T, Davies, G, Werner, C, and DeHan, R, 2012. Demonstrating interconnection between a wastewater application facility and a first magnitude spring in a karstic watershed: Tracer study of the Tallahassee, Florida Treated Effluent Spray Field, 2006-2007; Report of Investigations No. 111, Florida Geological Survey, Tallahassee, FL, 192 p.

Kincaid, T.R. and Werner, C.L., 2008. Conduit flow paths and conduit/matrix interaction defined by quantitative groundwater tracing in the Floridan aquifer, in Yuhr, L.B., Alexander, E.C., and Beck, B.F. eds., *Sinkholes and the Engineering and Environmental Impacts of Karst*, Geotechnical Special Publication No. 33, American Society of Civil Engineers, Reston, VA, pp. 288-302.

Loper, D.E., Werner, C.L., DeHan, R., Kincaid, T.R., Chicken, E., and Davies, G., 2008. Probing the plumbing of Wakulla Spring: instrumentation and preliminary results, in Yuhr, L.B., Alexander, E.C., and Beck, B.F. eds., *Sinkholes and the Engineering and Environmental Impacts of Karst*, Geotechnical Special Publication No. 33, American Society of Civil Engineers, Reston, VA, pp. 313-324.

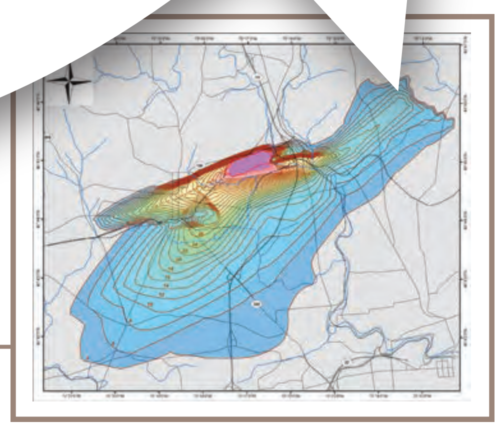
Meyer, B.A., Kincaid, T.R., and Hazlett, T.J., 2008. Modeling karstic controls on watershed-scale groundwater flow in the Floridan aquifer of north Florida, in Yuhr, L.B., Alexander, E.C., and Beck, B.F. eds., *Sinkholes and the Engineering and Environmental Impacts of Karst*, Geotechnical Special Publication No. 33, American Society of Civil Engineers, Reston, VA, pp. 351-361.

Kincaid, T.R., 2007, Karst Hydrogeology of the Santa Fe River Basin, Fieldtrip Guidebook No. 47, Southeastern Geological Society, Tallahassee, FL. Available for download at: http://www.geohydros.com/images/Pubs/segs_fieldguide47_sfrb2007.pdf.

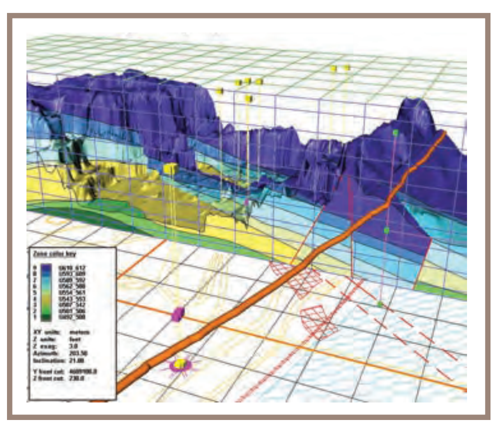
Kincaid, T.R., 2006, Karst Hydrogeology of the Woodville Karst Plain: Wakulla & St. Marks River Basins, Field Trip Guidebook No. 46, Southeastern Geological Society, Tallahassee, FL.

Loper, D.E., Werner, C.L., Chicken, E., Davies, G., and Kincaid, T., 2005, Coastal Carbonate Aquifer Sensitivity to Tides, *EOS*, *Transactions of the American Geophysical Union,* vol. 86, no. 39.

GeoHydros LLC
Specialized Geological Modeling



Statement of Qualifications



about GeoHydros

geological and hydrogeological modeling, data visualization, GIS, and data management. Our expertise with and adept use of cutting-edge technologies form the basis for our growing reputation as a leader in modeling complex aquifers such as karst, fractured

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ments. Our business was founded in 1999 as Hazlett-Kincaid, Inc. in Reading Pennsylvania. We opened a T

e reorganized as GeoHydros, LLC in 2010. Our primary strength and the fundamental characteristic that sets us apart from

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ing Approach™ to problem solving, which focuses on synthesizing site and regional data with sound professional interpretations into accurate digital conceptual

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logic context. Those digital solids models then become

predictions as well as the basis for visualizing data and results in the context of site complexities such as geologic and/or engineered structures. We typically

Nevada, leveraging our secure website to facilitate effective communication with project team members regardless of their physical location, and to disseminate modeling results to our clients and project team-members and, when appropriate, to the responsible regulatory agencies.

The GeoHydros group has worked for government and private clients on projects including: geotechnical and environmental engineering of new underground structures; characterization and remediation of Light and Dense Non-aqueous Phase Liquid plumes; quarry de-watering; karst aquifer characterization and modeling, and municipality water resource modeling. Some of our previous and existing clients include: USDOD; US-DOE; Tetra Tech EC; Parsons Brinkerhoff; STV Inc.; Coca-Cola North America; Florida DEP; Bucks County, Pennsylvania; Hardin County, Ohio; SM Stoller Corp.; TriHydro Corp.; Northwest Florida Water Management District; Borton-Lawson, Inc.; ERM Group Inc.; WRS Infrastructure & Environment, Inc.; Knik Construction Co.; Buzzi Unicem USA; HydroGeoLogic, Inc.; and Tilcon New York, Inc.

Dual modeling a pproach™

GeoHydros takes pride in our comprehensive and consistent approach to modeling for water resource management and environmental site characterizations. We developed and utilize our Dual Modeling Approach™ to link conceptual solids models developed in EarthVision with process models developed in FEFLOW or MODFLOW. This allows us to develop highly accurate conceptual models that are not subject to the limitations of the solids modeling tools packaged with the groundwater modeling programs.

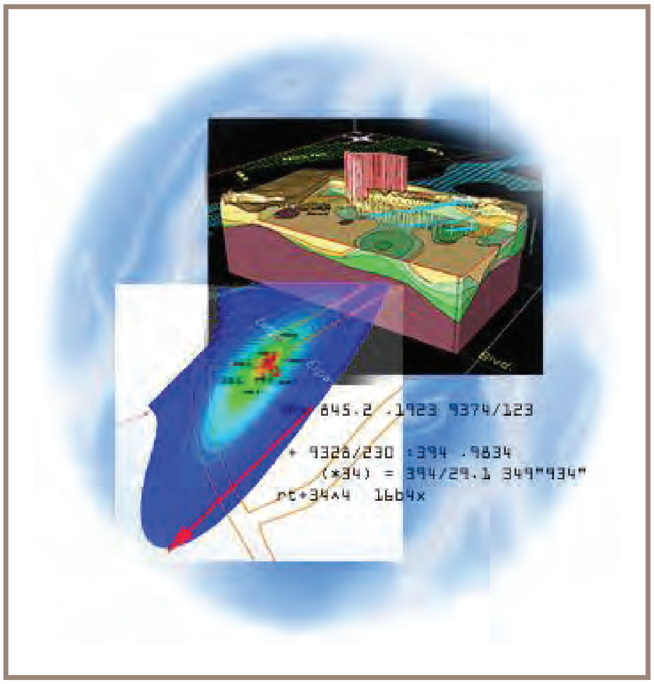
The two fundamental components are the Geologic Framework Model (GFM) and the Groundwater Model (GWM). The purpose of the GFM is to incorporate geologic, hydraulic, contaminant, and structural data into grid-based, visual, and query-able interpretative models of existing conditions. The GWM uses the

-

ceptual framework and initial conditions for predictive modeling. We use EarthVision to develop the GFM because it allows for deterministic and/or stochastic methods to model spatial relationships between geologic surfaces, parameter distributions and engineered features. A GWM can then be constructed with a variety of software such as FEFLOW or MODFLOW through the use of grids exported from the GFM.

Ap-

proach™ to groundwater resource management and site characterization efforts. The development of a GFM independently provides for better interpretations of site data, increased access to those interpretations, and the ability to rapidly update model interpretations

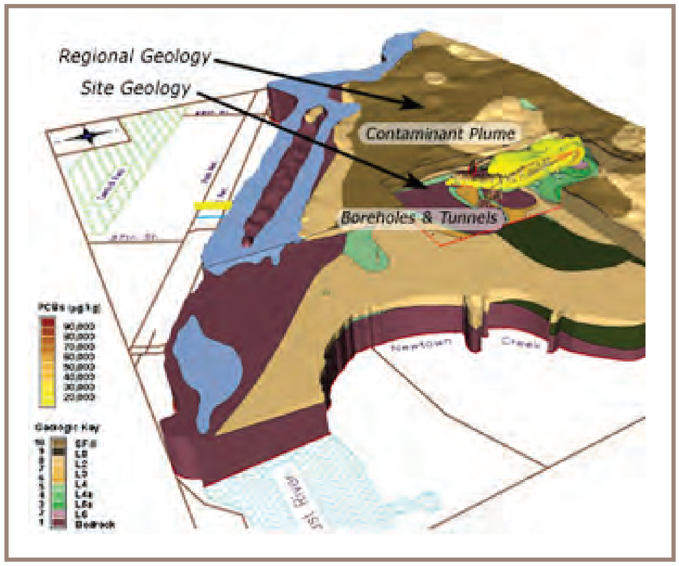


as new data becomes available. Incorporation of GFM grids into a GWM reduces model development time and provides for better and more rapid model calibrations because model frameworks can embrace more site complexities. We have successfully applied the Dual Modeling Approach™ to numerous site characterization projects including a large tunnel-construction project in New York City and industrial contamination sites in Florida, Illinois, and Pennsylvania, and to a number of groundwater resource management problems in New York, Pennsylvania, and an extensively

Services

provides geologic modeling, 2D & 3D visualization, and hydrologic modeling services under subcontract

federal, state, and local government agencies, and private clients. We typically perform these services in concert through what we call our Dual Modeling Approach™ wherein we use in-house software to link modeling programs and facilitate output development and web-based presentation. We have also developed highly specialized skills in GIS, database development, and karst aquifer characterization that we perform independently or in conjunction with modeling projects. Our proprietary post-processing modeling software allows us to deliver high quality modeling visualizations for almost any environmental project: $5,000 to $500,000 in scope.



Geologic Characterization

- More than 20 years experience in developing computer generated Geologic Framework Models (GFMs), sometimes called Conceptual Site Models (CSMs), and 2D and 3D visualizations of data and process modeling results.
- Synthesize geologic, hydraulic, contaminant, & structural data into highly visual, readily query-able models.
- We use EarthVision - the most sophisticated commercially available solids modeling and 3D visualization software.
- Extensive experience with the Structure Builder, W , Graphic Editor, Formula Processor, Minimum Tension surface and isochore gridding, Base & Contour Mapping, and the Geostatistical Analyses tools.
- Extensive library of proprietary programs that automate data manipulation, model development, and output generation processes making our models uniquely cost effective and accessible to project teams.

SERVICES

Water Resource Management

-
  protection zones.
-
  re
-
  engineered structures.
-
  heterogeneous aquifers.
- Use numerous hydrologic modeling codes: MODFLOW-GMS, MODFLOW-Groundwater Vistas, FEFLOW, HydroCAD, MT3D, RT3D, and ArcGIS-Spatial Analyst.

Karst Characterization

-
- Delineation of probable conduit pathways, springsheds, and aquifer vulnerability zones.
-
  vulnerability assessments.
-
- Interpretation of aquifer hydraulics from quantitative tracer recovery curves.
- Spring, swallet, and karst feature surveys.
- Hydraulic metering and data analysis.
- Cave survey, mapping, & 3D modeling.

Contaminant Transport

- Numerical simulation of dissolved-phase transport in groundwater using FEFLOW, MT3DMS, & RT3D.
- Transient plume volume estimation and center-of-mass tracking derived from numerical odeling results.
- ision.
- Optimization and/or evaluation of remediation system design based on transport scenario analyses.
- Synoptic plume volume estimation & 3D visualization.
- Impacted soil volume calculation & 3D visualization.

SERVICES

Rapid Site Characterization

- Rapidly and accurately visualize geophysical, MIP, and soil & groundwater contaminant data in 2D & 3D.
- Correlate rapidly collected data (MIP & geophysical) with laboratory analytical and log analysis data to expedite analysis and interpretation.
- Develop data gap analyses to optimize data collection.
- Leverage secure website technologies to share data and model viusualizations with project team.
- Automate production of data and model visualization sets and website uploads to reduce turn around time.
-

NAPL Characterization

- 3D LNAPL Plume Delineation & Volumetric Analysis
- 3D LNAPL & DNAPL plume delineations from thickness, concentration, or indicator data.
- Total recoverable LNAPL estimation using Van Genuchten approach and gridded soil parameter datasets.
- Impacted soil volume calculations & removal analyses.
- Automated volume updates using synoptic apparent LNAPL thickness and water table elevation data.
- Animated plume movement analyses along with volume and center-of-mass tracking.

Database & GIS

- More than 10 years experience in customized database and web-based database interface development.
- Proprietary geospatial database attributes:
  - geologic, hydraulic, and contaminant data in a single data model;
  - easy-to-use spreadsheet data upload templates;
  -

    EarthVision and process modeling input requirements; and
  -

    output over the Internet.
- W

  a single data source that provides for a full QA/QC history on all data entries.
- Data model is fully compatible with EPA's STORET and directly accepts transfers from emerging automated laboratory reporting formats.

SERVICES

Resources

GeoHydros maintains a small group of highly specialized professionals such that we can provide more in-depth knowledge and expertise than is

expertise include: hydrogeology, karst hydrogeology, geochemistry, groundwater modeling, solids modeling, data visualization, and GIS. In calling on these skills, we pride ourselves on being able to use the most advanced and appropriate modeling tools to solve environmental problems for our clients.

Project Locations to Date *(Geographic Scope of Services)*

LOCATION	PROJECTS / YEARS WORKED	SERVICES PERFORMED
Florida – North	12 / 7	Karst Hydro, GFM, GWM, DB Dev., Pub Ed
Florida – Central	7 / 5	Karst Hydro, GFM, Data Viz, GWM, FTM
Illinois	1 / 3	GFM, Data Viz
Kansas	1 / 1	GFM, Data Viz
Nevada	1 / 1	GFM
New Jersey	3 / 2	GFM, Data Viz
New York – New York City	4 / 4	GFM, GWM, FTM
New York – Central	1 / 1	Karst Hydro, GFM
Pennsylvania – East	15 / 8	Hydro, Karst Hydro, GFM, GWM, FTM, Pub. Ed.
Pennsylvania – Central	4 / 3	Hydro, Karst Hydro
Wyoming	1 / 1	DB Dev, GWM
Colorado	2 / 2	Data Viz
New Mexico	2 / 2	Data Viz

FTM: fate and transport modeling / DB Dev: database development / Data Viz: data visualization / Pub. Ed: public education

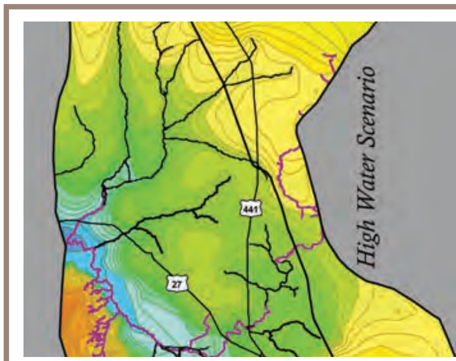
OFFICE	# STAFF	STAFF BY FUNCTION	SPECIALTY AREAS
Reno, NV 27 Keystone Avenue Reno, Nevada 89503 (775) 337-8803	5	2 Geologic Modeler 2 Groundwater Modeler 1 GIS Specialist	Geologic (solids & parameter) Modeling Groundwater / Fate & Transport Modeling 2D & 3D Visualization, GIS Database Development Physical Hydrogeology & Karst Hydrogeology
Tallahassee, FL 1549 Yancey Street Tallahassee, Florida 32303	2	2 Hydrogeologist	Karst Aquifer Characterization Groundwater Tracing

Software / Hardware Resource

SOFTWARE	QTY	HARDWARE	QTY
Dynamic Graphics EarthVision™ Version 7.5	2	Workstation Modeling Computers	4
FEFLOW™ Version 5.3	2	Laptop Presentation Computers	2
MODFLOW-GMS Version 6.5	1	File & Application Servers	3
MODFLOW-GMS Version 5	1	Large Fromat Legacy Paper Map Digitizer	1
MODFLOW-Groundwater Vistas Version 4	1	-	-
ESRI ArcGIS 9.3 – Arc View	2	-	-
ESRI ArcGIS 9.3 – Spatial Analyst	1	-	-

GeoHydros LLC
Specialized Geological Modeling

Bio S



Todd R. Kincaid, Ph.D.

Home Office:
Reno, NV

Title:
Group Leader / Geologic Modeler

Education:
Ph.D., Geohydrology, University of Wyoming, Laramie, WY 1999
M.S., Hydrogeology, University of Florida, Gainesville, FL, 1994
B.S., Geology, University of Florida, Gainesville, FL, 1991

Years with GeoHydros:
11 years

Modeling & Geological Experience:
14 years

Past Project Roles:
Project Manager
Geologic Modeler
Hydrogeologist
Geologist

Areas of Expertise:
Geologic modeling & data visualization
Karst Hydrogeology
Groundwater Tracing
Physical Hydrogeology

Dr. Kincaid leads GeoHydros. He has a diverse background in geology and hydrogeology and has extensive knowledge of karst hydrogeology. His experience

exchange; groundwater tracing using isotopic and arti-

remediation; aquifer characterization; and modeling complex geologic environments. Dr. Kincaid is currently managing a groundbreaking aquifer characterization study of the Woodville Karst Plain of north Florida with the Florida Geological Survey and the Florida DEP, which synthesizes groundwater tracing, cave map-

-

cal models that truly embraces karst complexities (www.geohydros.com/FGS). He has authored several professional reports as well as numerous professional and academic papers for national and international journals and symposia. He regularly participates in meetings with local and state agencies as well as legal proceedings to convey modeling results to regulatory and lay audiences.

Dr -

activities. In addition, he personally prepares most of our reports and presentations, delivers public presentations on our work, and provides expert testimony. As principal, he is also responsible for quality assurance,

BIOS

Kevin E. Day, M.S., P.G.

Home Office:
Reno, NV
Title:
Hydrogeologic Modeler
Education:
M.S., Geology, University of Wyoming, Laramie, Wyoming 2000
B.S., Geology, Colgate University, Hamilton, New York 1993
Years with GeoHydros:
9 years.
Modeling & Geological Experience:
13 years
Past Project Roles:
Hydrogeologist
Software Designer
Areas of Expertise:
Geologic modeling & data visualization

Database design and management
Computer programming
Registrations:
California P.G. - License # 8034
Florida P.G. - License # 2517

Mr. Day's is our primary geologic modeler having extensive knowledge of and experience with EarthVision and UNIX programming. His responsibilities include -

eling, database design and management, software application development, GIS, and database manage- -

grams: GMS-MODFLOW, MT3D, and FEMWATER, and ESRI GIS. His more notable project examples include the development of a combined regional and site-scale 3-D Geologic Framework Model (GFM) of the DSCP facility in Philadelphia, Pennsylvania for the USDOD; a regional-scale geologic model of a fractured rock aquifer containing 65 variably thick faulted and dipping stratigraphic units for Bucks County Pennsylvania; a detailed site-scale geologic model relating stratigraphic information from more than 150 boreholes and 2-D seismic data for a contaminated former industrial site in Gainesville Florida; and design and development of a relational database and data entry templates for the Florida DEP Hazardous Waste Program.

Mr. Day has written a library of programs to address complex subsurface computational problems and streamline communication between various software applications and our project database including a cutting edge program that solves the problem of partially penetrating wells in isopach-based geologic models.

BIOS

Kristie A. Connolly

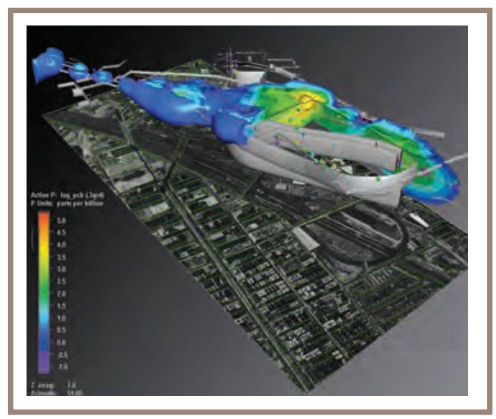
Home Office:
Reno, NV
Title:
GIS Technician
Education:
BS, Geography, University of Wyoming, Laramie, WY 1994
, State College, PA 2002
Years with GeoHydros:
10 years
GIS & Mapping Experience:
12 years
Past Project Roles:
GIS Technician, Field Geologist
Areas of Expertise:

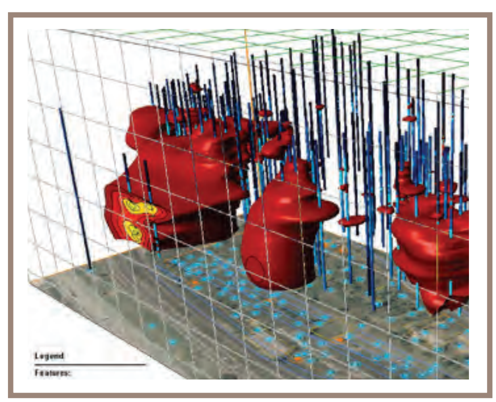
Ms. Connolly has worked for the GeoHydros group since the group's inception in 2000 on a part-time basis performing GIS, mapping, and data management services. She has combined ArcGIS, database, digitization, and spreadsheet technologies to convert data from various sources into the formats required for use in our EarthVision and FEFLOW modeling programs. She has also used ArcGIS and Adobe graphic editing software to render high quality map deliverables from our modeling output and used web development software to upload deliverables to client websites.
One of her project examples includes the development of a GIS database for subsurface utilities at a Department of Defense site in Philadelphia, Pennsylvania for Foster Wheeler Environmental Corporation that was used to render 3-D models of the features that were included in a site geological framework model.

GeoHydros LLC

Specialized Geological Modeling

SKill S



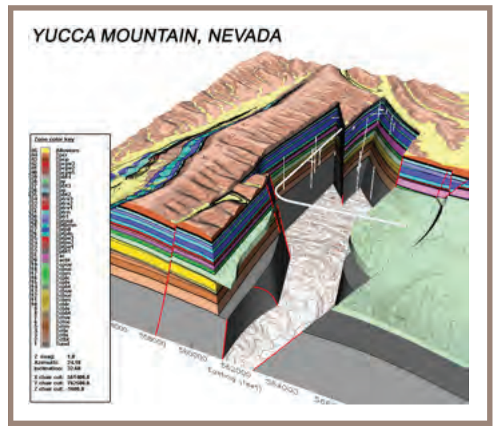


SKILLS

earthVision™

Dynamic Graphics EarthVision The GeoHydros Modeling Group has more than 20 years of experience in the use of EarthVision (EV) for solids and parameter modeling, and data visualization. We have extensive experience with the Structure builder, W , Graphic Editor, Formula Processor, Minimum Tension surface and isochore gridding, and the Base & Contour Mapping modules and are adept in the use of most of the software's other components. In addition, we have developed an extensive library of UNIX shell scripts to automate various data manipulation processes, develop unique stratigraphic and property model development processes, and automate output generation and image website production. We've enjoyed numerous opportunities to work with Dynamic Graphics Inc. (DGI) technical support staff to develop modeling processes and have been invited by DGI to lecture on our modeling work and processes at their EV user meetings.

Complex Fault Blocks & VolcanicTuff



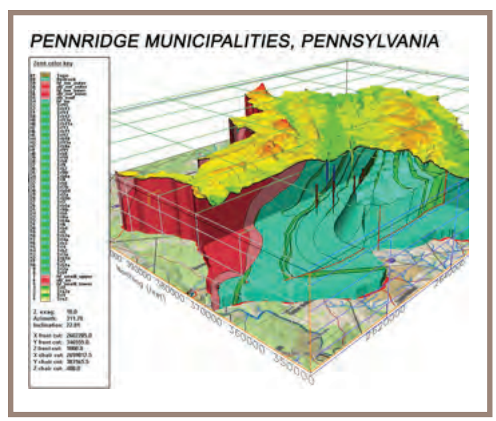
example: *Yucca Mountain Project - Geologic Framework Model*

- 31 square kilometers (12 square miles)
- 42 stratigraphic units of variable thickness positioned across eighteen normal fault blocks
- 6-mile horizontal tunnel ~25 feet in diameter
- Constructed from published geologic maps, 101 boreholes, information from tunnel data, and measured stratigraphic sections from outcrop areas.

example: *Nevada Test Site*

- Developing and revising geologic framework models to support contaminant transport modeling in the corrective action units.

Dipping Hydrostratigraphic Units & Intrusions



example: *Pennridge Aquifer Protection Model, Bucks County PA*

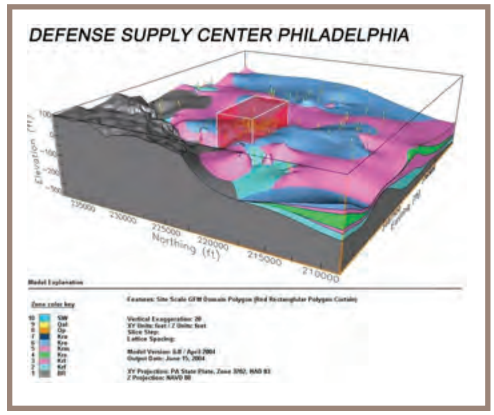
- Developed comprehensive geologic framework model to support

  zones and aquifer vulnerability areas.
- Model simulated 60 interbedded lithologic units of varying thickness, geometry, and permeability that are structurally tilted in a synclinal basin, faulted at one end, and intruded by a diabase.
- Developed model using strike and dip information and outcrop boundaries obtained from published geologic maps.
-

SKILLS

earthVision™ (cont'd)

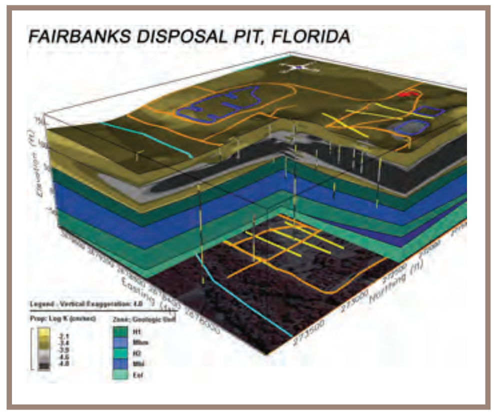
Severely Heterogeneous Contaminanted 3D Aquifer Systems



example: *Defense Supply Center Philadelphia, Pennsylvania*

- Combined site- and regional-scale geologic framework model
- Integrated stratigraphic, lithologic, and electrical conductivity data from more than 1000 boreholes.
- 32 mi2 (regional-scale) and 4.75 mi2 (site-scale).
- 8 discontinuous and variably thick stratigraphic units over an eroded bedrock surface.
- Heterogeneous lithologies in upper 4 zones modeled probabilistically and independently of stratigraphy.
- Distribution of LNAPL, soil contamination, and dissolved phase contamination relative to geology and underground structures.

Siesmically Defined Karstic Flow Paths



example: *Fairbanks Disposal Pits, Gainesville Florida*

- Delineated structural controls on possible vertical hydraulic

  underlying Floridan aquifer.
-

  surfaces relative to a heterogeneous distribution of soils.
-
- Six stratigraphic zones and variation in hydraulic conductivity

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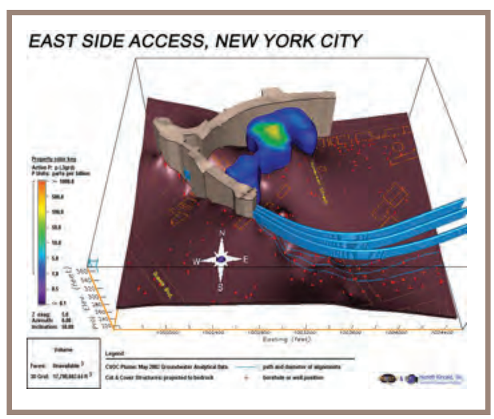
3D Contaminant Plume Movement



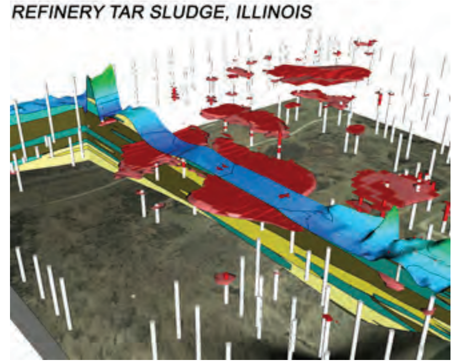
example: *East Side Access Project, Long Island New York*

- Imported results from 3D contaminant transport model at 30 time-steps from FEFLOW to an EarthVision geologic framework model of stratigraphic units and underground engineered structures (right).
- Developed computer scripts to automate visualization modeling, output generation, and export to a secure project website.
- Visualization models used to track plume volumes at critical concentration levels, and center of mass movement.
- Animations created to visualize predicted plume movement over time under build and no-build scenarios for every model run to facilitate effective interpretation and evaluation.

earthVision™ (cont'd)

Probablistic Zone / Parameter Delineation

REFINERY TAR SLUDGE, ILLINOIS

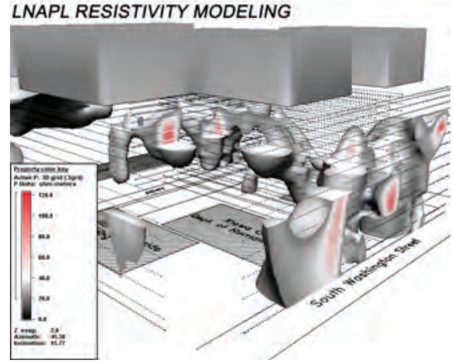


- Developed probabilistic method similar to indicator kriging to

  subsurface based on observation data.
- Method is useful for both lithologic zone delineations and non-aqueous phase contaminant delineations such as tar sludge (right) or LNAPL.
-
- Process is scripted to facilitate rapid updates with new or reinterpreted data.
- Developed visualization modeling scripts to rapidly and automatically generate image output and volumetric reports that are uploaded to a secure project website.

Geophysical & GeoProbe-MIP Data Visualization

LNAPL RESISTIVITY MODELING

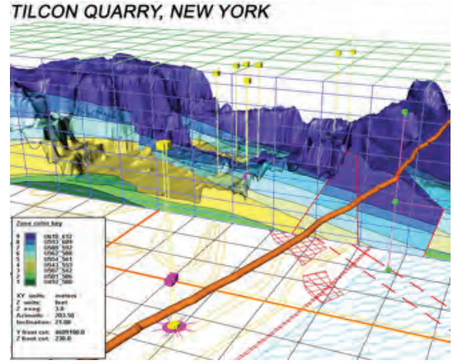


- Developed visualization modeling scripts to automatically read geophysical and GeoProbe-MIP
- Integrate 3D grids with variable grid spacings to account for data that becomes progressively sparse in the z-direction.
- Initial modeling used to constrain interpretive contouring controls and establish standard visualization sets that include key underground and surface structures.
- Automate model generation, visualization production, and volumetric reporting and upload to a secure project website.
-

  forts.
- Right – LNAPL

Structural Modeling for Mining & Quarrying

TILCON QUARRY, NEW YORK



- Model faults, fault zones, and fault displacements in addition to stratigraphic units, and land surface elevations.
- Use multiple data sources including borehole logs, geophysical surveys, and outcrop mapping.
- Can also incorporate mineralogic zonation within stratigraphic units and fault blocks using parameter data.
-

  structural assessments, and as the framework for subsequent

  assessments.
- Right – 3D model of the Tilcon Quaryadjacent to the Hudson River in New Y

  .

SKILLS

feflo w

WASY-DHI FEFLOW

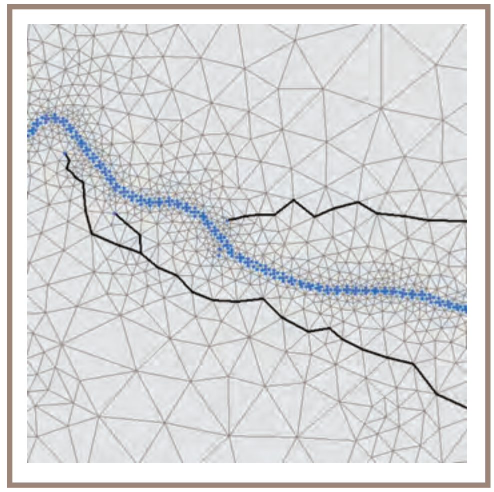
The Geohydros Modeling Group has more than 8 years of experience in the use of DHI-Wasy FEFLOW software including the most current version, 6.0. FEFLOW is our software of choice when developing

because of its superior ability to solve large, sparse matrix systems using PCG-type or algebraic

with complex geologic and hydrologic characteristics. In addition, FEFLOW is fully integrated with ArcGIS allowing for fast and accurate model design and

The following sections provide brief examples of our group's FEFLOW skill sets and how those skills have been applied successfully for our clients.

Discrete Element Features



- Developed dual-permeability model using discrete element

  aquifer (right).
-

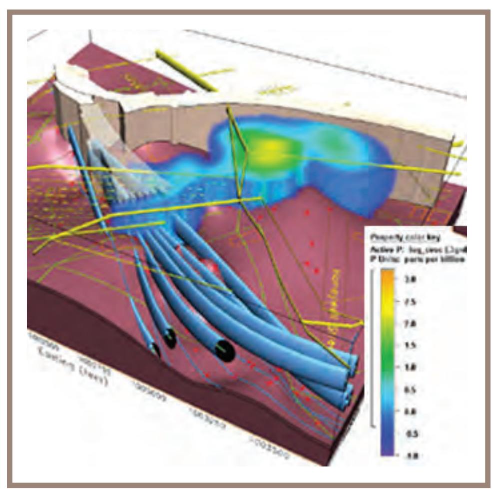
  vertical) linear elements assigned along mesh element limbs.
-

  and springs (discharge nodes) and up-gradient from springs into matrix.
-
-

  conveyance.
-

  to which feature represents a single conduit or zone of conduits).
- Conduit locations and dimensions determined through calibration

Free Surface Modeling & Contaminant Transport



- Used free and movable surface option to simulate transport through variably saturated hydrostratigraphic units and units that pinch out laterally across large model domains.
- Used shock capturing (non-linear anisotropic damping) to stabilize transport simulations affected by numerical oscillations.
- Simulated both simple mass transport and reactive transport

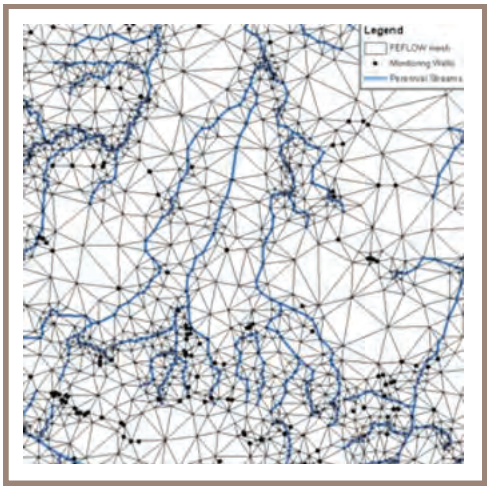
- Simulated both point source and non-point source contaminant transport through 2D and 3D groundwater model domains including nitrate transport through karst aquifers and CVOC transport through extremely heterogeneous mixed glacial

- Exported FEFLOW mass transport results by time-step to EarthVision™ (right) to visualize 3D mass transport relative to underground structures and to estimate resulting impacted earth volumes.

SKILLS

feflow (cont'd)

Complex Mesh Designs



- Integrated FEFLOW mesh building with ArcGIS to facilitate
- Developed complex meshes to simulate lateral and vertical geometries of complex natural and man-made structures that

  converge to springs and rivers (right).
- Simulated features include: thin, discontinuous lenses of different material properties, large domes and dikes, steeply dipping lithologies with varying material properties; streams, rivers, springs, and lakes; and sewers and grout walls.
- Ensure that all meshes conform to minimum element angle criteria to promote convergence and minimize model errors.
- Integrate mesh design with EarthV
  detailed geologic modeling.

Particle Tracking

-
  zones for wells and springs.
-
  zones) for wells and springs.
- Use 2D particle tracks to delineate traditional EPA Zone II wellhead protection zones.
- Export 3D particle tracks to EarthVision™ to develop animations
- Use forward particle tracking to delineate groundwater basins, springsheds, and vulnerability zones such as contributing zones to conduits that convey groundwater to springs and rivers (right).
- Export 2D particle tracks to

SKILLS

moDflo W

MODFLOW (GMS)

The GeoHydros Modeling Group has over ten years experience using MODFLOW and several of its mod-

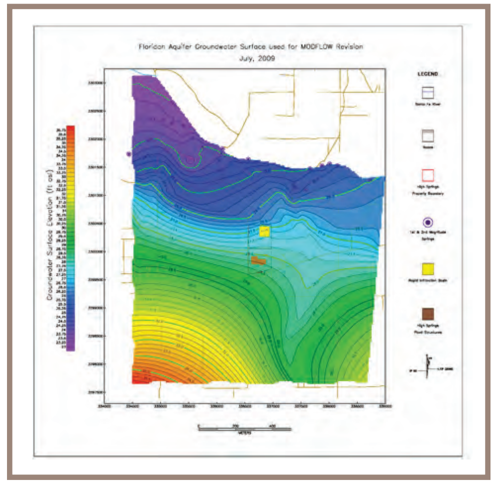
as well as 2D and 3D contaminant fate and transport questions. MODFLOW is the US Geological Survey's

ference computer code that solves the

with a graphical interface by several software development companies. GeoHydros licenses the most recent version of GMS (6.5), developed by AquaVeo, and also maintains a license of Groundwater Vistas. In addition, the GeoHydros Group has extensive experience with several MODFLOW modules that we use to address more complex problems including: MT3DMS (multi-species mass & reactive transport in 3D) , SEEP2D

PEST (parameter estimation / optimization), MODPATH (particle tracking), RT3D (reactive transport in 3D), and T-PROGS (transition probability geostatistical package for lithologic modeling).

Parameter Estimation (PEST)

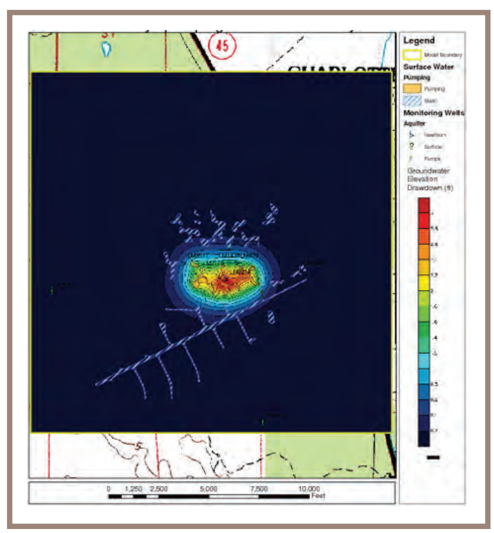


- A model-independent, non-linear parameter estimator. The purpose of PEST is to assist in data interpretation, model calibration, and predictive analyses.
- Used PEST to delineate high permeability zones in a karst aquifer by optimizing the permeability structure to achieve a best-possible calibration to groundwater levels recorded in a dense monitoring well network (right shows resulting

- GMS PEST allows modeler to revise parameter settings such as permeability zone delineations during the optimization process and to assign pilot points to provide a continuous rather than stepwise distribution of parameters where appropriate.
-

  model results.

Drawdown / Zone of Influence Delineation



- Used GMS MODFLOW to predict the cone-of-depression created by proposed well installations on a water table surface (right).
- Developed scenario analyses to predict impact of pumping on

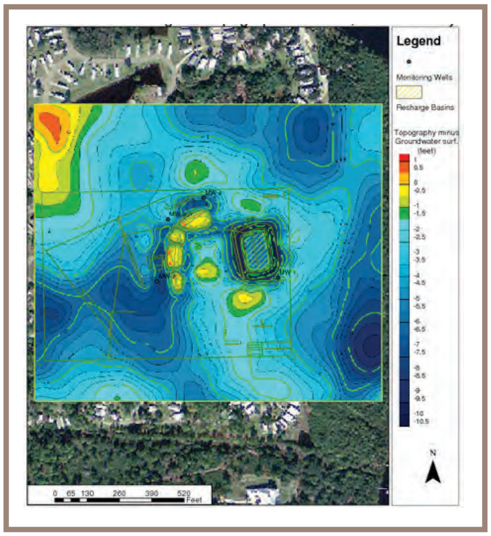
  aquifers; and impacts to wetland water levels and hydroperiods

  , and average conditions.
- Developed transient models to determine threshold time periods in support of permit application processes.
- Integrated model construction and output processes with EarthVision™ and ArcGIS to facilitate model framework

  groundwater simulation such as River, Lake, Drain, General Head, Well, Horizontal Flow Barrier, Stream, Time V

SKILLS

Mounding Evaluation & Prediction

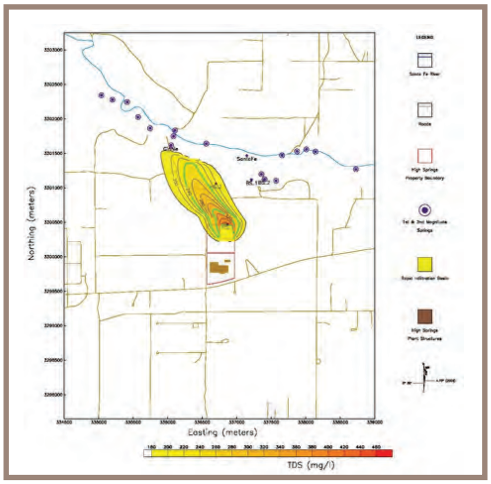


- Used GMS MODFLOW to quickly evaluate the potential

  levels (right).
- Rapidly developed quantitative scenario analyses to provide clients and regulators with map-based predictions that facilitated design and permitting decisions.
- Used scenario analyses to test effectiveness of proposed mitigation strategies when the proposed activities were

- Performed similar analyses to determine the transient effects on adjacent wetlands of drawing down engineered lake features to supply dry-season irrigation water.

Mass Transport (MT3DMS)



- Simulates multi-species transport by advection, dispersion, and chemical reactions of dissolved constituents in groundwater.
- Used MT3DMS to simulate advection, dispersion, and chemical reactions of dissolved constituents in groundwater systems.
- Projects include: simulation of TDS transport from reverse osmosis wastewater ponds (right); and benzene and MTBE transport from LUST sites.
-

  separate zones of dispersion and chemical reactions based on

SKILLS

eSRi a rcGiS™

ESRI ArcGIS

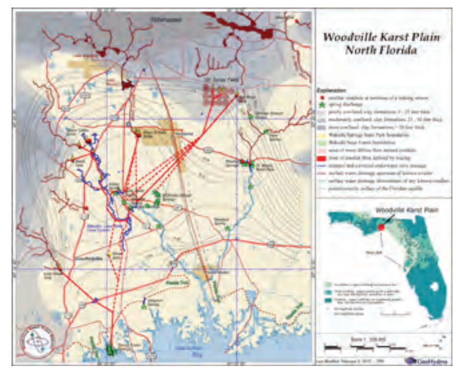
The GeoHydros Modeling Group has more than 10 years of experience in the use of ESRI ArcGIS software including all versions between ArcView 3.2 and ArcGIS 9.3 as wells as Spatial and 3D Analyst. ArcGIS

it for pre-processing geospatial data into the required modeling formats, exchange of data and results between modeling platforms, analysis and interpretation of modeling results, and ultimately for the pre-

results. Our group's expertise includes spatial projection, geo-spatial analysis and database manipulation, visual basic programming, and publication quality map production. Our group has also performed several GIS

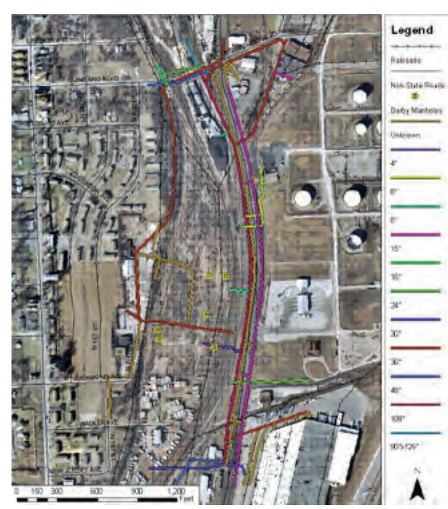
selection to city utilities management.

Publication Quality Map Development



-
  reports, articles and independent publication.
- Relating multiple datasets and modeling results to proprietary and publically available basemaps, and aerial photographs.
- Identifying and synthesizing publically available basemap data such as US, State and local roadways, rivers, watershed boundaries, and high resolution aerial photography.
- Porting unprojected or improperly projected maps and images into project projections and datums.
- Post-processing maps with high end image editing or graphic illustration software such as Adobe Photoshop (right).

Interfaceing with Modeling Programs



- Developed computer programs to integrate results and output from MODFLOW, FEFLOW, and EarthVision into GIS compatible coverages that provide a standardized presentation interface.
- Developed computer programs that allow for rapid updates to
- Rapidly updated GIS allows for near real-time data gap

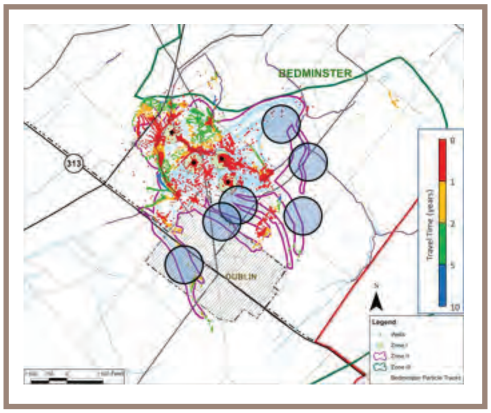
  characterization efforts.
- Developed computer programs to automatically port model output, GIS coverages, and maps to secure project website for rapid delivery to project6 team members.
- Our proprietary automated model and GIS update process

  riad) projects.

SKILLS

eSRI arcGiS™ (cont'd)

Visualization & Analysis

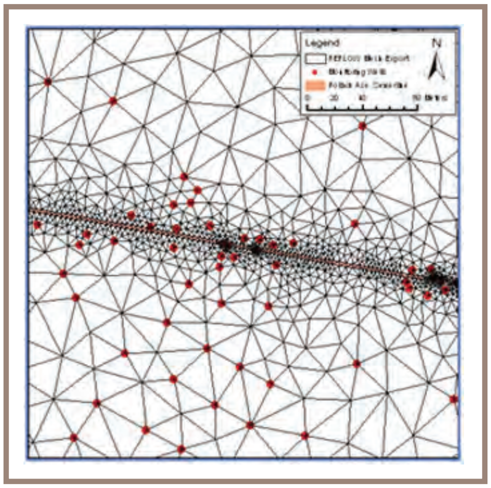


- Adept at porting all manners of model output and data into GIS coverages with standardized projections.
- Use GIS and Spatial Analyst to modify data and model results to facilitate interpretations and dissemination to project team members and regulatory agencies.

example: *GIS interpretation and visualization of particle tracks*

- 2D and 3D particle tracks exported from FEFLOW as polyline
.
-
recharge areas for the wells that were used for vulnerability mapping along with sources of potential contamination such as industrial zones, transportation systems, population centers, and mining regions.

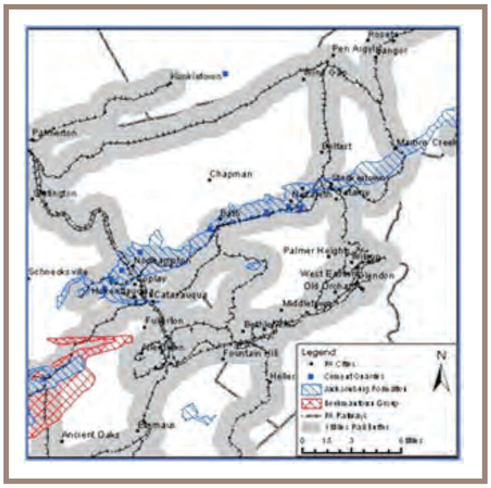
Flow Model Development



- Use ArcGIS to delineate key spatial data such as wells, rivers, sewers, and hydrogeologically defensible parameter zones.
-
MODFLOW or FEFLOW for grid/mesh development (right).
- Export mesh to
most accurately represent key features.
- Interpolate hydraulic conductivity, recharge, layer elevation and other hydrologic variables across model layers from points representing known measurement locations.
- Assign boundary condition values such as constant head,

- Manipulate parameter values on a zone-by-zone basis in between model runs during model calibration process.

Zone of Interest Delineation



-
interest based on combinations of desirable characteristics

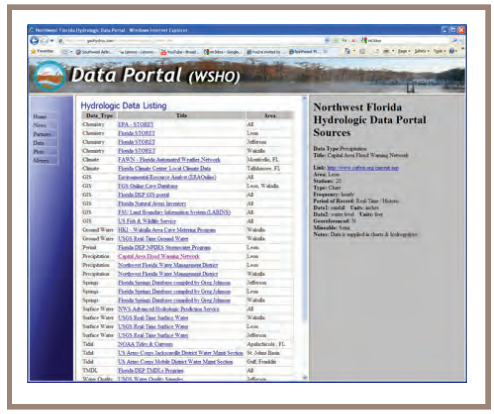
example:

- Compiled and synthesized all forms of relevant data including surface and near surface geology, transportation corridors, and municipality boundaries and regulations.
-
on criteria for each dataset (right)
- Developed maps with corresponding data tables from the GIS that were used to facilitate client decisions.

SKILLS

eSRi arcGiS™ (cont'd)

Metadata Production

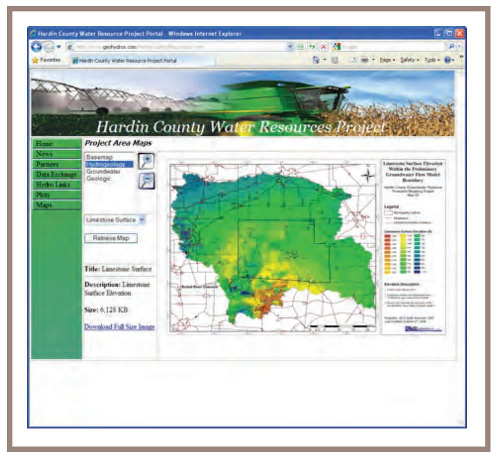


-
- ArcGIS map sets including spatially projected maps and data streams supporting the maps.
- Developed proprietary tools for creating web-accessible metadata for project maps and data as well as publically available but not easy accessible datasets.

Example: *Florida Geological Survey Web Data Portal*

- Developed browser-based metadata catalog using Javascript and an XML data model http://www.geohydros.com/FGS/HydroPortal/.
- Developed computer program that produces metadata tables that can be updated with changes or added data in minutes.

User Interface Development



- Developed custom web-applications, online databases and web-based GIS interfaces.

example: *Map Browser*

- Web interface that allows users to browse pre-constructed ArcGIS maps as small (quick loading) and large (viewable details) images and download full-scale versions of the maps as pdfs.
- Maps are organized by category and are rendered accessible by drop-down menus off of the Map Browser website.
- Developed Map Browsers for several water resource modeling projects with Coca-Cola, the Florida Geological Survey, and Hardin County, Ohio.
-

SKILLS

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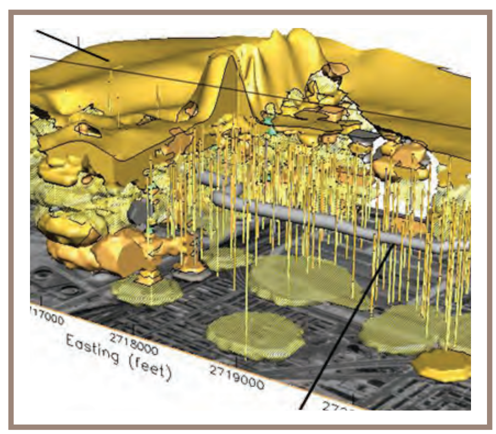
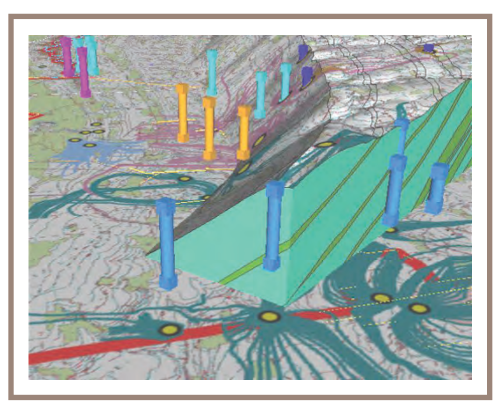
PRo Ject eXPeRience





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GROUNDWATER FLOW MODELING

PROJECT NAME & LOCATION	DATE STARTED	DATE COMPLETED
Defense Supply Center Philadelphia (DSCP) Groundwater Remediation, Philadelphia, PA	June 2001	February 2012

ACTIVITY TITLE	APPROXIMATE CONTRACT VALUE
Geologic & Groundwater Flow Modeling	$700,000

CLIENT NAME & ADDRESS	TECHNICAL CONTACT
Tetra Tech EC, Inc. Langhorn, PA	Defense Energy Support Center (DESC): Hasan Dogrul TTEC: Derek Pinkham, (215) 702-4070

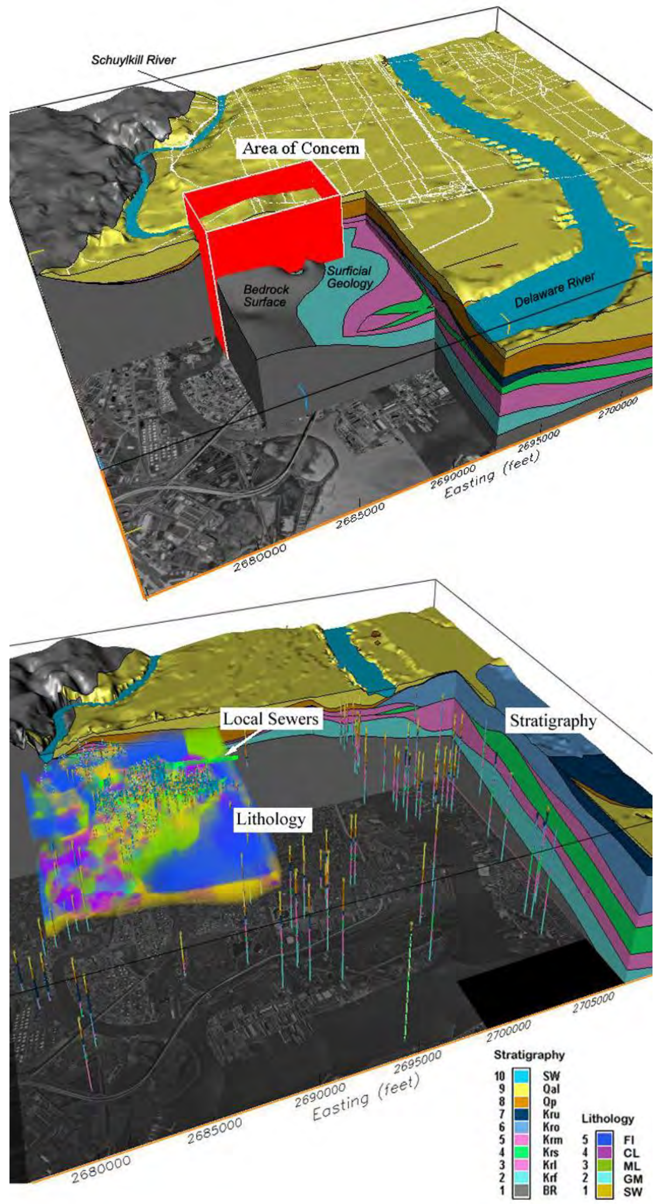
PROJECT DESCRIPTION

The Defense Energy Support Center (DESC), in collaboration with Tetra Tech EC (TTEC), contracted the predecessor of GeoHydros, LLC to construct a comprehensive geological framework model (GFM) for the Defense Supply Center Philadelphia (DSCP), construct a 3D groundwater flow model (GWM) from the GFM, and then use the models to assess and visualize contaminant transport pathways from an impacted surficial aquifer into a lower potable aquifer.

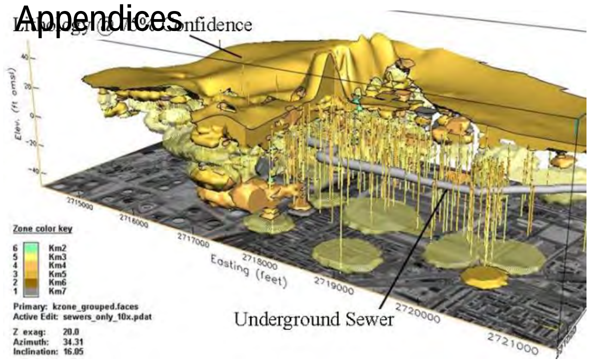
Our GFM synthesized disparate datasets describing the stratigraphy and lithology into a consistent inter-pretation of hydrostratigraphic controls on groundwater flow and dissolved and free-phase contaminant movement. We first developed a scalable database to manage all site and regional geologic and hydraulic data. We then used EarthVision™ to develop the GFM, using a combination of surface, isochore, and parameter grids. We used a telescoping gridding technique to identify and preserve regional trends at the boundaries of higher-resolution site-scale grids; and an iterative grid stacking routine to insure that both thicknesses and surface elevations were honored.

Our model used a probabilistic approach to simulate 26 soil/sediment types that were defined across the site and group them into 5 groups having similar hydraulic conductivity. Indicator grids developed for each of the five units were then compared on a node-by-node basis to arrive at a model of lithology marking the 3D distribution of the units according to their respective probabilities. The model was then used to map hydraulic conductivity heterogeneity relative to underground structures and synoptic models of LNAPL morphology.

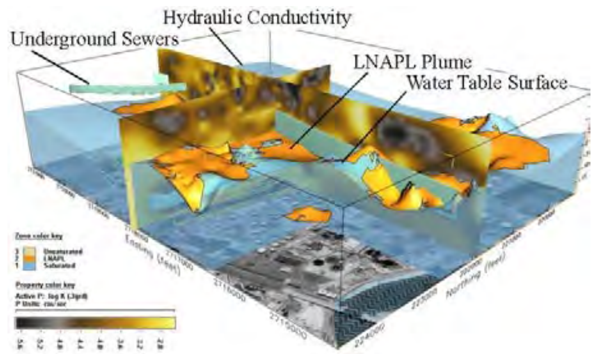
Overall, the GFM consolidated data from more than 1000 wells & borings collected over more than 15 years, paper maps and CAD files describing underground structures, digital topographic maps and surveys, aerial imagery, and published geologic maps. Output included perspective views, x, y, and z slices, and cross-sections, as well as the digital framework for the GWM.



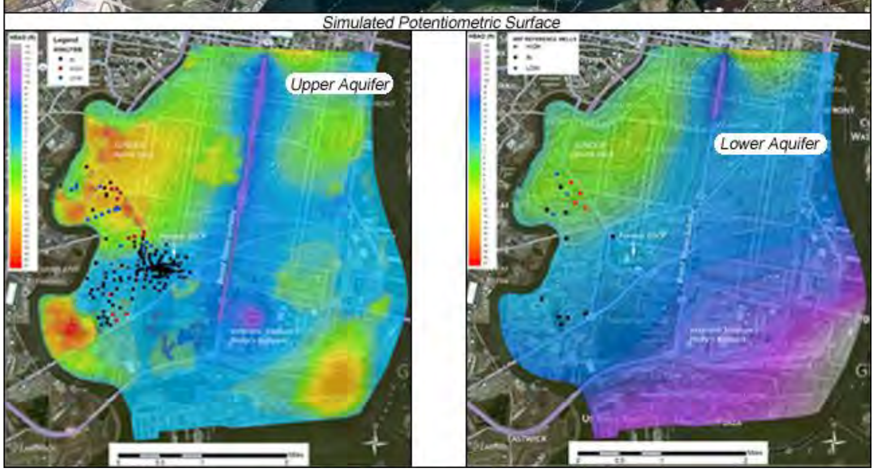
The DSCP GFM showing stratigraphic & lithologic variation across the Site & Regional scales of analysis



Probabilistically defined lithology relative to sewers



LNAPL plume, water table, litology, and sewers

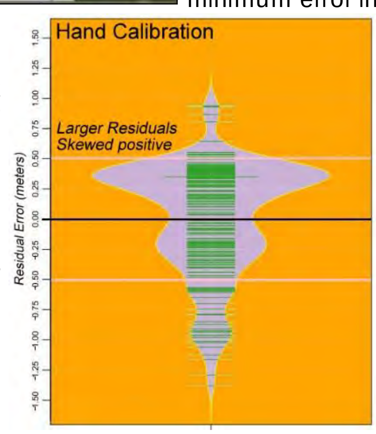


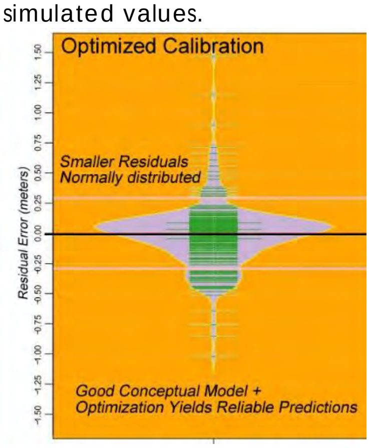
The GWM was constructed using a finite-element approach and the modeling software FEFLOW™, which uses the Pre-Conditioned Conjugate Gradient iterative solver to solve 3D groundwater flow equations. The external model boundaries were designated to 1) buffer the area of concern; 2) extend to definable natural hydrologic boundaries; and 3) include all known sources and sinks that were thought to influence flow across the area of concern. Sources and Sinks included: recharge into the upper surficial aquifer; discharge to the rivers at the model boundaries; dewatering along a major subway line; leakage into a large mixed storm-water/sewer that bounds the area of concern; and extractions from a large recovery well operating at an adjacent property. The model contained 28 layers (from the GFM) defined by a mesh consisting of over 42,000 nodes and more than 83,000 elements per layer.

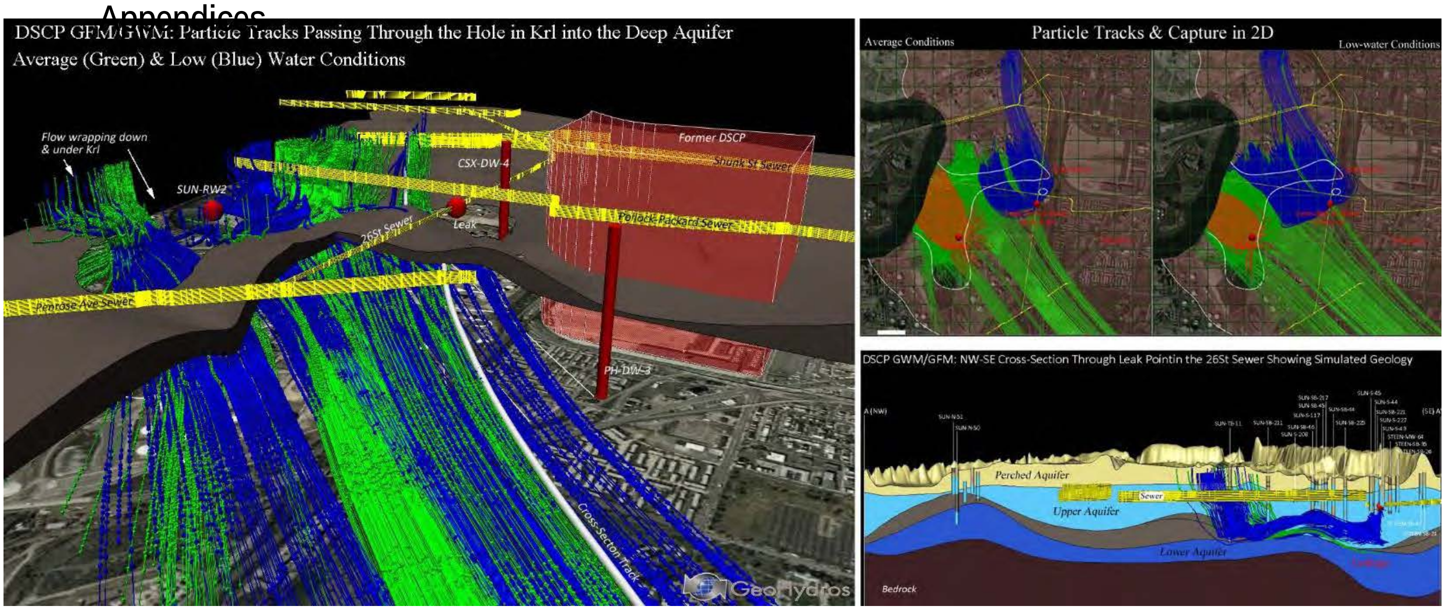
Calibration was performed to average groundwater levels derived from statistical analyses of data from 321 wells that yielded 176 values deemed to be indicative of surficial aquifer conditions, 20 values indicative of deep aquifer conditions, and 53 values indicative of a perched aquifer directly underlying the region of interest. An initial "hand" calibration was performed through a series of 100 model runs in which hydraulic conductivity and recharge zones were identified and constrained. The model was then optimized through a series of more than 14,000 additional runs using a Lipschitzian-based algorithm, which is a mixed global-local optimization scheme that places strong weight on the identification of a global minimum error in simulated values.

Optimization produced a substantially superior model calibration than what would have otherwise been considered a rigorous hand-calibration. The same result could not have been achieved with a standard PEST approach because the process would have repeatedly stopped at a local (acceptable) result before finding the global minimum residual error.

Model results included a series of simulated potentiometric surface maps for the upper and lower aquifers under average and low-water hydrologic conditions as well as 3D particle tracks that depicted the regions of leakage from the upper to lower aquifers and the degree of capture associated with each of the model sinks.







Results from the optimized GWM brought back into the GFM for visualization and analysis. Particle tracks were used to depict the regions at the land surface where the lower aquifer is most vulnerable to contamination from dissolved-phase contaminants emanating from a large LNAPL plume. Scenario analyses were then used to evaluate the potential change in leakage, contamination and plume capture associated with changing hydrologic and engineered conditions.

SELF ASSESSMENT

We met or exceeded all objectives set forth by our client (TTEC) and their client (DESC) and in so doing produced state-of-the-art modeling products that inspired confidence in the remedial approach with the State and public. We adapted and automated our model development processes in order to meet progressively expanded objectives associated with the remediation and litigation efforts in a timely and cost-effective manner. We adopted and adhered to a milestone approach for both phases of modeling to allow for periodic review of the model status with remediation and litigation teams and adopt course adjustments as subsequently deemed necessary. Our interim and final model results both from the GFM and the GWM were repeatedly used for in-house and public presentations as well as reports and proposals to the State related to site closure.

Improvements to the modeling process could have been achieved if we had been more assertive and effective in demonstrating the need for thorough data assimilation from outside sources in advance of model development wherein multiple model revisions were required to address data progressively obtained through research performed by other team members. Additionally, a major lesson learned was in the benefit of simultaneous as opposed to sequential GFM/GWM development. Time and cost savings could have been achieved by performing both in concert and therefore more effectively identifying the data and model components most significant to the primary modeling objectives.

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RAPID SITE CHARACTERIZATION

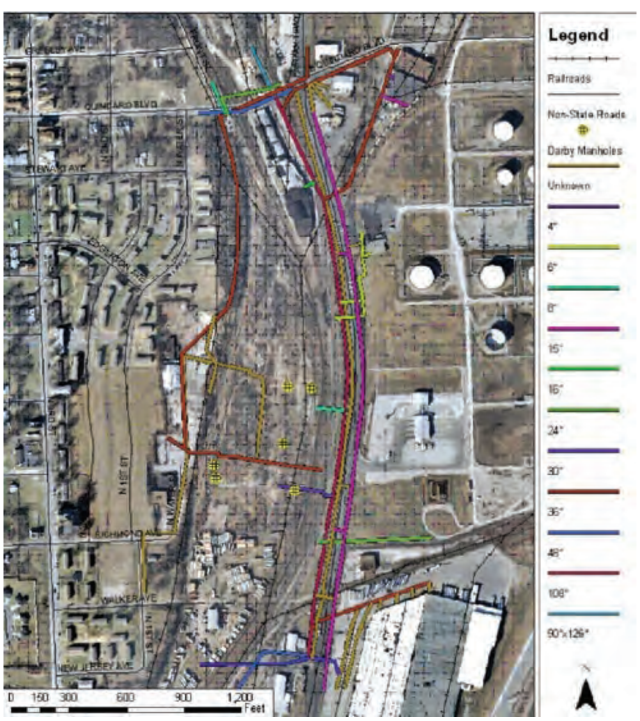
PROJECT NAME & LOCATION	DATE STARTED	DATE COMPLETED
Darby Site Overland Park, Kansas	March 2007	September 2009
ACTIVITY TITLE	**INITAL CONTRACT PRICE**	**FINAL AMOUNT INVOICED**
Geophysical Modeling & GIS	$25,000	$111,905

CLIENT NAME & ADDRESS	TECHNICAL CONTACT
Delta Environmental Consultants Kansas City Office (800) 477-7411	Roger Lamb, R.G. (913) 422-3555 x553 rlamb@environmentalworks.com

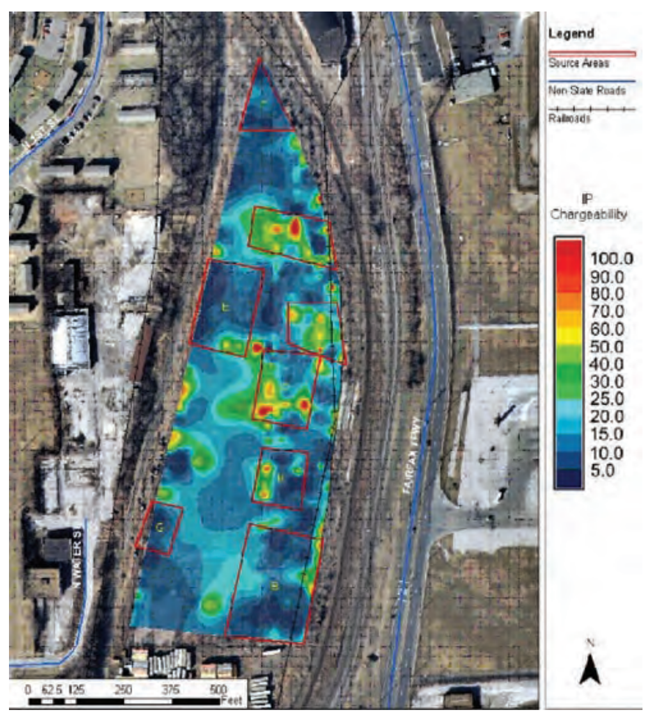
PROJECT DESCRIPTION

relational database containing lithologic, geophysical, soil analytical, and GeoProbe-MIP data, as well as EarthVision 3-D solids models of subsurface lithologic variations and contaminant distributions. The goal of the project was to produce a rapid, robust and comprehensive analysis of the site using a rapid site characterization (Triad) program and 3-D visual-
Approximately 420,000 surface geophysics and Geoprobe-MIP measurements were modeled in 3-D. Computer scripts were written to automate model updates, output development, and project website uploads on a daily basis. The maps and visualizations provided a detailed and cost-effective 3-D understanding of the

Many different types of spatial data were incorporated into the Site GIS such as, municipal utility lines, sewer and water mains, historical aerial images, and historical site engineering plans. Non-projected historical maps were digitized and spatially projected by identifying reference locations on roads and features common to both the historical maps and spatially projected aerial images. The GIS then provided a consistent set of diagrammatic and aerial photographic basemaps



Digitized sewers and attributes from city drawings over aerial photo where line color marks sewer diameters.



Spatial analysis of geophysical survey data related to key Site features and an aerial photograph.

We then developed a desktop, relational, geospatial database for the project that provided a single central repository for all lithologic, geophysical, MIP, groundwater level, and laboratory analytical data collected at the Site. The database was developed using Microsoft Access and Visual Basic and linked to the Site GIS thereby

Additional queries were de-
veloped to produce lithologic and parametric datasets formatted for immediate upload to 3D modeling software

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ment of Health and the Environment.

We used EarthVision™ for 3D modeling and visualization to capitalize on the software's advanced visualization and most importantly its batch processing capabilities wherein computer scripts were used to automate model development, output generation, and export to a secure project website. Automation allowed the models to be updated daily

fectively use the modeling results to guide the Site characterization objectives. Model output downloaded from the project web-

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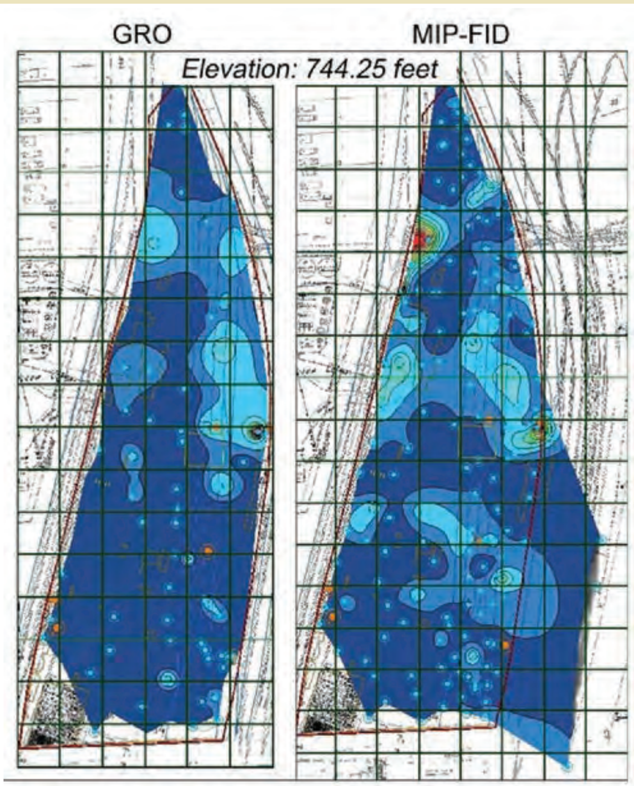
tions wherein the automation enabled rapid edits over the ensuing year-plus reviewing period.

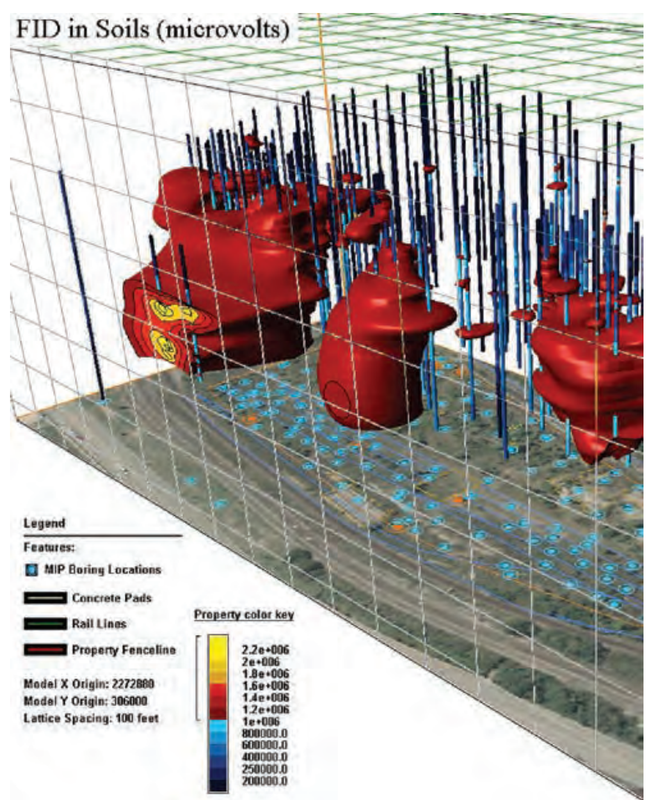
SELF ASSESSMENT

GeoHydros successfully generated rapidly updatable, very high resolution, 3D models (0.05 foot vertical interval) of soil contamination that were considered by the project management and the regulatory agency to

fective rapid site characterization (Triad) approach that saved money and time and facilitated better decision making.



Comparison of MIP & laboratory analytical data from



3D distribution of FID in soils where VOC contaminan-

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WATER RESOURCE MANAGEMENT

PROJECT NAME & LOCATION	DATE STARTED	DATE COMPLETED
Pennridge Wellhead Protection, Bucks Co. PA	January 2005	May 2007
ACTIVITY TITLE	INITAL CONTRACT PRICE	FINAL AMOUNT INVOICED
Geological & Groundwater Flow Modeling	$85,000	$85,000

CLIENT NAME & ADDRESS	TECHNICAL CONTACT
Borton Lawson Engineering Wilkes-Barre, PA (570) 821-1999	Dennis Livrone – Bucks Co. Planning (215) 345-3422 dplivrone@co.bucks.pa.us

PROJECT DESCRIPTION

The GeoHydros modeling group developed a numerical groundwater
municipalities managed by the Bucks County Planning Commission with the design of a comprehensive aquifer protection strategy. The basic objectives of this project were to: (1) compile and synthesize all available geologic and hydrologic data into a comprehensive Geologic Framework Model (GFM) describing structural controls on ground-

convert the GFM into a basin-scale numerical groundwa-

wellhead protection zones (WHPZ) for 19 Bucks County municipal wells.

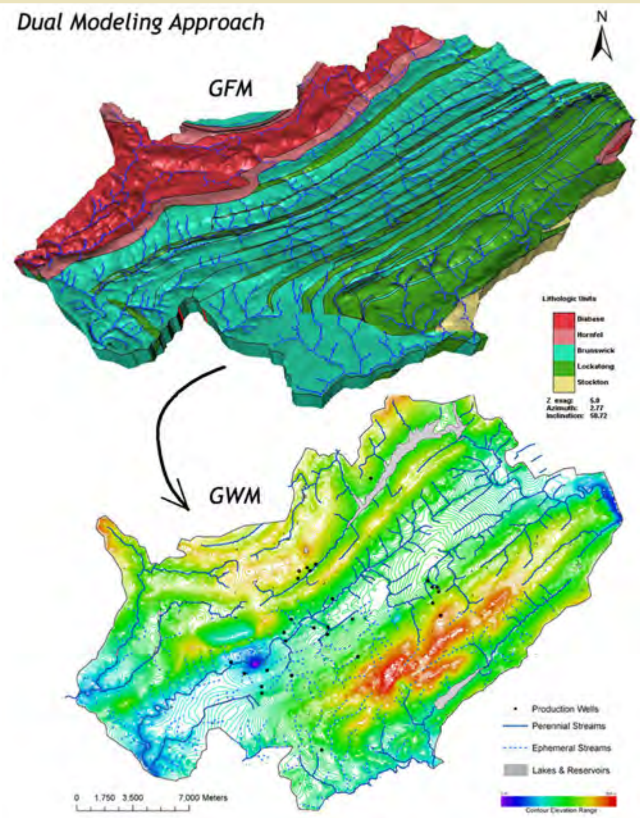
These objectives were achieved through numerical modeling using FEFLOW™ that was based on a detailed geological framework model (GFM) developed in EarthVision™.

throughout the basin with bedding orientations and contacts separating three geologic units: the Brunswick and Lockatong Formations and a diabase intrusion. The model incorporated strike and dip data and outcrop boundaries from geologic maps and cross-sections, borehole logs, and soil survey data to simulate 60 interbedded lithologic units of varying thickness, geometry, and permeability that have been structurally tilted The framework was then exported to FEFLOW for groundwater modeling where the

zones and then integrated back into the GFM in 3D to

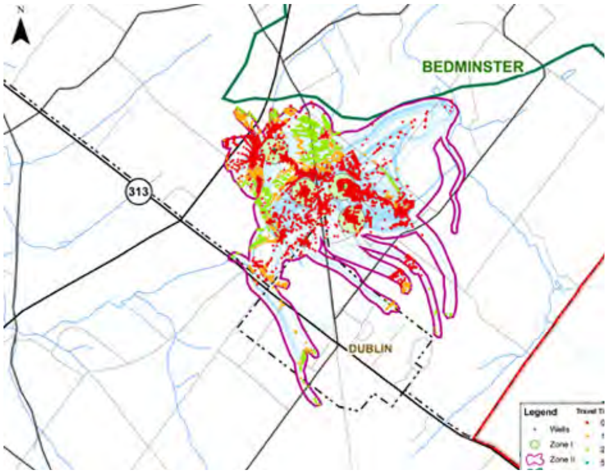
municipal water supply wells, which were used together to
A Zone II WHP Zones.

GeoHydros successfully generated rapidly updatable, very high resolution, 3D models (0.05 foot vertical
interval) of soil contamination that were considered by the project management and the regulatory agency to sig-
fective rapid site characterization (Triad) approach that saved money and time and facilitated better decision making.



(T
dipping interbedded stratigraphic units intruded by an igneous dike and dissected by streams.

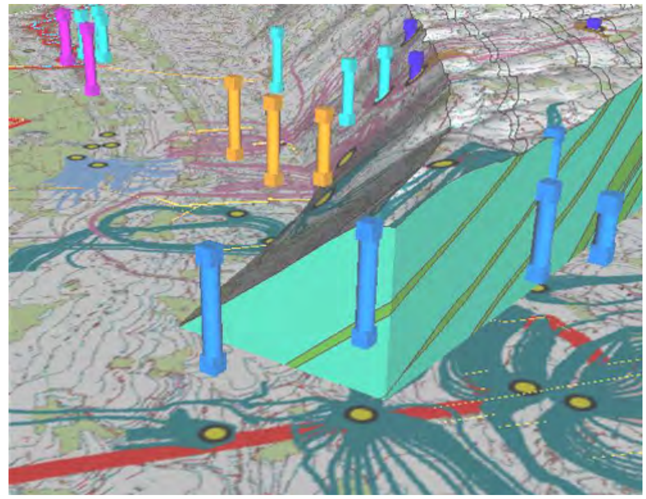
hydrostratigraphic framework from the GFM and hydraulic conditions created by streams, quarry dewatering, and municipal groundwater pumping.



Delineation of standard EPA Zone II WHP

tracks and alternate Zone II boundaries (colored

bedrock surface.



units (green) relative to the position and depth of municipality water supply wells and the well capture zones simulated in FEFLOW.

Deliverables included: (1) delineation of wellhead protection zones based on 3D particle tracks, (2) incorporation of model results & wellhead protection zones into appropriate ordinance language, (3) four quarterly presentations to the Municipality authorities and project management on the status and results of the modeling ef
report on model development, calibration, results, and wellhead protection zone delineation. in a synclinal basin, faulted at one end, and then intruded by the diabase.

SELF ASSESSMENT

GeoHydros successfully developed a regional 3D model of groundw
boundaries. The model was developed with sparse data but calibrated well to water levels measured in 19 municipal groundwater supply wells under both static and pumping conditions. Particle tracks exported from the pumping condi-
turn used to delineate standard EPA Zone II WHP
The modeling, particle track exports, and reporting were all completed on time and on budget. After the modeling was completed and our budget exhausted, we continued to support the project during a lengthy public review and comment period. Part of that support included developing an alternative set of Zone II boundaries that encircled the recharge areas for the wells as d
bedrock surface. In the end, the model was well received and the Pennsylvania Department of Environmental Protection stated that it marked a new standard for wellhead protection projects in Pennsylvania.

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KARST CHARACTERIZATION

PROJECT NAME & LOCATION	DATE STARTED	DATE COMPLETED
Woodville Karst Plain Characterization, North Florida	July, 2002	On Going
ACTIVITY TITLE	**INITAL CONTRACT PRICE**	**FINAL AMOUNT INVOICED**
Groundwater Tracing & Modeling	$50,000	$1,100,000

CLIENT NAME & ADDRESS	TECHNICAL CONTACT
Florida Geological Survey Florida Department of Environmental Protection Tallahassee, Florida	Dr. Rodney DeHan (850) 488-9380 Rodney.DeHan@dep.state.fl.us

PROJECT DESCRIPTION

The GeoHydros group has been conducting a comprehensive hydrogeological characterization of the Woodville Karst Plain (WKP) of North Florida with the Florida Geological Survey (FGS) that includes quantitative groundwater tracing, hydraulic instrumentation of underwater caves,

The purpose is to develop improved methodologies for characterizing and modeling karst controls on ground-

the upper Floridan aquifer and support State TMDL (total maximum daily load) and MFL
programs.

Our quantitative tracing has revealed extremely rapid
akulla Spring from several sources of contamination including a swallet that receives 60% of Tallahassee's runoff and the City's waste water spray

for varying source water contributions to the spring discharge; and a mechanism responsible for extensive saltwater intrusion to the upper Florida aquifer via large conduits that extend to coastal springs. T
, and
parameter data being collected from an instrument network installed in various parts of the underwater cave system are being used to develop a new numerical karst groundwater modeling process.

Map of the WKP showing mapped underwater caves (blue), tracer
(green stars), swallets (red dots), streams (brown and light blue lines), and the distribution and thickness of an upper

Traces include:

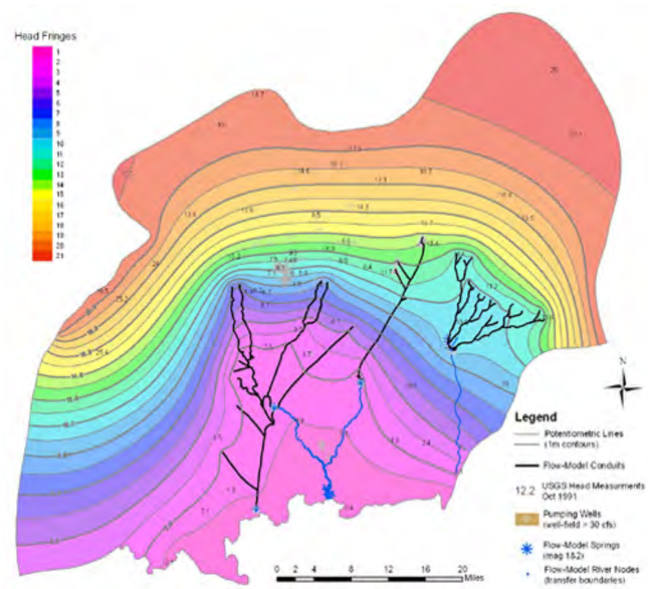
- Fisher Creek swallet to the Leon Sinks cave system *(1.2 miles/0.51 mi/day)*;
- Black Creek swallet to the Leon Sinks cave system *(1.6 miles / 0.50 mi/day)*;
- Leon Sinks cave system to Wakulla cave and Wakulla Spring *(10.6 miles / 1.2 mi/day)*;
- Ames Sink, which receives ~60% of the runoff from Tallahassee, to Indian, Wakulla, and Sally Ward Springs *(~6 miles/ ~0.25 mi/day)*
- Tallahassee' akulla, Springs *(~11 miles / ~0.2 mi/day)*.
- Lost Creek swallet to both Spring Creek and Wakulla, Springs (0.2 – 1.2 mi/day).

GeoHydros has established and maintains a network of hydraulic instruments in the basin that continuously mea-

natural windows into the conduit network underlying the WKP (right). We developed a custom web interface for the project that allows users to access the data from any combination of meters, generate plots over the Internet

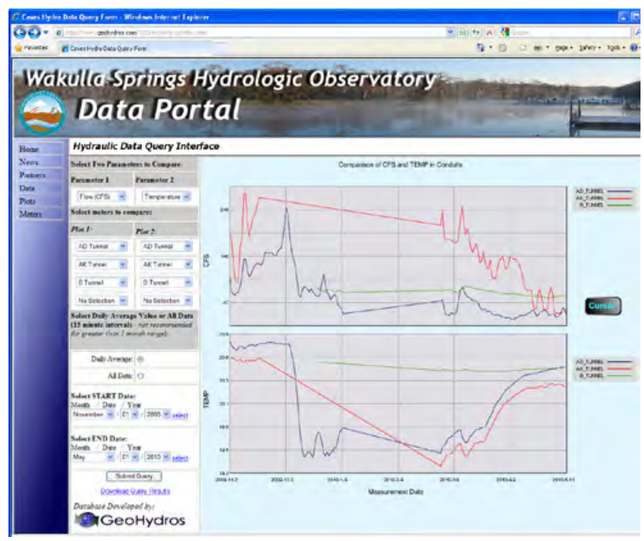
The numerical modeling work being performed here is revolutionary because it uses a dual-permeability frame-

, calibrates to discrete spring discharges as well as heads, and simulates the location and size of the conduits through the calibration process. The modeling techniques devised here are intended to establish new protocols for modeling in karstic parts of the aquifer throughout the rest of the State.



network for the upper Floridan aquifer in the WKP.

Map showing the location of hydraulic meters and water level transducers in the WKP.



Web interface providing graphical access to the data being collected from longterm monitoring stations.

SELF ASSESSMENT

This project is widely recognized as ground-breaking in terms of its contribution to our understanding of karstic con-

. The tracing results have been instrumental in land-use decisions including the City of Tallahassee's decision to upgrade to an advanced wastewater treatment system at the cost of approximately $200 million; and Wakulla County's decisions on where to delineate a springs protection zone

to develop an ef

for the Western Santa Fe River Basin. The fact that this project has persisted in the face of severe budget cuts is testament to its success and perceived utility to the state of Florida.

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GROUNDWATER FLOW MODELING

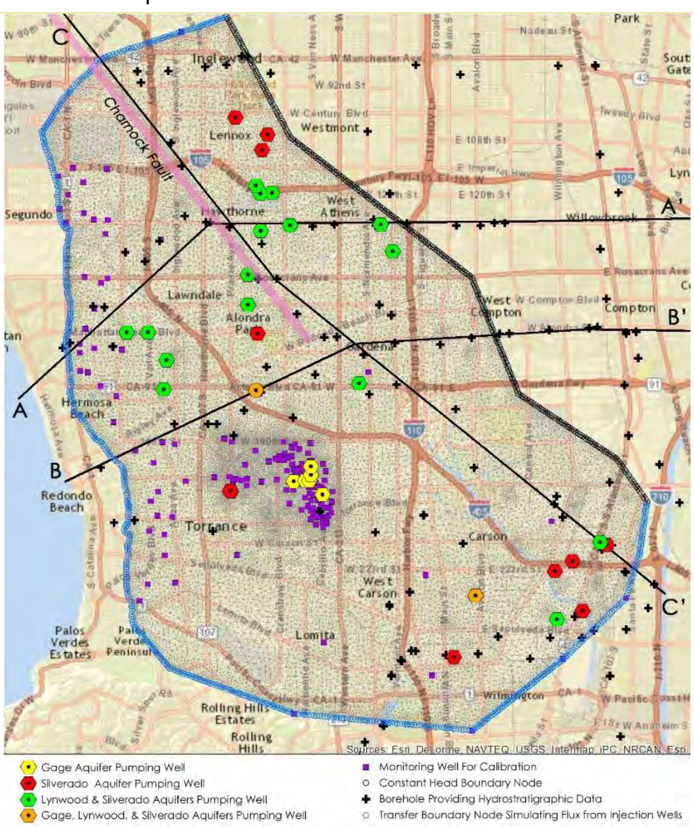
PROJECT NAME & LOCATION	DATE STARTED	DATE COMPLETED
Simulation of Groundwater Flow & Contaminant Capture in the West Coast Basin, Los Angeles Co., CA	January, 2012	July, 2012

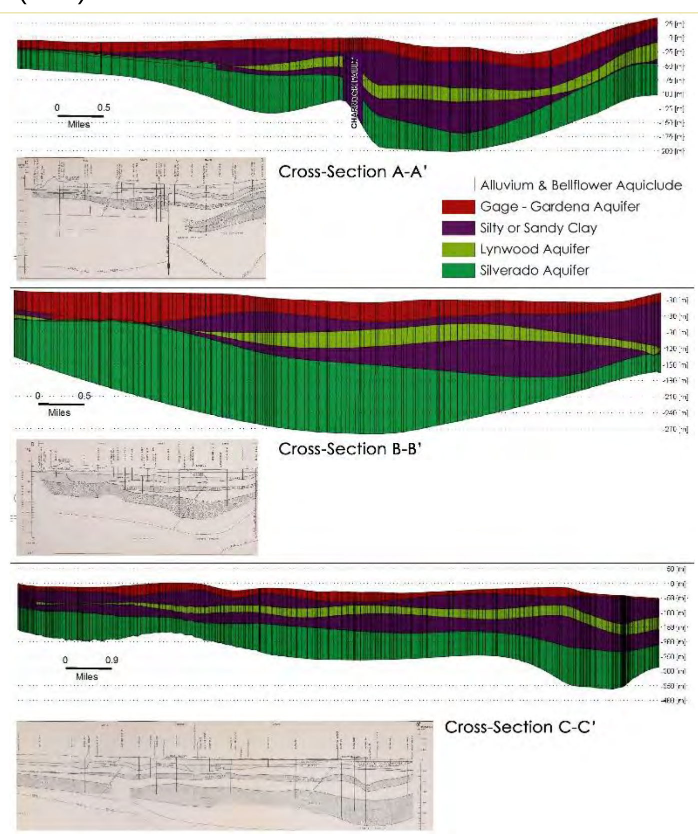
ACTIVITY TITLE	APPROXIMATE CONTRACT VALUE
Groundwater Flow Modeling	$60,000

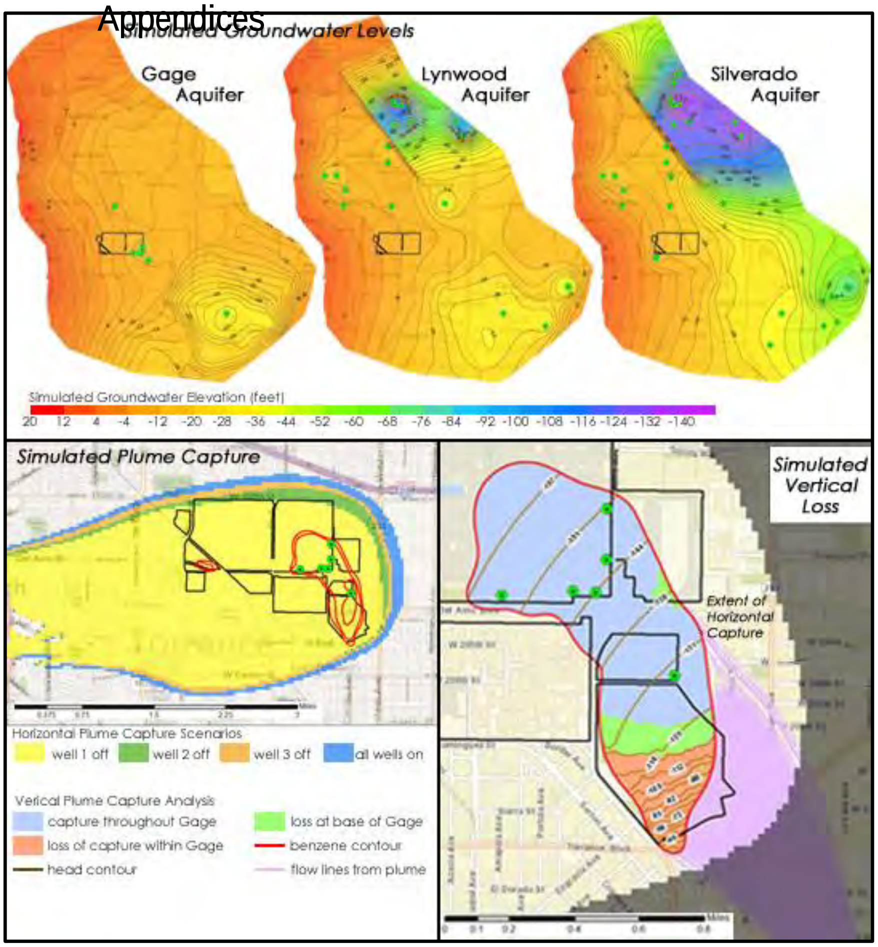
CLIENT NAME & ADDRESS	TECHNICAL CONTACT
Environmental Resources Management (ERM) Walnut Creek, CA	Environmental Resources Management (ERM) Walnut Creek, CA

PROJECT DESCRIPTION

GeoHydros developed a 3D steady-state numerical groundwater flow model for the West and Central Basins in Los Angeles County California in order to simulate capture zones for a network of remediation pumping wells. The objectives were to: 1) expand on an existing model to honor new geologic and hydraulic data; 2) calibrate the model to new groundwater level data; 3) use parameter estimation (PEST) to optimize the model variables; and 4) simulate well capture zones to evaluate plume capture under high, normal, and low water level conditions and recovery well pumping rates. Our model simulated 3D flow through the Gage/Gardena, Lynnwood, and Silverado aquifers, variably separated by discontinuous aquicludes and deformed in the north by the Charnock Fault and the Newport-Inglewood Uplift. The model was constructed in FEFLOW™ using geologic data compiled from more than 300 onsite and offsite boreholes describing hydrostratigraphic contacts and lithology; average head data compiled from more than 10,000 water level measurements collected from 198 monitoring wells in the Gage aquifer, 15 wells in the Lynnwood aquifer, and 39 wells in the Silverado aquifer; and average extraction rates for 136 water supply and recovery wells. The model calibrated to within +/- 0.4 feet of the observed head range at 8 of 11 Silverado, 11 of 15 Lynwood, and 145 of 179 Gage-Gardena aquifer calibration wells for a total of 164 of 205 (80%) calibration wells.







Three scenario analyses were performed to define and evaluate well capture zones under different hydraulic and pumping rate conditions: 1) anticipated normal rates, 2) anticipated minimum rates, and 3) anticipated and design maximum rates. Rates for contaminant movement were estimated on the basis of groundwater travel-times. Contaminant capture was also evaluated vertically using particle tracks seeded at varying depths within the contaminated aquifer.

The model simulated the effect of the Charnock fault as a barrier to groundwater flow and contaminant transport that dissipates to the southeast but becomes more prevalent with depth. The model also successfully simulated the effect of regional groundwater pumping from municipal water supply wells on the groundwater flow field in the vicinity of the plume. Finally, the model demonstrated that capture is effectively maintained throughout the upper portion of the aquifer under all scenarios but that some loss occurs from the deepest portions of the plume under some pumping conditions.

(Top) Simulated head fields in the Gage/Gardena, Lynwood and Silverado Aquifers in the calibrated FEFLOW model showing the effect of the Charnock Fault. (Bottom-left) Simulated capture zones within the Gage/Gardena Aquifer as defined by simulated water table elevation contours and particle tracks. (Bottom-right) simulated loss of capture at depth within the Gage/Gardena aquifer as determined by particle tracks seed at varying depths in the plume.

SELF ASSESSMENT

There are a few areas where the design of the GWM could be modified to produce a better fit to the steady-state calibration dataset and / or make scenario results more defensible. The most significant improvement would be the inclusion of well depth and screened interval data for all of the extraction wells within the model domain for which no data was available during this effort. WRD has a web-based interactive well search system which reportedly allows users access to all known well development data in the West Coast and Central Basins. With these data, any incorrect well placement assumptions could be corrected increasing the accuracy and defensibility of the simulated flow field and capture zones.

Model calibration could also be improved by spending more time on the delineation of aquifer heterogeneity near the regional WRD monitoring locations. More accurately calibrating to all regional wells would improve the reliability of the simulated capture zone boundaries. This would be particularly relevant to efforts aimed at minimizing extraction rates and/or optimizing pumping designs while maintaining plume capture.

Model predictions of travel-time could be improved by more closely analyzing very high conductivity zones that were defined by PEST. Flow directions and plume capture will remain relatively unchanged because the calibration in these regions is good. The high conductivity zones could however be generating over-predicted travel-times through these areas. To evaluate this, a sensitivity analysis should be performed in order to determine if equally good calibration could be achieved with lower assigned conductivities in these zones.

Finally, we could expand the calibration dataset, and therefore increase the model's defensibility, if we could gain access to head measurements recorded by the WCBBP for their monitoring well system. We were only able to find head measurements from this system from one measurement period. However, we did find references to semi-annual system reports and contour maps developed on this measurement cycle. Collection of head data from this system for the steady-state time period would allow us to develop steady-state values for these wells and use them to better control the PEST estimations.

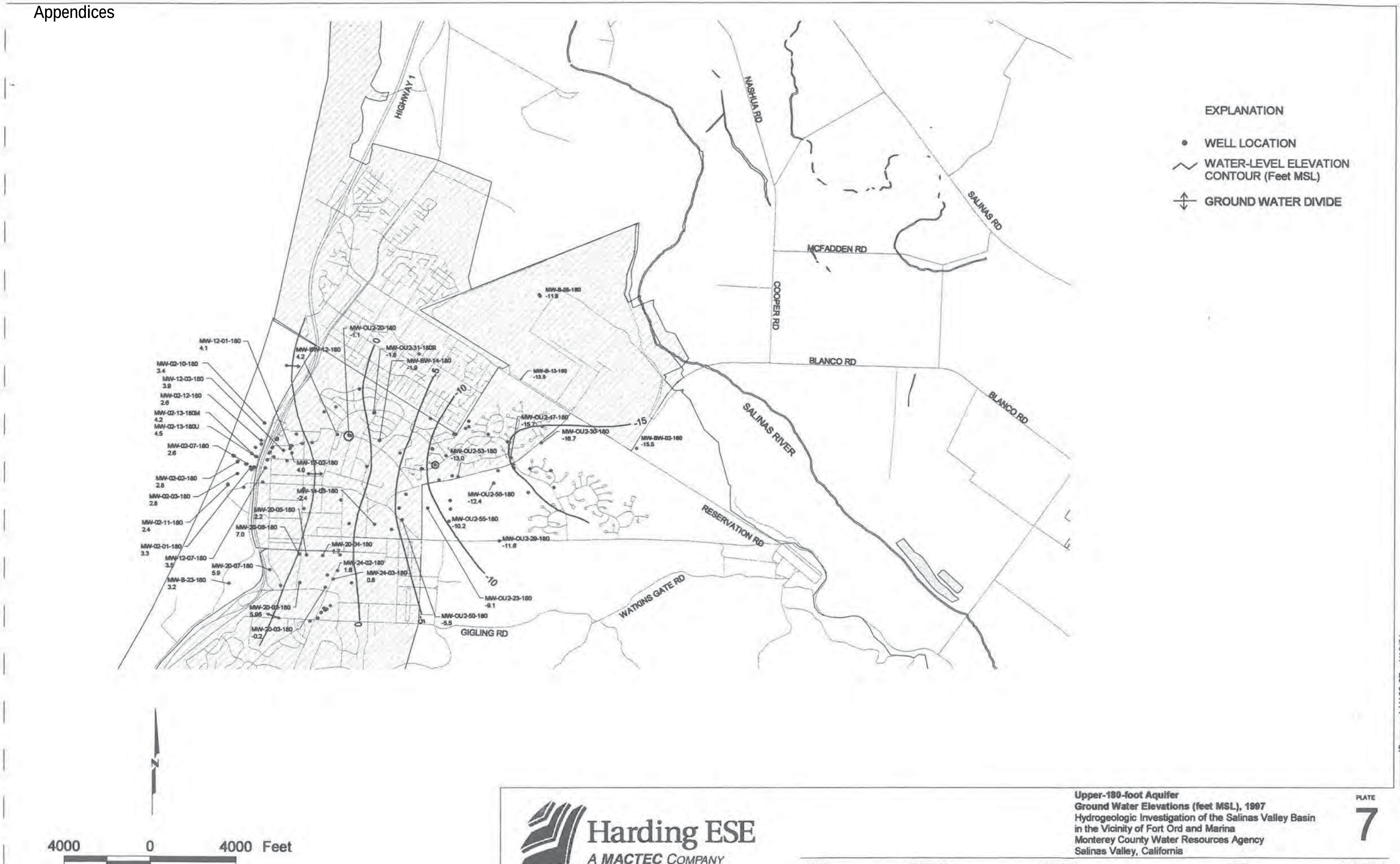
Appendix A

Selected figures from Harding ESE, *Final Report Hydrogeologic Investigation of the Salinas Valley Basin in the Vicinity of Fort Ord and Marina Salinas Valley, California*, prepared for Monterey County Water Resources Agency, dated 12 April 2001

W.Q. Section

Final Report
Hydrogeologic Investigation of the Salinas Valley Basin in the Vicinity of Fort Ord and Marina Salinas Valley, California

Harding ESE
A MACTEC COMPANY



Harding ESE
A MACTEC COMPANY

Upper-180-foot Aquifer
Ground Water Elevations (feet MSL), 1997
Hydrogeologic Investigation of the Salinas Valley Basin in the Vicinity of Fort Ord and Marina
Monterey County Water Resources Agency
Salinas Valley, California

PLATE 7

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
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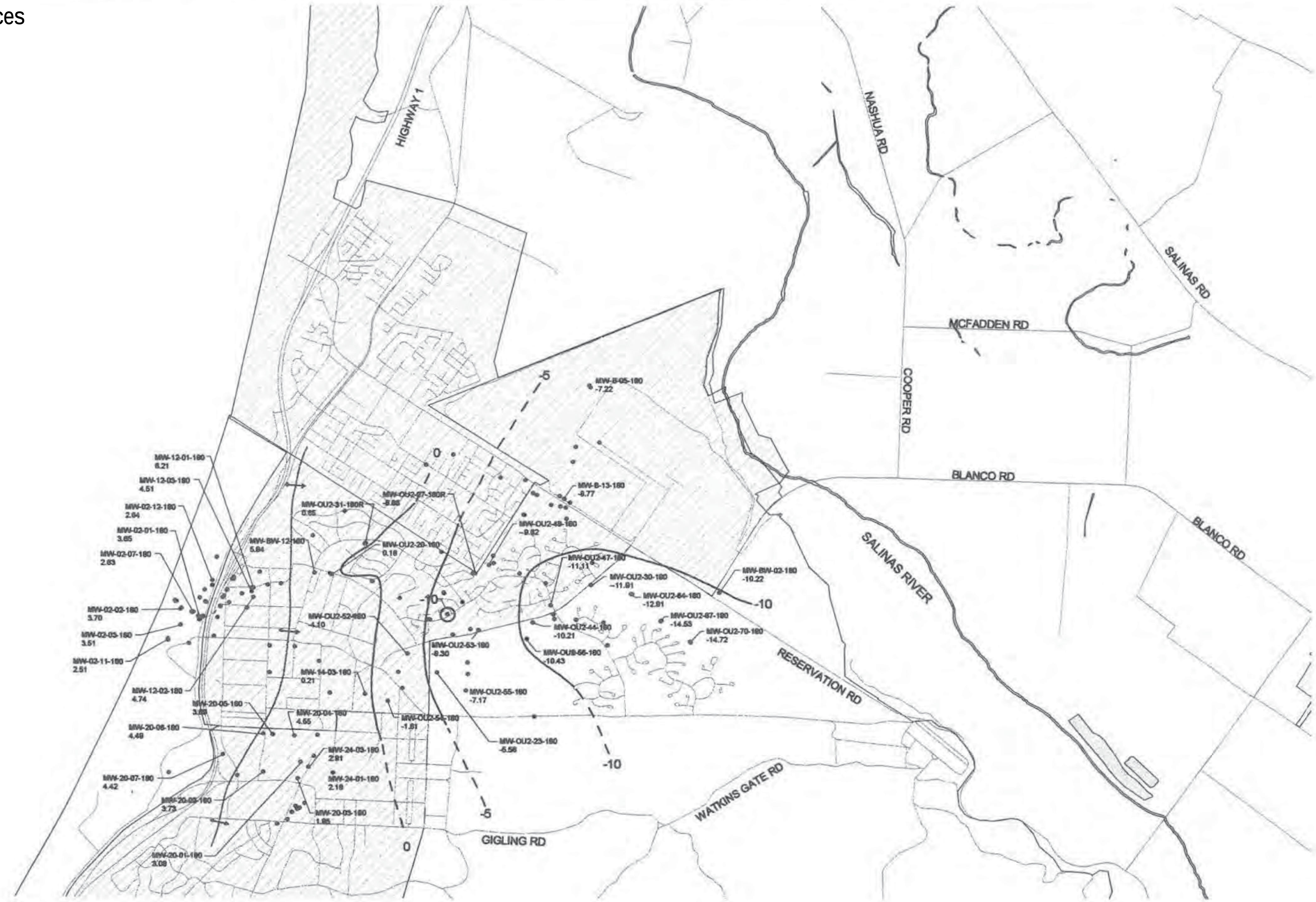

EXPLANATION

- WELL LOCATION
- WATER-LEVEL ELEVATION CONTOUR (Feet MSL)
- GROUND WATER DIVIDE

N

4000 0 4000 Feet

Harding ESE
A MACTEC COMPANY

Upper-180-foot Aquifer
Ground Water Elevations (feet MSL), 1999
Hydrogeologic Investigation of the Salinas Valley Basin in the Vicinity of Fort Ord and Marina
Monterey County Water Resources Agency
Salinas Valley, California

PLATE
8

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
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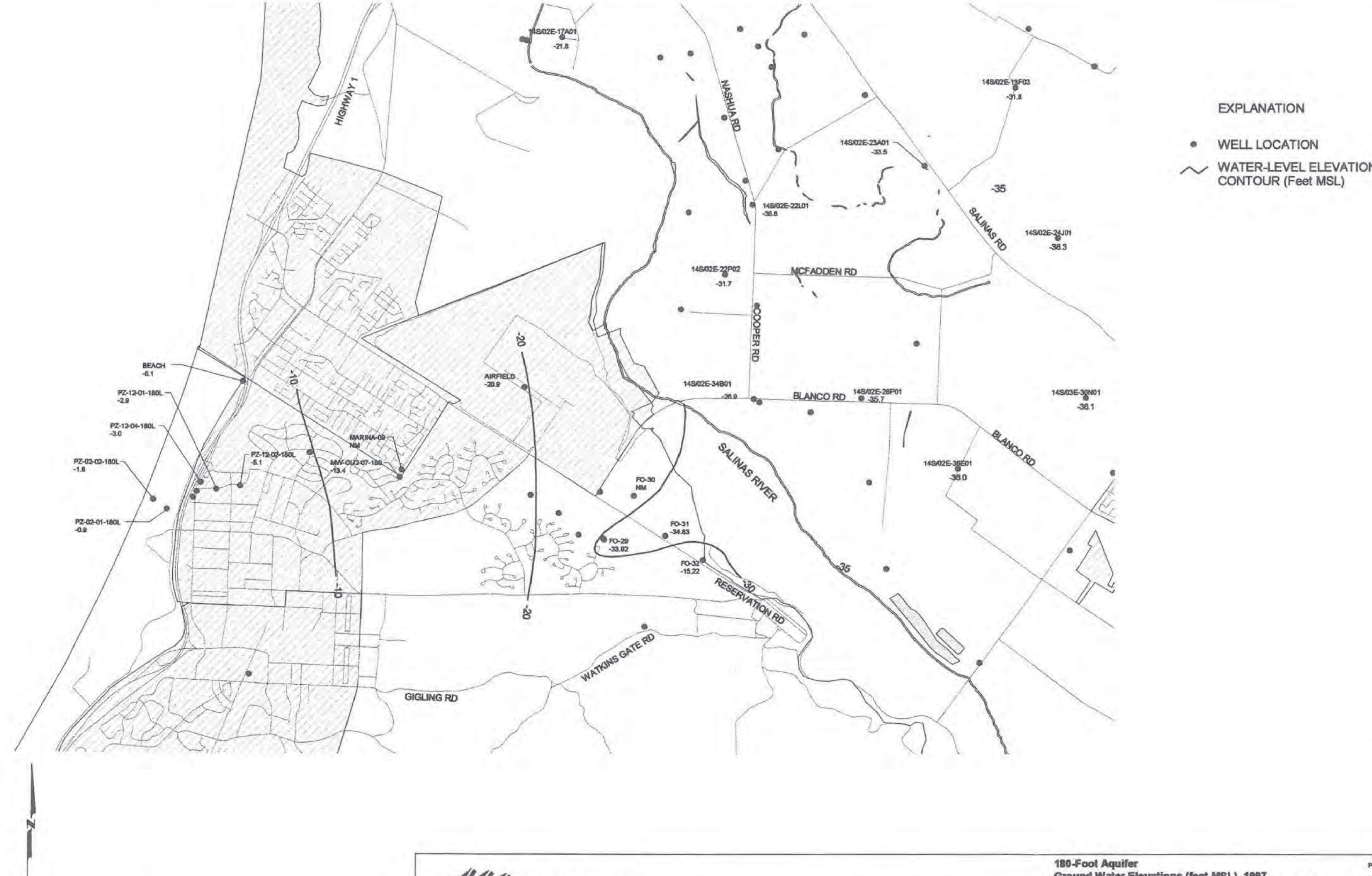
mcwraw f2.apr - wlU180-99 - 4/10/01



Harding ESE
A MACTEC COMPANY

180-Foot Aquifer
Ground Water Elevations (feet MSL), 1997
Hydrogeologic Investigation of the Salinas Valley Basin
in the Vicinity of Fort Ord and Marina
Monterey County Water Resources Agency
Salinas Valley, California

PLATE
9

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
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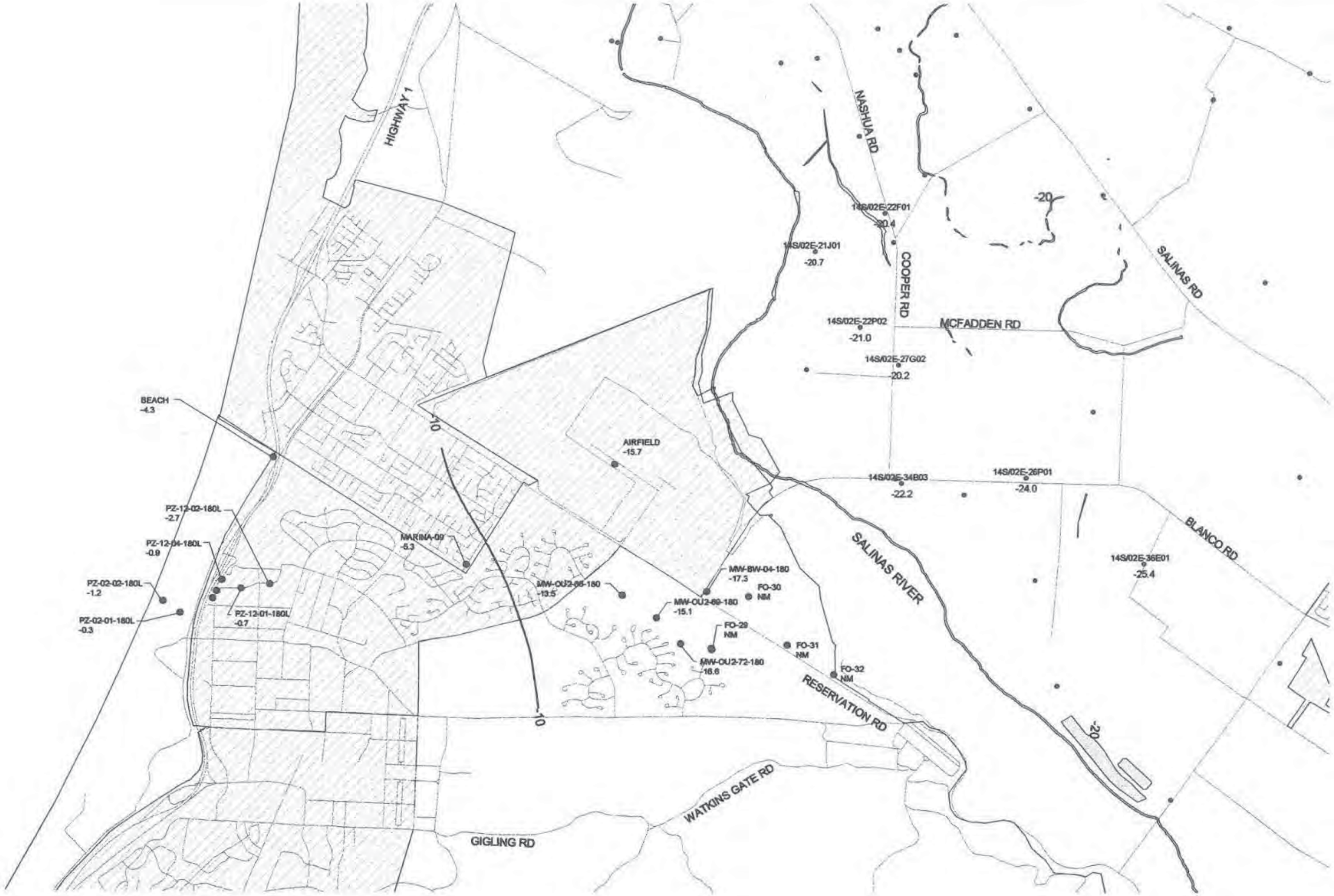
mcwrawl2.apr - wl.180-97 - 4/10/01



EXPLANATION

- WELL LOCATION
- WATER-LEVEL ELEVATION CONTOUR (Feet MSL)

N

4000 0 4000 Feet

Harding ESE
A MACTEC COMPANY

180-Foot Aquifer
Ground Water Elevations (feet MSL), 1999
Hydrogeologic Investigation of the Salinas Valley Basin in the Vicinity of Fort Ord and Marina
Monterey County Water Resources Agency
Salinas Valley, California

PLATE
10

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
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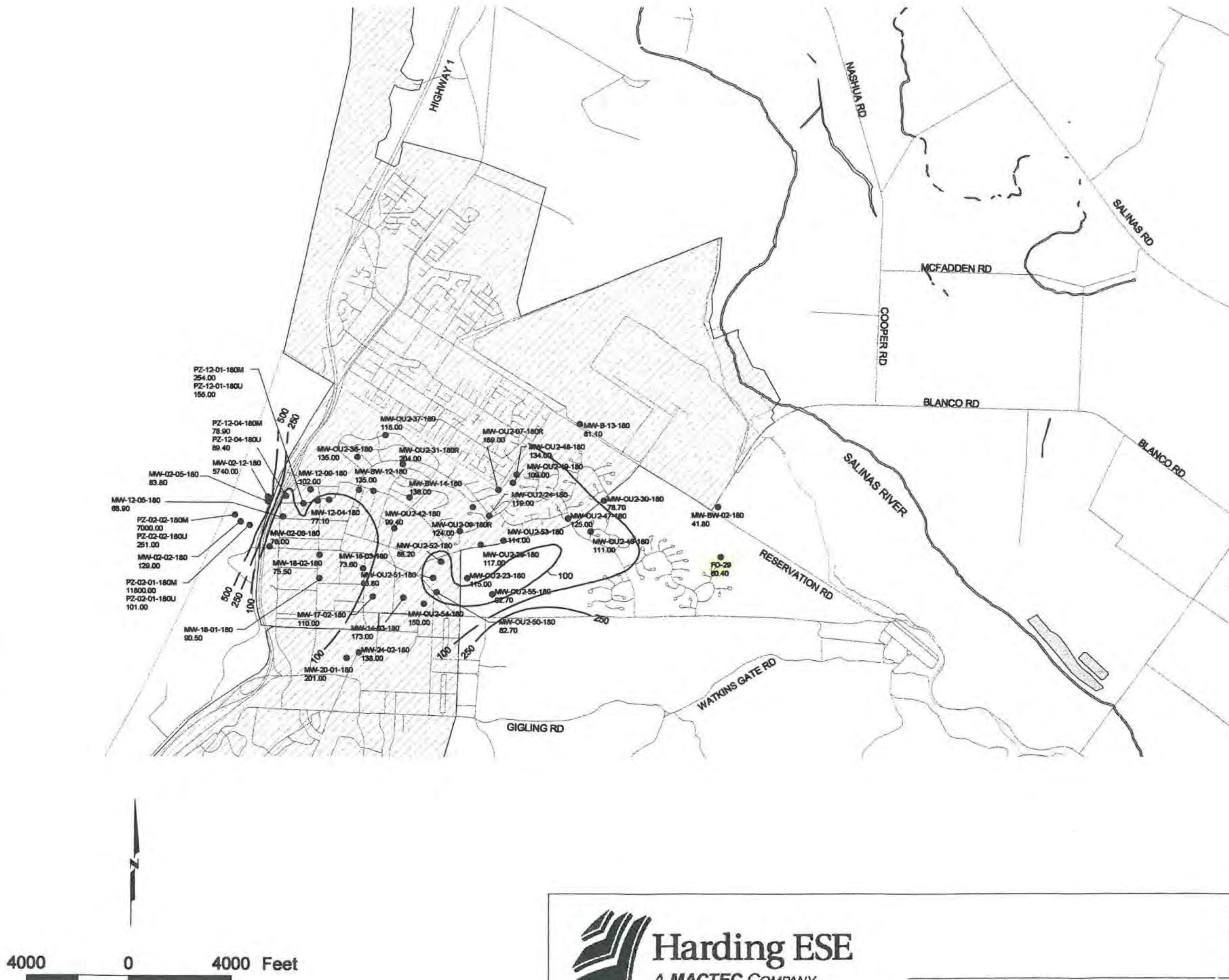

EXPLANATION

CHLORIDE CONCENTRATION CONTOUR (mg/L)

• WELL LOCATION

mcwra3.epr - Chloride-180-97 - 4/10/01

Harding ESE
A MACTEC COMPANY

Upper 180-foot Aquifer
Chloride Concentrations, 1997
Hydrogeologic Investigation of the Salinas Valley Basin in the Vicinity of Fort Ord and Marina
Monterey County Water Resources Agency
Salinas Valley, California

PLATE
13

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
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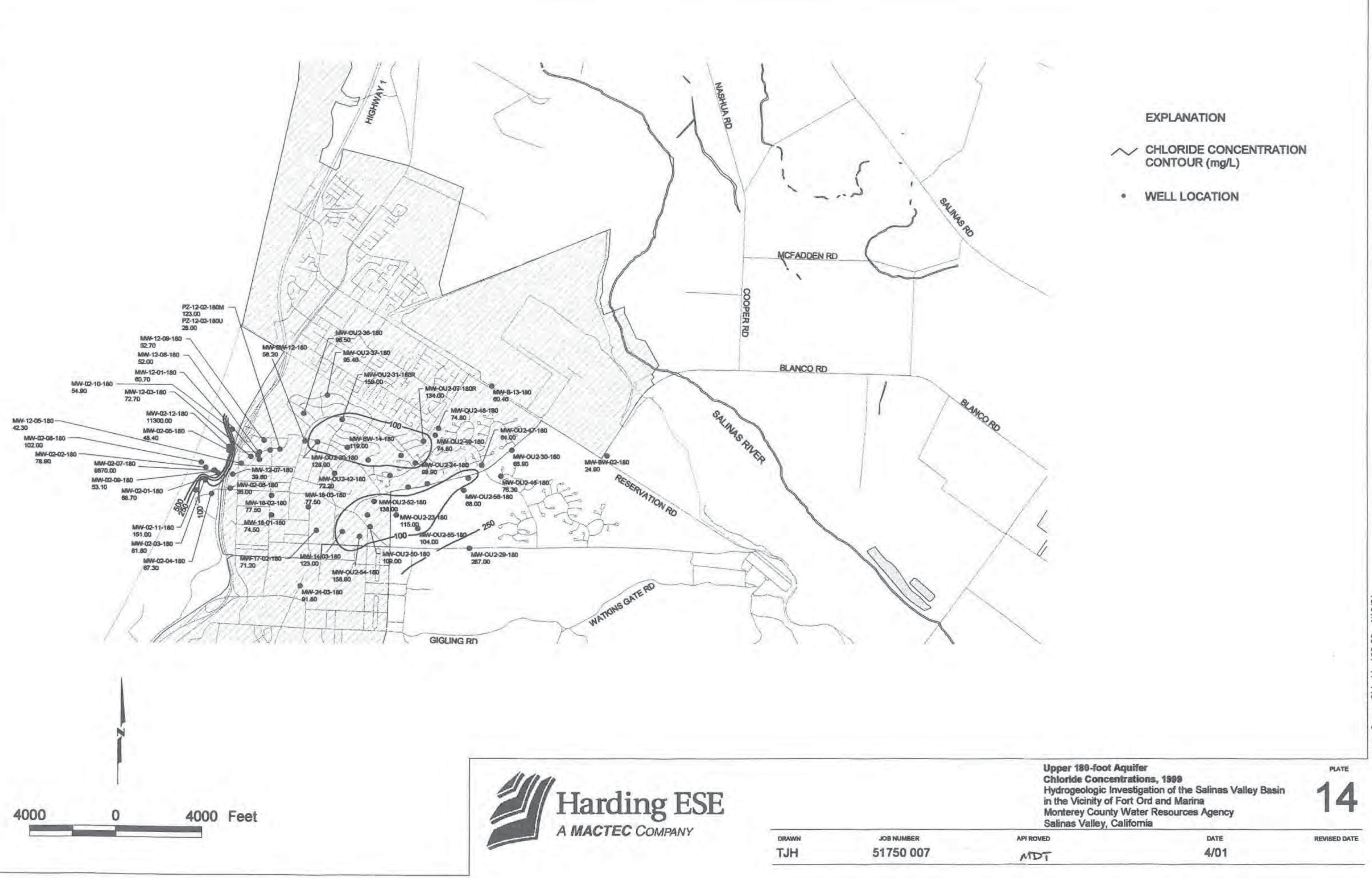
HIGHWAY 1
NASHUA RD
SALINAS RD
MCFADDEN RD
COOPER RD
BLANCO RD
BLANCO RD
SALINAS RIVER
RESERVATION RD
WATKINS GATE RD
GIGLING RD
100
100
100
250
500
250
EXPLANATION
CHLORIDE CONCENTRATION CONTOUR (mg/L)
WELL LOCATION
N
4000 0 4000 Feet
Harding ESE
A MACTEC COMPANY
Upper 180-foot Aquifer
Chloride Concentrations, 1999
Hydrogeologic Investigation of the Salinas Valley Basin in the Vicinity of Fort Ord and Marina
Monterey County Water Resources Agency
Salinas Valley, California
PLATE
14
DRAWN
TJH
JOB NUMBER
51750 007
APPROVED
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DATE
4/01
REVISED DATE
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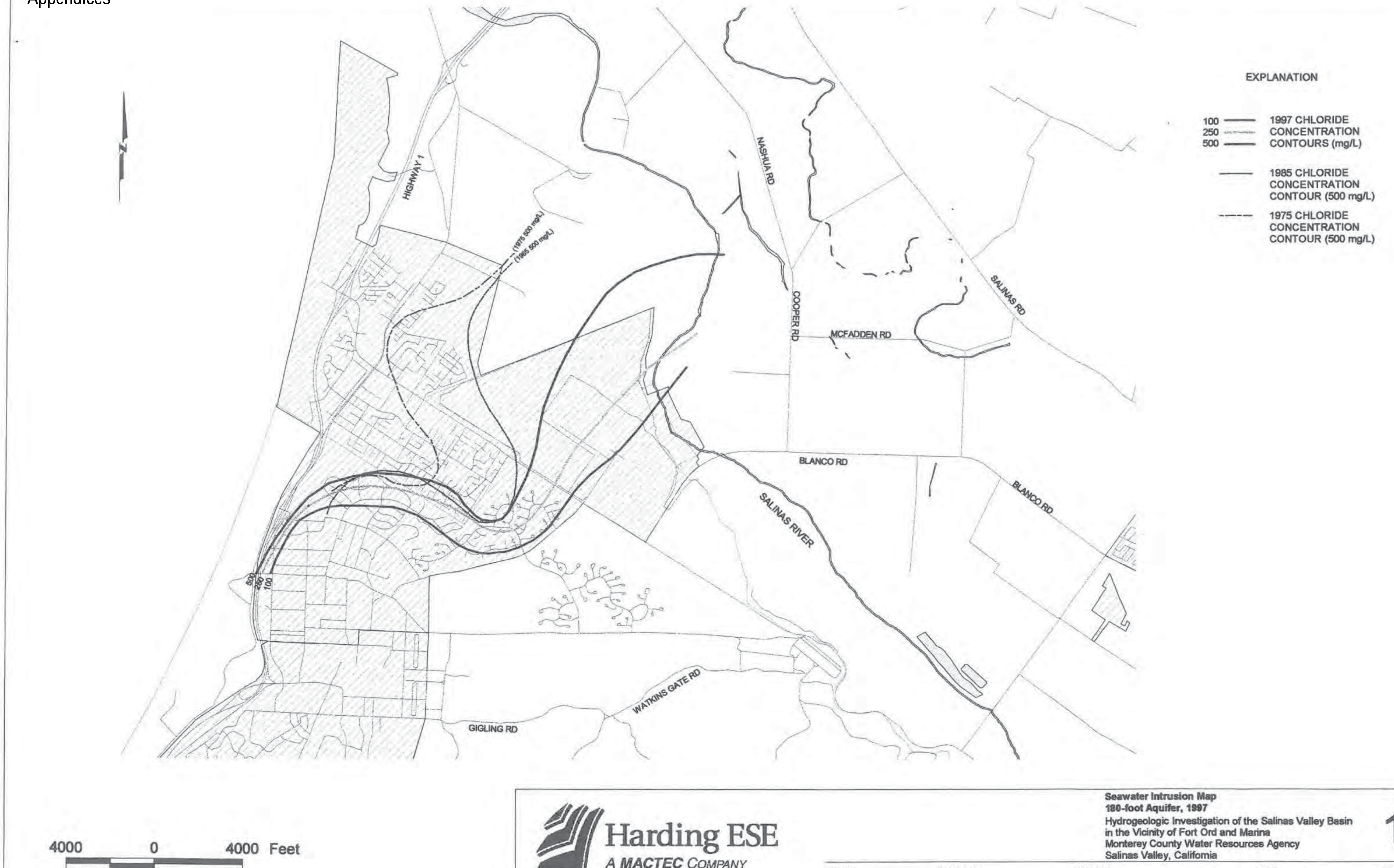

mcwra3.apr - Chloride-180-97 - 4/10/01

Harding ESE
A MACTEC COMPANY

Seawater Intrusion Map
180-foot Aquifer, 1997
Hydrogeologic Investigation of the Salinas Valley Basin in the Vicinity of Fort Ord and Marina
Monterey County Water Resources Agency
Salinas Valley, California

PLATE 15

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
TJH	51750 007	MDT	4/01	

Harding ESE
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Seawater Intrusion
180-foot Aquifer, 1999
Hydrogeologic Investigation of the Salinas Valley Basin in the Vicinity of Fort Ord and Marina
Monterey County Water Resources Agency
Salinas Valley, California

PLATE 16

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
TJH	51750 007	MDT	4/01	

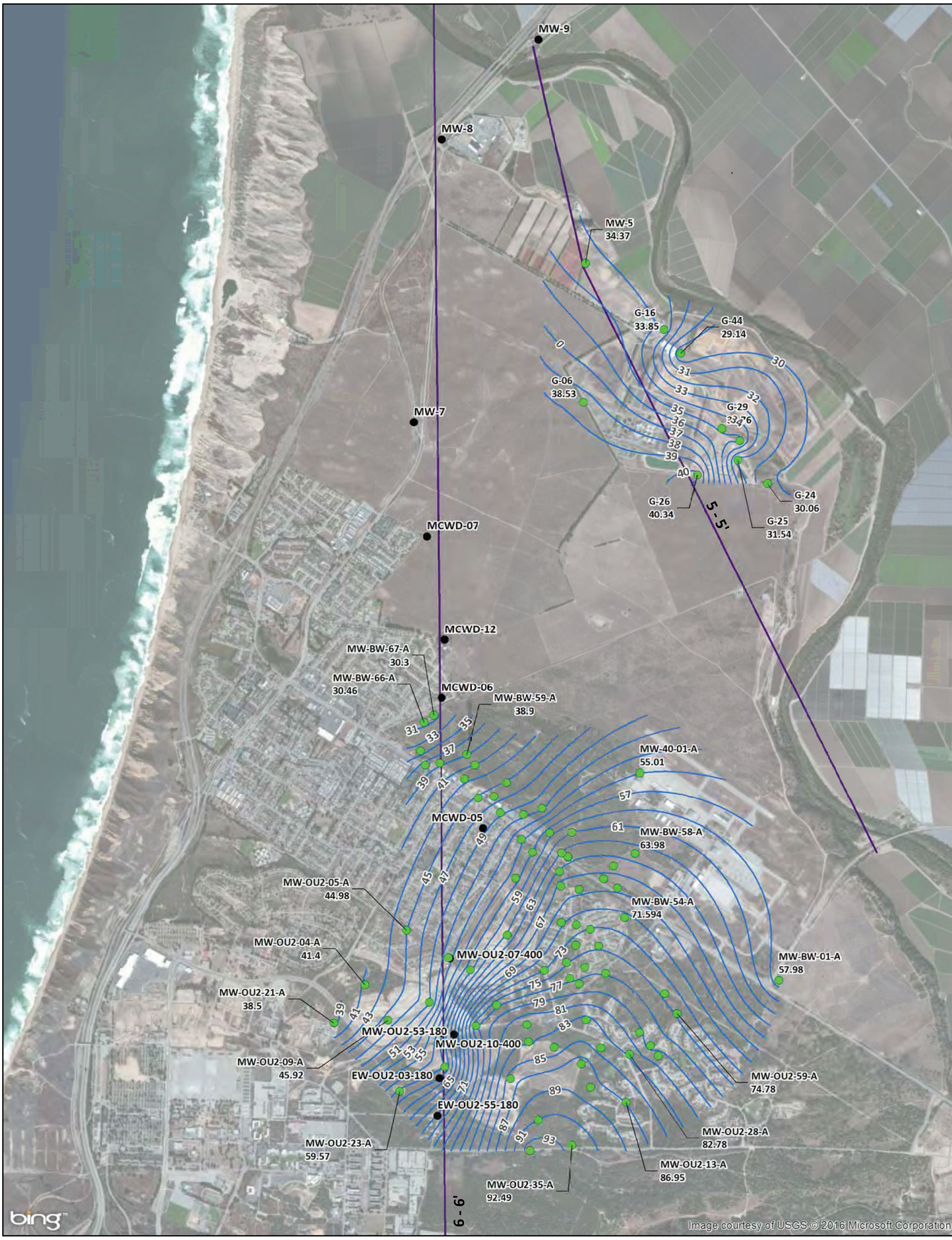
mcwra3.apr - Chloride-L180-99 - 4/10/01

Appendix B

Selected figures from Geoscience Monterey Peninsula Water Supply Project Hydrogeologic Investigation-TM2 Monitoring Well Completion Report. Released July 2016

CALIFORNIA AMERICAN WATER

MONTEREY PENINSULA WATER SUPPLY PROJECT
MONITORING WELL COMPLETION REPORT AND CEMEX MODEL UPDATE



Monitoring Wells

-40- Groundwater Elevations (ft msl)

Cross-Section Location

GROUNDWATER ELEVATIONS - "PERCHED AQUIFER" (USING FORT ORD "A" AQUIFER WELLS, MCPCA 35-FOOT AQUIFER WELLS, AND MPWSP MW-5S) FALL 2015

15-Jul-16

Prepared by: HJ. Map Projection: State Plane 1983, Zone V.

NORTH

0 2,000 4,000 Feet

GEOSCIENCE

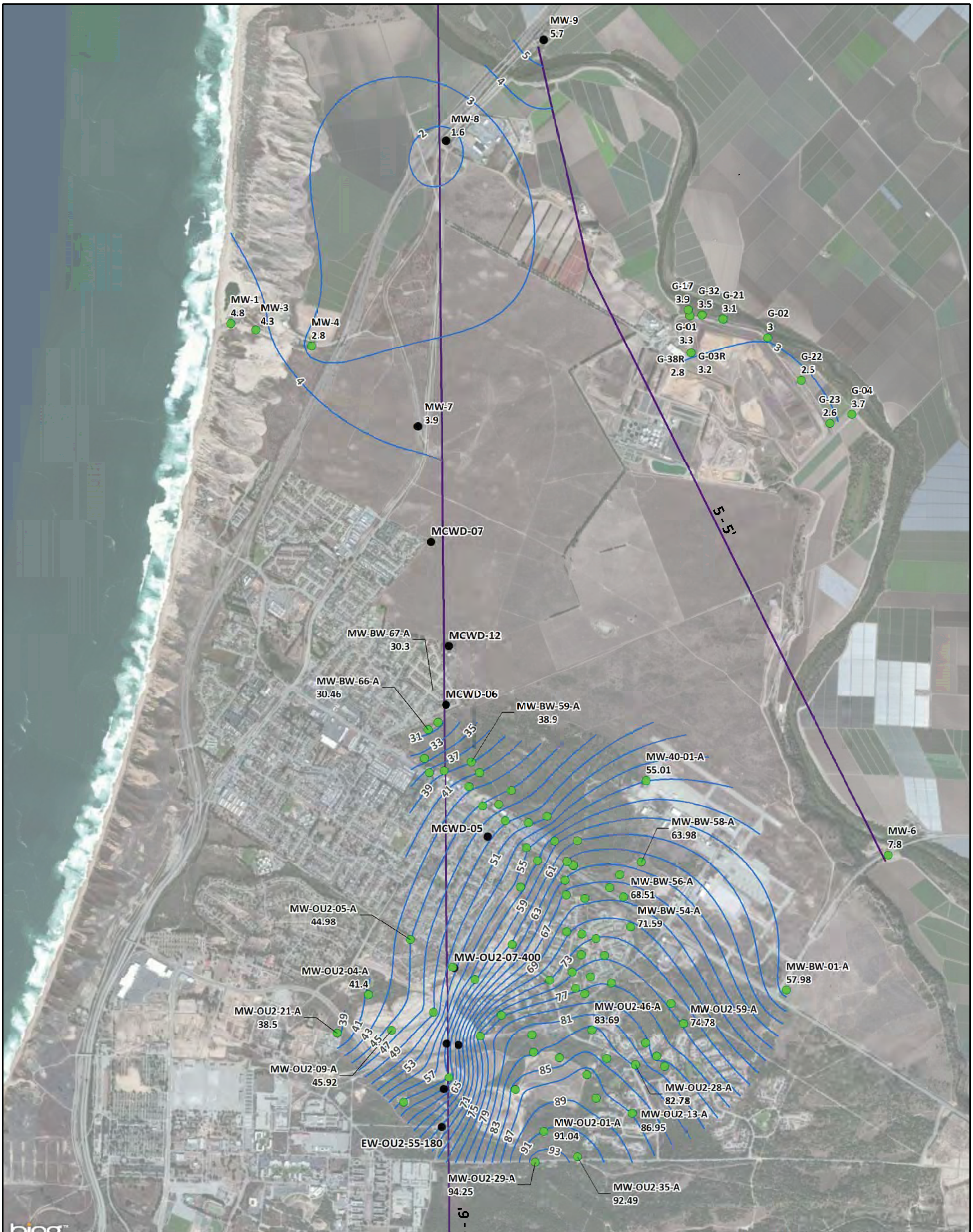
GEOSCIENCE Support Services, Inc.
P.O. Box 220, Claremont, CA 91711
Tel: (909) 451-6650 Fax: (909) 451-6638
www.gssiwater.com

DRAFT

Figure 9

MONTEREY PENINSULA WATER SUPPLY PROJECT
MONITORING WELL COMPLETION REPORT AND CEMEX MODEL UPDATE

CALIFORNIA AMERICAN WATER



Monitoring Wells

-40- Groundwater Elevations (ft msl)

Cross-Section Location

GROUNDWATER ELEVATIONS - "DUNE SAND AQUIFER" (USING MCPCA -2-FOOT AQUIFER WELLS, AND MPWSP SHALLOW COMPLETIONS AND SHOWING FORT ORD PERCHED "A" MONITORING WELLS) FALL 2015

15-Jul-16

Prepared by: HJ. Map Projection: State Plane 1983, Zone V.

NORTH

0 2,000 4,000 Feet

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GEOSCIENCE Support Services, Inc.
P.O. Box 220, Claremont, CA 91711
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www.gssiwater.com

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Figure 10

MONTEREY PENINSULA WATER SUPPLY PROJECT
MONITORING WELL COMPLETION REPORT AND CEMEX MODEL UPDATE

CALIFORNIA AMERICAN WATER

W:\GIS_proj\mcwsp_cal_am\cal-am_CEMEX_model\Model_Calibration\4_Fig_11_Middle_MW's_(180ft)_Fort_Ord_Upper-180_Aquifer_7-16.mxd

- Monitoring Wells
- -40 Groundwater Elevations (ft msl)
- Cross-Section Location

GROUNDWATER ELEVATIONS - "180-FTE/180-FOOT AQUIFER" (USING FORT ORD UPPER 180-FOOT AQUIFER WELLS AND MPWSP MIDDLE MIDDLE COMPLETIONS) FALL 2015

15-Jul-16

Prepared by: HJ. Map Projection: State Plane 1983, Zone V.

NORTH

0 2,000 4,000 Feet

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Figure 11

Exhibit 1.

City of Santa Barbara
Santa Barbara, CA

To restart a 20-year old non-operating desalination plant with a cost-effective project delivery method, the City of Santa Barbara Desalination Plant Reactivation Project choose a modular unit concept offered by IDE Technology. The prefabricated modular units were assembled offsite while civil works was concurrently preparing the site resulting in significant savings in construction time. In EPC project delivery, fabrication offsite in a controlled setting allows for reduced on site construction costs. From design to execution took 60 days. Three modular SWRO units at 0.95 MGD with pretreatment elements meet California Drinking Water Standards.

Charles E. Meyer Desalination Plant

First Water	April 2017
Capital Cost (estimate)	$70 million
Operating Cost (estimate)	
Full Production	$4.1 million annually
Standby mode	$1.4 million annually
Production Capacity	3 MGD 3125 AF/Y
Energy Consumption	10 – 12 kWh/1000 gal. 2.64 – 3.17 kWh/m^3
Finance	20 years at 1/6% interest rate

Link: http://www.santabarbaraca.gov/gov/depts/pw/resources/system/sources/desalination.asp

LEGAL AND PROFESSIONAL EDUCATION
THE SEMINAR GROUP

Ocean Desalination:

Examining Technical, Regulatory** and **Practical Solutions

Subsurface Intake Technologies

Neodren® Subsurface Intake Technology

Anthony T. Jones
Intake Works LLC

February 7 & 8, 2016
The Fess Parker: A Doubletree by Hilton Resort
Santa Barbara, California

Neodren® Subsurface Intake Technology

Anthony T. Jones
Intake Works LLC

Introduction

This paper provides a brief overview of the purpose of intake subsystems within desalination systems, the types of subsurface intake technologies that have been promoted, a historical context for the development of the Neodren® subsurface seawater intake system, an examination of the currently operating desalting facilities that utilize Neodren® intakes as well as some basic operating conditions and case studies, where that information is available.

Purpose of the Intake Subsystem

The intake subsystem in a seawater reverse-osmosis desalination system delivers a specified amount of seawater to the RO plant so that the plant can deliver a required production rate to the offtaker, distributor or end user. As one can imagine, there are various means in which to convey seawater to a desalination facility.

Besides quantity, the quality of the water can have significant bearing on operational and cost efficiency. For example, source water with low organic content will lead to longer cycles between membrane cleaning, as there will be less biological fouling, thus affecting the plant's bottom line in terms of operational expenditures.

Generally, there is an operational availability requirement for reliability of the production with appropriate allocation for preventative or routine maintenance. Uptimes in excess of 90% annually are not unheard of.

Due to the corrosive nature of seawater, Material Control is important in design and operations. For membrane systems, a key parameter is the amount of silt in the source water. Membrane manufacturers' specifications limit the density of silt particles in order to guarantee membrane performance in terms of salt rejection.

Types of Subsurface Intakes Technologies

With the adoption of regulations in California that give preference to subsurface intakes versus directly drawn source water from the sea into desalination plants, the time is ripe for development of an alternative means with which to convey raw seawater to be processed in coastal desalting plants.

In California, the recent Independent Scientific and Technical Advisory Panel (ISTAP)[1] for assessing technical feasibility of subsurface intake designs for the proposed Poseidon Water Desalination Facility at Huntington Beach, California -- jointly sponsored by the developer, Poseidon Resources (Surfside) LLC and the regulatory agency, the California Coastal Commission -- identified three general types of subsurface intake: wells, galleries and tunnels.

Wells

- Vertical Wells
- Collector Wells
- Slant Wells
- Horizontal Directionally Drilled (HDD) Wells

Galleries

- Surf Zone Infiltration Gallery
- Engineered Seafloor Infiltration Galley

Tunnels

- Water Tunnel

This paper focuses on the Neodren® subsea seawater intake system which has been generically referred to as HDD wells.

The Neodren® Story

Neodren® is a trademark of Catalana de Perforacions SA (Spain). Catalana de Perforacions is a family-owned drilling services company founded in 1968 with headquarters in Santpedor (Barcelona, Spain). The company's project portfolio relies on an array of drilling technologies, including horizontal directional drilling (HDD), mineral exploration (coring), and vertical drilling for water wells coupled with exploitation of low-temperature geothermal resources.

Catalana de Perforacions pioneered the use of HDD in Spain, becoming the first local company to install pipelines by this method in 1995. The company continues to hold a market leadership position in the Iberian Peninsula. Today, Catalana de Perforacions offers several solutions based on HDD for both urban and intercity projects such as installation of utilities, seawater intakes, land-sea connections and oil and gas pipelines.

In the late 1990s, the fish farming industry, a key market niche for Catalana de Perforacions, started demanding an alternative to vertical wells for seawater collection and circulation. The fish farmers were facing environmental challenges because vertical wells could allow seawater intrusion into onshore freshwater aquifers. The development of the seawater desalination

[1] Final Report: Technical Feasibility of Subsurface Intake Designs for the Proposed Poseidon Water Desalination Facility at Huntington Beach, California http://www.coastal.ca.gov/pdf/ISTAP_Final_Phase1_Report_10-9-14.pdf

industry in Spain faced a similar situation. Notwithstanding the limitation of vertical wells, open direct intakes became unfeasible across the Mediterranean coast due to the environmental sensitivity of extensive beds of a local seagrass, *Posidonia*, which became protected by law in 2000, thus restricting trenching in the near shore.

Catalana de Perforacions developed a technology that draws adequate water to industrial facilities continuously, but was also eco-friendly. Neodren® is a solution that fulfils a need in the emerging seawater desalination and fish farming markets for raw seawater without harming the marine ecosystem.

Three main advantages of Neodren are:

- Trenchless construction technique, as intakes are drilled from the shore by means of HDD, damaging neither the seabed nor the surrounding flora and fauna;
- The under-the-seabed (subsurface) intake provides a continuous flow of raw seawater, since drains are installed horizontally in the offshore aquifer; and
- The lateral drains supply high-quality seawater as it infiltrates through the seafloor before reaching the desalination facility.

Neodren® has been installed at 18 facilities spread across Spain. Their collective experiences have shown that Neodren® generates several positive externalities. For instance, the aforementioned pre-treatment filtering step has led to lower operation and maintenance costs as well as a smaller investment in equipment for the pre-treatment subsystem. Additionally, the micro-porous filter pipes do not need to be replaced or removed.

Along the Mediterranean Sea, the Neodren® subsurface intake system first began operating in 1996 at a fish farm. Since 2003, five seawater desalination plants have commissioned Neodren® subsurface seawater intake systems with a total capacity of 63 MGD (see Table 1).

Table 1
Inventory of Neodren® intakes at operating seawater desalination facilities in Spain

Plant	Year	No. Lateral Drains	Filter Section (ft)	Plant Capacity (MGD)
San Pedro del Pinatar	2003	20	14,911	21.9
Cabo Cope	2004	4	1,993	9.9
Águilas	2006	3	2,530	7.8
Tordera	2007	1	670	1.8
Alicante II	2008	8	8,530	21.9

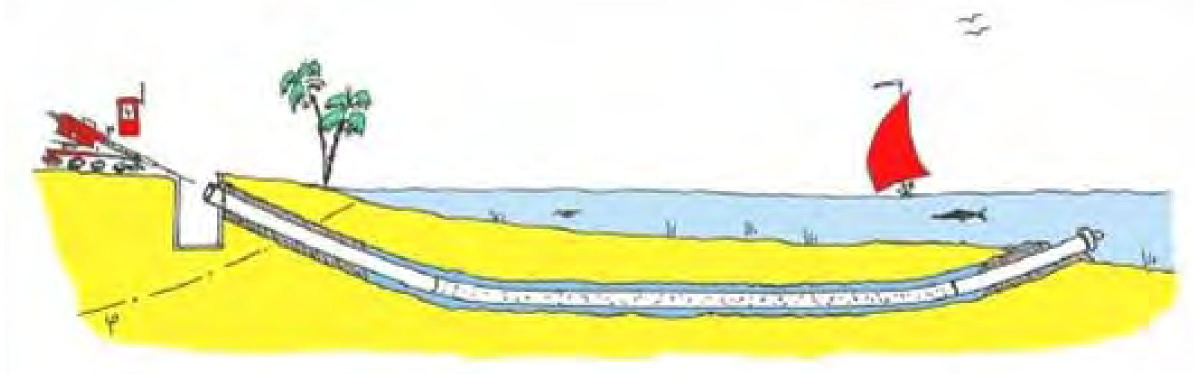

Figure 1. Cross section highlighting features of the Neodren® intake system

Neodren® is a viable solution for several planned ocean desalination projects along the California coast. Installed "drains"[2] could provide the required volume for processing at the desalination facility continuously while minimizing downstream operating and maintenance costs and protecting the environment both short- and long-term.

The subsurface drain intake system provides extremely low turbid water as source water for desalting. Non-corrosive HDPE pipes with microporous sections (60 µm pores) are inserted 20 feet below the seafloor. The HDD laterals can yield 1 to 2 million gallons per day (MGD) of source water without fish larvae, floating hydrocarbons and algal blooms, and have no contribution or exacerbation of the seawater intruding into the inland aquifer.

Where are there currently operating plants, what is their performance data?

Concerning performance of the Neodren® subsea intake system, the detailed information on operations is quite difficult to obtain. Once installed and commissioned by Catalana de Perforacions, the operations are turned over to the desalination plant operator. According to Spanish business culture, operational history is considered proprietary information and revealing it is not commonly done. Additionally, desalting facilities operate with different purposes at each installation, and the conditions are dissimilar. Having stated these restrictions, some information is available.

After the Neodren® system is commissioned; there is a period to reach a stable constant volumetric flow rate as evident in Figure 2 below. Mean specific flow rates for a time series is presented in Figure 3; note that the rates are within design criteria. Details of the illustrated drains are depicted in Table 2. Data is courtesy of Comunidad de Regantes de Águilas (Águilas Community Irrigation Authority).

Table 3
Parameters of drains displayed in Figures 2 and 3.

	Drain 1	Drain 2	Drain 3
Total length (m)	447	530	533
Filter length (m)	201	286	286
Pipe diameter (mm)	400	400	450

[2] The term 'drain' is adopted from terrestrial applications of irrigation for descriptive purposes.

San Pedro del Pinatar

This project was under the auspices of Pridesa – Abengoa. The Spanish group Acciona acquired the Spanish desalination and water management subsidiary Pridesa in 2006.

In 2003, Catalana de Perforacions installed 20 lateral drains comprised of a total pipeline length of 9190.7 m (30,153 ft.) of which the filter section comprised half, or 4545 m (14,911 ft.). The subsea geology was permeable fractured rock material. The total capacity was 2000 l/s (31,700 gpm) with specific capacity of 0.44 l/s/m (2.12 gpm/ft).

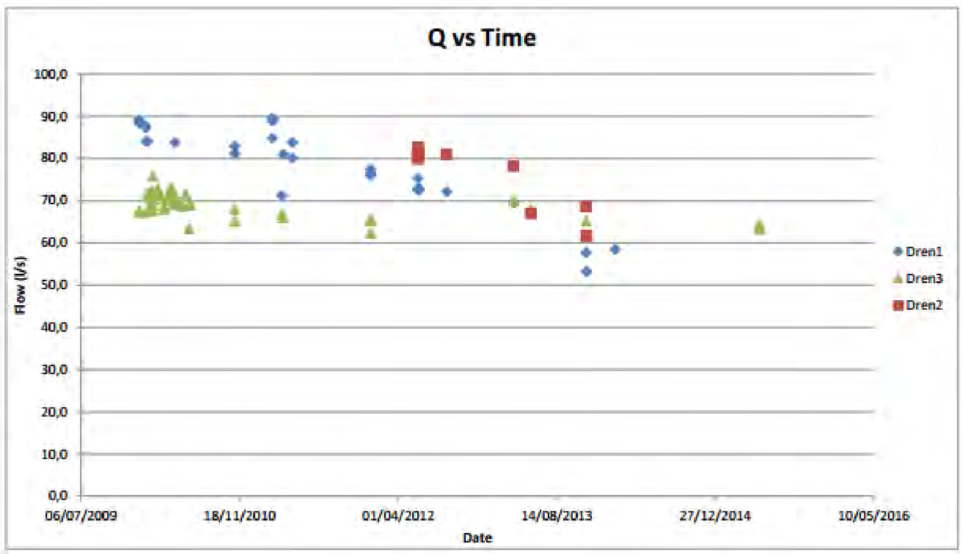

Figure 2. Volumetric flow rate, Q, for three drains overextended period

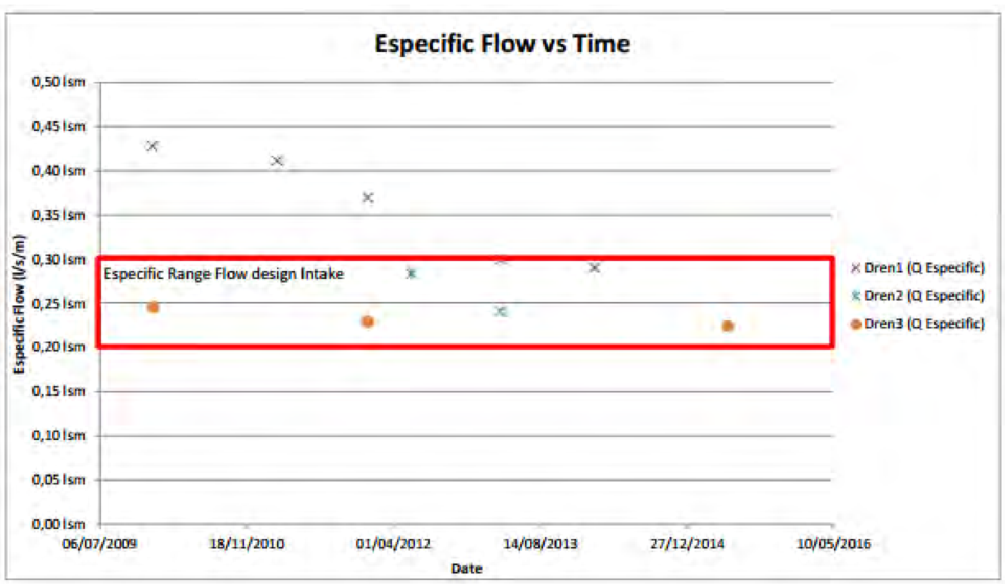

Figure 3. Specific flow for individual drains

The company reported silt density index (SDI) before the first pretreatment sand filter. Figure 4 displays the data extracted from Malfeito and Jimenez (2005), showing SDI generally below 4. Turbidity is shown in Figure 5 for the same period from the same drains. The Turbidity generally is below 1.5 NTU prior to sand filtration.

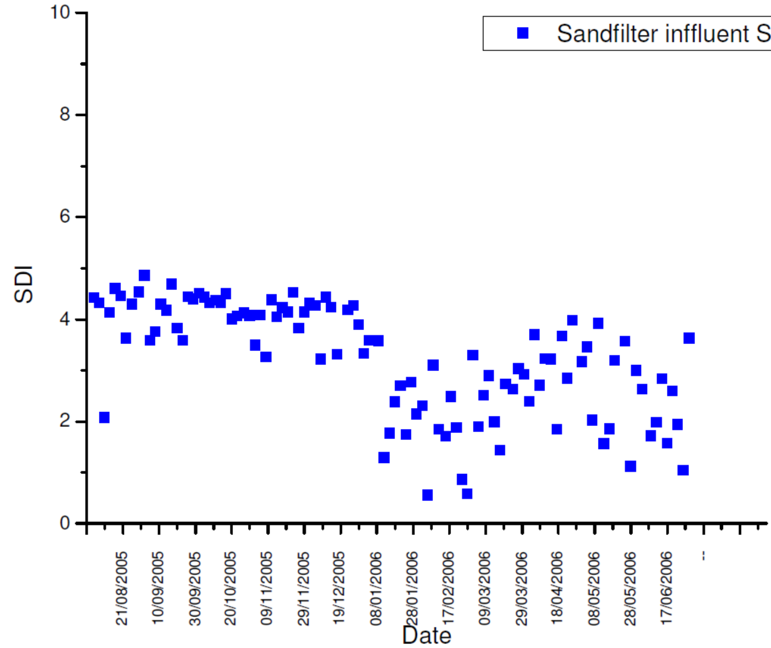

Figure 4. SDI at San Pedro del Pinatar from early 2005 to mid 2006

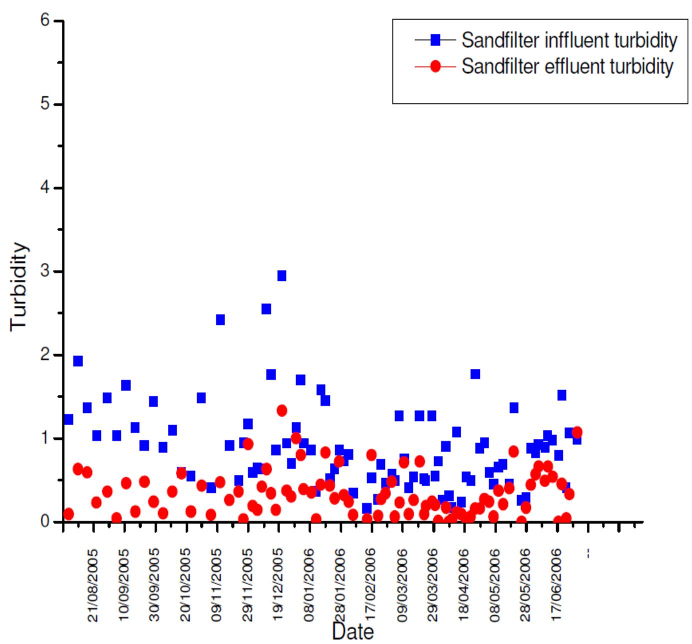

Figure 5. Turbidity from early 2005 to mid 2006 for influent and effluent of sand filter at San Pedro del Pinatar

In commenting on the reduction in pre-treatment process equipment at San Pedro del Pinatar, Dr. Thomas Peter, Dr. –Ing. Peters Consulting (Neuss, Germany) stated that "At the SWRO plant with Neodren® installed, one sand filter (sand), at the SWRO plant with the open intake have been installed using two filter stages, both with multilayer (anthracite + sand). In both cases, after these filters are installed, 5 µm cartridge filter. During our visit there we were informed that the SDI_{15} is usually about 3.1 to 3.2 after Neodren, about 0.9 after the sand filter and 0.8 after the 5 µm cartridge filter. The seawater has been reported to have had an SDI_5 of 14.5 at that day."[3]

In public testimony for the Carlsbad desalination project, the California Coastal Commission heard from Andrew Shea, US Development Director for the Acciona Corporation, a Spanish construction firm. Mr. Shea indicated that the San Pedro del Pinatar seawater desalination plant, which utilizes the Neodren® subsurface infiltration, had experienced significant "technical issues and limitations," leading the plant operators to switch to an open-water intake system for the second phase expansion.[4]

To counter this criticism, noted in the public record in California on the inadequacy of Neodren® intakes, we solicited observations from Acciona Aqua staff in Spain. Mr. Leopoldo Lainz Bejo, Business Development Manager, Acciona Aqua stated that "The subsea intakes at San Pedro del Pinatar are probably the best possible system in terms of water quality (and with a reasonable price as well). The soil works as a filtering system, allowing an extraordinary and stable water quality. That water quality allows for a reduction in Capex and Opex" [5]

Cabo Cope

For the Cabo Cope coastal irrigation district, Catalana de Perforacions installed four drains and a brine discharge line for a seawater desalination facility in 2004. The total length of the drains was 2025.8 m (6,646 ft.) with filtrate comprising 607.5 m (1993 ft.). In this case, the subsurface geology was calcarenite and conglomerate. The intake capacity was 434 l/s (6879 gpm) in total, with each drain providing 108 l/s (1711 gpm). The specific capacity was 0.71 l/s/m (3.42 gpm/ft).

Cala Gogó

For ATLL Aigües Ter Llobregat, a concessionaire for the Government of Catalonia, Catalana de Perforacions installed four drains of three different diameters (180 mm, 315 mm and 355 mm) for a seawater desalination facility in 2005. The total length of the drains was 836 m (2743 ft.) with filtrate comprising 204 m (669 ft.). In this case, the subsurface geology is composed of fine sand. The intake capacity was 355 l/s (5627 gpm) in total, with individual drains providing about 90 l/s (1427 gpm). The specific capacity was 0.44 l/s/m (2.11 gpm/ft).

[3] Thomas Peters (2009) personal communication (email January 17, 2009).
[4] California Coastal Commission COP application E-06-013 November 15, 2007, hearing transcript pages 170-171.
[5] Leopoldo Lainz Bejo (2014) personal communication (e-mail to April 3, 2014).

During the studies at this site, it was demonstrated that the Neodren® filtrate is buffered by seasonal temperature swings. The pH of the water shifted lower as seawater / open intake had a pH of 8 to 8.1, while the filtrate from the Neodren® system held pH from 7.5 to 7.7. The Turbidity was consistently under 2 NTU for the Neodren® filtrate. The SDI measured an average of 5.69 $\pm$ 0.21 for the Neodren® filtrate, while the sea had an SDI of average of 15 $\pm$ 6. During dredging seawater turbidity can exceed 31 NTU; on average, the sea had a Turbidity of 5.2 $\pm$ 0.5 NTU while the filtrate from the Neodren® intake had an average 1 $\pm$ 0.47 NTU.

Águilas

For the Community Irrigation Authority in Águilas, Catalana de Perforacions installed three drains for a seawater desalination facility in 2006. The total length of the drains was 1495 m (4905 ft.) with the filter section comprising 771 m (2530 ft.). The subsurface geology is calcarenite and conglomerate. With pipe diameters of 400 mm, the capacity per drain is 119 l/s (1886 gpm) with a total capacity of 345 l/s (5468 gpm). The specific capacity was 0.44 l/s/m (2.11 gpm/ft).

Alicante II

For UTE IDAM Alicante II, Catalana de Perforacions installed three investigative drains in April 2007. The total length of the drains is 1406 m (4612 ft.) with 755 m (2477 ft.) of filter section. The subsurface geology is calcarenite and conglomerate. With pipe diameters of 450 mm, the capacity of the drains are 95, 102, 139 l/s (1505, 1617, 2203 gpm) with a total capacity of 336 l/s (5325 gpm). The specific capacity was 0.44 l/s/m (2.11 gpm/ft).

Tordera

In July 2007, Catalana de Perforacions installed a single drain for Agència Catalana de L'Aigua. The total length of the drain is 450 m (1476 ft.) with 204 m (669 ft.) of filter section. The subsurface geology is medium sand. With pipe diameters of 450 mm, the capacity of the drain is 80 l/s (1268 gpm). The specific capacity was 0.36 l/s/m (1.73 gpm/ft).

Summary

Subsurface intakes such as the Neodren® subsurface seawater intake are a proven technology. The HDD method, originated in Spain, has been investigated and applied to several desalination plants along the Mediterranean Coast. Five desalination plants drawing 64 MGD have been operating for more than a decade, displaying good performance characteristics. With the amendment to the California Ocean Plan, introduction of Neodren® into California is ripe. A 12-month, side-by-side comparison at Camp Pendleton on this technique compared with directly screened ocean water is being watched closely by the industry.

IntakeWorks

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catalanade PERFORACIONS

Neodren®

Historial de captaciones con el Sistema Neodren®

Enero 2011

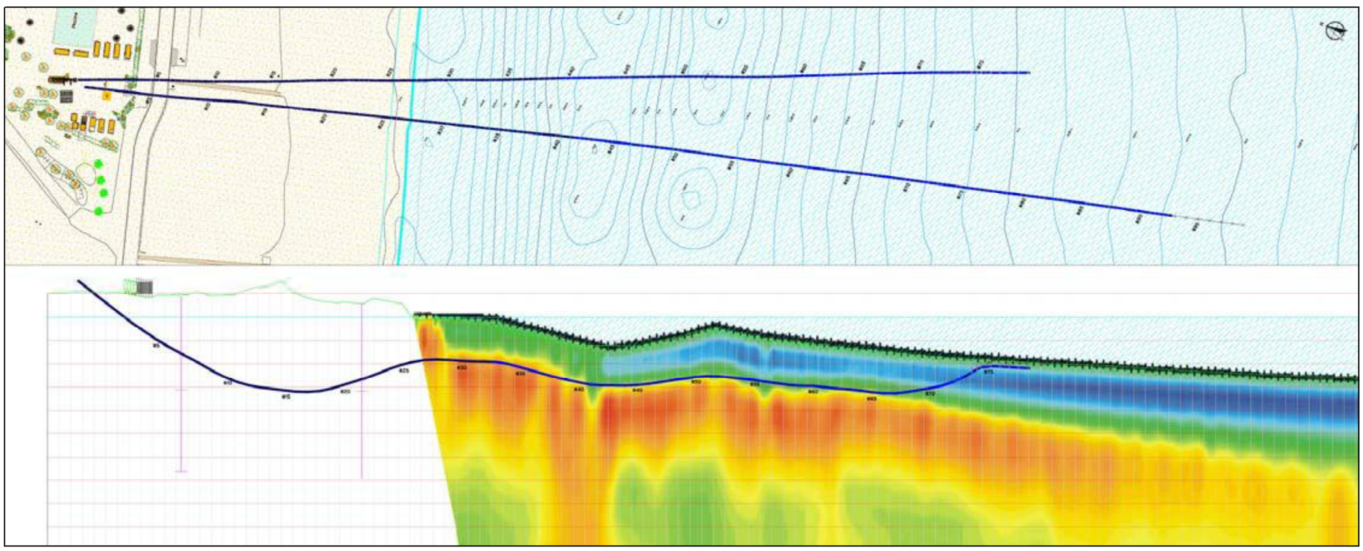
catalanade PERFORACIONS

Neodren®

Captación de agua marina para el futuro Centro de Recuperación de Animales Marinos (CRAM).

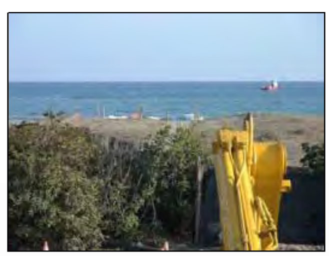
Cliente	Aigües del Prat de Llobregat
Situación	Can Camins – Platja del Prat
Província	Barcelona
Número de drenes	2
Longitud dren	Dren #1: 456.30 m (256.00 m filtro) Dren #2: 356.00 m (200.21 m filtro)
Terreno	Arena y limos
Caudal captación	Dren #1: 29 l/s (104.40 m^3/h) Dren #2: 70 l/s (252 m^3/h)

PLANO DEL TRABAJO

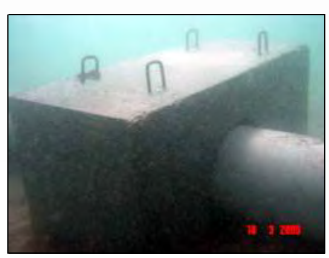


FOTOGRAFÍAS DEL PROCESO DE LA OBRA







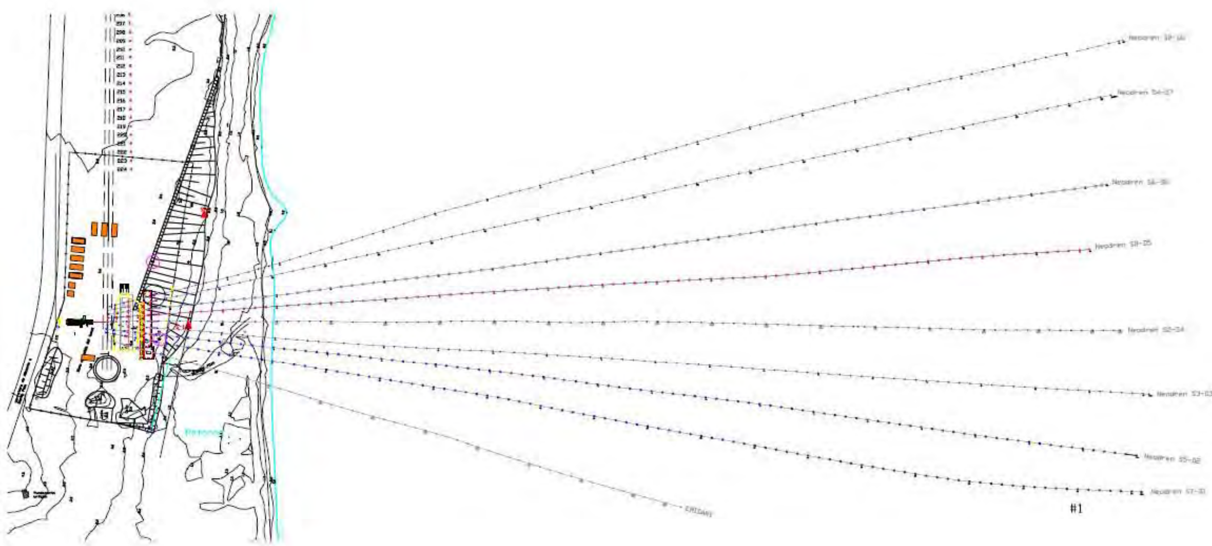


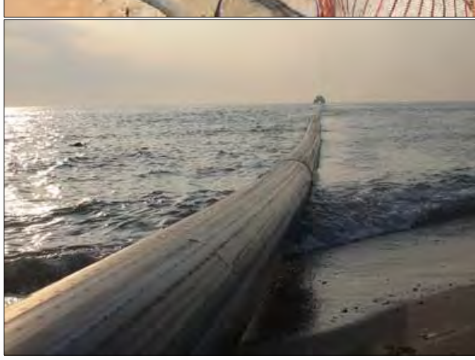

catalanade PERFORACIONS

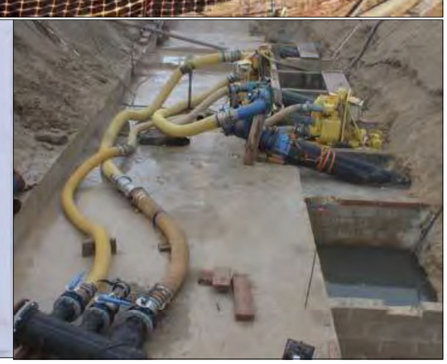
Neodren

IDAM Alicante II, Alicante (Sector Urbanova, pozo salida)

Cliente	UTE IDAM ALICANTE II
Ø tubería	PE100 PN10 Ø450mm
Longitud	450m
Filtro	325m
Terreno	Arenisca – Calcarenita
Caudal por dren	120 l/s
Caudal total	960 l/s
Caudal específico	0,43 l/s/m
Número de drenes	8 + emisario
Ejecución	Julio 2008





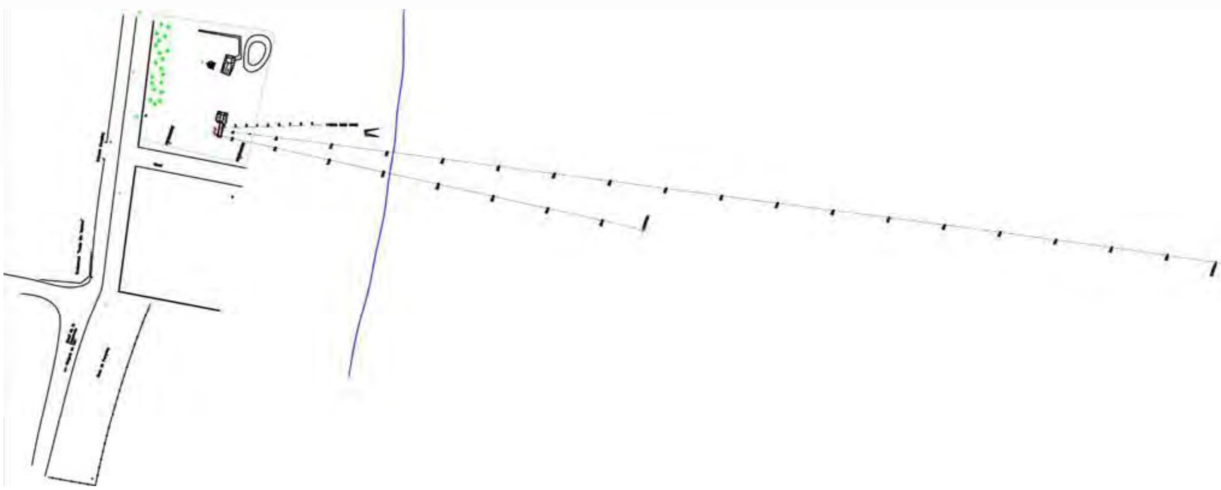


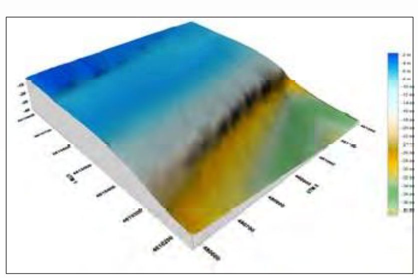
catalanade PERFORACIONS

Neodren

IDAM La Tordera, Malgrat de Mar

Cliente	Agència Catalana de l'Aigua (ACA)
Ø tubería	PE100 PN10 Ø450mm
Longitud	450m
Filtro	204m
Terreno	Arena Grano medio
Caudal por dren	80 l/s
Caudal total	
Caudal específico	0,36 l/s/m
Número de drenes	1
Ejecución	Julio 2007



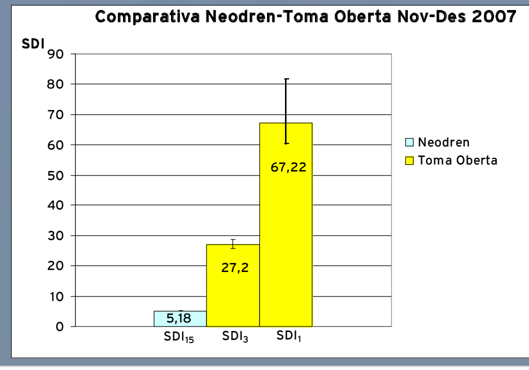


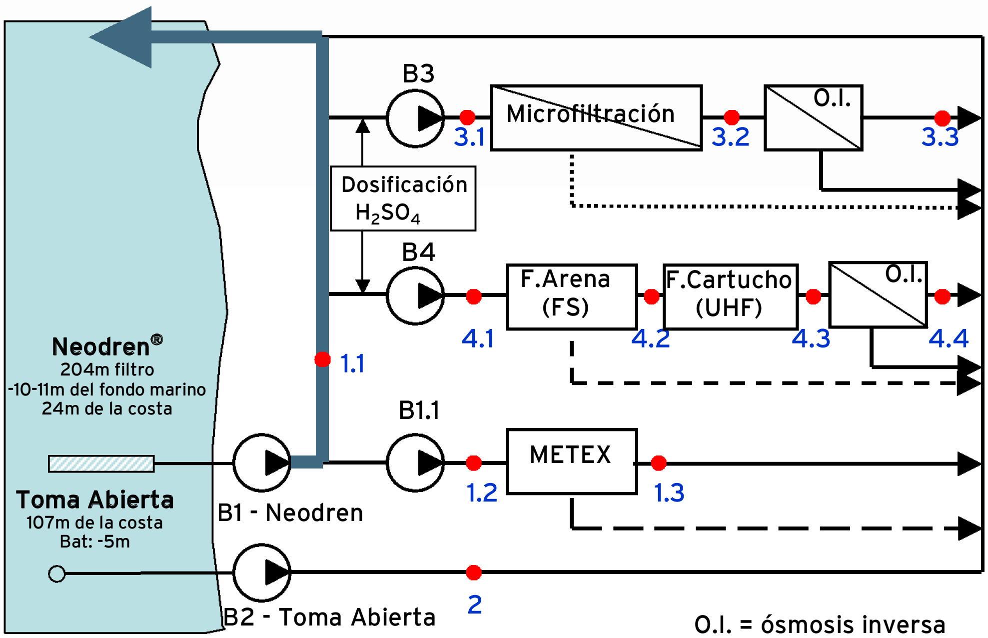
catalanade PERFORACIONS

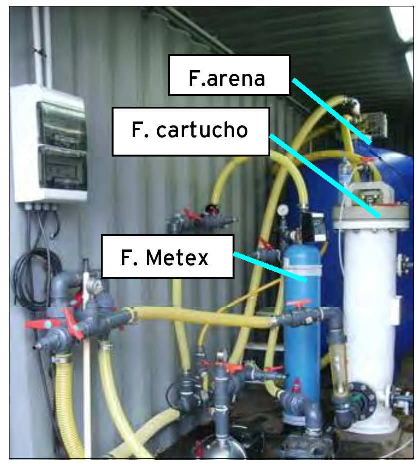
Neodren

IDAM La Tordera, Malgrat de Mar – Planta Piloto de ósmosis inversa – julio 07- febrero 08

Estación de Bombeo Malgrat de Mar		Neodren®	Toma abierta	Mar
Parámetro	unidades	Promedio	Promedio	Promedio
pH	unt pH	7,48	8,29	8,28
Bor	mg/L B	4,39	4,5	4,6
Bacterias coliformes	ufc/100mL	0	21	30
Turbidez	NTU	1,82	3,24	7,33







Montaje filtros pretratamiento

Estación de bombeo , contenedores de pretratamiento y planta piloto ósmosis inversa

Neodren® retorno al mar

Planta piloto de ósmosis inversa

catalanade PERFORACIONS

Neodren

IDAM La Tordera, Malgrat de Mar – Planta Piloto de ósmosis inversa – julio 07- febrero 08
Resultados análisis químicos

Pretratamiento: Microfiltración (MF)		Neodren®	Entrada MF	Salida MF	Agua Osmotizada
Parámetros fisicoquímicos	**Unidades**	Promedio ±IC 95%	Promedio ±IC 95%	Promedio ±IC 95%	Promedio ±IC 95%
Turbidez*	NTU	1,84±0,35*	2,5±0,49	0,2±0,1	0,1
Cloruros	mg/L Cl^-	19312±192	18700±679	18700±566	128±32
Potasio	mg/L K^+	471±14	489±38	490±43	2,9±0,3
Boro	mg/L B	4,39±0,18	4,10±0,17	3,97±0,13	0,8±0,9
Hierro total	Mg/L(Fe^{2+} + Fe $^{3+)}$	2,62±0,20	1,97±0,02	1,90±0,2	<0,02
Parámetros microbiológicos					
Recuento aerobios a 22 º C	ufc/mL	6±4	3±1	3±1	<2
Bacterias coliformes	ufc/100mL	0	0	0	0

** La medida de turbidez del Neodren® se ha realizado "in situ" en vez de en el laboratorio, ya que se ha observado que ésta varía en función del tiempo.*

Pretratamiento: Filtro de Arena + Filtro de Cartucho (UHF)		Neodren®	Entrada Filtro Arena	Entrada UHF	Salida UHF	Agua Osmotizada
Parámetros fisicoquímicos	**unidades**	Promedio ±IC 95%	Promedio ±IC 95%	Promedio ±IC 95%	Promedio ±IC 95%	Promedio ±IC 95%
Turbidez*	NTU	1,84±0,35*	2,4±0,5	0,7±0,4	0,3±0,1	<0,1
Cloruros	mg/L Cl^-	19312±192	17900±653	18160±606	18090±864	113±6
Potasio	mg/L SO_4^{2-}	2936±86	3220±91	3240±94	3252±86	<5
Boro	mg/L B	4,39±0,18	3,9±0,2	3,9±0,3	3,8±0,3	0,79±0,20
Hierro total	mg/L(Fe^{2+} + Fe $^{3+)}$	2,62±0,20	2,09±0,11	1,84±0,1	1,75±0,14	<0,02
Manganeso Total	mg/L (Mn^{2+} + Mn $^{3+}$)	1,33±0,12	1,13±0,11	1,17±0,12	1,14±0,10	<0,01
Parámetros microbiológicos						
Recuento aerobios a 22 º C	ufc/mL	6±4	2	25±27	16±19	<2
Bacterias coliformes	ufc/100mL	0	0	0±1	0	0

** La medida de turbidez del Neodren® se ha realizado "in situ" en vez de en el laboratorio, ya que se ha observado que ésta varía en función del tiempo.*

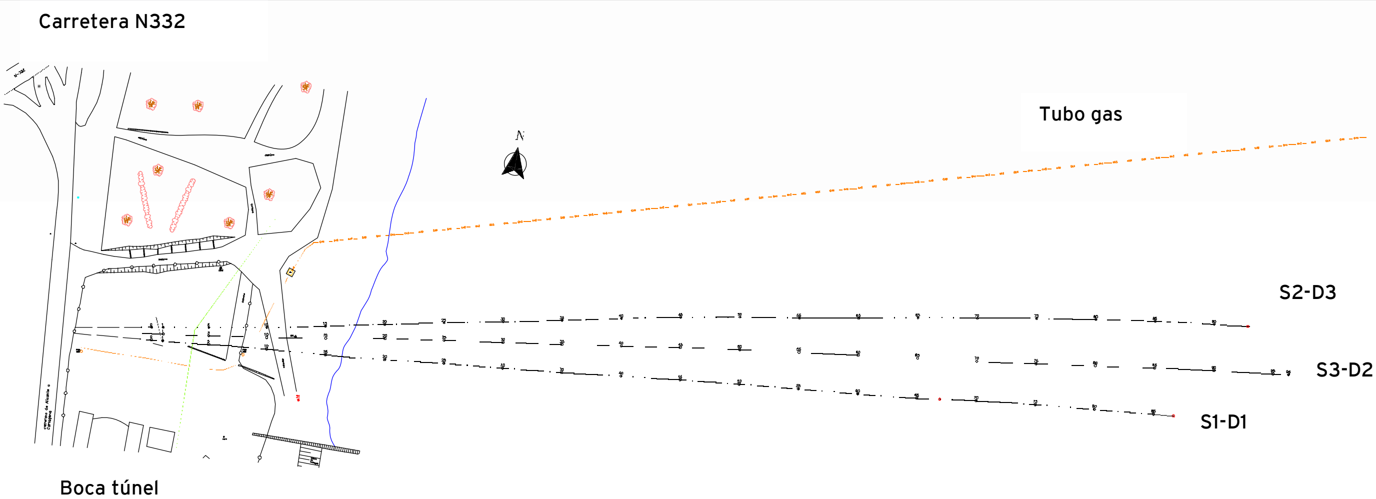
Pretratamiento: Filtro Metex		Neodren®	Entrada Metex	Salida Metex	
Parámetros fisicoquímicos	**unidades**	Promedio ±IC 95%	Promedio ±IC 95%	Promedio ±IC 95%	Eficiencia %
Boro	mg/L B	4,39±0,18	3,9±0,2	3,8±0,1	**2-10%**
Hierro disuelto muestra tamponada	mg/L Fe^{2+}	2,53±0,19	2,12±0,16	0,02±0,01	**99-99,5%**
Manganeso disuelto muestra tamponada	mg/L Mn^{2+}	1,33±0,10	1,17±0,06	1,01±0,11	**10-15%**
Estroncio	mg/L Sr	5,32±0,07	5,6±0,1	5,6±0,1	-
Oxidabilidad	mg/L O_2	24±2,3	28±6	27±1	-
Parámetros microbiológicos					
Recuento aerobios a 22 º C	ufc/mL	6±4	13±14	5±5	-
Bacterias coliformes	ufc/100mL	0	0	0	-

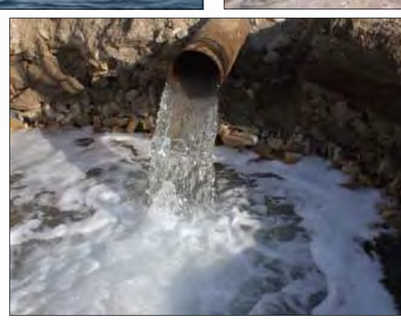
catalanade PERFORACIONS

Neodren

PHD investigación para la IDAM Alicante II, Alicante (sector Urbanova, pozo entrada)

Cliente	UTE IDAM ALICANTE II
Ø tubería	PE100 PN10 Ø450mm
Longitud	337m, 491m, 468m
Filtro	755m
Terreno	Calcarenita y conglomerado
Caudal por dren	95, 102, 139 l/s
Caudal total	336 l/s
Caudal específico	0,44 l/s/m
Número de drenes	3
Ejecución	Abril 2007





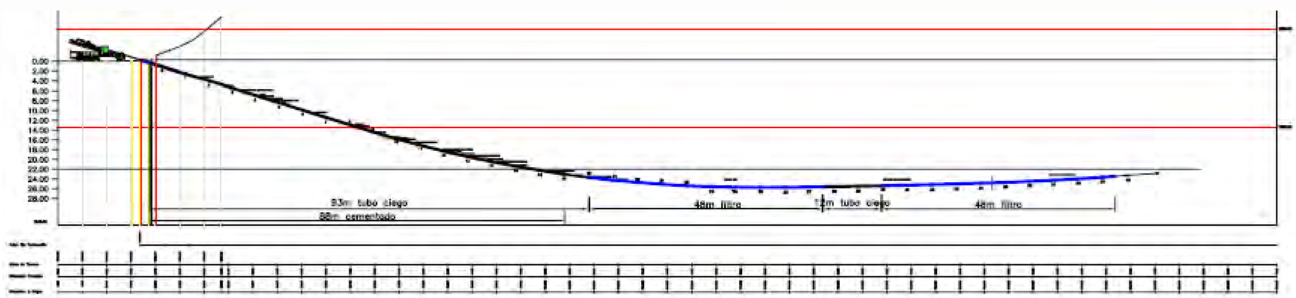
catalanade PERFORACIONS

Neodren

Captación de agua –Cañizar del Olivar - Teruel

Cliente	Tubkal Catalunya, S.L.
Ø TUBERÍA	PE100 PN10 Ø280 mm
Longitud	125 m
Casing	Si
Terreno	Roca
Ejecución	Septiembre 2006

PLANO DEL TRABAJO



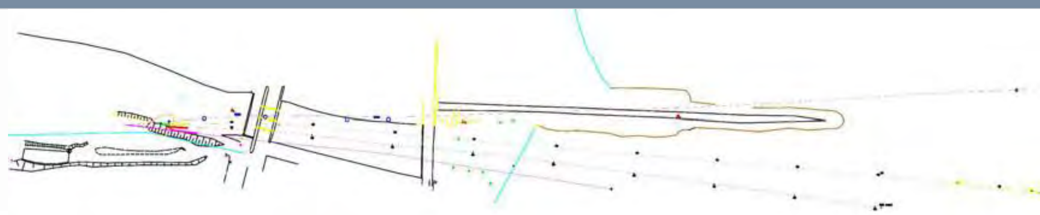
FOTOGRAFÍAS DEL PROCESO DE LA OBRA

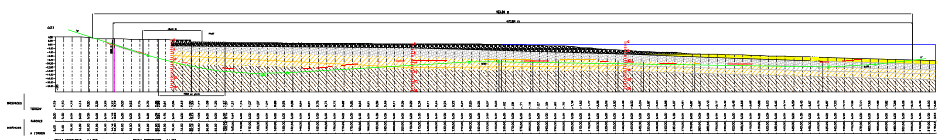
catalana de PERFORACIONS

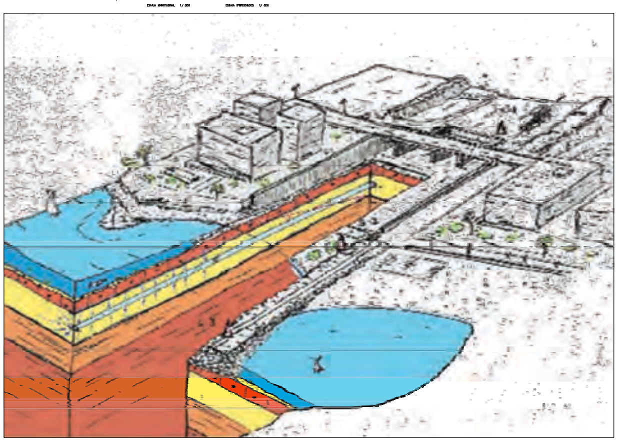
Neodren

IDAM Águilas

Cliente	Comunidad de Regantes de Águilas
Ø tubería	PE100 PN10 Ø400mm
Longitud	1495m
Filtro	771m
Terreno	Calcarenita y conglomerado
Caudal por dren	119 l/s
Caudal total	345 l/s
Caudal específico	0,44 l/s/m
Número de drenes	3
Ejecución	Marzo 2006





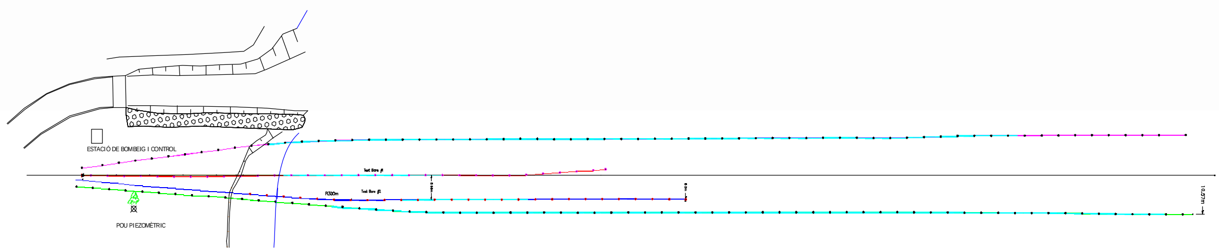


catalanade PERFORACIONS

Neodren

IDAM de Barcelona en Cala Gogó, El Prat de Llobregat

Cliente	Aigües Ter Llobregat (ATLL)
Ø tubería	PE100 PN10 Ø180mm PE microporoso Ø180mm PE100 PN10 Ø315mm PE microporoso Ø315mm
Longitud total	835,9m
Longitud 4º dren	325m
Filtro	204m
Terreno	Arena fina
Caudal Ø355	90 l/s
Caudal específico	0,44 l/s/m
Número de drenes	4
Ejecución	Abril 2005

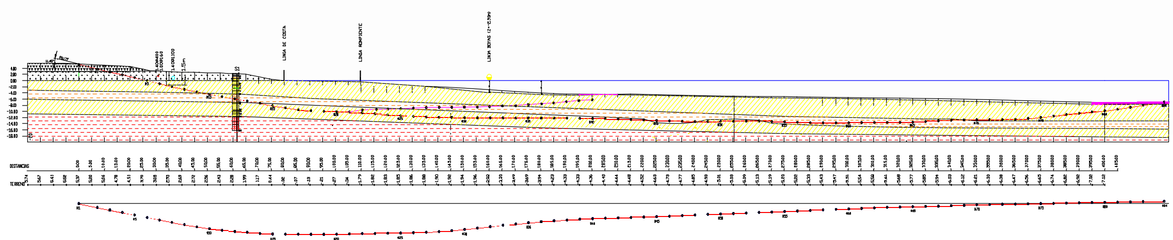


catalana de PERFORACIONS

Neodren

PHD investigación para la IDAM del Canal de Alicante, Alicante

Cliente	CADAGUA - INFILCO
Ø tubería	PE100 PN10 Ø160mm
Longitud	423,9m
Filtro	285m
Terreno	Calcarenita
Caudal por dren	22 l/s (limitación hidráulica)
Caudal total	-
Caudal específico	0,07 l/s/m
Número de drenes	1
Ejecución	Agosto 2004



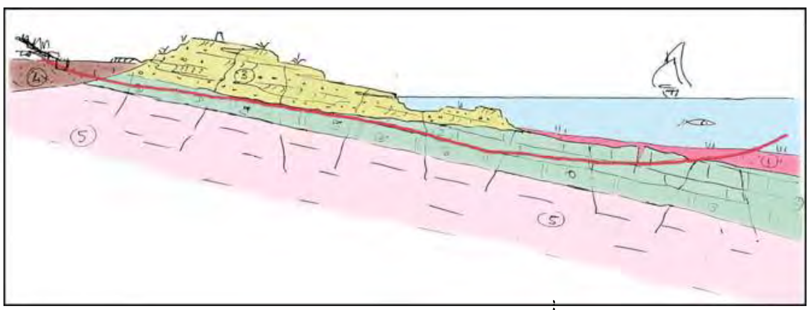
catalana de PERFORACIONS

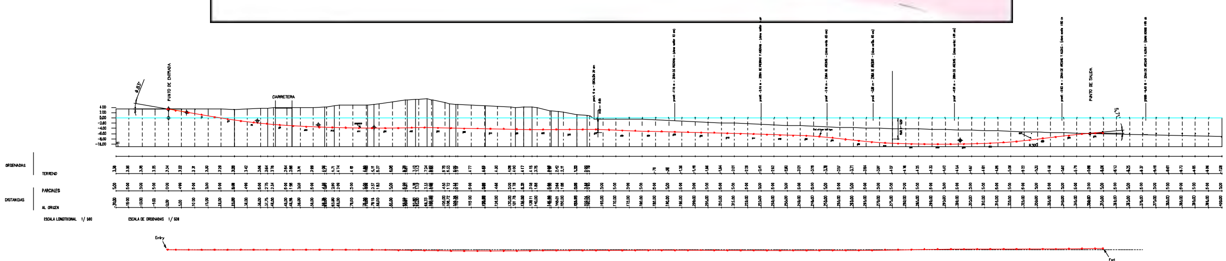
Neodren

Piscifactoría – Cabo COPE - Murcia

Cliente	Alevines del Sureste
Ø tubería	Ø355mm
Longitud	356m
Filtro	150m
Terreno	Roca (calcarenita)
Caudal total	100l/s
Caudal dren	100l/s
Caudal específico	0.48 l/s/m
Número de drenes	1
Ejecución	Julio 2004

PERFIL DEL TRABAJO





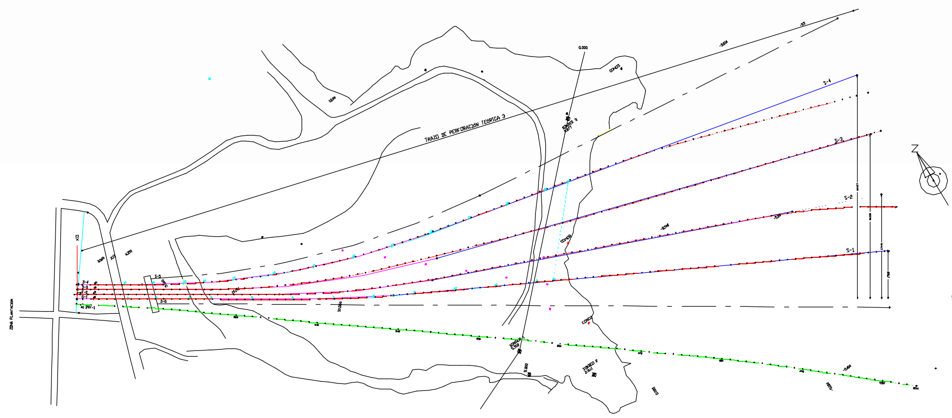
FOTOGRAFÍAS DEL PROCESO DE LA OBRA

catalanade PERFORACIONS

Neodren

IDAM de la Marina de Cabo Cope

Cliente	Comunidad de Regantes La Marina
Ø tubería	PE100 PN10 Ø400mm PE100 PN10 Ø500mm
Longitud	2025,8m
Filtro	607,5m
Terreno	Calcarenita y conglomerado
Caudal total	434 l/s
Caudal dren	108 l/s
Caudal específico	0,71 l/s/m
Número de drenes	4 + 1 emisario
Ejecución	Marzo 2004

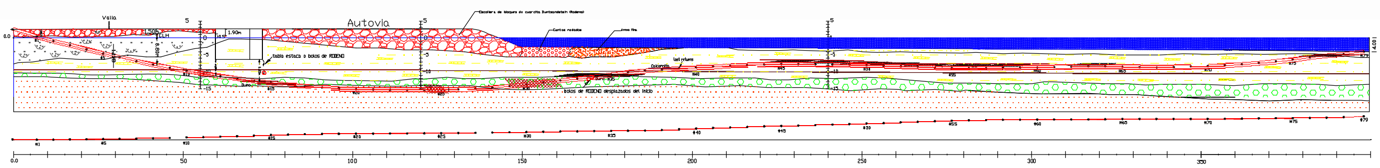


catalanade PERFORACIONS

Neodren

Central Térmica de Biomasa de Albuixech - Valencia

Cliente	Filantair Energía
Ø tubería	PE100 PN6 Ø710mm
Longitud	400,8m
Filtro	
Terreno	Arenisca
Caudal total	500 l/s
Caudal específico	2,9 l/s/m
Número de drenes	1
Ejecución	Febrero 2004



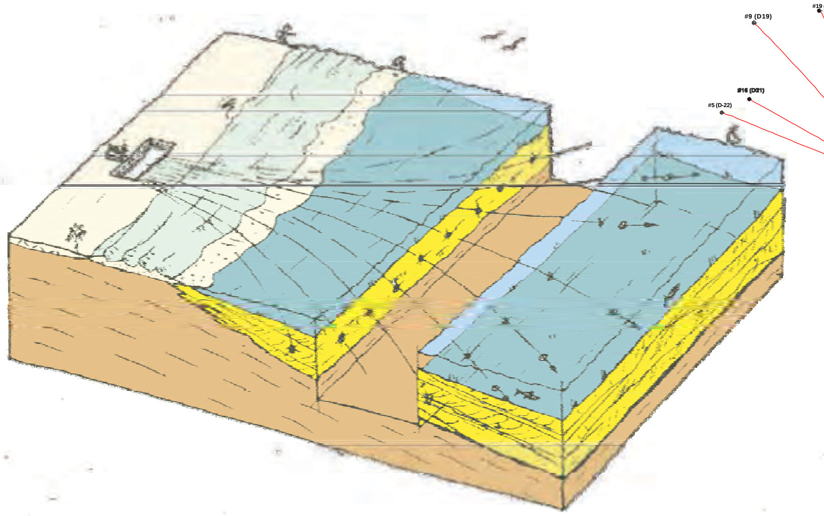
catalanade PERFORACIONS

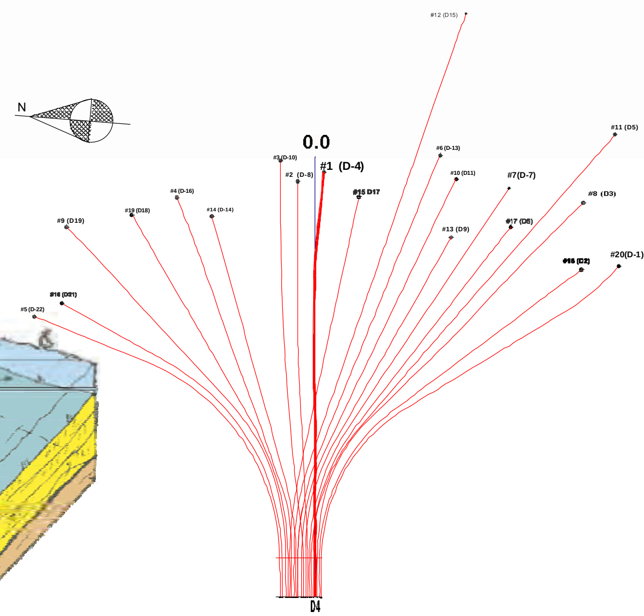
Neodren

IDAM San Pedro del Pinatar - Murcia

Cliente	PRIDESA - ABENGOA
Ø tubería	PE100 PN10 Ø355mm
Longitud total	9.190,7 m
Filtro total	4.545m
Terreno	Roca fracturada con material permeable
Caudal total	2000 l/s
Caudal dren	100 l/s
Caudal específico	0,44 l/s/m
Número de drenes	20
Ejecución	Octubre 2003

PLANO DEL TRABAJO





FOTOGRAFÍAS DEL PROCESO DE LA OBRA

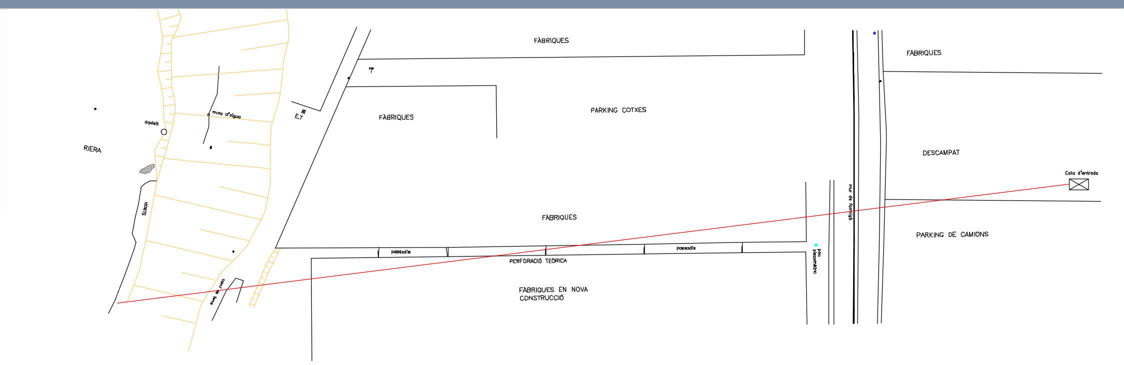
MCWD – IntakeWorks (Exhibits)

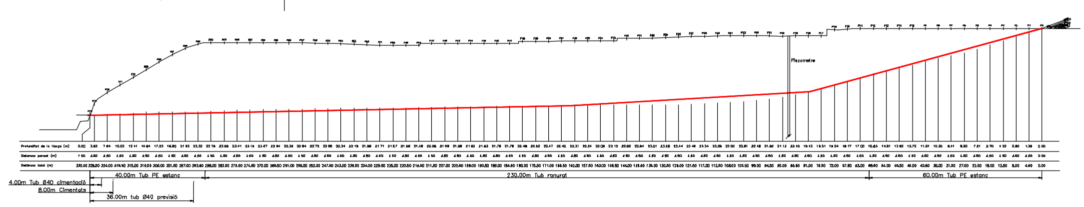
catalana de PERFORACIONS

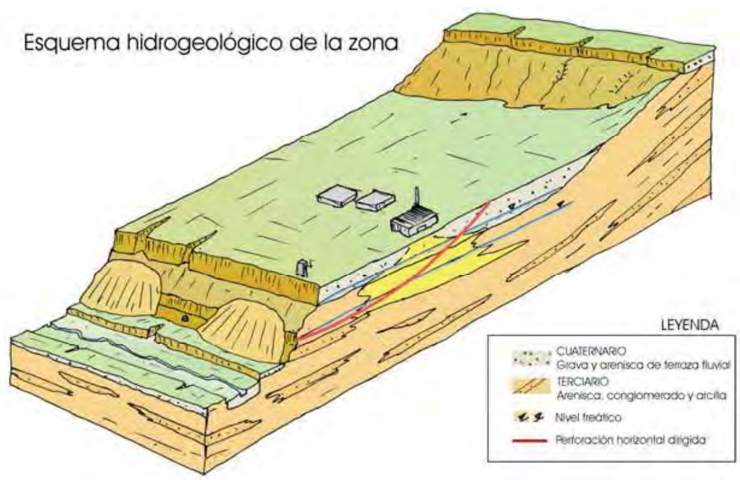
Neodren

PHD para reducción contaminación Cromo Hexavalente en la riera de la Magarola, Esparraguera

Cliente	Agència Catalana de l'Aigua (ACA)
Ø tubería	Ø125mm PE100 PN10
Longitud	330m
Filtro	230m
Terreno	Areniscas
Caudal por dren	
Caudal total	
Caudal específico	
Número de drenes	1
Ejecución	Julio 2001





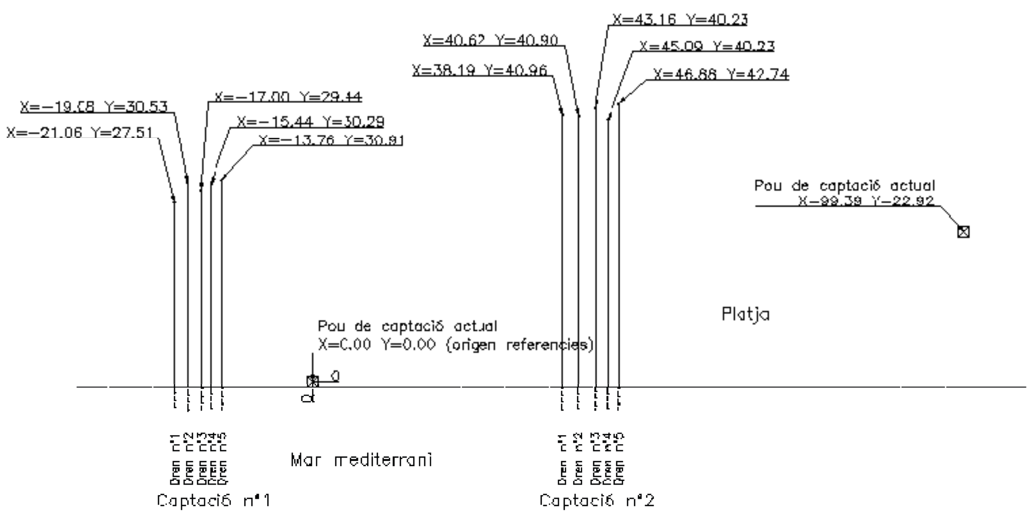


catalana de PERFORACIONS

Neodren®

Piscifactoria en Sant Pere Pescador - Ampliació

Cliente	BASE VIVA, S.L.
Ø tubería	PE100 PN10 Ø180mm
Longitud	600m
Filtro	320m
Terreno	Arena fina
Caudal total	70 l/s
Caudal dren	7 l/s
Caudal específico	0,21 l/s/m
Número de drenes	10
Caudal total captación	6048 m3/día (70 l/s)
Ejecución	Mayo 2001



catalanade PERFORACIONS

Neodren

Piscifactoría en Sant Pere Pescador.

Cliente	BASE VIVA, S.L.
Longitud filtro	30 m
Terreno	Arena fina
Caudal específico	0.22 l/s/m
Número de drenes	3+3
Caudal total captación	25 l/s + 25 l/s
Ejecución	1996

FOTOGRAFÍAS DEL PROCESO DE LA OBRA

catalanade PERFORACIONS

Neodren®

Anthony T. Jones, Ph.D.

Tel: + (916) 990 - 3699
e-mail: jxocean@yahoo.com

PROFILE

Environmental Scientist with broad experience in marine science and ecology. Thorough knowledge of theory, principles and practice of oceanography and related knowledge of seawater desalination. Demonstrated knowledge and experience required to design, implement and report on scientific investigations. Possess excellent skills in communication of scientific ideas and presentation of complex data sets.

PROFESSIONAL EXPERIENCE

Consultant Nov/2012- present
Intake Works LLC
Provide services to create and implement under the sea infiltration systems for desalination intakes. Developed brine discharge technologies that accelerated diffusion of highly saline water into the marine environment, and tools to rapidly assess coastal sites for desalination opportunities with unmanned aerial / autonomous underwater vehicles.

Vice President – Chief Technology Officer May/2008- Oct/2012
Campbell Applied Physics, Inc.
Guide the engineering department activities to:

- design new products, modify existing designs, improve production techniques, and develop test procedures,
- resolve problems using solutions that involve new techniques, technologies, or concepts,
- analyze technology trends, human resource needs, and market demand to plan projects,
- confer with management, production, and marketing staff to determine engineering feasibility, cost effectiveness, and customer demand for new and existing products, and
- forecast operating costs of department and directs preparation of budget requests.

Directed System Engineering for the development of advanced seawater reverse osmosis systems, resulting in demonstrated success of 30% lower overall energy use and up to 70% lower carbon footprint.

Vice President -- Technical Services Jan/2005- Feb/2008
ReEnergy Desalination Inc., San Diego, California (formerly Oases Global Systems)

- Direct systems engineering for reverse osmosis designs
- Develop new business opportunities
- Represent enterprise with major customers, shareholders and the public
- Develop synthetic intakes for seawater desalting operations
- Build relationships with new technologies applicable to seawater desalination
- Analyze new technologies and run competitive analysis
- Liaison with original equipment manufacturers and RO fabricators
- Manage projects for long-term technical objectives with long-term profitability goal

Senior Oceanographer 40 hr/wk Sep/1999-Dec/2005
oceanUS Consulting, San Francisco, California
- Advise on issues related to regulatory and environmental concerns for planning of submarine fiber optic cables
- Consult on business strategies for development of ocean-based energy systems.
- Develop of management strategies for environmental aspects of desalination.

Lecturer, Department of Geosciences Jan/2002-May/2002
San Francisco State University
- Taught oceanography laboratory

Marine Biologist Aug/1997-Aug1999
International Seabed Authority, Kingston, Jamaica
- Developed environmental monitoring program for international seabed authority
- Developed environmental guidelines for deep seabed mining

Manager, Coastal and Marine Resources 1995-1996
Triton Environmental Consultants Ltd., Richmond, BC
- Developed new business and identified funding sources for research and training
- Project manager for coastline evaluation, marine environmental impact assessment and marine resource inventory
- Provided comprehensive technical expertise for projects related to marine biology and coastal geological processes

Vice-President, Environmental Affairs 1994 - 1995
Oceanus Flotation Technologies Inc., Vancouver, BC
- Directed environmental surveys for start-up company in the design of 3-acres floating theme park
- Conducted geochemical baseline surveys for international coastal mining operations
- Performed mine site environmental assessment and developed monitoring program for marine life

Senior Scientist 1993 - 1994
Rescan Environmental Services Ltd., Vancouver, BC
- Project manager for significant submarine disposal of tailings for mine in Southern Peru
- Developed safe method of relocating mine tailings so as not to jeopardize health and safety

Research Assistant, Department of Oceanography 1987 - 1993
University of Hawaii, Honolulu, HI
- Assessed geological hazards and routing for submarine power cable between the islands of Hawaii and Maui
- Conducted submersible studies
- Performed environmental assessment for cable operation
- Organized/facilitated interpretation walks of coarl reefs, review sessions, exams, lectures and discussion groups
- Provided instruction of special skills related to equipment utilization

Senior Biologist 1986 - 1987

Computer Science Corporation, San Diego, CA

- Directed field and laboratory experiments on the effect of antifouling paint in San Diego Bay

Researcher & Consultant 1983 - 1986

Westec Environmental Services, San Diego, CA

- Performed various tasks associated with field water quality monitoring and identification of marine organisms including initial sorting of benthic infauna marine samples, curation of samples, taxonomic identification of mollusk, crustacean and other invertebrates and fish, supervised and assisted three sorters, boat operator, set and retrieved gill nets.

Research Associate 1978 - 1982

Lawrence Berkeley Laboratory, Berkeley, CA

- oceanographic monitoring for federal ocean energy project
- analyzed biochemical parameters

EDUCATION

Ph.D., Oceanography, University of Hawaii, HI 1993
M.S., Biology, San Diego State University, San Diego, CA 1987
B.A., Zoology and Marine Biology, University of California, Berkeley, CA 1978

PROFESSIONAL AFFILIATIONS

Instructor, National Association of Underwater Instructors (NAUI 8323)
Research Associate, Bernice P. Bishop Museum, Honolulu, HI
Member, International Desalination Association
Life Member, American Geophysical Union

COMMUNITY INVOLVEMENT

Director, Offshore Technology Conference (2001-2011)
Society for Mining, Metallurgy and Exploration, Offshore Technology Planning Committee
Elected member of Executive Board of Artificial Reef Society of British Columbia
Former Director, Jamaican Diplomatic Association
Former Member, Geological Society of Jamaica
Former Director, International Marine Minerals Society
Marine Technology Society, Hawaii Chapter
Director 1989-1991
Secretary 1987-1989
Diving Control Board
University of Hawaii, 1987-1989
University of California, 1977-1978
Member, Desalination Committee, California-Nevada Section
American Water Works Association
Member, Water Desalting Committee, American Water Works Association

AWARDS

Harold T. Stearns Fellowship, 1990
Fellow, Royal Geographic Society, 1991
Geological Society of America Research Award 1990, 1991, 1992.

Attachment 1

Effects of the Monterey Pipeline on ASR Yields by Water Year Type

	Carmel Valley Well Field 2015 Demand (AF)	Required Well Field Capacity (GPM)	CV Prod Capacity (GPM) [1]	Excess Capacity in CV Well Field after Meeting Customer Demand (GPM)	Total Permitted Diversions 20808 A (GPM)	Total Permitted Diversions 20808 C (GPM)	Total Permitted Diversions 20808 A and C (GPM)	Injection Capacity (GPM) [2]
Dec	470	3,431	11,628	8,197	3,007	3,590	6,597	5,500
Jan	680	4,964	11,628	6,664	3,007	3,590	6,597	5,500
Feb	540	3,942	11,628	7,686	3,007	3,590	6,597	5,500
Mar	690	5,037	11,628	6,591	3,007	3,590	6,597	5,500
Apr	575	4,198	11,628	7,431	3,007	3,590	6,597	5,500
May	700	5,110	11,628	6,518	3,007	3,590	6,597	5,500

	Operational Days		**Project Yield (AF)**			
	20808 A	20808 C	Without Pipeline	With Pipeline	**Increased Yield**	**Percent Increase**
Critically Dry	4	3	53	86	**33**	38.3%
Dry	18	14	239	393	**154**	39.1%
Below Normal	41	33	545	908	**363**	40.0%
Normal	69	62	918	1,600	**682**	42.6%
Above Normal	94	102	1,357	2,372	**1,016**	42.8%
Wet	115	114	1,530	2,784	**1,254**	45.1%
Extremely Wet	139	140	1,862	3,389	**1,527**	45.1%

1. Total well capacity as reported to MPWMD in March 2012.
2. Total injection capacity assumes 3,500 GPM and 2,000 GPM injection capacities for the Santa Margarita and Seaside Middle School Well Fields respectively.
3. Estimate assumes ALL of the wells in the Carmel Valley Well Field are functional.

Attachment 2

Technical Memorandum

Date:	October 17, 2016
Prepared For:	Larry Hampson, Monterey Peninsula Water Management District
Prepared By:	Randy Olden, HDR Engineering, Inc.
Subject	FINAL Los Padres Reservoir Survey Study Report

Introduction

HDR Engineering, Inc. (HDR) was retained by the Monterey Peninsula Water Management District (District) to prepare a study which evaluates the feasibility of implementing potential upstream and downstream fish passage alternatives at Los Padres Dam. As part of the background data collection effort, HDR was tasked to collect bathymetric data and interpret existing conditions in Los Padres Reservoir. This document describes the methods, results and conclusions derived from the study task.

HDR completed a single-beam echo-sounder bathymetric survey of the Los Padres Reservoir on July 27, 2016. After completion of the in-water survey, a brief topographic survey of the area upstream of the reservoir was performed on foot using Real-Time Kinematic (RTK) GPS and a survey rod. These datasets were combined with existing Light Detection and Ranging (LiDAR) elevation data of the remaining upland surfaces to create a complete digital elevation model (DEM) of the reservoir to determine reservoir capacity.

Purpose and Objectives

The objective of this study was to determine the existing bottom surface elevations of the reservoir, model the upland areas at the dam crest and around the reservoir perimeter, evaluate elevations at the upland extent of the reservoir (i.e., head of reservoir), and estimate the capacity of the existing reservoir.

The data and results presented herein are to be used by the District for the purpose of:

- Informing future water management decisions regarding reservoir stage vs. volumetric capacity;
- Providing a basis of comparison to approximate sediment accumulation rates which will inform the future long-term sedimentation study; and
- Informing the current fish passage feasibility assessment by providing insight on reservoir configuration and potential impediments to fish pathways.

Study Area

The Los Padres Reservoir is located in Carmel Valley, CA. The reservoir pool level at the time of the survey was 1034.1 ft in the National Geodetic Vertical Datum of 1929 (NGVD29), which is the presumed operational vertical datum of the reservoir (i.e., for comparison to historic measurements). Normal maximum water surface elevation (NMWSE) at the dam is approximately 1040.0 ft NGVD29.

Survey

Survey Control

On the initial July 27th site visit, HDR was unsuccessful in locating previously-established survey control (e.g., by CSUMB, 2008; and Bestor, 2010) at the project site likely due to recent construction activities occurring throughout the site. Moreover, HDR was not able to locate the spillway benchmark reported to exist along the east side of the spillway. Therefore, HDR established a temporary benchmark on the top of the dam and referenced the benchmark to a local surveyor’s control (Polaris Land Surveying).

A base station GPS was setup with a radio repeater to transmit RTK GPS corrections to a rover GPS installed on the survey vessel. The base station GPS was setup on the temporary benchmark and raw GPS data were collected throughout the survey day from this receiver. Water surface elevations were measured with the rover GPS and were confirmed with the National Weather Service water gage data at the Los Padres Dam (Station LPRC1). The base station equipment is shown in Figure 1. The temporary benchmark location is shown in Figure 2.

Figure 1. HDR temporary benchmark on the water access plate nearest the boat ramp.

Figure 2. HDR benchmark is the top of the Letter "A" located at the end of the pencil in this figure.

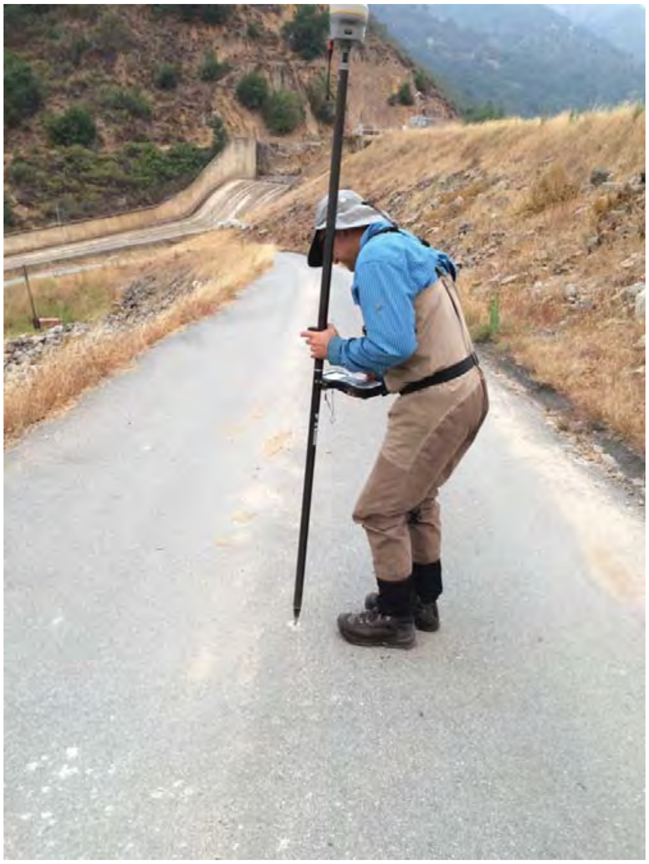


Figure 3. Location of Polaris Land Surveying control point on entrance driveway to top of dam.

Following the survey, the raw GPS data from the base station were submitted to the Online Positioning User Service (OPUS), a service maintained by the National Oceanic and Atmospheric Agency (NOAA) and the National Geodetic Survey (NGS). A coordinate solution of the true base point location was computed by the OPUS and was later applied to all the bathymetry and topographic data.

On September 15, 2016, HDR revisited the site and successfully recovered the CSUMB benchmark near the boat ramp. A level loop was completed between the CSUMB benchmark, the HDR temporary benchmark, and another control point established on the entrance roadway by Polaris Land Surveying. The level loop confirmed that CSUMB, HDR, and Polaris Land Surveying control networks resided on the same vertical datum. The location of the Polaris Land Surveying control point utilized is illustrated in Figure 3.

Survey Methods

HDR utilized a cataraft survey vessel with a rigid aluminum frame and a rear mounted motor as shown in Figure 4. The bottom elevations were determined using a Teledyne/Odom CVM, 200 kHz single-beam echosounder (SBE) and Trimble R10 for RTK GPS positioning. The SBE includes a 4-degree beam angle and is capable of measuring water depths to +/-0.05 feet (1 cm). RTK GPS positioning allows for precise horizontal and vertical positioning within 0.1-0.2 feet (3-5 cm). The SBE and GPS were co-located on a vertical pole and mounted on the bow of the survey vessel (see Figure 5).

Figure 4. HDR survey vessel mobilization.

Figure 5. SBE (below water) with collocated RTK GPS (top of pole).

HDR completed sonar calibration testing following standard USACE Hydrographic Surveying protocols (e.g., USACE Hydrographic Surveying Manual, EM 1110-2-1003). A bar check was completed to verify system index offsets and sound velocity corrections to be applied to the acoustic signal. Additionally, a latency test was completed to confirm there were no delays in the equipment signals as they are reported to the field computer. Hypack 2016 Hydrographic Survey Software was used to collect the hydrographic data.

Preliminary sounding measurements were collected along a reservoir perimeter line to gain an understanding of the water depths around the reservoir and facilitate efficient data collection for the remainder of the survey. Subsequent data were collected throughout the reservoir along distinct 50-ft transect lines taken in a grid-like pattern. The bathymetry sounding transect locations from the survey are shown in Figure 6. On the day of the survey, a thick layer of algae was observed on the surface of the water which prevented visibility into the water during the survey. For safety reasons (i.e., to avoid striking potential submerged objects), HDR surveyors maintained a relatively larger distance from the shoreline than typically executed.

At the head of the reservoir, further upstream than the cataraft was able to safely navigate, the surveyors collected cross-sections of elevations across the reservoir/river channel on foot, using the RTK GPS and survey rod. Surveyors also took photographs of the channel and documented the channel conditions.

Publically-available LiDAR data collected in the fall of 2010 were downloaded from NOAA, National Ocean Service, Office for Coastal Management. The point cloud was reviewed and found to have extensive classification errors. HDR LiDAR experts reprocessed the LiDAR data in the reservoir vicinity and upslope to an elevation of 1090 ft. The LiDAR data were likely collected while the reservoir was near full pool because no data were available below the NMWSE within the reservoir boundary. The data were reported in the NAVD88 vertical datum. The ground returns from the reprocessed LiDAR data were exported to GIS for use in DEM generation.

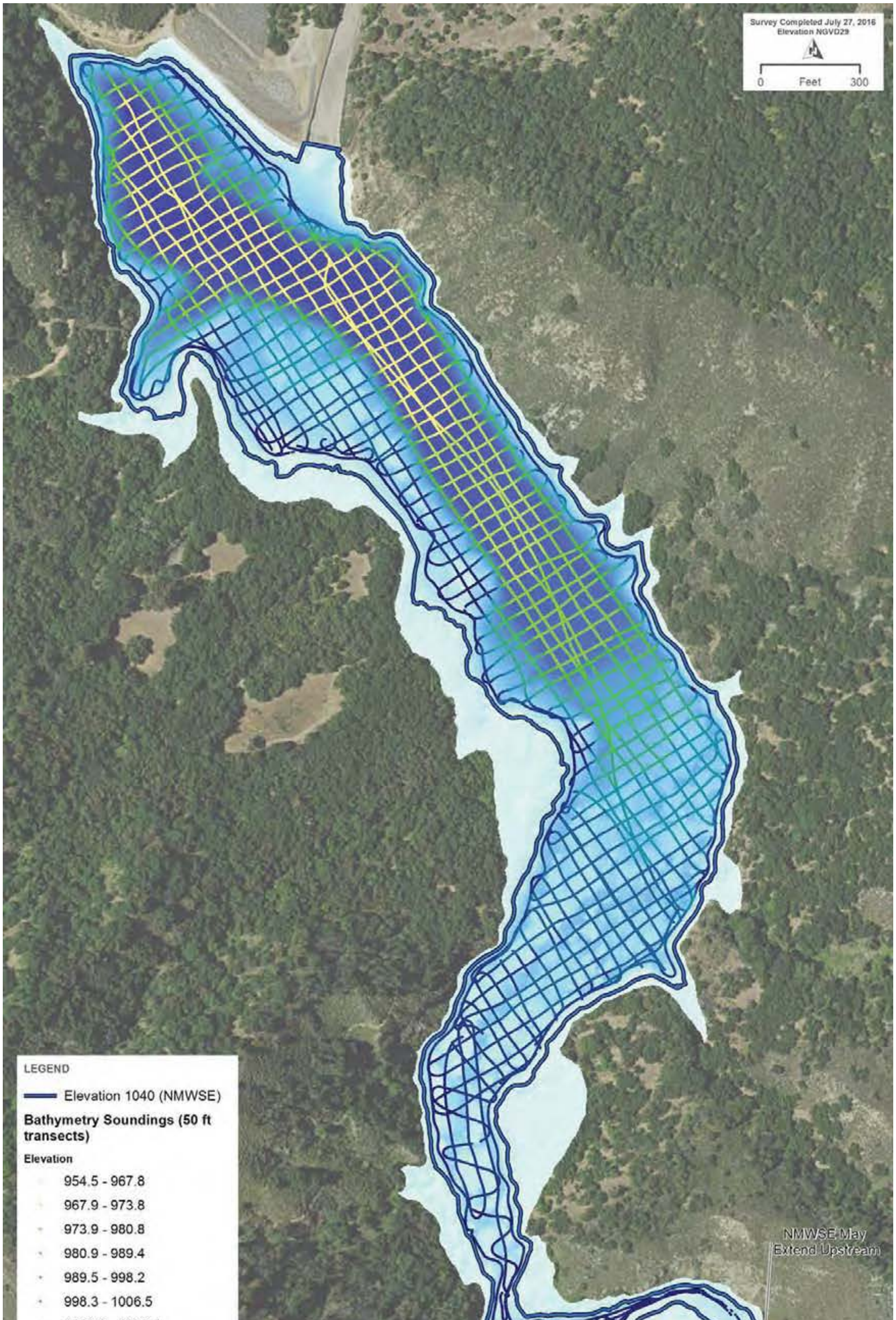


Figure 6. Survey Soundings with Sounding Elevations.

Results and Analysis

Survey Control

Although HDR was unsuccessful in locating the CSUMB benchmark during the initial survey on July 27, 2016, HDR relocated the benchmark during a subsequent site visit on September 15, 2016. The CSUMB benchmark was included in a level loop survey to determine any vertical offset between the CSUMB and HDR benchmarks.

CSUMB reported the benchmark elevation to be 1057.802 ft in the North American Vertical Datum of 1988 (NAVD88), and using Geoid 03. HDR's level loop comprised a traverse between the Polaris Land Surveying control point and the CSUMB benchmark, where the CSUMB elevation was determined to be 1057.85 feet NAVD88 (using Geoid12B). This is an approximate vertical difference of 0.05 feet, which is within the measurement accuracies of RTK GPS, and also indicates that the CSUMB, HDR, and Polaris Land Surveying control networks are on the same vertical datum. Because of this, HDR proceeded assuming the separation between the two geoids in the area of this survey to be zero.

In order to compare the HDR bathymetric survey to the previous CSUMB survey, it was necessary to shift the HDR survey datum to NGVD29. In 2008, CSUMB reported that the shift should be 2.9 ft, and HDR calculated the vertical shift from NAVD88 to NGVD29 to be 2.93 feet using NOAA's VERTCON datum conversion tool. However, CSUMB shifted the survey by a difference of 2.54 ft citing it as a locally measured difference resulting from comparison to a previous survey. The justification to shift 2.54 feet was unclear; consequently, HDR was unable to resolve the method by which CSUMB computed their final reservoir area/capacity curves.

In March 27, 1999, the District determined the elevation of the CSUMB benchmark and the dam spillway from another benchmark that was not recovered by HDR, the "shack" (Appendix A from CSUMB, 2008). The vertical offset computed between the benchmark "shack" and the CSUMB benchmark was 2.36 feet, which conflicts with the vertical shift value reported by CSUMB of 2.54 feet.

As another means of aligning the HDR dataset to previously-collected data, HDR compared elevations measured on the dam spillway. Though not as accurate as comparing benchmark elevations, the dam spillway elevations are approximately +/- 0.2 feet.

Returning to the District survey from Appendix A (CSUMB, 2008), the District estimated the top of spillway to be approximately 1039.78 to 1039.96 feet, NVGD29 measure along the very crest of the sloping ogee spillway. By applying a 2.93 foot vertical shift to the HDR spillway measurements, the resultant elevations are 1039.7 to 1039.8 feet NVGD29.

Moreover, HDR compared spillway elevations to those measured by Bestor in 2010. Values in Table 1 indicate the similarities between the two when a 2.93 foot vertical shift is applied to the HDR NAVD88 elevations.

Table 1. HDR and Bestor dam and spillway elevation comparisons.

Location	HDR Elevation (ft, NGVD29)	Bestor Elevation (ft, NGVD29)
Crest of Dam	1057.64	1057.6 ft
Crest of Spillway	1039.72	1039.7 ft

Because HDR’s 2016 survey elevations were consistent with previous surveys using a 2.93 ft shift, HDR shifted the bathymetry survey data by 2.93 ft and not 2.54 ft. This process facilitated a more accurate comparison between the District’s 2008 survey (CSUMB, 2008) and HDR’s 2016 survey.

Head of Reservoir

The area upstream of the where the survey vessel could safely navigate and collect depths was investigated on foot with an RTK survey rover. Three transects were recorded in the channel at the approximately ~190 ft, 225ft,and 430 ft upstream of the last bathymetric survey point (Figure 7). The reach was of a consistent width for ~600ft upstream of the bathymetric survey. Accessing areas farther upstream became challenging due to the presence of standing water, deep vegetative cover, and steep hillslopes. Surveyors found a large pool of unknown depth covered by a thick canopy that blocked RTK GPS data collection. A water surface elevation point was collected at the pool (1034.1ft NGVD29) before surveyors returned to the survey vessel to complete the bathymetry survey.

Elevations measured in each transect included measurements several feet below the NMWSE, suggesting that the reservoir extends back into this reach when operating at full pool. Surveyors were unable to locate a clear hydraulic control location that would indicate the upstream extent of the full pool. Additional surveying with total stations would be required to accurately determine the upstream extent of the reservoir full pool boundary.

The survey crew found the upstream reach to be a low-gradient, braided channel with fine sandy sediment and gravel bars bordered by both thick vegetation growing in a silt substrate and bedrock/boulders. The channel width varied between approximately 50 and 60 feet within the inundated areas varying from 5 – 10 ft wide and water depths of 0.5 - 1.5 ft. Photos representative of existing conditions are provided in Figure 8 through Figure 11.

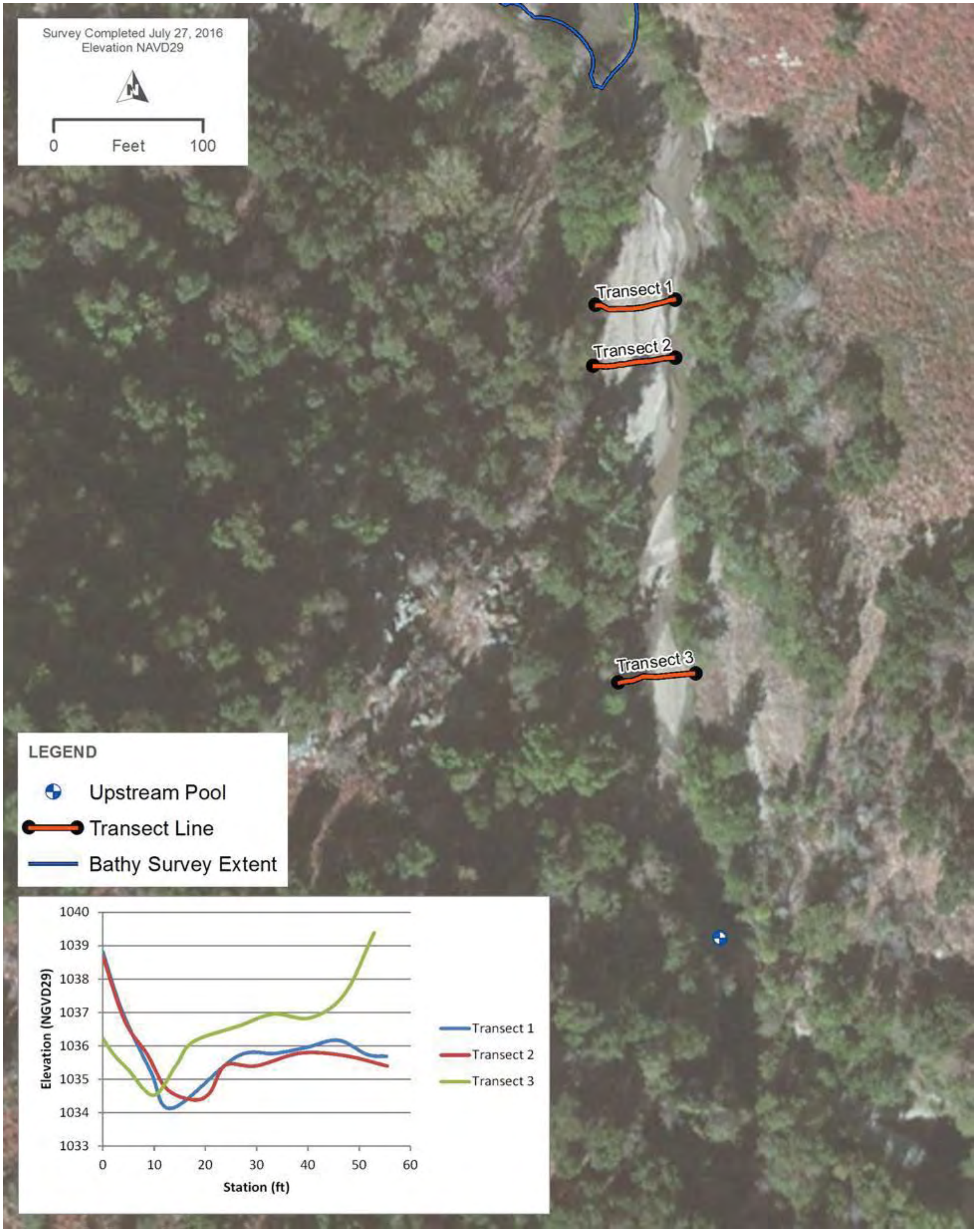


Figure 7. Map of upstream transects and pool water surface elevation survey point.

Figure 8. Transects 1 & 2: a representative photo showing fine sediment and a braided channel, looking upstream.

Figure 9. Transect 3 with fine sediment in channel and boulders along the upstream right margin, looking upstream.

Figure 10. Upstream pool with thick overhead vegetation, gravel bar, and bedrock margin looking upstream.

Figure 11. Fine sediment found in the channel.

Reservoir Volume Estimates

SBE data were processed using Hypack 2016 Hydrographic Surveying software and exported to GIS. LiDAR data were combined with the topographic and bathymetric SBE data and a DEM surface was interpolated in GIS using the ArcGIS tool “Topo to Raster”. This tool is specifically designed for the creation of hydrologically-correct DEMs. Elevation contours and an area-capacity calculation were derived from the DEM surface at five foot intervals. Additional area-capacity calculations were derived both at the NMWSE and the crest of the dam elevation. A graphic illustrating the resulting DEM and contour data, with thalweg profile inset, is provided in Figure 12. The resulting area-capacity curve is plotted in Figure 13.

The reservoir water surface elevation on the day of the survey was measured with RTK GPS both before and after the survey. Elevation readings were also available from the reservoir gauge as reported by National Weather Service via the internet. Both measurements indicated there was less than one tenth of a foot change in water surface elevation during the time of the survey. As the error band of the RTK equipment was greater than the measured change in water surface elevation, HDR assumed a static water surface elevation for calculating elevations from the depths reported by the SBE. HDR used the RTK reported elevation of 1034.1 ft NGVD29.

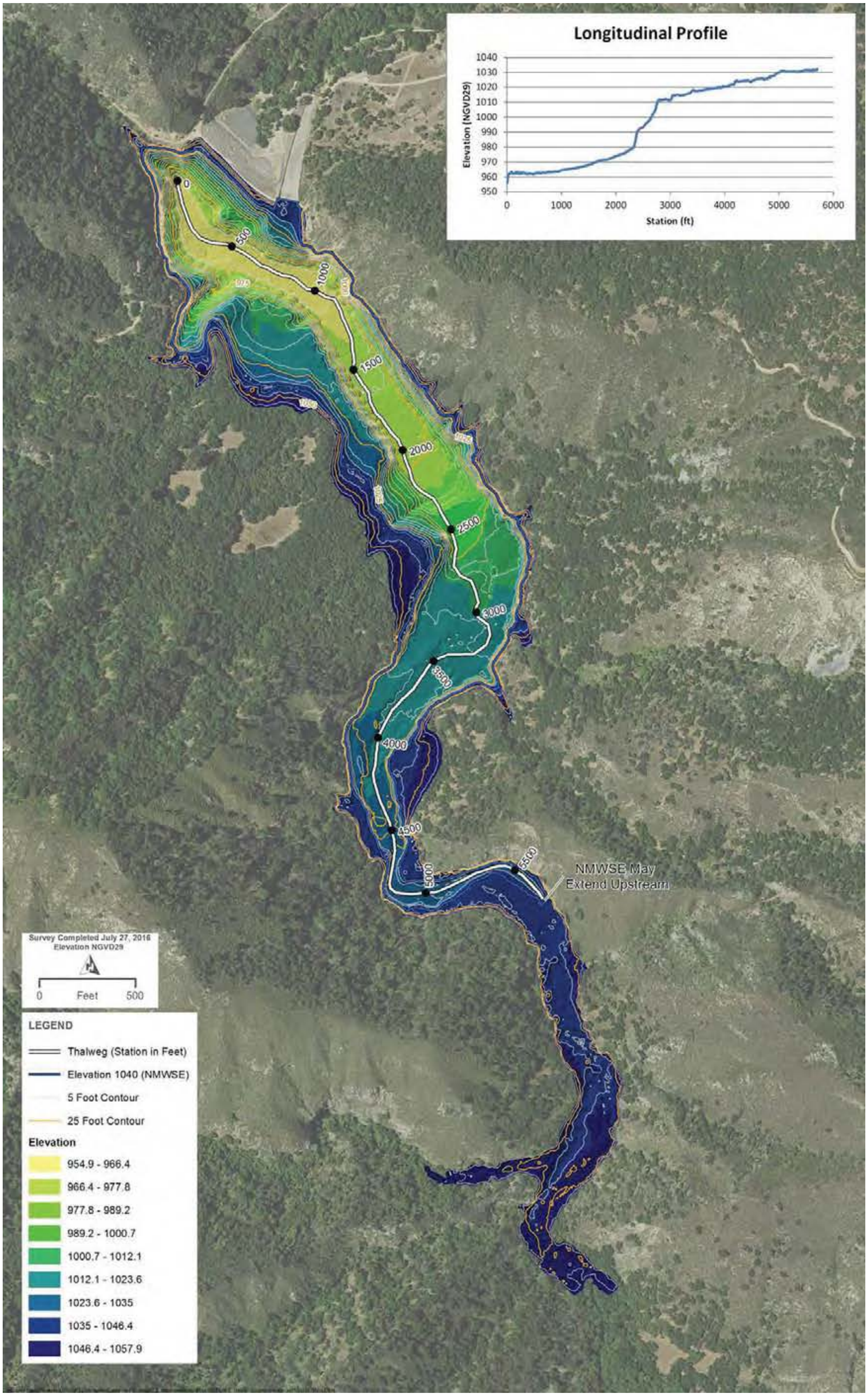


Figure 12. Bathymetry/Topography Model with 5 Foot Contours and Thalweg.

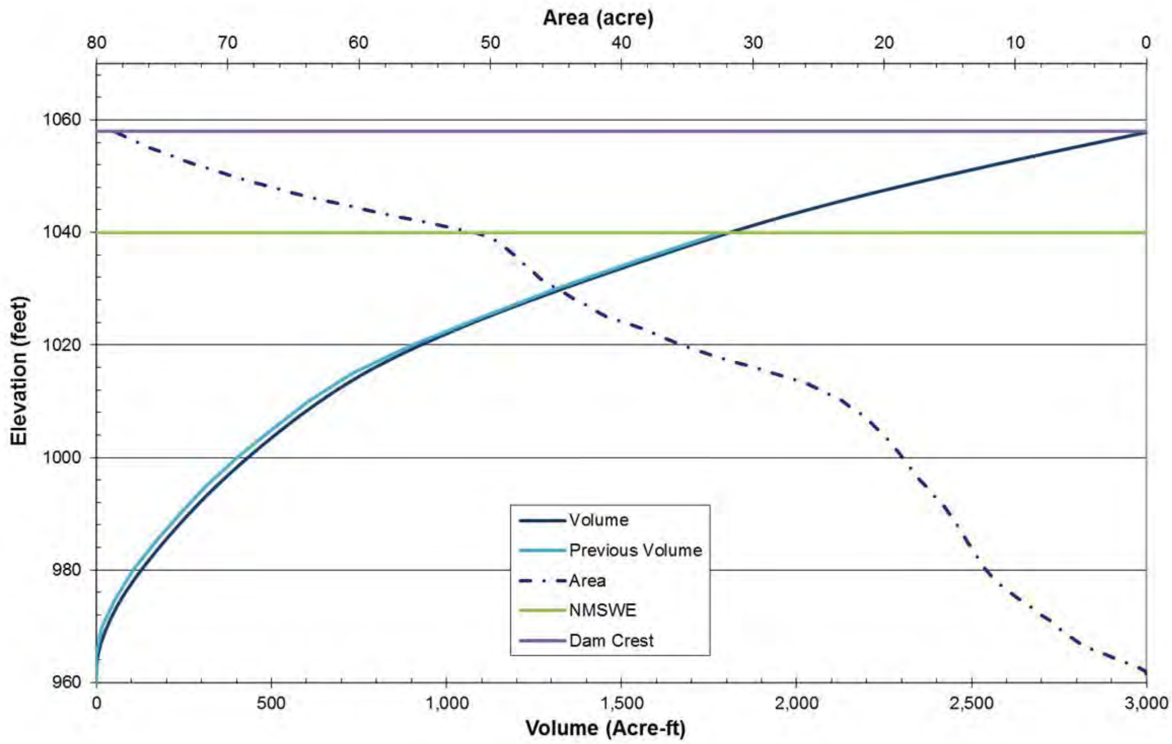


Figure 13. Area-Capacity curve for Los Padres Reservoir (as of July 27, 2016).

The CSUMB reservoir survey (2008) estimated 1,786 acre-ft of water in the reservoir at NMWSE (1040.0 NGVD29). The 2016 HDR survey estimate is 1810.1 acre-ft, which is within 1.3% (or 23.90 ac-ft) of the CSUMB value. Figure 13 shows that the 2016 area-capacity curve ("Volume") approximates the CSUMB ("Previous Volume") curve very closely but the 2016 curve estimates between 15 to 30 more acre-ft of storage at a given elevation.

This difference in volume has several potential causes. The 2008 survey was completed at a much lower water level and consequently, it did not appear to include the most upstream 700+ feet of channel that was included in the HDR 2016 survey. Additionally, the 2008 survey used different methods (multi-beam bathymetry and terrestrial LiDAR) which would, in theory, provide a higher resolution of data in the areas surveyed, relative to the methods employed in this survey. Additionally, the difference in the datum shifts applied between the two surveys could also contribute to some unknown level of discrepancy however the methods utilized in this survey took great care to match the elevations of major project features which should lead to a more precise comparison. It is also possible that there has been very little appreciable sediment accumulating in Los Padres Reservoir over the past 8 years which resulted in a very low change in storage volume.

Nonetheless, a difference in estimated volume at NMWSE of 1.3% is within the range of error that could be expected from a SBE survey, and considered good agreement. A tabular summary of the cumulative volume estimates are provided in Table 2 for NGVD29 elevations.

Table 2. Area-Capacity curve data

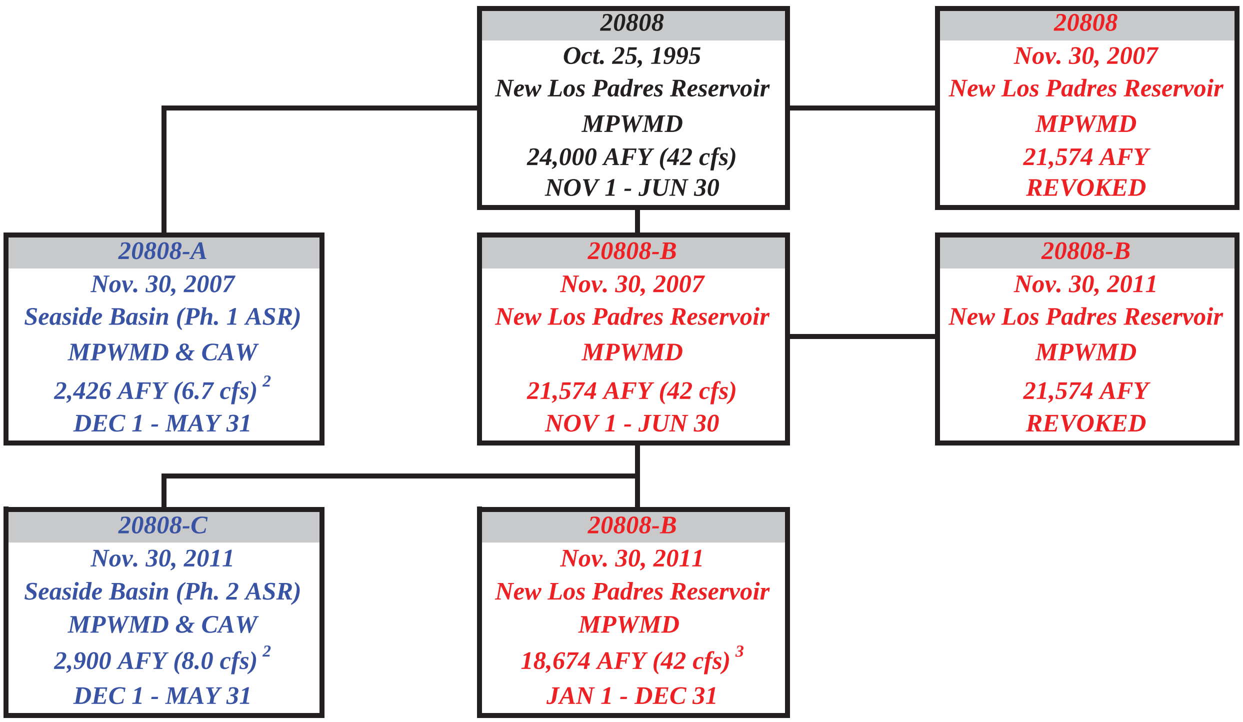
Elevation (ft, NGVD29)	Area (acres)	Volume (acre-ft)
960	0.01	0.0
965	3.17	4.6
970	6.86	31.0
975	9.78	72.4
980	12.23	128.1
985	13.64	192.8
990	14.99	264.4
995	16.90	343.9
1000	18.61	432.8
1005	20.48	530.3
1010	23.19	638.9
1015	28.51	766.3
1020	35.38	926.8
1025	41.07	1117.2
1030	44.87	1332.3
1035	47.71	1564.6
1040	**51.14**	**1809.9**
1045	61.35	2091.7
1050	69.68	2420.3
1055	75.82	2784.8
1057.9	**78.65**	**3008.9**
1058	78.65	3016.8

*Yellow shading indicates Normal Maximum Water Surface (1040 NGVD29). Red shading indicates Dam Crest Elevation (1057.9 NGVD29).

Monterey Peninsula Water Management District

Attachment 3

Genealogy of Water Right Permit 20808
Carmel River



Notes:

1.The information in **blue** refers to the new permits for Phase 1&2 ASR Project (20808-A, 20808-C) and the information in **red** refers to the "remainder" permits (20808-B). This information is as of December 2011.

2. Junior to riparian, overlying, pre- and post-1914 rights (including 7130 and Table 13, Decision 1632); collected to underground storage in the Seaside Groundwater Basin; ; subject to meeting instream flow requirements; **complete application of water to authorized use required by December 1, 2020**.

3. Junior to riparian, overlying, pre- and post-1914 rights (including 7130 and Table 13, Decision 1632); total amount taken from Carmel River cannot exceed 23,674 AFY from Oct. 1 to Sept. 30; no water diversion outside of diversion season of Nov. 1 to June 30; diversions subject to instream flow requirements; **complete application of water required by Dec. 1, 2020.**