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June 9, 2009

TO: Coastal Commissioners and Interested Parties

FROM: Alison J. Dettmer, Deputy Director, Energy, Ocean Resources, and Federal Consistency Division
Tom Luster, Staff Environmental Scientist

SUBJECT: Addendum to E-09-004 – Municipal Water District of Orange County, Test Well and Pilot Desalination Facility

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STAFF RECOMMENDED MODIFICATIONS: This addendum provides minor modifications to Staff's Recommended Findings, shown below in ~~strikeout~~ and **bold underline**:

Change to Special Condition No. 1, second paragraph:

"Project-related construction ~~on the beach~~ **below the extreme high tide on sandy beach areas**, including site preparation, equipment staging, and installation or removal of equipment or wells, shall not occur between February 15 and September 15 of any year unless the Permittee submits for Executive Director review and approval documentation from the California Department of Fish and Game showing that development proposed to occur on specific dates during that period will not interfere with grunion spawning and will not cause adverse impacts to grunion or grunion eggs."

Changes to clarify ownership of monitoring well site:

Summary – page 2, paragraph 2, first sentence:

"One monitoring well would be located on land owned by **the South Coast Water District and leased to** MWDOC just inland of the beach; the rest of the project would take place at Doheny State Beach."

Project Site – page 8, second sentence of paragraph:

"One monitoring well will be located about 2000 feet upstream of the beach area on ~~MWDOC-owned land on~~ the east side of the creek **on land owned by the South Coast Water District and leased to MWDOC**."

Main Project Components – page 9, second bullet, last sentence of first paragraph:

"The currently proposed project includes continued use of these wells and also includes installation of an additional monitoring well about 2000 feet inland on the east side of the creek on land owned by **the South Coast Water District and leased to** MWDOC."

Public Access – page 16, second paragraph, third sentence:

"The new monitoring well will be outside the beach area on land ~~owned by~~ **leased to** MWDOC and not used by the public."

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Staff Report: May 29, 2009
Hearing Date: June 11, 2009

STAFF REPORT
COASTAL DEVELOPMENT PERMIT APPLICATION

APPLICATION NO.: **E-09-004**

APPLICANT: **Municipal Water District of Orange County (MWDOC)**

PROJECT LOCATION: Doheny State Beach, City of Dana Point, County of Orange

PROJECT DESCRIPTION: Construction and testing of a slant well and associated test desalination facility, and geotechnical testing

EXHIBIT 1: Project Location

EXHIBIT 2: Site Plan

EXHIBIT 3: Cross-section of Test Well

SUBSTANTIVE FILE DOCUMENTS:

- MWDOC's Coastal Development Permit Application and accompanying documents.
- Williams McCaron, Inc. "Dana Point Ocean Desalination Project Preliminary Design Report: Phase 3 Extended Pumping and Pilot Plant Test Facilities, Doheny State Beach", August 20, 2008.
- Chambers Group, Inc. "Dana Point Desalination Project Phase 3 Extended Pumping and Pilot Plant Testing", May 2008.

SUMMARY

The Municipal Water District of Orange County (MWDOC) proposes to re-open a slant well at Doheny State Beach and conduct various tests to determine the feasibility of using the well for a potential future desalination facility. The main project components include an existing slant well, a temporary desalination facility, and several monitoring wells and geotechnical boreholes.

One monitoring well would be located on land owned by MWDOC just inland of the beach; the rest of the project would take place at Doheny State Beach. Part of the project would be within the certified Local Coastal Program (LCP) jurisdiction of the City of Dana Point, and part would be within the Commission's retained jurisdiction. MWDOC and the City have requested the Commission review the project under a single, consolidated permit request pursuant to Coastal Act Section 30601.3, which allows for such review when a proposed development would occur within both the Commission's and a local jurisdiction. In these consolidated applications, the standard of review is Chapter 3 of the Coastal Act, though the Commission may use the policies of the certified LCP as guidance.

The project could result in adverse effects to several coastal resources, including marine biology, water quality, public access and recreation; however, MWDOC has included several measures with the project to avoid or reduce those impacts and staff is recommending a number of Special Conditions to ensure the project conforms to applicable Coastal Act requirements. Staff recommends that the Commission **approve** the proposed project subject to Special Conditions that require measures restricting construction timing and locations, presence of a biological monitor during all construction activities, eventual removal of most structures associated with the project, submittal of a spill prevention and cleanup plan for Executive Director review and approval, prohibition of future shoreline protective devices, MWDOC's acknowledgement and assumption of the coastal hazard risks associated with the site, and measures protecting public access and recreation.

> **Note:** The Commission's approval would not authorize any additional activities that may be associated with a larger or more permanent desalination 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.

1.0 RECOMMENDED MOTION AND RESOLUTION

Staff recommends the Commission approve Coastal Development Permit No. E-09-004 subject to Standard and Special Conditions.

Motion

I move that the Commission approve Coastal Development Permit No. E-09-004 subject to the conditions set forth in the staff recommendation.

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

Resolution

The Commission hereby approves coastal development permit E-09-004 and adopts the findings set forth below on grounds that the development, as conditioned, located between the first public road and the sea, will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. 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.

2.0 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 this permit is reported to the Commission. 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 or 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.

3.0 SPECIAL CONDITIONS

1. **Project Construction:** The Permittee shall conduct project construction as described in the coastal development permit application and as conditioned herein. Project-related construction shall occur only in areas as described in the coastal development permit application. Construction equipment and materials, including project-related debris, shall be placed or stored where it cannot enter a storm drain or coastal waters. All project-related debris shall be removed from the project site by the end of each workday and disposed of at an approved upland location.

   Project-related construction on the beach, including site preparation, equipment staging, and installation or removal of equipment or wells, shall not occur between February 15 and September 15 of any year unless the Permittee submits for Executive Director review and approval documentation from the California Department of Fish and Game showing that development proposed to occur on specific dates during that period will not interfere with grunion spawning and will not cause adverse impacts to grunion or grunion eggs.

   Project-related borehole drilling activities will occur only between 10 am and 6 pm on Mondays through Fridays and only between December 1, 2009 and May 15, 2010 (subject to above Department of Fish and Game approval for any work after February 15). No changes to these times shall occur without a Commission amendment to this CDP unless the Executive Director determines that no amendment is legally required.

2. **Biological Monitor:** ***Prior to construction***, the Permittee shall submit for Executive Director review and approval documentation describing the experience and training of the project's proposed biological monitor(s). The approved biological monitor(s) shall be present on site during all construction activities and shall monitor those activities to ensure potential impacts to sensitive species are avoided and minimized.

   Within 72 hours of project activities, the monitor(s) shall conduct a biological survey of areas that will be affected by those activities to identify the presence or absence of sensitive species known or likely to be in the project area. If the monitor(s) identify any listed species within these areas, the Permittee shall provide to the Executive Director a list of those species and any additional mitigation measures proposed to avoid impacts to those species. Activities that would affect those species shall not occur without a Commission amendment to this CDP unless the Executive Director determines that no amendment is legally required.

3. **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 wells and monitoring wells remain covered. The Permittee shall also post at the project site a notice approved by the Executive Director

that describes the project activities and includes a telephone number that members of the public may call if the well heads become exposed. If the well heads, linings, casings, or other well 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, but no later than May 31, 2012, the Permittee shall cut off, cap, and bury the slant well head at least three to six feet below the ground surface, and shall completely remove all temporary facilities approved by this coastal development permit. If the slant well is inactive for five years after project completion, the Permittee shall submit a complete coastal development permit application for well abandonment and removal.

4. **Spill Prevention and Response Plan:** ***Prior to starting construction***, the Permittee shall submit for review and written approval by the Executive Director a detailed plan describing spill prevention and response measures that will be implemented during project activities. At a minimum, the plan shall describe the spill prevention and response equipment to be stored at the project site, measures to be taken to prevent a spill or respond to a spill should one occur, and emergency responders to be contacted in the event of a spill. The plan shall ensure protection against spills of fuel, other petroleum products, and any hazardous materials used during project construction or implementation, and shall ensure adequate measures are in place to allow effective containment and cleanup if spills do occur.

   Upon approval of the plan, the Permittee shall implement it as part of the project. Any proposed changes to the plan shall be reported to the Executive Director. No changes to the approved plan shall occur without a Commission amendment to this CDP unless the Executive Director determines that no amendment is legally required.

5. **No Future Shoreline Protective Device:** The Permittee agrees, on behalf of itself and all other successors and assigns, that no new shoreline protective device(s) or enhancement of the existing groin/protective device shall ever be constructed to protect the development approved pursuant to Coastal Development Permit No. E-09-004 in the event that the development is threatened with damage or destruction from waves, erosion, storm conditions, sea level rise, or other hazards. 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.

   The Permittee further agrees, on behalf of itself and all successors and assigns, that it will remove the development authorized by this permit if any government agency orders that the structure is not to be used due to any of the hazards identified above. In the event that portions of the development are damaged or destroyed 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 may require a coastal development permit.

6. **Assumption of Risk, Waiver of Liability and Indemnity:** By accepting this permit, the Permittee acknowledges and agrees (i) that the site may be subject to hazards from flooding, coastal erosion, and/or wave uprush; (ii) to assume the risks to the Permittee and the development that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) 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 (iv) 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.

7. **Public Access:** The Permittee shall implement the project as described in the coastal development permit application and as conditioned herein.

   a) The Permittee shall use project-related equipment and vehicles in a manner that does not prevent continuous lateral access along the beach.

   b) The equipment storage and staging area shall be established in the Doheny State Beach parking lot only between Labor Day and Memorial Day of any year.

   c) For the duration of the project, the Permittee shall post the project area with weatherproof signs approved by the Executive Director that describe the project activities, their expected duration, information about nearby alternative parking and recreation locations, and the Permittee's contact information.

4.0 FINDINGS AND DECLARATIONS

The Commission hereby finds and declares as follows:

4.1 PROJECT PURPOSE AND DESCRIPTION

The Municipal Water District of Orange County (MWDOC) is proposing to test a subsurface intake system to determine its feasibility for use as part of a potential future desalination facility. MWDOC is also proposing to conduct associated geotechnical tests and operate a temporary test desalination facility, all to be located on or near Doheny State Beach, at Dana Point, Orange County (see Exhibit 1). The proposed project will allow MWDOC to conduct additional tests of a slant well installed during an earlier project phase to determine whether its water quality and quantity characteristics might be suitable for use in a full-scale desalination system that MWDOC may propose in the future.

> **Note:** The Commission's approval does not authorize any additional activities that may be associated with a larger or more permanent desalination facility. Any such proposal will require additional review for conformity to the Coastal Act, which 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.

Background: The proposed project is the third phase of MWDOC's seawater desalination testing program at this location.[1] During the project's first phase, MWDOC conducted geotechnical tests at Doheny State Beach to identify the location of alluvial sediments associated with San Juan Creek and to determine whether the area might be suitable for a subsurface intake. During the second phase, MWDOC installed a 12-inch diameter slant well and conducted a short-term pump test to determine well performance, aquifer properties, water quality characteristics, and other parameters to further characterize the site's potential

MWDOC's interest in using a subsurface intake is due in part to the lower rate of adverse impacts these intakes have on marine life and in part to the lower pre-treatment requirements these systems often have compared to open water intakes. Where feasible, subsurface intakes can provide advantages over open water intake systems, such as avoidance of entrainment/ impingement impacts, reduced pre-treatment filtration needs, and protection of a desalination facility from variations in water quality resulting from storms, algae blooms, surface water contamination, or spills. Short-term testing MWDOC conducted during Phase 2 of the project showed that the water produced from the well had very low levels of turbidity and silt, salinity levels lower than seawater, and relatively high levels of iron and manganese.

[1] The Commission approved previous work associated with the project pursuant to Coastal Development Permits and approvals Nos. 5-04-468-W, 5-05-417, and 5-05-417-A1.

Main Project Activities: The main project objectives and activities include:

- Re-opening the existing test well and conducting an extended pump test to identify any changes in water characteristics (e.g., salinity, levels of dissolved iron, manganese, and oxygen, temperature, etc.), to identify the water quality parameters that will affect potential pre-treatment and treatment requirements during desalination, to identify expected long-term yield from the water source, and to validate and refine the site's existing groundwater model.
- Drilling and testing two additional boreholes and an additional monitoring well to determine the effects of pumping on the underlying water source and to better characterize the underlying hydrologic and geologic conditions.
- Conducting corrosion studies on material to be used in wells, pipes, and pumps.
- Evaluating methods to measure and reduce levels of iron, manganese, and microbial growth in the well water.
- Testing various materials, treatment methods, and equipment for potential use in future proposed projects.
- Determining measures needed to safely dispose of concentrates and effluents.

MWDOC plans to conduct the pump test for up to about 24 months, though it may extend pumping if problems arise that result in a temporary break in the test. Its lease with the State Lands Commission allows use of the site until May 31, 2012.

Project Site: Most project components will be on or near Doheny State Beach, near the mouth of San Juan Creek in Dana Point, Orange County (see Exhibit 2). One monitoring well will be located about 2000 feet upstream of the beach area on MWDOC-owned land on the east side of the creek. Doheny State Beach is a popular recreational area for local residents and visitors, and includes two distinct use areas – a camping area and public beach downcoast (east) of San Juan Creek and a day use area and public beach upcoast (west) of the creek.

Main Project Components: The main project components include the following:

- **Existing slant well:** The existing test well is within a sandy beach area west of the creek near a concrete and boulder riprap groin wall that lines the creek channel. The well is about 80 feet seaward of a lifeguard station and 140 feet landward of the measured mean high water line. The well extends under the beach and seafloor at an angle of 23 degrees from the horizontal to a point about 350 feet from the well head and a depth about 156 feet below the ocean floor (see Exhibit 3).

  MWDOC plans to pump up to 2,500 gallons per minute (gpm) from the well (or up to about 3.6 million gallons per day). Pumped water will be routed to two locations – most would be pumped through buried pipes to an outlet on the creekside groin, where it will be discharged through an outfall diffuser buried within existing riprap. About 180 gpm would be routed through a four-inch buried pipeline to a mobile test facility located several hundred feet inland (see description below). Return water from that facility will be routed back to the slant well area and discharged with the rest of the pumped water.

The well head is currently about three feet below the sand surface. To re-open the well, MWDOC will remove and stockpile the overlying sand and install a pre-cast concrete vault below the surface that will enclose the well head and pipelines, power supply, and other similar equipment. To install the outfall, MWDOC will remove part of the existing riprap from the groin, place the pipe and diffuser, and then replace the riprap.

- **Test desalination facility:** The test facility will be located on a grassy area adjacent to a Doheny State Beach parking area, several hundred feet inland from the test well. The facility will be housed within a modified ocean cargo container about 40 feet long, eight feet wide, and eight feet high. The facility site will include security fencing, areas for parking and equipment storage, and landscaping.

  The facility will include a reverse osmosis test platform, instrumentation needed for facility operations, monitoring, and water quality testing, and other similar support systems. The reverse osmosis platform will be capable of treating about 15 gpm of seawater. Testing will include adding standard water treatment chemicals (e.g., sulfuric acid, sodium bisulfite, antiscalants, etc.) to the water. The facility will store no more than 10 gallons of each of the treatment chemicals. Once testing is complete, the product stream and high-salinity stream will be recombined and discharged back to the slant well area. The water supply and return lines will be buried in a trench running between the facility and the slant well and discharge area. The facility's electrical and water supplies will be provided through trenched conduits from nearby access points.

- **Existing and new monitoring wells:** The project includes using two existing monitoring wells (shown on Exhibit 2 as MW-1 and MW-2) that were installed during earlier project phases.[2] Each well consists of three nested two-inch PVC wells screened to three different zones in the underlying aquifer.[3] MW-1 is located just to the north of the slant well and MW-2 is about 200 feet north of the well. The top of MW-1 is buried about three feet below the ground surface and presents no obstruction on the surface. MW-2 is adjacent to a driveway at the nearby lifeguard tower. The currently proposed project includes continued use of these wells and also includes installation of an additional monitoring well about 2000 feet inland on the east side of the creek on land owned by MWDOC.

  To install the new well, MWDOC will use a sonic drilling method, which uses vibration to advance a drill bit and casings into the underlying rock and soil. This method does not require drilling fluids and generates minimal cuttings and waste. Sound generated during drilling is expected to be less than 75 decibels at a distance of 50 feet (for comparison, a normal conversation generates about 70 decibels). MWDOC expects to have up to about

[2] The Commission initially approved the monitoring wells pursuant to CDP waiver 5-04-468-W. In February 2007, the Commission approved CDP 5-05-417-A1 allowing MWDOC to use MW-1 until December 2010 and to permanently use MW-2. The Commission's approval of the current proposed project would authorize use of MW-1 until May 31, 2012.

[3] The shallow aquifer zone is about 10-25 feet below the ground surface (bgs); the middle zone is about 40-130 feet bgs; and the deep zone is from about 140-165 feet bgs.

eight personnel on site during installation, and expects to use equipment including a 20-ton sonic drill rig, a pipe truck, a forklift, two service trucks, and a van containing various data processing equipment. The core and any other cuttings will be collected and disposed of offsite. The work footprint required for the drill rig and associated equipment will be about 80 by 40 feet.

- **Geotechnical boreholes:** The project includes drilling two boreholes on the beach approximately 800 feet and 1000 feet east of the well, seaward of the beach camping area, and above the mean high tide line (shown on Exhibit 2 as B-5 and B-6 – note that final locations may vary slightly based on MWDOC's coordination with State Parks staff). Geotechnical data obtained from these boreholes would be combined with data obtained from other previously-drilled boreholes to help delineate the vertical and lateral extent of buried alluvium associated with the San Juan Creek channel. Each borehole will be about six inches in diameter and will be drilled to a depth of about 200 feet. They will be installed using the same sonic drilling method described above. MWDOC will install temporary fencing around each site for public safety.

- **Equipment storage and staging area:** MWDOC will establish an equipment storage and staging area in the beach parking lot near the temporary desalination facility. It will be about 80 by 140 feet and surrounded by a temporary security fence.

Project Timing: MWDOC expects installation of the project components to take up to about two months and plans to conduct the construction work between Labor Day and Memorial Day to avoid peak use times at the beach. After an approximately two-month startup and shakedown period, it expects to conduct the extended pump test and operate the test desalination facility for up to about two years.

Drilling the boreholes is expected to take up to about seven days. To reduce effects on the nearby camping area and beach users, drilling will occur during the low use season between December and May and only between 10 am and 6 pm Monday through Friday. All equipment will be removed from the beach during nights and weekends.

Once the project is completed, MWDOC will remove all drilling, pumping and testing equipment from the site, including the water supply, test facility, discharge pipes and diffuser, service cables and conduits, and will restore the site to pre-existing conditions. The top of the slant well will be capped about three feet below the beach surface. Equipment removal and site restoration is expected to take about three weeks.

4.2 COASTAL COMMISSION JURISDICTION AND STANDARD OF REVIEW

The proposed project would be located within Doheny State Beach, and includes components within the Coastal Commission's retained jurisdiction as well as within an area certified under the City of Dana Point's Specific Plan and Local Coastal Program jurisdiction. Coastal Act Section 30601.3[4] provides that in cases where proposed development is bisected by the coastal development permit jurisdiction boundary line, an applicant may, if all parties (i.e., in this instance, the City of Dana Point, the Coastal Commission, and MWDOC) are in agreement, apply for a consolidated coastal development permit from the Coastal Commission without needing to obtain a coastal development permit from the local government. MWDOC's application is for work within the jurisdiction of both the City and the Commission, and MWDOC provided with its application an October 6, 2008 letter from the City stating the City would recognize and accept the Commission's review and decision for those parts of the proposed project within the City's LCP jurisdiction. In such cases, the Commission's standard of review is the Chapter Three policies of the Coastal Act, and it may use the City's certified Local Coastal Program as guidance.

4.3 OTHER PERMITS AND APPROVALS

- Regional Water Quality Control Board approval pursuant to Order No. R0-208-0002 for discharges from groundwater extraction, February 5, 2009.
- Department of Fish and Game Streambed Alteration Agreement #1600-2008-0212-R5, February 3, 2009.
- State Lands Commission approval of amended lease of state tidelands through May 31, 2012, issued December 9, 2008.
- California Department of Parks and Recreation (DPR) approval for use of the property for up to two years from the date of issuance of a Right of Entry permit, which DPR will issue following issuance of a Coastal Development Permit (CDP) and which will incorporate the terms and conditions of the CDP, issued November 6, 2008.
- City of Dana Point approval for consolidated coastal development permit review (as described in Section 4.2 above), October 6, 2008.
- U.S. Army Corps of Engineers, Nationwide Permit #7 – Outfall Structures and Maintenance, for installation of the outfall pipe and diffuser.

On July 25, 2008, MWDOC issued a CEQA Mitigated Negative Declaration / Notice of Determination for the project.

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[4] Section 30601.3 states, in relevant part:
"*a) Notwithstanding Section 30519, the commission may process and act upon a consolidated coastal development permit application if both of the following criteria are satisfied:*

(1) A proposed project requires a coastal development permit from both a local government with a certified local coastal program and the commission.

(2) The applicant, the appropriate local government, and the commission, which may agree through its executive director, consent to consolidate the permit action, provided that public participation is not substantially impaired by that review consolidation.

(b) The standard of review for a consolidated coastal development permit application submitted pursuant to subdivision (a) shall follow Chapter 3 (commencing with Section 30200), with the appropriate local coastal program used as guidance."

4.4 CONFORMITY TO APPLICABLE COASTAL ACT POLICIES

4.4.1 MARINE BIOLOGICAL RESOURCES AND WATER QUALITY

Section 30230 of the Coastal Act 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.*

Section 30231 of the Coastal Act 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 water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

The project site includes a sandy beach area adjacent to the ocean near the mouth of San Juan Creek, which is closed during parts of the year due to a buildup of sand along the beach. The area provides habitat for numerous types of fish, shorebirds, and other marine-related species, including the southern California steehead (*Oncorhynchus mykiss*). The California brown pelican (*Pelecanus occidentalis californicus*), Western snowy plover (*Charadrius alexandrinus nivosus*), and California least tern (*Sterna antillarum browni*) use the area for foraging. Area beaches are the site of grunion spawning at times from late February to early September.

The project has the potential to adversely affect marine life and water quality during construction, testing, or demobilization activities; however, MWDOC has included in the project several measures to avoid or reduce these potential impacts. All project locations are above the high tide line, which will minimize potential effects in the nearshore environment, and MWDOC will access the various sites using existing accessways and previously disturbed and non-vegetated areas of the beach. The drilling rigs will be on tracked vehicles that present relatively low pressure on the sand surface, so any impacts to the beach area are expected to be temporary and minor. **Special Condition 1** provides further assurance that the project will avoid or minimize potential impacts to marine biological resources and water quality. It limits construction to periods outside of grunion spawning times unless authorized by the Department of Fish and Game and requires MWDOC to properly store and dispose of project-related materials and debris so that it does not adversely affect coastal waters.

MWDOC will also have a biological monitor on site to monitor construction activities and to direct project personnel to avoid and minimize potential impacts to biological resources. The monitor will focus on avoiding impacts to sensitive species, including the western snowy plover, including stopping work if plovers are at the project site and could be adversely affected by project activities. **Special Condition 2** requires MWDOC to submit for Executive Director review and approval documentation of the monitor's experience and training, requires the monitor to be present during all construction activities, and requires the monitor to conduct a pre-construction survey to identify whether listed sensitive species are present.

During operations, the slant well and test desalination facility will discharge up to about 2,500 gallons per minute through the existing riprap and groin into the creek. The discharge will consist primarily of groundwater pumped from the slant well, but will also include up to about 180 gallons per minute of water from the temporary desalination test facility. To reduce potential erosion from this discharge, MWDOC will install a gravel pack with the outfall diffuser to break up and reduce flow velocities. The discharge water will include relatively low concentrations of water treatment chemicals commonly used in drinking water systems. These chemicals are used mainly to adjust the pH of the water, as antiscalants, or to remove various minerals or other constituents from the water. Because the water pumped from the slant well is expected to have relatively low dissolved oxygen levels, MWDOC will also add oxygen to the water before discharge. MWDOC has received authorization for the discharge from the Regional Water Quality Control Board and is required by the Board to conduct ongoing monitoring to ensure the discharge meets applicable water quality standards. At the completion of the project, MWDOC will remove the outfall and diffuser and will restore the area to its pre-project conditions. **Special Condition 3** ensures that equipment is removed as proposed and that the affected sites are restored to their existing conditions. **Special Condition 3** also requires MWDOC to conduct ongoing monitoring to ensure erosion or sand movement does not expose project components and create a hazard for marine life, and further requires MWDOC to quickly remedy any such exposure to prevent harm to marine life.

Conclusion: Based on the project description and as evaluated above, the Commission finds the proposed project, as conditioned, is consistent with Section 30230 and 30231 of the Coastal Act.

4.4.3 SPILL PREVENTION AND CLEANUP

Section 30232 of the Coastal Act states:

> *Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

The proposed project will involve the use of equipment and vehicles on and near the beach, which creates the potential for spills; however, the project includes several measures to reduce that potential. For each drilling operation, MWDOC will create a containment area with heavy plastic sheeting surrounding the drilling equipment and will maintain absorbent materials at each site to allow cleanup if needed. Other than fuel within the vehicles and equipment, MWDOC will not store fuel or oil products at the project site.

MWDOC is also preparing a Spill Prevention and Cleanup Plan to ensure the potential for spills is minimized and that measures are in place to clean up a spill should one occur. To ensure this plan conforms to the Coastal Act's spill prevention and cleanup policy, **Special Condition 4** requires MWDOC to submit the plan for Executive Director review and approval before starting construction.

Conclusion: Based on the project description and as evaluated above, the Commission finds the proposed project, as conditioned, is consistent with Section 30232 of the Coastal Act.

4.4.3 COASTAL HAZARDS

Section 30235 of the Coastal Act states, in relevant part:

> *Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply...*

Section 30253 of the Coastal Act states in relevant part:

> *New development shall:*
>
> *(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
>
> *(2) 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 Coastal Act requires generally that development not result in hazards due to geological processes and not require shoreline protective devices that would alter natural landforms along bluffs and cliffs. The project site is near the mouth of San Juan Creek in an area with a dynamic beach that ranges from 300 to 600 feet wide. Portions of the project site have flooded in the past, due in part to changes in the beach profile, development of sand bars or siltation at the creek mouth, or other similar geomorphic changes. Portions of the site may also be affected by wave runup occurring during a 20-year storm event. Levees that line nearby sections of the creek reduce the chance for erosion, channel migration, or flooding under most conditions, but they have about a 2% probability of overtopping any year (i.e., during a 50-year storm event). Ongoing sea level rise is also expected to increase the frequency of flooding. Therefore, although the project is proposed to operate for a relatively short time – up to about two years – it may still be subject to flooding, erosion, or other coastal processes during that period. However, part of MWDOC's selection of the site was based on avoiding drawing water from the freshwater aquifer that underlies part of San Juan Creek. Locating the slant well further inland could affect the aquifer, which could then affect riparian vegetation and other resources

associated with the creek, and might raise concerns about water rights associated with that aquifer. By locating the well at this more seaward location, but still above the high tide line to avoid most wave uprush and erosion concerns, MWDOC expects to draw water from under the ocean and not affect the aquifer or creek.

Coastal Act Section 30253(2) provides that new development neither create nor contribute to erosion or geologic instability of the project site or surrounding area; it would therefore be inconsistent with this policy if the proposed project were to include a shoreline protective device in the future. MWDOC is not proposing as part of this application to include any protective devices that would reduce the risks associated with the above hazards; however, beach areas are dynamic environments and are subject to unforeseen changes that may result in a request for such devices in the future. Shoreline protective devices can result in a number of adverse effects on the dynamic shoreline system and the public's ability to use the beach. They can change the shoreline profile and reduce the usable area of the beach. They can also result in a loss of a landward supply of sand, which can reduce beach width or reduce the formation of sand bars that may provide the beach with some protection from high wave energy. They can also cause cumulative effects to shoreline sand supply and public access by causing accelerated erosion on nearby beach areas. Additionally, they can directly reduce access by creating a barrier in an otherwise accessible beach location. To assure that no protective device will be constructed in the future to protect the proposed development, **Special Condition 5** ensures that protective devices will not be constructed in the future to protect the development approved pursuant to these Findings. Since the proposed development is taking place adjacent to the ocean in an area that is potentially subject to wave uprush and flooding, **Special Condition 6** imposes the Commission's standard waiver of liability that notifies the Permittee of risks associated with the site and that the Commission is not liable for damage that may result from approving the permit for development.

Conclusion: Based on the project description and as described above, the Commission finds the proposed project, as conditioned, is consistent with applicable provisions of Coastal Act Sections 30235 and 30253(a).

4.4.3 PUBLIC ACCESS, RECREATION, AND VISITOR-SERVING DEVELOPMENT

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, in relevant part:

> *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…*

Coastal Act Section 30213 states, in relevant part:

> *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred…*

Coastal Act Section 30220 states:

> *Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

The Coastal Act requires generally that development not interfere with the public's right of access to the shoreline. Additionally, the Commission considers public beaches to provide lower cost visitor and recreational facilities and subject to the provisions of Coastal Act Section 30213. The proposed project includes construction and operation of various project components on Doheny State Beach, which is a popular location for public access to the shoreline and includes areas used for camping and day use. The test well is located at the day use area, which includes a lawn and picnic facilities, a wide sandy beach, restrooms, volleyball courts, food concessions, and showers. The temporary desalination facility would be located in the day use parking area. The boreholes would be located on the beach near the camping area. The project also involves the use of various heavy equipment on and near the beach.

The project is likely to cause some adverse impacts to public access; however, it includes several characteristics or measures to avoid or reduce impacts. For example, most project components will not affect the beach's main use areas. The test desalination facility is located in a grassy area adjacent to a parking lot so as not to take up parking spaces. The test well is located near a lifeguard station and away from the beach's main recreational areas. The new monitoring well will be outside the beach area on land owned by MWDOC and not used by the public. Additionally, the main project construction and installation will occur outside of the peak use season from Memorial Day to Labor Day, and the staging area within the nearby beach parking lot will be in place during the same period, when parking demands are lowest. Similarly, the boreholes are scheduled to be drilled sometime between December and May, when use of the nearby camping area is at its lowest, during weekdays to avoid the higher use times during weekends, and during daylight hours between 10 am and 6 pm only. MWDOC will place temporary sound walls around the drilling equipment engines to reduce noise effects on nearby public access and recreational uses. Additionally, State Parks has agreed to restrict use of the campsites closest to the drill rigs during that time. MWDOC will also have a safety officer on site during construction to both inform the public of the activities and to ensure beach users maintain a safe distance from the activities.

To further ensure the project conforms to applicable Coastal Act policies, **Special Condition 7** requires that project activities not prevent continual lateral access along the beach, that use of the parking area for equipment storage and laydown be limited to non-peak use periods, and that MWDOC post signs at the project site, subject to Executive Director review and approval, that include information about the type and timing of project activities, alternative parking and recreation locations, and MWDOC's contact information.

Even with these effects on access, and as conditioned, the area will continue to be available for water-oriented recreational activities. The project is temporary – up to about two years – and the construction and demobilization activities will take only a matter of a few weeks during the project duration. During most of the project, there will be minimal above-ground structures or disturbances to detract from the beach's recreational use, and all above-ground development will be removed at the end of the project. Additionally, as noted previously, the project will not include any future shoreline protective devices that might impede recreation use of the site. The proposed project will have temporary construction phase and testing phase impacts upon the ability of the public to use the sandy beach within the footprint of the project. However, upon project completion, full access to this sandy beach area will be completely restored. No surficial evidence of the project will remain and the public will be able to use the beach in the project area in the same manner it had prior to the project.

Conclusion: Based on the project description and as evaluated above, the Commission finds the proposed project, as conditioned, is consistent with applicable public access, recreation, and visitor serving development policies of the Coastal Act.

4.4.5 SCENIC RESOURCES

Section 30251 of the Coastal Act states, in relevant part:

> *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.…*

The proposed project will occur at Doheny State Beach, a highly scenic area in Dana Point. The beach provides views of open coastal waters, the shoreline up- and downcoast, distant views of inland hills and mountains, and the Dana Point Harbor. During the project's construction and operation, various equipment will be visible on or near the beach, although most visual impacts resulting from the project will be temporary. When the project is completed, all above-ground project elements will be removed, thus preventing permanent visual effects. As noted previously, **Special Condition 3** requires MWDOC to address potential impacts if remaining parts of the test well become exposed due to erosion, shifting sand, or other processes, and **Special Condition 5** ensures there will be no future shoreline protective devices that might result in adverse visual impacts.

Conclusion: Based on the project description and as evaluated above, the Commission finds the proposed project, as conditioned, is consistent with applicable provisions of Coastal Act Section 30251.

5.0 CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

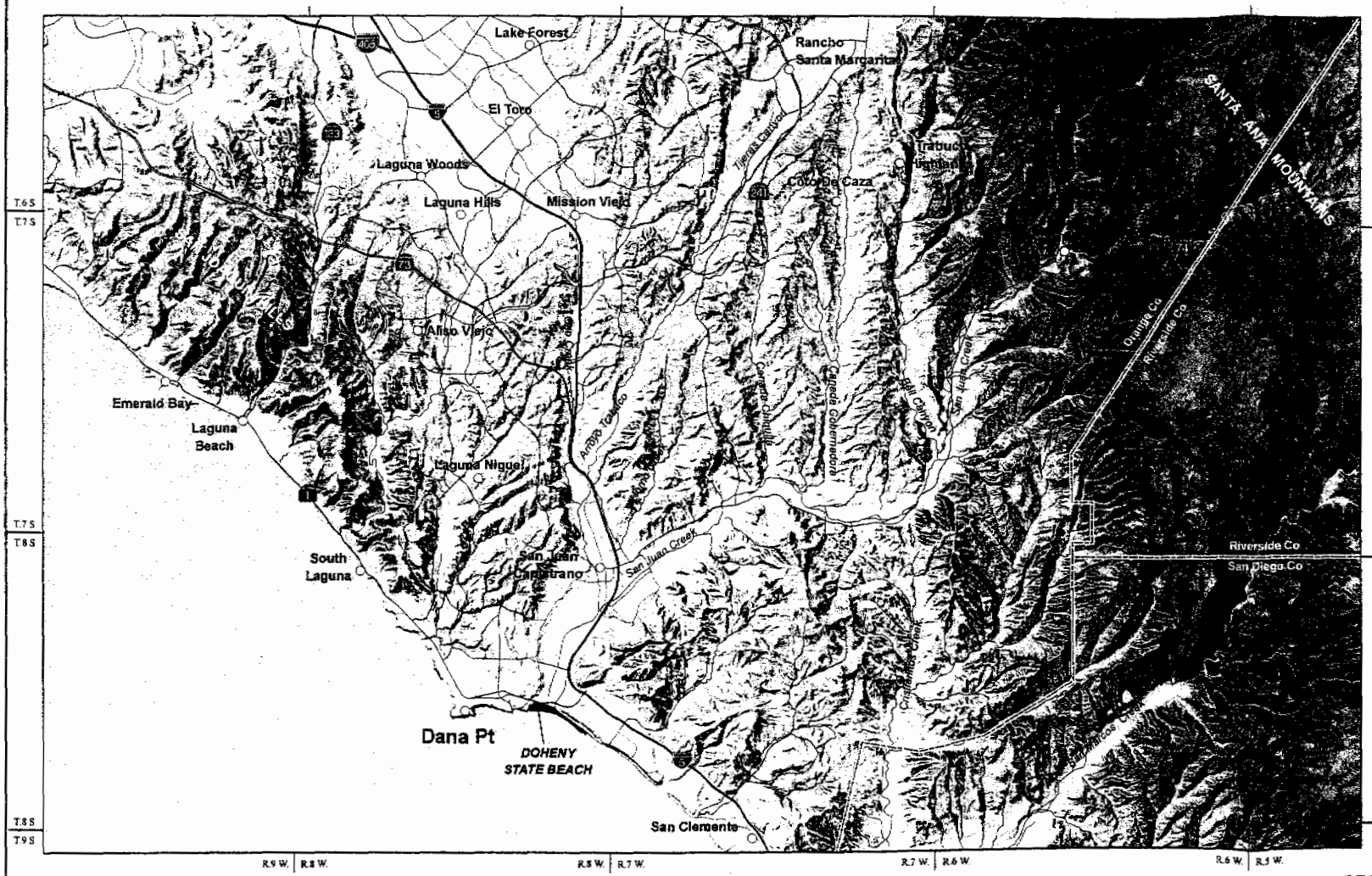
Section 13096 of Title 14 of the California Code of Regulations requires Commission approval of Coastal Development Permits to be supported by a finding showing the permit, as conditioned by any conditions of approval, to be consistent with any applicable requirements of the California Environmental 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 would substantially lessen any significant adverse effect that the activity may have on the environment.

The proposed project has been conditioned in order to be found consistent with the public access and recreation, hazard, biological resource, water quality and scenic resource policies of the Coastal Act. Mitigation measures, in the form of special conditions, require 1) compliance with the proposed construction access and staging plan; 2) timing of construction outside the peak beach use season; 3) timing of construction to avoid impacts to California grunion; 4) a biological monitor to ensure impacts to sensitive species are avoided; 5) removal of temporary structures, well capping and burial, and well closure/destruction; 6) assumption of risk; 7) no future shoreline protective device; 8) construction best management practices; 9) debris disposal site to be located outside of coastal zone; 10) notification of future permit requirements; and 11) notification of limitations on this authorization.

As conditioned, there are no feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect that the activity may have on the environment. Therefore, the Commission finds that the proposed project can be found consistent with the requirements of the Coastal Act to conform to CEQA.

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

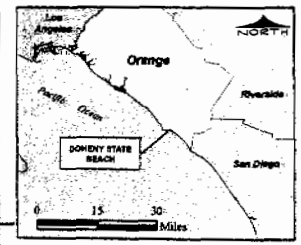
DANA POINT OCEAN DESALINATION PROJECT
PHASE 3 EXTENDED PUMPING & PILOT PLANT TESTING



GENERAL
PROJECT LOCATION

EXPLANATION

- Doheny State Beach
- City
- Freeway
- State Highway
- Major Street
- County Boundary
- Surface Water
- River



21-Apr-08

Prepared by: DWB

Map Projection:
State Plane, Zone 6 (1983)

NORTH

0 2 4 Miles

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GEOSCIENCE

GEOSCIENCE Support Services, Inc.
P.O. Box 220, Claremont, CA 91711
Tel: (909) 920-0707 Fax: (909) 920-0403
www.gsswater.com

Figure 1

EXHIBIT NO. 1

APPLICATION NO.

E-09-004

California Coastal Commission

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

DANA POINT OCEAN DESALINATION PROJECT
PHASE 3 EXTENDED PUMPING & PILOT PLANT TESTING -- HYDROGEOLOGY INVESTIGATION PLAN

EXTENDED PUMPING TEST FACILITIES

EXPLANATION

- Proposed Monitoring Well
- Proposed Exploratory Borehole
- Test Slant Well (existing)
- Slant Well Casing (existing)
- Slant Well Screen (existing)
- MWDOC Exploratory Borehole (existing)
- MWDOC Monitoring Wells (existing)
- RV Buffer Area (Construction)
- 480 Volt Transformer
- Tie-in to SDG&E Grid
- Test Facility
- Outfall Diffuser
- Water Supply / Return, Electrical, and Instrumentation Conduits
- Well Discharge
- Power Service to Test Facility
- Parking Lot Staging Area 80ft x 140ft
- State Lands Commission Lease Area

T.S.S.
R.B.W.

23-Jan-09

Prepared by: DWB
Map Projection: State Plane, Zone 6 (1983)
Date of Aerial Photo: May 2007 (Eagle Aerial)

NORTH

0 300 600 Feet

GEOSCIENCE
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P.O. Box 220, Claremont, CA 91711
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Figure 1

EXHIBIT NO. 2
APPLICATION NO.
E-09-004
California Coastal Commission

GIS_y:/mwdoc_phase3_hydrogeol_plan_1-290_Fig_1_FINAL_pump_test_facilities_1-23-09.mxd

Test Slant Well Schematic

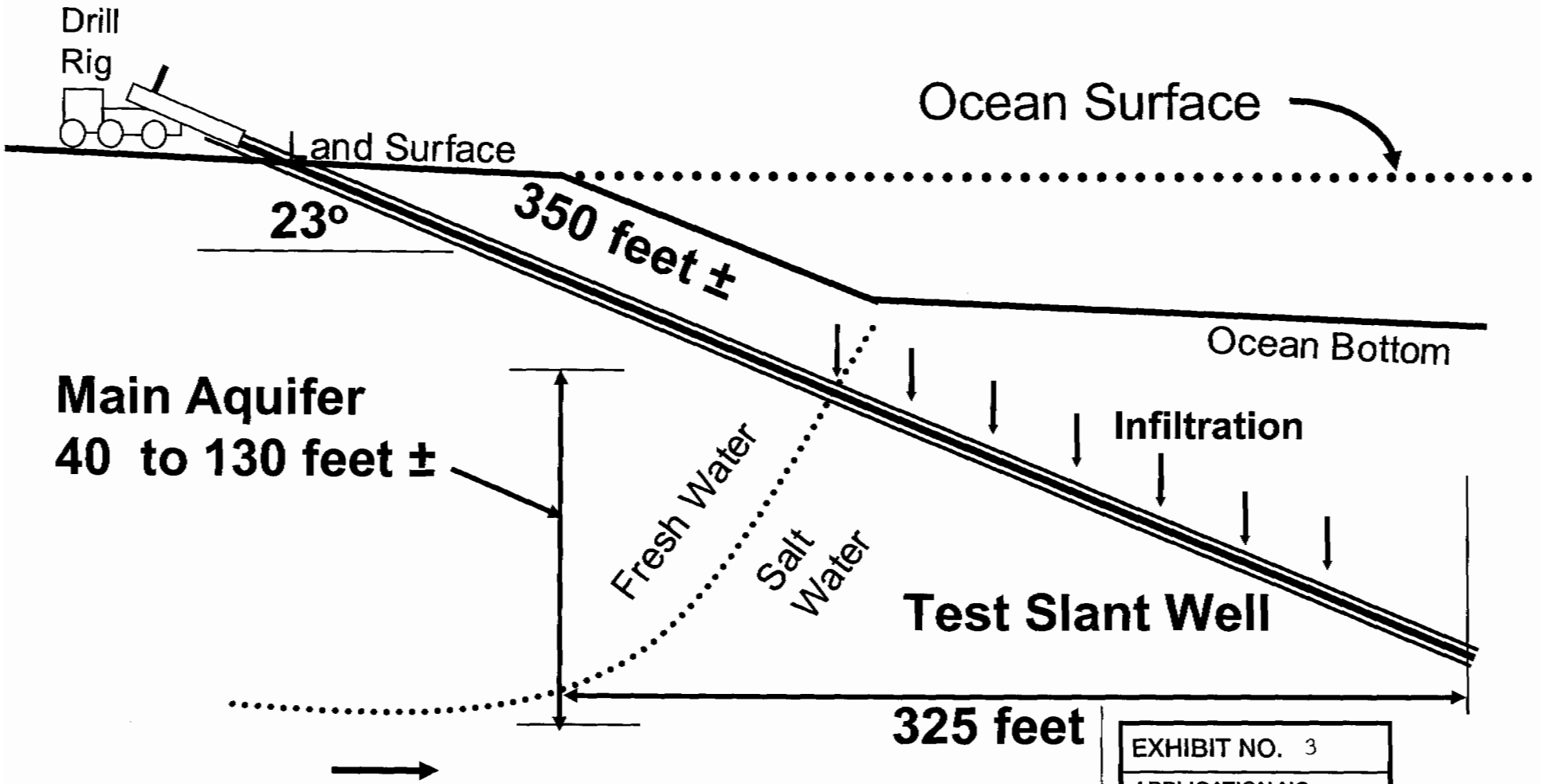

EXHIBIT NO. 3
APPLICATION NO.
E-09-004
California Coastal Commission