

CALIFORNIA COASTAL COMMISSION

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Hearing Date: January 11-13, 2006
Commission Action:

**STAFF REPORT: REGULAR CALENDAR**

APPLICATION NO.: 5-05-417
APPLICANT: Metropolitan 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 as part of a subsurface intake system feasibility investigation for a potential future ocean desalination project. The proposed well head will be within the sandy beach, with the 24-40 inch diameter well extending under the ocean -at an angle of 23 degrees- a horizontal distance of approximately 400 feet from the well head to an approximate vertical depth of 156 feet below the ocean floor. A temporary pump will be installed at the well head for well development and aquifer testing. Water pumped from the well will be tested and discharged to the surf zone or San Juan Creek via a temporary pipe with diffuser screen. The pump and discharge pipe will be completely removed upon completion of testing. The well head will be capped and buried below beach level upon completion of testing.

SUMMARY OF STAFF RECOMMENDATION:

The Metropolitan Water District of Orange County (MWDOC) is proposing to construct and test a slant well at Doheny State Beach to investigate the feasibility of using a subsurface beach well to draw seawater as feedwater for a potential future desalination plan (not proposed at this time) being considered by the applicant. The proposed seawater well head is located on the sandy beach. The primary public access and recreation, hazard, biological resources, water quality and scenic resource issues before the Commission stem from the location of the proposed well head within the sandy beach and the temporary discharge of pumped seawater to nearby San Juan Creek or to the surf zone.

Staff recommends that the Commission **APPROVE** the proposed project subject to special conditions that 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) the applicant to remove temporary structures and cap the well head below ground surface, continue to re-bury the well if it becomes exposed, and to close/destroy the well after any 5-year period of inactivity; 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.

The proposed development is taking place at Doheny State Beach in the City of Dana Point, which is a certified area under the Dana Point Specific Plan/Local Coastal Program. However, the proposed development is located upon filled tidelands. Therefore, the development is within the Commission's original permit jurisdiction under Coastal Act Section 30519(b) and must be evaluated for consistency with the Chapter 3 policies of the Coastal Act. The policies of the certified Dana Point LCP may be used for guidance.

NOTE: This permit does not authorize any other activities that may be associated with a larger or more permanent desalination facility, as such a 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.

SUBSTANTIVE FILE DOCUMENTS: *Coastal Processes and Hydraulic/Hydrology Studies for Doheny State Beach (CE Reference No. 04-14)* prepared by Coast Environments dated December 13, 2004; California Regional Water Quality Control Board, Order for Low Impact Certification and Waiver of Waste Discharge Requirements issued by the San Diego Regional Board on December 16, 2005; Letter from State of California Department of Parks and Recreation to MWDOC dated October 20, 2005; Initial Study and Negative Declaration, Subsurface Intake System Feasibility Investigation, Test Slant Well dated October 2005; State Lands Commission General Lease approved December 8, 2005.

STAFF RECOMMENDATION:

Staff recommends that the Commission adopt the following motion and resolution:

MOTION:

"I move that the Commission approve Coastal Development Permit No. 5-05-417 pursuant to 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.

I. APPROVAL WITH CONDITIONS

The Commission hereby approves a coastal development permit for the proposed development 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.

II. 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.

III. SPECIAL CONDITIONS

1. Staging Area For Construction

The permittee shall comply with the proposed construction staging and construction corridor plan to minimize public access impacts to Doheny State Beach. The plan demonstrates that no construction equipment, materials or activity shall occur outside the staging area and construction corridor identified on the site plan; no construction equipment, materials, or activity shall be placed on the sandy beach outside of the immediate construction zone, or paved staging area; and the construction access route will be closed only intermittently for transport of equipment and materials. When not in use for transportation of equipment and materials, it will be made available for undisrupted public access.

2. Timing of Construction (Public Access)

By acceptance of this permit, the applicant agrees to minimize adverse impacts to public use of Doheny State Beach resulting from construction activities approved pursuant to Coastal Development Permit No. 5-05-417, as follows:

No construction shall occur during the “peak use” beach season, defined as the period starting the day before the Memorial Day weekend and ending the day after the Labor Day weekend of any year.

3. Timing of Construction (Biological Resources)

To avoid adverse impacts on California grunion, neither installation, operation nor removal of the proposed temporary well-water discharge system shall occur within suitable grunion habitat between February 15th to September 15th without a written statement from the Executive Director authorizing said development on specified dates. To obtain such a written statement, the permittee must submit a declaration from the California Department of Fish and Game stating that implementing the development described in this condition on the specific dates proposed will not cause adverse impacts to any California grunion or their eggs. The declaration must contain an assessment of the spawning of the California grunion found in the area and a statement that the development activity on the specific dates proposed and in the specified locations will not interfere with the spawning of the California grunion.

4. Biological Monitor

An appropriately trained biologist shall monitor construction activity for disturbance to sensitive species. At minimum, monitoring shall occur once a day during any day in which construction occurs. Based on field observations, the biologist shall advise the applicant regarding methods to minimize or avoid significant impacts upon sensitive species. The applicant shall not undertake any activity that would disturb any sensitive species unless an amendment to this coastal development permit for such disturbance has been obtained from the Coastal Commission.

5. Removal Of Temporary Structures, Well Head Burial & Well Closure/Destruction

- A. Upon completion of the proposed testing but no later than 120 days after the commencement of the development authorized by this permit, the applicant shall: 1) completely remove all temporary facilities approved by this coastal development permit, and 2) properly cut-off, cap and bury the well head at least three (3) to six (6) feet below the pre-project ground surface.
- B. If the well head, lining or other component of the well authorized by this permit becomes exposed due to erosion, shifting sand or other factors, the applicant shall seek to remedy the exposure by properly cutting and capping the well head farther below the ground surface and/or by implementing a beach re-shaping and/or nourishment program to sufficiently cover the exposed section of the well head, lining or other exposed component(s) and restore the section of the beach in this area. The sand shall come from an approved sand donor site. A coastal development permit amendment or new permit must be obtained prior to implementing the activity if the Executive Director determines that an amendment or new permit is legally required.
- C. If the well installed pursuant to this coastal development permit is inactive for a period of five (5) years, prior to or at said 5-year anniversary the applicant

shall seek to abandon/destroy the well through the coastal development permit process.

6. Assumption of Risk, Waiver of Liability and Indemnity

- A.** By acceptance of this permit, the applicant acknowledges and agrees (i) that the site may be subject to hazards from flooding and/or wave uprush; (ii) to assume the risks to the applicant and the property 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.
- B. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT,** the applicant shall secure and submit to the Executive Director, for review and approval, a written agreement from the owner of the property, as follows: (1) agreeing to the terms of paragraph A on its own behalf; and (2) agreeing that, prior to any conveyance of the property that is the subject of this coastal development permit, the landowner shall execute and record a deed restriction, in a form and content acceptable to the Executive Director (a) indicating that, pursuant to this permit, the California Coastal Commission has authorized development on the subject property, subject to terms and conditions that restrict the use and enjoyment of that property; and (b) imposing all of the Special Conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the Property. The restriction shall include a legal description of the applicant's entire parcel or parcels. It shall also indicate that, in the event of an extinguishment or termination of the deed restriction for any reason, the Standard and Special Conditions of this permit shall continue to restrict the use and enjoyment of the subject property so long as either this permit or the development it authorizes – or any part, modification, or amendment thereof – remains in existence on or with respect to the subject property.

7. No Future Shoreline Protective Device

- A(1).** By acceptance of this permit, the applicant 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. 5-05-417 in the event that the development is threatened with damage or destruction from waves, erosion, storm conditions or other hazards in the future. By acceptance of this permit, the applicant 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.

A(2). By acceptance of this permit, the applicant further agrees, on behalf of itself and all successors and assigns, that the applicant shall remove the development authorized by this permit if any government agency has ordered that the structure is not to be utilized due to any of the hazards identified above. In the event that portions of the development fall to the beach before they are removed, the applicant 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.

B. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall secure and submit to the Executive Director, for review and approval, a written agreement from the owner of the property, as follows: (1) agreeing to the terms of paragraph A on its own behalf; and (2) agreeing that, prior to any conveyance of the property that is the subject of this coastal development permit, the landowner shall execute and record a deed restriction, in a form and content acceptable to the Executive Director (a) indicating that, pursuant to this permit, the California Coastal Commission has authorized development on the subject property, subject to terms and conditions that restrict the use and enjoyment of that property; and (b) imposing all of the Special Conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the Property. The restriction shall include a legal description of the applicant's entire parcel or parcels. It shall also indicate that, in the event of an extinguishment or termination of the deed restriction for any reason, the Standard and Special Conditions of this permit shall continue to restrict the use and enjoyment of the subject property so long as either this permit or the development it authorizes – or any part, modification, or amendment thereof – remains in existence on or with respect to the subject property.

8. Storage of Construction Materials, Mechanized Equipment and Removal of Construction Debris

The permittee shall comply with the following construction-related requirements:

- A.** No construction materials, debris, or waste shall be placed or stored where it may enter a storm drain or be subject to wave erosion and dispersion;
- B.** Any and all debris resulting from construction activities shall be removed from the project site within 24 hours of completion of construction;
- C.** Best Management Practices (BMPs) and Good Housekeeping Practices (GHPs) designed to prevent spillage and/or runoff of construction-related materials, and to contain sediment or contaminants associated with construction activity, shall be implemented prior to the on-set of such activity. BMPs and GHPs which shall be implemented include, but are not limited to: stormdrain inlets must be protected with sandbags or berms, all stockpiles must be covered, and a pre-construction meeting should be held for all personnel to review procedural and BMP/GHP guidelines. BMPs that are to

be implemented shall be maintained in a functional condition throughout the duration of the project.

- D. Construction debris and sediment shall be properly contained and secured on site with BMPs, to prevent the unintended transport of sediment and other debris into coastal waters by wind, rain or tracking. Construction debris and sediment shall be removed from construction areas as necessary to prevent the accumulation of sediment and other debris which may be discharged into coastal waters. Debris shall be disposed at a debris disposal site outside the coastal zone, pursuant to **Special Condition No. 9**.

9. Location of Debris Disposal Site

The applicant shall dispose of all demolition and construction debris resulting from the proposed project at an appropriate location outside the coastal zone. If the disposal site is located within the coastal zone, a coastal development permit or an amendment to this permit shall be required before disposal can take place.

10. Future Development Restriction

This permit is only for the development described in coastal development permit No. 5-05-417. Pursuant to Title 14 California Code of Regulations section 13253(b)(6), the exemptions otherwise provided in Public Resources Code section 30610 (b) shall not apply to the development governed by the coastal development permit No. 5-05-417. Accordingly, any future improvements to the structure authorized by this permit, including but not limited to repair and maintenance identified as requiring a permit in Public Resources section 30610(d) and Title 14 California Code of Regulations sections 13252(a)-(b), shall require an amendment to Permit No. 5-05-417 from the Commission or shall require an additional coastal development permit from the Commission or from the applicable certified local government.

11. Limitation of this Authorization

This permit does not authorize any other activities that may be associated with a larger or more permanent desalination facility, as such a 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.

IV. FINDINGS AND DECLARATIONS

The Commission hereby finds and declares as follows:

A. PROJECT LOCATION AND DESCRIPTION

The proposed project is the construction and testing of a slant well as part of a subsurface intake system feasibility investigation for a potential future ocean desalination project in Dana Point, Orange County. The applicant is proposing to investigate the feasibility of a subsurface seawater intake system because such systems have certain advantages over

offshore ocean water intake systems that use pipelines that extend into the ocean, including avoidance of entrainment/impingement impacts, avoiding ocean construction impacts, avoiding pre-treatment filtration required by ocean intake systems, and protecting the water supply and desalination facility from variables caused by storms, algae blooms, surface water contamination and spills.

The proposed project would occur at Doheny State Beach, which is located at the mouth of San Juan Creek (Figure 1). This site became a State Park in 1931 and is administered by the California Department of Parks and Recreation. Doheny State Beach has two distinct use areas; south of San Juan Creek is a camping area and public beach, and north of San Juan Creek is a day use area with public beach. The project site is located at the day use area of Doheny State Beach, north (upcoast) of and adjacent to the mouth of San Juan Creek. An existing concrete and boulder groin wall controls the northerly boundary of San Juan Creek at the mouth. There is also an existing lifeguard station near the project site which will be demolished to make room for a new proposed lifeguard station approved under Coastal Development Permit 5-04-416. The proposed well head will be in the sandy beach approximately 80 feet seaward of the proposed lifeguard station, and approximately 140 feet landward of the measured mean high water line (at elevation 4.65 feet). At the mouth of San Juan Creek, a natural beach sand berm often blocks the creek from entering the ocean from late spring to late fall. The buildup of water occasionally breaks this berm. A jetty made of concrete and rebar, known as "Thor's Hammer," was constructed at the west side of San Juan Creek to prevent erosion of the adjacent beach, which is near the project site. A regional bike path is located along the west side of San Juan Creek.

The proposed well head will be within the sandy beach (Figure 2). The 24-40 inch diameter well would extend under the ocean -at an angle of 23 degrees- horizontally approximately 400 feet from the well head to an approximate vertical depth of 156 feet below the ocean floor (Figure 3). A temporary pump will be installed at the well head for well development and aquifer testing. Water pumped from the well will be tested and discharged to the surf zone or San Juan Creek via a temporary pipe with diffuser screen (Figure 4). The pump and discharge pipe will be completely removed upon completion of testing. The well head will be capped and buried 3 to 6 feet below beach level upon completion of testing.

Work is anticipated to begin on January 30, 2006 and will take approximately eighty (80) working days to complete all steps including well drilling, construction, well development and testing, demobilization of construction activities, wellhead completion and site restoration. The applicant is proposing to drill daily from 7 a.m. to 7 p.m., with no work to be conducted from Memorial Day to Labor Day. The goal is to complete drilling by April 6, 2006 prior to the Easter holiday week, and then to test the well and demobilize construction activities after the Easter holiday break.

Following construction the test slant well will be tested with a pump temporarily installed for 5 to 30 days. Data will be obtained regarding aquifer materials and water quality in the aquifers beneath the ocean floor. Such data collection will be comprised of soil samples and water testing. No acoustic testing is proposed.

The footprint of the drilling operation on the beach will be an area 60 feet wide by 130 feet long. This area will be occupied by a drilling rig and power unit, crane, welding equipment, Baker Tank, pump, sand separator, drill casing and rods and a storage trailer. A supplemental construction staging area that is approximately 50 feet by 100 feet in size will

also be needed that is to be located off the beach in the nearby paved parking area. This supplemental staging area will utilize approximately 30 parking spaces in the day use parking lot which has approximately 693 parking spaces in this northerly day use area (there are 1,265 total parking spaces in the north and south use areas within the park).

The applicant is proposing a Spill Prevention Plan that will include a containment area to prevent release of fuel, hydraulic fluid or water from drilling operations.

The well head site will be accessed from existing roads. Landing mats will be placed on the sand to cross the beach sand to the well head site on the beach.

The well will be drilled using a dual rotary method that is designed to drill through sand, gravel and boulders. Drill cuttings will be returned to the surface using compressed air and water. The well water with drill cuttings will be processed through a cyclone separator and Baker Tank. Some of the processed water will be re-circulated into the borehole for re-use in the drilling operation. Water that cannot be re-used will be tested and depending on test results either discharged to a nearby sewer line or disposed at a waste facility. Up to 20,000 gallons per day of water will be generated during this process of the drilling. Drill cuttings will be disposed either at property owned by South Coast Water District or at a landfill.

The well will be screened and cased with stainless steel. A gravel filter pack will be 'tremied' into the borehole around the well. Upon completion of this, the well will need to be 'developed' and will generate approximately 180,000 gallons of water per day. The water will be filtered through the Baker Tank and then discharged to San Juan Creek or the surf zone via a pipe with diffuser screen (described more fully below). Upon completion of well development a sanitary cement seal will be placed around the well. There is no vault proposed.

Upon completion of the above, final well development and aquifer test pumping will occur. During this period a pump will be temporarily installed into the well. Testing will run from 5 to 30 days. Approximately 4,500 gallons per minute will be drawn from the well, tested, and then discharged to San Juan Creek or the surf zone. The discharge pipeline will be 8 inch diameter pipe buried below ground level, with connection to a 100 foot long, 12 inch diameter diffuser screen. If the mouth of San Juan Creek is open to the ocean (i.e. the berm has naturally breached) then the diffuser screen will be placed in San Juan Creek; if the berm hasn't been breached then the diffuser screen will be placed below the sand surface in a location suitable to discharge to the surf zone. Conditions permitting, the applicant, State Parks and the Regional Water Quality Control Board have indicated a preference for routing the discharge pipe to San Juan Creek rather than the surfzone because this location would be more isolated than the surfzone is from public usage and surf and tidal action.

Once the testing is complete all drilling, pumping and testing equipment will be removed from the site. In addition, all water supply and disposal pipes including diffuser screen will be entirely removed and the site restored to pre-existing conditions. The top of the well casing will be cut and capped three to six feet below ground surface. The site will be cleaned and the sand raked.

The subject site is owned by the State of California and is managed by the California Department of Parks and Recreation (State Parks), who was invited but declined to join as

co-applicant. However, in a letter dated October 20, 2005, State Parks has granted the applicant approval to use the site for a 2 year period.

The applicant has also received authorizations or preliminary authorizations from the California Regional Water Quality Control Board, the California State Lands Commission, and the U.S. Army Corps of Engineers.

The Commission allowed Phase 1 (hydrogeology testing) of this investigation to proceed in January 2005 (see 5-04-468-W). That work consisted of a total of four (4), six to nine inch diameter soil borings drilled to a depth of approximately 150 feet; plus temporary use of two (2) of the four borings as water quality monitoring wells. The two soil borings-turned-monitoring wells were proposed to remain operational for a period not to exceed 2 years at which time the wells will be destroyed and backfilled in accordance with State and local requirements. The remaining soil borings, located within sandy beach, landward of the high tide line, were backfilled immediately upon completion of the borings.

B. VISITOR SERVING DEVELOPMENT

Section 30213 of the Coastal Act states in part:

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

Public beaches constitute a lower cost visitor and recreational facility. As such, any development on a public beach is subject to scrutiny as to whether the development would affect the public's recreational interest. The proposal includes the construction and siting of a water intake well within the sandy beach. Construction activity as well as use of the well have the potential to adversely impact the public's ability to use the beach. Due to this concern, several alternatives were investigated to determine whether it would be feasible to site the well-head (and associated construction and testing) in a location inland of the sandy beach. As is discussed more fully below, such siting is not presently feasible although technological advances in the near future may make such siting possible for any future wells.

The applicant's goal is to attempt to draw seawater from rock formations that are under the ocean from a land-based well head. Angling the well under the ocean allows much greater seawater inflow to the well than would be possible with a vertical well. Another goal of this investigation is to draw seawater, rather than the brackish ground water that is present in an aquifer fed by San Juan Creek and other land based sources. The applicant states that drawing water from the land based brackish aquifer could have impacts upon riparian vegetation and other resources in San Juan Creek that they wish to avoid. Furthermore, drawing upon that aquifer might lead to water rights issues with the San Juan Basin Authority which the applicant also wishes to avoid. Thus, the well head needs to be sited in a location such that the well can angle out from land under the ocean into the targeted rock formation and seawater aquifer.

The applicant has indicated that other factors also needed to be considered including use of a drilling technology capable of drilling through cobbles and boulders and the need to case and gravel pack the well. Gravel packing was deemed by the applicant to be particularly

important because of the presence of fine silts in the targeted geologic formation which can clog an unpacked well and lead to lower water yields. Water yield is important because the yield of each well will dictate the quantity of wells that would ultimately be needed for the feedwater supply of any potential future desalination facility. The well casing also is a factor in that the casing for this water well needs to be corrosion resistant stainless steel which has limited flexibility and cannot bend in the same way that softer casing metals used in other types of wells (i.e. not water wells) can. Several types of well drilling technology were considered by the applicant including a "Ranney Type" radial collector well (Figure 5), a Horizontal Directionally Drilled well (a.k.a. HDD well), and the proposed Dual Wall Reverse Circulation "Barber" slant well (Figure 3).

As described by the applicant, Ranney Type wells require a larger footprint than the slant well in order to construct a large diameter vertically drilled concrete caisson, from which lateral wells are jacked out horizontally up to 170 to 200 feet. The applicant found this type of well to be unsuitable for this application because gravel packing the lateral wells is not possible. In addition, if the caisson were sited inland of the beach, the lateral wells –which have a 170 foot to 200 foot length limit- would not be able to extend sufficiently far into the offshore rock formation as is desired to maximize the draw of seawater from the seawater aquifer, rather than from the brackish groundwater aquifer. The additional cost and construction time for this type of well were also a factor.

The other option the applicant investigated was the technical feasibility of using a "blind" HDD well. Horizontal Directional Drilling is most commonly used in applications where both the beginning and end points of the borehole daylight on the surface of the land – for example, to drill under an obstacle like a pipeline or a river. In this case, the end of the borehole needs to remain in the subsurface rock formation – thus it is called a "blind" well. The applicant found there are several problems using HDD technology for this application. First, the drilling equipment used in HDD tends to jam in the presence of cobbles, which are present in the geologic formations at this site. Also, the drill head used for HDD tends to deflect, thus it is difficult to generate a straight borehole. Since the stainless steel casing and well screen required cannot easily bend, it may be difficult if not impossible to install such casing in the HDD borehole if the borehole curvature exceeds the flex tolerance of the stainless steel. Furthermore, placement of a gravel pack is very uncertain as the technology has not been developed to do so. Some other factors considered were the larger footprint required; the need to use drilling mud which may result in hydrofracturing (a.k.a. 'frac-out') and bursting of mud out onto the beach; difficulty with well development in the bottom half of the well since gravity would not be available for the driving force needed during swabbing/surging, and higher cost. Thus, the applicant determined that HDD technology is not technically feasible for the proposed application at this site. However, the applicant has indicated these technological hurdles can potentially be overcome with additional research, which they are pursuing.

The proposed drilling method (Dual Wall Reverse Circulation) can successfully drill through cobbles, creates a straight borehole thus the stainless steel casing and screen can be installed, and the drilled well can be gravel packed. However, the drilling equipment is limited to drilling at a 23 degree angle from the horizon. Since the depth of the alluvial channel is about 140 feet, in order to get under the ocean to assure pulling in seawater, the entry point has to be located roughly where it is now planned. Drilling the well at a more shallow angle (i.e. less than 23 degree angle) would allow the borehole to be located further landward while still penetrating into the targeted rock formation and seawater aquifer.

However, drilling at any angle more shallow than the proposed 23 degrees is largely untested and the safety of using the drill rig to drill at such angles is questionable.

The applicant states that the well entry point was sited to be sufficiently landward of the higher high tide line to avoid wave uprush and erosion issues. The proposed well head will also be outside the footprint of the future Lifeguard Tower and is sited seaward of existing monitoring wells to allow for drawdown observations.

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 completion of the approximately 80-day project, 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.

Furthermore, the project will occur in an area where there is a wide sandy beach. During the 80-day project the public will have use of the surrounding beach area. The geographic scope and temporary nature of this impact, as conditioned, is sufficiently minor that it does not run afoul of the mandate of Section 30213.

While the impacts to sandy recreational area will be temporary under this proposal, the impacts of future investigatory phases and/or full scale development of a desalination facility that uses a subsurface intake system may be different. The applicant has indicated that if this test well yields positive results their intent would be to utilize the test well for pilot plant testing (i.e. Phase 3 of this investigation) and ultimately –if Phase 3 provides good results– as one of several wells that would be necessary for the full scale project. The impacts and merits of these future phases is not under consideration at this time. The applicant has recognized that such future phases would require subsequent amendments and or separate coastal development permits. On the other hand, if the proposed well does not yield positive results, the applicant has indicated that the well would be destroyed in accordance with State well closure standards. The applicant has not provided a time frame for such well closure and such activity would require authorization from the Commission as well. Furthermore, closure/destruction of the well should be sought in a timely manner if the facility has no further use in order to assure the public regains full use of the beach area that is otherwise occupied by the well. In order to assure this understanding, the Commission imposes Special Conditions 5, 10 and 11 which notify the applicant of the limitations of this current approval as well as the obligation to obtain additional authorizations for any future phases of the project, including but not limited to well closure/destruction and/or additional investigation and expansion of the facility, and the applicants obligation to close/destroy the facility in a timely manner if the facility has no further use.

As conditioned, the proposed project will not adversely impact this lower cost public recreational facility. The beach will remain open and available to visitors during construction. Therefore, the Commission finds that the proposed development is consistent with the provisions of Section 30213 of the Coastal Act.

C. PUBLIC ACCESS

Section 30210 of the Coastal Act states:

In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Section 30252 of the Coastal Act states in relevant part:

The location and amount of new development should maintain and enhance public access to the coast by...

(4) providing adequate parking facilities or providing substitute means of serving the development with public transportation.

The proposed project involves a drilling operation at a State Beach. The State Beach is a popular attraction to both residents and visitors. As stated before, Doheny State Beach contains two use areas. South of San Juan Creek is a camping area and north of San Juan Creek is a day use area. The project site is located at the day use area of Doheny State Beach near San Juan Creek. The project site currently offers a five-acre lawn area, picnic facilities, a wide sandy beach, restrooms, volleyball courts, food concessions, and showers.

The Coastal Act requires that development not interfere with the public's right of access to the sea by, among other means avoiding the sorts of impacts to parking areas that are used to access the coast that would prevent their use. An existing 693 space parking lot for the beach use exists on site. The proposed project will temporarily utilize 30 parking spaces in this parking lot. The spaces will be utilized during the "off-peak" season. Although use demands are high year round at Doheny State Beach, State Parks has indicated that the occupation of these 30 spaces will not adversely impact "off peak" season use of the park. However, during the peak use season, between Memorial Day and Labor Day, parking demand is high and use of these spaces would have an adverse impact. The proposed project will occur only during the off-peak season. Upon completion of the project, the parking spaces will be re-opened for use by State Beach visitors.

The applicant states that work is anticipated to begin in January 2006 and will take approximately 80 days to complete. The project will take place during the late winter and early spring season when there are fewer visitors to the beach, which will further reduce any adverse impacts to public access. Furthermore, the applicant states that public access will not be eliminated during construction. The applicant has submitted a construction staging plan showing how public access will not be hindered by the proposed project. A construction access route leading from the staging area to the project site will cross through a paved area of the park area. This access route will only be intermittently used, so that public access will still be available when not being used to transport equipment and material between sites. The applicant considered but found that it would not be feasible to gradually collapse the construction staging area as the amount of equipment and material necessary for the project will remain constant.

Thus, in order to ensure access to the beach is protected during the peak summer season and that public access is not hindered during construction, the Commission finds that it is necessary to impose Special Condition No. 1 and Special Condition No. 2. Special Condition No. 1 requires the applicant to comply with the proposed construction staging and

access plan. Special Condition No. 2 prohibits construction from occurring during the peak use summer season and thus maintains unimpeded public access to the beach during that period. Only as conditioned does the Commission find the proposed development is consistent with Sections 30210 and 30252 of the Coastal Act.

D. COASTAL HAZARDS

Section 30235 of the Coastal Act states, in pertinent 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 project site is near the mouth of San Juan Creek. The site is within a highly variable beach ranging from 300 feet to 600 feet wide (from seat wall), controlled to a large extent by flooding on the creek. The levees along the creek have overtopped in the past and it is expected that there is annually about a 2% probability of overtopping. Over a 75 to 100 year period (i.e. the time-frame typically considered to be the life of a proposed development), it is likely that the proposed well site would be flooded at least once, and likely twice. Aggressive sea level rise would increase the frequency of creek flooding. However, it should be noted that the proposed well is a pilot/test well and that proposed use of the well at this time is short-term (i.e. 80 days +/-).

The proposed single test well is in a rather protected location -- except for when the creek overtops the jetty. Although the time frame of the proposal is only approximately 80 days, it's useful to note that the site would likely endure 75 to 100 years without being exposed to direct wave attack. However, there is a high probability that it would be at least overwashed by wave run up from about a 20 year storm event.

Development adjacent to the ocean is inherently risky. The applicant has stated that the proposed development would not necessitate protection from hazards such as flooding and/or wave attack now and the applicant is not proposing protection as part of the current application. Although the applicants' report indicates that the site is safe for development at this time, beach areas are dynamic environments, which may be subject to unforeseen changes. Such changes may affect beach processes and could result in the applicant

proposing protection of the structure in the future. As discussed below, a protective device would result in adverse effects to coastal resources.

Shoreline protective devices can result in a number of adverse effects on the dynamic shoreline system and the public's ability to utilize the beach. First, shoreline protective devices can cause changes in the shoreline profile, particularly changes in the slope of the profile resulting from a reduced beach berm width. This may alter the usable area under public ownership. A beach that rests either temporarily or permanently at a steeper angle than under natural conditions will have less horizontal distance between the mean low water and mean high water lines. This reduces the actual area in which the public can pass on public property.

The second effect of a shoreline protective device on access is through a progressive loss of sand as shore material is not available to nourish the bar. The lack of an effective bar can allow such high wave energy on the shoreline that materials may be lost far offshore where it is no longer available to nourish the beach. A loss of area between the mean high water line and the actual water is a significant adverse impact on public access to the beach, as it results in less usable sandy beach area.

Third, shoreline protective devices such as revetments and bulkheads cumulatively affect shoreline sand supply and public access by causing accelerated and increased erosion on adjacent public beaches. This effect may not become clear until such devices are constructed individually along a shoreline and they reach a public beach. The Commission notes that if a seasonally eroded beach condition occurs with greater magnitude due to the placement of a shoreline protective device, then the subject beach would also take a longer time to accrete to its full recreational width. The Commission also notes that many studies performed on both oscillating and eroding beaches have concluded that loss of beach occurs on both types of beaches where a shoreline protective device exists.

Fourth, if not sited in a landward location that ensures that the seawall is only acted upon during severe storm events, beach scour during the winter season will be accelerated because there is less beach area to dissipate the wave's energy. Finally, revetments, bulkheads, and seawalls interfere directly with public access by their occupation of beach area that will not only be unavailable during high tide and severe storm events, but also potentially throughout the winter season.

Section 30253 (2) of the Coastal Act states that new development shall neither create nor contribute to erosion or geologic instability of the project site or surrounding area. Therefore, if the proposed beach improvements require a protective device in the future, it would be inconsistent with Section 30253 of the Coastal Act because such devices contribute to beach erosion.

To assure that no protective device will be constructed in the future to protect the proposed development, the Commission imposes Special Conditions No. 6 and No. 7. Since the proposed development is taking place adjacent to the ocean in an area that is potentially subject to wave uprush and flooding, the Commission is imposing its standard waiver of liability special condition (Special Condition No. 6). Special Condition No. 7 requires that the applicant and landowner agree that no additional future shoreline protective device shall be constructed to protect the development. Through these two special conditions, the applicant and landowner is notified that the project site is in an area that is potentially subject to wave

uprush and flooding which could damage the proposed development and that the development cannot be protected through a new shoreline protective device. The applicant is also notified that the Commission is not liable for such damage as a result of approving the permit for development. In addition, these conditions insure that any potential future owners of the property will be informed of the risks, the Commission's immunity from liability, and that an agreement has been made not to install protection of the development authorized by this permit through some form of shoreline protection work.

Thus, only as conditioned for: assumption of risk (Special Condition No. 6); and no future shoreline protective device (Special Condition No. 7), does the Commission find that the proposed project is consistent with Sections 30235 and 30253 of the Coastal Act.

E. WATER QUALITY AND MARINE RESOURCES

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.

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.

1. Water Quality

The proposed project will involve the use of heavy construction equipment on the beach, including equipment that will require regular fueling by a fuel truck brought to the site as needed. Thus, the applicant is proposing a Spill Prevention Plan. The plan includes fencing the proposed work area, placing K-rails inside the perimeter of the fenced area, and placing heavy-duty plastic sheeting that will cover the entire work area which will be draped over the K-rails, thus creating a containment area. Absorbent material will be on site as part of the spill prevention plan.

Storage or placement of construction materials, debris, or waste in a location subject to erosion and dispersion or which may be discharged into coastal water via rain or wind could result in adverse impacts upon the marine environment that could reduce the biological productivity of coastal waters. For instance, construction debris entering coastal waters may cover and displace soft bottom habitat. Sediment discharged into coastal waters may cause turbidity, which can shade and reduce the productivity of foraging avian and marine species' ability to see food in the water column. In order to avoid adverse construction-related impacts upon marine resources, Special Condition No. 8 outlines construction-related requirements to provide for the safe storage of construction materials and the safe disposal of construction debris. This condition requires the applicant to remove any and all debris resulting from construction activities within 24 hours of completion of the project. In addition, all soluble construction materials shall be covered and enclosed on all sides, and kept as far away from a storm drain inlet and receiving waters as possible. Compliance with the requirements of Special Condition No. 8 will result in avoidance of water quality impacts associated with the storage and management of construction materials, debris and waste. Furthermore, in order to prevent impacts to coastal waters, Special Condition No. 9 requires that all debris be disposed of at an appropriate site outside the coastal zone. Choice of a site within the coastal zone shall require an amendment to this permit or a new coastal development permit.

2. Marine Resources

The proposed project site includes sandy beach, paved and landscaped day use areas and a paved parking area that is heavily used by park visitors. A variety of urban adapted birds such as American crow, northern mockingbird, Brewers blackbird, rock dove, and house sparrow are present in this area.

The proposed well head site is also adjacent to the San Juan Creek lagoon and the surfzone. The proposed well water discharge pipe would be placed temporarily into either the lagoon or the surfzone, depending on whether the sand bar that seasonally forms the lagoon has been breached by stream flows and/or wave action. Several species of shorebirds are present in this area. The lagoon contains several species of fish such as topsmelt, California killifish, staghorn sculpin, among others. Grunion spawn on the sandy beaches in this area during their spawning season (late February or early March to August or early September).

If the sand bar which forms at the mouth of San Juan Creek hasn't breached, the proposed project includes the construction of a temporary well water discharge pipe in the sandy beach below the high tide line. If this construction occurred within suitable grunion habitat during a grunion spawn then adverse impacts to the grunion could occur. To mitigate potential disruption to spawning behavior of the California grunion, which is typically between late February or early March to August or early September, the Commission has imposed Special Condition No. 3. Although grunion are known to spawn at this beach, it is unknown whether the grunion would actually spawn at this beach during the proposed project period. Thus, the special condition includes a provision to allow the applicant to proceed with work if the California Department of Fish and Game makes a determination that the construction activity won't have any impact upon the grunion during the proposed project period.

A variety of sensitive wildlife are present, or are likely to be present, in the vicinity of the project site, including Southern steelhead, California brown pelican, Western snowy plover, and California least tern. The applicant's biological analysis indicates that there will be no adverse impacts to these sensitive wildlife. The applicant is proposing to include a biological monitor on-site to assure that no sensitive wildlife are harmed or harassed. To assure the applicant implements this proposal and in order to minimize potential impacts during construction, Special Condition No. 4 has been imposed, which requires that an appropriately trained biologist shall monitor construction activity and to implement methods to avoid disturbance to sensitive species.

The entire project area, including the well head site, corridor for the temporary well-water discharge pipe and outlet, and construction staging and access corridors are unvegetated. Thus, no impacts to vegetation are proposed.

The proposed project would place a pipe into San Juan Creek or buried in sand in the surfzone. If these materials were left in place they could contribute to the degradation of the marine environment. For instance, the persistence of the structures could displace soft bottom habitat and associated organisms. However, the proposed development may be removed upon completion of the project. Removal of the pipe would avoid the potential adverse impact. In order to assure that the temporary facilities are removed upon completion of the project, the Commission imposes Special Condition 5.

3. Conclusion

To minimize the adverse impacts upon the marine environment, Special Conditions have been imposed. Only as conditioned, the Commission finds that the proposed project is consistent with Section 30230, 30231 and 30232 of the Coastal Act.

F. 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 public visiting the State Beach is afforded views of open coastal waters, the horizon and sandy beach looking across the site and down coast, distant views of the inland hills and mountains, and the Dana Point Harbor up coast of the beach. The proposed well would be located on the approximately 300 foot wide sandy beach seaward of existing paved and landscaped areas located at the back beach which are used for picnics, public parking, and support facilities for the campgrounds which are part of the State Beach.

During the well construction and well testing period, construction equipment and the enclosed work area will be visible on the beach. However, during this period, views of the ocean, the horizon and the approximately 2-mile long stretch of sandy beach will be

available to park visitors. Upon completion of the project, the equipment will be removed, all above-ground elements of the well head will be cut off and the well head will be buried by 3 to six feet of sand. Thus, no permanent visual impacts will occur. In order to assure the proposed removal of temporary facilities and burial of the well head occurs, the Commission imposes Special Condition 5. Special Condition 5 also contains requirements relative to remedying visual impacts that would occur if the well becomes exposed due to erosion, shifting sand or other factors, as well as the applicant's obligation to close/destroy the well upon the conclusion of its usefulness. Thus, as conditioned, the Commission finds the project consistent with Section 30251 of the Coastal Act.

G. LOCAL COASTAL PROGRAM

The proposed development is occurring at Doheny State Beach in the City of Dana Point. Doheny State Beach is a certified area under the Dana Point Specific Plan/Local Coastal Program. However, the proposed development is located upon filled tidelands. Therefore, the development is within the Commission's original permit jurisdiction under Coastal Act Section 30519(b) and must be evaluated for consistency with the Chapter 3 policies of the Coastal Act. The policies of the certified Dana Point LCP may be used for guidance.

H. 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.