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STAFF RECOMMENDATION ON CONSISTENCY DETERMINATION

Consistency Determination	No. CD-002-10
Staff:	TL-SF
File Date:	March 30, 2010
60th Day:	May 29, 2010
75th Day:	June 13, 2010
Commission Meeting:	May 13, 2010

FEDERAL AGENCY: **U.S. Army Corps of Engineers**

PROJECT LOCATION: Santa Rosa State Beach and Shamel County Park, Cambria, San Luis Obispo County.

PROJECT DESCRIPTION: Geotechnical and hydrogeologic feasibility study for proposed desalination facility intake wells.

EXHIBITS:

- Exhibit 1 – Area Map
- Exhibit 2 – Schematic Cross-section of Coastal Aquifer
- Exhibit 3 – Project Location Map
- Exhibit 4 – NPDES General Permit R3-2006-0063 – Criteria for Low Threat Discharges

SUBSTANTIVE FILE DOCUMENTS:

- Corps Consistency Determination – initial December 30, 2009 submittal and subsequent modification letters received February 17, 2010, February 23, 2010, March 12, 2010, and March 22, 2010.
- Advanced Geoscience, Inc. *Summary Report: Subsurface Geophysical Investigation At Santa Rosa Creek Beach For Proposed Desalination System, Cambria, California*, prepared for Cambria Community Services District, July 21, 2008.
- Cambria Community Services District. *Water Master Plan – Final Program Environmental Impact Report.* Prepared by RBF Consultants. July 2008.
- Titus, R.G., D.C. Erman, and W.M. Snider. *History and status of steelhead in California coastal drainages south of San Francisco Bay*. *In preparation.*
- U.S. Fish and Wildlife Service, Pacific Region. *Recovery Plan for the Tidewater Goby (Eucyclogobius newberryi)*. December 7, 2005

EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers (Corps) has submitted a consistency determination for a proposed geotechnical and hydrogeologic study at Santa Rosa State Beach and Shamel County Park in Cambria, San Luis Obispo County. The study will assess whether the site is suitable for subsurface intake wells that could be used by a desalination facility that may be built and operated by the Cambria Community Services District (CCSD). This site was selected for study based on the likely presence of submerged "paleochannels", which are buried former channels of coastal waterways that often contain gravel and sand deposits suitable for siting intake wells. These wells can pull in seawater from below the ocean floor without disturbing marine life.

The project site is used for recreational activities and is immediately adjacent to the Pacific Ocean and the mouth of Santa Rosa Creek, areas that provide relatively high quality habitat supporting numerous wildlife species. Protected species known to occur at or near the site include numerous marine birds and marine mammals, as well as several species listed as threatened or endangered, including the tidewater goby, the California Red-legged frog, and the Central Coast steelhead. Based on sediment and water samples taken nearby, the project site may also include scattered concentrations of mercury that may have been carried downstream from naturally-occurring surface and subsurface deposits in Santa Rosa Creek's upper watershed. Some of the mercury may have been transformed into methylmercury. Both contaminants are highly toxic to organisms and both are classified as persistent bioaccumulative toxins (PBTs).

Key project activities include conducting topographic and hydrographic surveys, drilling test holes, test wells, and monitoring wells, conducting pump tests and ongoing monitoring, and staging and mobilizing project-related equipment and vehicles. Wells and monitoring equipment associated with the project will be in place for up to approximately 14 months, after which all project components will be removed.

The Corps has included as part of the project a number of measures meant to avoid and minimize potential adverse impacts to coastal resources. These include conducting biological surveys before project activities begin to identify areas to avoid during the project, using a drill rig that does not require the use of drilling muds, minimizing the project footprint on the beach, conducting water quality sampling, and others.

As noted above, this is a request for concurrence with a consistency determination rather than a coastal development permit. As such, the Commission's standard of review is that the proposed activity must be "consistent to the maximum extent practicable" with applicable provisions of the California Coastal Management Program (CCMP). The Corps has stated its proposed project meets this standard; however, staff is recommending the Commission **conditionally concur** with the Corps determination through the inclusion of two conditions – the first would avoid and reduce potential impacts to sensitive species by allowing mechanized activities on the beach only in September and October of any year; the second would require the Corps to conduct additional water quality monitoring to ensure the project's pump tests are not mobilizing contaminants and discharging them into coastal waters. With those conditions, and with agreement by the Corps to implement them, staff believes the project would be consistent to the maximum extent practicable with the CCMP.

STAFF SUMMARY AND RECOMMENDATION

I. SITE AND PROJECT DESCRIPTION

The U.S. Army Corps of Engineers has submitted a consistency determination for a proposed geotechnical and hydrogeologic study at Santa Rosa State Beach and Shamel County Park in Cambria, San Luis Obispo County (see Exhibit 1 – Area Map). The study purpose is to assess whether the site is suitable for subsurface intake wells that would be used by a potential future desalination facility to be built and operated by the Cambria Community Services District (CCSD).

This project site was selected as a possible location for intake wells based on the likely presence of submerged "paleochannels", which are the buried former channels of coastal waterways. A 2008 seismic and ground-penetrating radar study done for the CCSD found preliminary evidence of three such channels beneath the beach.[1] These areas contain permeable gravel and sand deposits that may be suitable for siting intake wells that can pull in subsurface seawater without disturbing marine life found in the nearby open waters of the ocean or estuary. The 2008 study recommended that its initial determinations data be confirmed through testing proposed as part of the current project. If determined to be a suitable site, wells at this location would be expected to pull in water from a wedge of seawater beneath the beach (see Exhibit 2 – Schematic Cross-section of Coastal Aquifer)

> ***Note:*** The currently proposed project includes just the geotechnical and hydrogeologic study activities described herein. Any development associated with proposed permanent intake wells or a desalination facility will be subject to additional Commission review and approval.

Commission staff received the Corps' initial determination submittal on December 30, 2009, and requested additional information needed to complete the determination. The Corps modified the initial submittal through correspondence received on February 17, 2010, February 23, 2010, March 12, 2010, and March 22, 2010. Commission staff deemed the consistency determination complete on March 30, 2010.

At the local level, the CCSD on April 22, 2010 approved a resolution stating in part that these geotechnical and hydrogeologic studies are the sole responsibility of the Corps. The CCSD had previously initiated CEQA review but due to its determination that this is solely a Corps action, it ceased its environmental review under CEQA. Because the Corps has submitted a consistency determination for these proposed studies, the Coastal Commission's standard of review is the federally-approved CCMP. The Commission's review is thus limited to whether the Corps' proposed project is consistent, to the maximum extent practicable, with the CCMP.

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[1] Advanced Geoscience, Inc. *Summary Report: Subsurface Geophysical Investigation at Santa Rosa Creek Beach for Proposed Desalination System, Cambria, California*. July 2008.

SITE CHARACTERISTICS

The project site is immediately adjacent to the Pacific Ocean and the mouth of Santa Rosa Creek in Cambria, San Luis Obispo County. The site includes portions of Shamel County Park and Santa Rosa State Beach, which is part of Hearst San Simeon State Park. Both parks are used primarily for recreation and include areas of relatively high quality wildlife habitat.

Species and Habitat Types Present: The project site is between the estuarine waters of the Santa Rosa Creek Natural Preserve, which is part of the State Park, and the offshore waters within the Cambria State Marine Conservation Area. Both areas provide rich habitat for numerous species.

- **Marine Birds:** Bird life is plentiful at and near the project site both in the estuary and in offshore waters. Species observed during a November 2009 site visit include various gulls, great egrets (*Casmerodius albus*), snowy egrets (*Egretta thula*), California brown pelicans (*Pelecanus occidentalis*), killdeer (*Charadrius vociferous*) and peregrine falcon (*Falco peregrinus*). Shorebirds observed include whimbrels (*Numenius pheopus*), long-billed curlew (*N. americanus*), and marbled godwit (*Limosa fedoa*). The site may also be used as foraging habitat by the Western snowy plover (*Charadrius alexandrinus nivosus*), as there is nesting habitat about a mile north of the project site at San Simeon State Beach. However, the site does not support plover nesting, due in part to the relatively heavy public use.

- **Marine Mammals:** Several marine mammal species use areas at or near the project site. Southern sea otters (*Enhydra lutris nereis*), which are federally-listed as a threatened species, are present in the adjacent offshore waters. Harbor seals (*Phoca vitulina*) are also found in the area, and their pups may be present on the beach during pupping season from March through May each year.

- **Fish:** The offshore waters are within designated Essential Fish Habitat under three Fishery Management Plans – Coastal Pelagics, Pacific Salmon, and Pacific Coast Groundfish. The nearby ocean waters include areas of kelp and rocky reefs, which provide habitat for a wide variety of species. The California grunion (*Leuresthes tenuis*) sometime spawns in the high intertidal portions of the site between March and August.

- **Estuarine Species:** The lagoon at the mouth of Santa Rosa Creek provides habitat for a wide variety of species, including at least three federally-listed species – the endangered tidewater goby (*Eucyclogobius newberryi*), the threatened California Red-legged frog (*Rana aurora draytonii*), and the threatened Central Coast steelhead (*Oncorhynchus mykiss*). The creek is designated as critical habitat for the steelhead and has been identified as a high-priority stream for steelhead recovery. As recently as the 1970s, the lagoon provided habitat for substantial numbers of juvenile steelhead, though populations have declined since that time.[2] The creek is also designated as recovery habitat for the goby.

[2] A May 1970 census by the California Department of Fish and Game showed an estimated 6,800 juvenile steelhead in the lagoon, and several hundred remained in the lagoon until August of that year. More recent surveys identified declining numbers and noted general degradation of habitat in the Santa Rosa Creek watershed.

Site Geomorphology: The beaches in this area of the Northern San Luis Obispo coast exhibit strong seasonal characteristics, with several feet of elevation difference between the summer and winter beach profiles. For purposes of this project, a key characteristic is the closure of the mouth of Santa Rosa Creek during much of the year due to sand movement. The creek mouth may open when streamflows are high and may close when sand buildup occurs due to low streamflows or because of increased sand delivery from ocean waves and currents. The estuary provides different habitat characteristics during these times, in part due to different water salinities and different flow regimes.

Potential Site Contamination – Mercury and Methylmercury: The waters and nearby surface sediments of Santa Rosa Creek have been shown to contain concentrations of mercury and methylmercury, thought to be from mercury mining that took place in the upper watershed between the mid-1800s and mid-1900s. Mercury occurs naturally in surface and subsurface geologic formations in the upper watershed of Santa Rosa Creek. Methylmercury is formed when certain bacteria metabolize inorganic mercury, and it becomes concentrated as other organisms ingest the bacteria. Both contaminants are highly toxic to organisms and both are classified as persistent bioaccumulative toxins (PBTs).

Surface sediment samples taken from Santa Rosa Creek within Shamel Park and about a mile upstream of the project site show a methylmercury concentration of 3 parts per billion and mercury concentrations ranging from 0.12 to 0.54 parts per million, a range well above the state's threshold for discharges to estuaries or ocean waters.[3] The contaminants may have been carried downstream from the upper watershed into the subsurface deposits below the beach and could be mobilized by project activities such as drilling or the pump tests.

PROPOSED PROJECT ACTIVITIES AND COMPONENTS

The primary project activities include conducting aquifer tests, topographic and hydrographic surveys, and monitoring. These activities are scheduled to occur over about 14 months, though most work would occur during several separate two- to four-week periods of test hole and well installation, pump testing, and well removal. With the exception of the pump tests, all project-related tests and surveys will occur for a maximum of ten hours per day during daylight hours only and only on non-holiday weekdays (Monday through Friday).

The main project components needed to carry out those activities include:

- **Equipment staging and mobilization:** The Corps will use the nearby CCSD water treatment facility as a staging area. During the several weeks of active surveying, well installation, pump testing, and well removal, the Corps will use portions of the Shamel Park parking area during daylight hours. All equipment and vehicles will be on the beach or at the parking area during daylight hours only and will be removed to the nearby CCSD facility for night and weekend storage.

[3] The NPDES Low Threat Water Quality Criterion for mercury is 0.012 parts per billion for discharges to estuaries and 0.04 parts per billion for discharges to ocean waters.

To gain access to the beach, the Corps will move vehicles and equipment from the staging area along an emergency vehicle access road to a vehicle ramp located at Shamel Park (see Exhibit 3 – Project Location Map). The ramp has been partially undercut by wave action and may need to be repaired as part of the project. If needed, the Corps would conduct repairs by placing sandbags beneath any undercut areas, and may also use a truck or backhoe located at the top of the ramp to temporarily place a steel plate over the ramp to provide additional support for the project's heavy equipment. Any needed ramp repairs are expected to take no more than one or two days.

Once on the beach, vehicles will stay above the existing high tide line at all times. The Corps will contain all project-related trash and excess material on site and will remove it for disposal at the end of each work day. The Corps will take pre- and post-exploration photographs to document the return of each location to pre-project conditions.

- **Conducting topographic and hydrographic surveys:** The project includes surveys meant to "ground-truth" geophysical survey data obtained during the 2008 study and to update the data as necessary to reflect current conditions. These will include topographic surveys along several profile lines on the beach and within the surf and nearshore areas. A crew of up to five (two surveyors and up to three swimmers/divers) will conduct the surveys using Real-Time Kinematic (RTK) and conventional land surveying methods. The necessary equipment will be either handheld or mounted on an all-terrain vehicle. Inwater survey work will be done with swimmers and divers only and will not require any motorized equipment in the water. To assess seasonal differences in site conditions, the Corps plans to conduct one survey after the winter storm/high surf season and one during the late summer season.

- **Drilling test holes, test wells, and monitoring wells:** The Corps plans to bore up to ten test holes along the beach (see Exhibit 3), each from about 50 to 150 feet deep and from four to six inches in diameter. The test holes would be used to collect continuous core samples for developing detailed logs of the underlying sediments and to develop a contour map showing depth to bedrock. Samples collected will be stored in protective cases and taken offsite to be logged and photographed. After completing each test hole, the Corps will backfill all but three, which it will then convert to test wells. The Corps will also drill two monitoring wells near each of the three test wells.

  The Corps will use one of two types of sonic drill rigs – one is a track mounted rig about 41 feet long and weighing about 35,000 pounds, which, under full drilling conditions, produces about 85 decibels at 100 feet distance; the other is a similarly-sized wheeled rig weighing about 51,000 pounds that produces about 89 decibels at 70 feet distance. If the Corps uses the wheeled rig, six-foot by ten-foot fiberglass mats would be placed under the wheels to distribute the weight as the rig moved along the beach to the drill locations. Both rigs use a vibratory drilling method that does not require the use of drilling fluids. The selected drill rig would be accompanied by a 40-foot long pipe rig trailer weighing about 37,000 pounds, and a pickup truck to carry personnel and equipment needed for drilling.

The Corps will install six-inch diameter PVC casing within each test well and will complete each well pursuant to the standards of the County Environmental Health Department and California Well Standards Bulletin 74-90. The wells would remain in place for up to 14 months. The monitoring wells will be developed using two-inch PVC casing. All wellheads will consist of a PVC cap only – that is, no additional concrete pad or vault will be needed.

To protect the wellheads and prevent adverse impacts to public access and recreation, each wellhead will be completed about three feet below the existing grade (at Mean High Tide) and will be secured pursuant to the above-referenced County Environmental Health requirements. The proposed wellhead elevation is based on modeling done for a similar proposal at San Simeon State Beach, several miles north of the project site, which has a similar beach profile and sand movement regime.[4] If the wellheads become exposed during the approximately 14 months of monitoring, the Corps would use hand tools to reduce their height and rebury them.

The Corps would install a submersible pump within each test well and a pressure transducer within each of the test and monitoring wells. The pumps will be capable of pumping from 100 to 150 gallons per minute (gpm) during the pump tests described below. The transducers are used to detect water levels and temperatures within the wells. Each test well would also include a discharge pipe and hose to direct pumped water into a bag filter before discharge onto the beach and into the surf zone. The bag filter would decrease the discharge velocity, reducing potential erosion, and would decrease discharge turbidity to 50 NTU or less.[5]

After installing the wells and before conducting any pump tests, the Corps will take a grab sample of water from each of the test wells and will test the samples pursuant to the protocols required through the Regional Water Quality Control Board's NPDES General Permit No. R3-2006-0063 for Low-Threat Discharges (see Exhibit 4 – Criteria for Low-Threat Discharges). Testing will show concentrations of more than one hundred potential contaminants. Test results will be available three to four weeks after samples are submitted to the lab. If samples show exceedances of permit criteria, the Corps will not conduct the pump tests. If the test results are below the permit criteria, the Corps will apply to the Regional Board for coverage under the General Permit, which would allow water from the pump tests to be discharged onto the beach and into ocean waters.

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[4] In 2007, the CCSD proposed similar work at San Simeon State Beach. In response to concerns about potential wellhead exposure, the CCSD submitted a report, *Technical Note on Equilibrium Beach Profile Change at Proposed Monitoring Well Sites on San Simeon State Beach, San Luis Obispo County*, by Scott Jenkins, PhD, July 31, 2007), that modeled anticipated summer and winter beach profiles. The report applied summer and winter wave height data from elsewhere in the region to local bathymetry and determined that the sand levels at the proposed wellhead sites were not likely to drop by more than approximately three feet due to short-term erosion and seasonal changes to the beach profile. Commission staff's review of the report concluded that although the report's findings were based in part on non-local data, those findings provided a reasonable basis upon which to establish the anticipated range of beach elevations during the temporary placement of the wells.

[5] NTU refers to "nephelometric turbidity units", which are used to measure a decrease in water clarity and are based on the amount of light reflected from particles in a water sample. Clear water is generally at 5 NTUs or less, whereas water with over 100 NTUs is relatively opaque.

- **Pump tests:** The Corps will conduct several types of pump tests to determine the hydraulic properties of the underlying water source, including step drawdown tests, a 72-hour constant discharge test, and depth-dependent salinity profiles. The step drawdown tests include pumping at up to four different rates between 20 and 150 gallons per minute (gpm) at up to four hours for each rate. Results from these tests will help determine a pumping rate of between 100-150 gpm for the 72-hour test. The Corps will observe and record water levels throughout the tests and will determine the water salinity at various well depths.

  The pumps will be operated using a portable generator, which will be located either on the beach near the wells or on the parking area with an electrical cable extending to the test location. If located on the beach, the Corps will transport the generator either by hand or by using an all-terrain vehicle.

- **Ongoing monitoring:** Along with providing monitoring data during the pump tests, the monitoring wells will be used to identify seasonal water levels and variations in water quality. The Corps' regular monitoring will not require motorized equipment on the beach.

- **Removal:** After testing and monitoring, the Corps will remove the wells by pulling the PVC casings and filling the well bores with bentonite-cement slurry up to about five feet below the lowest beach scour elevation. The remainder will be filled with native sand, and all wells will be sealed in compliance with County Public Health Services requirements. To ensure all PVC is removed from the beach, the Corps will sift the surface beach sand to remove any fragments created during removal of the casings. The Corps will remove the test and monitoring wells about 14 months after installation.

II. FEDERAL AGENCY'S CONSISTENCY DETERMINATION

The U.S. Army Corps of Engineers has determined the project consistent to the maximum extent practicable with the California Coastal Management Program.

III. STAFF RECOMMENDATION

The staff recommends that the Commission adopt the following motion:

Motion:

> *I move that the Commission **conditionally concur** with the Corps of Engineer's consistency determination CD-002-10 that, as conditioned, the project described therein is fully consistent, and thus is consistent to the maximum extent practicable with the enforceable policies of the California Coastal Management Program.*

Staff Recommendation: Staff recommends a **YES** vote on the motion. Passage of this motion will result in an agreement with the determination and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

Resolution to Conditionally Concur with Consistency Determination:

*The Commission hereby **conditionally concurs** with the consistency determination made by the Corps of Engineers for the proposed project on the grounds that, if modified as described in the Commission's conditional concurrence, the project would be consistent with the enforceable policies of the California Coastal Management Program, provided the Corps agrees to modify the project consistent with the conditions specified below, as provided for in 15 CFR § 930.4.*

Conditions:

1) **Timing of Major Project Activities:** Mechanized project activities on the beach, including drilling test holes and wells, installing and removing wells, and conducting pump tests, shall occur only between September 1 and November 1 of any year.

2) **Water Quality Sampling, Testing, and Reporting:** In addition to the water quality grab samples taken before starting the pump tests, the Corps shall collect a grab sample from each test well at the end of the pump test. Using the protocols required pursuant to NPDES General Permit # R3-2006-0063, the Corps will test the samples for the chemical constituents listed in Appendix D of that permit. Upon receipt of those test results, the Corps will provide a copy to the Executive Director.

As provided in 15 CFR § 930.4(b), should the Corps of Engineers not agree with the Commission's conditions of concurrence, then all parties shall treat the conditional concurrence as an objection.

IV. APPLICABLE LEGAL AUTHORITIES

Section 307 of the Coastal Zone Management Act (CZMA) provides in part:

(c)(1)(A) Each federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs.

Conditional Concurrences: 15 CFR § 930.4 provides, in part, that:

(a) Federal agencies,… agencies should cooperate with State agencies to develop conditions that, if agreed to during the State agency's consistency review period and included in a Federal agency's final decision under Subpart C… would allow the State agency to concur with the federal action. If instead a State agency issues a conditional concurrence:

(1) The State agency shall include in its concurrence letter the conditions which must be satisfied, an explanation of why the conditions are necessary to ensure consistency with specific enforceable policies of the management program, and an identification of the specific enforceable policies. The State agency's concurrence letter shall also inform the

parties that if the requirements of paragraphs (a)(1) through (3) of the section are not met, then all parties shall treat the State agency's conditional concurrence letter as an objection pursuant to the applicable Subpart…

(2) The Federal agency (for Subpart C)… shall modify the applicable plan [or] project proposal,… pursuant to the State agency's conditions. The Federal agency… shall immediately notify the State agency if the State agency's conditions are not acceptable; and …

(b) If the requirements of paragraphs (a)(1) through (3) of this section are not met, then all parties shall treat the State agency's conditional concurrence as an objection pursuant to the applicable Subpart.

Consistent to the Maximum Extent Practicable: Section 930.32 of the federal consistency regulations provides, in part, that:

(a)(1) The term ''consistent to the maximum extent practicable'' means fully consistent with the enforceable policies of management programs unless full consistency is prohibited by existing law applicable to the Federal agency.

The Commission recognizes that the standard for approval of Federal projects is that the activity must be "consistent to the maximum extent practicable" (Coastal Zone Management Act Section 307(c)(1)). This standard allows a federal activity that is not fully consistent with the CCMP to proceed, if compliance with the CCMP is "*prohibited [by] existing Federal law applicable to the Federal agency's operations*" (15 C.F.R. § 930.32). The Corps of Engineers did not provide documentation to support a maximum extent practicable argument in its consistency determination. Therefore, there is no basis to conclude that existing law applicable to the Federal agency prohibits full consistency.

Landowner Approval: The Corps will be responsible for obtaining approval from the California Department of Parks and Recreation for entry and use of Santa Rosa State Beach and from the County of San Luis Obispo for entry and use of Shamel County Park. On January 19, 2010, Commission staff received a letter from the Department of Parks and Recreation stating it intended to provide a Right-of-Entry Permit for the project.

V. FINDINGS AND DECLARATIONS

The Commission finds and declares as follows:

A. MARINE RESOURCES, WATER QUALITY, AND SPILL PREVENTION

CCMP Section 30230 states:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

CCMP Section 30231 states:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

CCMP Section 30232 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 could adversely affect marine biological resources in several ways. As noted in Section I above, the project site provides habitat for a number of sensitive marine species. The project involves using heavy machinery on the beach and near both ocean and estuarine waters, which could result in adverse species effects due to noise, activity, or spills. Improper placement or completion of the test and monitoring wellheads could result in marine mammals or other animals being killed or injured on exposed casings or could cause pieces of PVC casing to be released to the marine environment. The pump tests could result in a drawdown of estuarine waters or the discharge of contaminated or turbid water to nearby waterbodies. Project mitigation measures to address these potential impacts are described below.

Environmental Training and Monitoring: Before starting daily activities at the project site, the Corps will conduct mandatory meetings for all project personnel that will cover safety and environmental requirements and constraints, identification of known or potentially-occurring sensitive species at the site, and measures to be taken to avoid and minimize impacts to those species. The Corps will also have present during project activities trained environmental/ biological monitors qualified to address local species and environmental concerns.

Biological Surveys and Reports: Before starting project activities, the Corps will conduct biological surveys of all onshore project areas, including the staging area, access routes, and the location of project test holes and wells. The surveys will identify the presence of all sensitive species in the area and will include photographic documentation of the sites. If listed species are identified, the Corps will provide to the Executive Director a list of those species and any additional measures the Corps will implement to avoid or minimize impacts.

Avoiding and Minimizing Effects of Wellheads on the Beach: The project could adversely affect marine biological resources due to the presence of the wells on the beach, which would be in place for up to 14 months. The wellheads would be located in an active beach environment and could potentially be exposed due to shifting sand elevations. Exposed wells could kill or injure marine life or could become fouled with marine debris.

The Corps has included several measures as part of the project to avoid or reduce these potential effects. The wellheads will consist of a PVC cap only, and will not require the use of a concrete vault or cap. To ensure the wellheads remain covered, the Corps has proposed to complete the wellheads at three feet below the existing beach grade (at mean high tide). This proposed depth is based on a study done for the CCSD in 2007 at San Simeon Beach, which is a few miles north and has a similar beach profile as the project site.[6] That study modeled expected summer and winter beach profiles by applying regional wave height data to local bathymetry. It determined that the sand levels at proposed wellhead sites were not likely to drop by more than about three feet due to short-term or seasonal changes to the beach profile. Although the study's findings were based on non-local data, they provide a reasonable basis on which to establish the anticipated range of beach conditions during the temporary placement of the wells.

The Corps has also agreed to additional measures to address the potential that wellheads may still become exposed. The Corps will monitor beach elevations at least once a week while the wellheads are in place and will post contact information on a sign at the project site. Upon finding or being notified by members of the public of an exposed wellhead, the Corps will within 24 hours, and using hand tools only, rebury or cut the wellhead to a lower depth to maintain at least three feet of sand cover. At the end of the project (about 14 months after installation), the Corps will completely remove all well and wellhead materials and equipment, and will sift nearby surface sand to remove PVC casing pieces that may have been released during removal. The wells will be filled with a bentonite-cement slurry up to about five feet below the existing beach scour line, with the remainder filled with native beach sand. These measures will ensure there is no surface trace of the wells at project completion.

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[6] Jenkins, Scott. *Technical Note on Equilibrium Beach Profile Change at Proposed Monitoring Well Sites on San Simeon State Beach, San Luis Obispo County*. July 31, 2007.

Avoiding Biological Effects Due to Estuary Water Drawdown: The proposed pump tests could result in lower water levels in the adjacent estuary, which could adversely affect a number of species, including the listed steelhead, California red-legged frog, and tidewater goby. As noted above, the estuary is designated critical habitat for the steelhead, designated recovery habitat for the goby, and provides habitat for the red-legged frog.

To reduce the potential for adverse impacts caused by a drawdown of estuary water, the Corps has proposed to locate the wells from which the tests would be conducted at least 50 feet from those estuary waters. This distance is based on modeling the Corps conducted using data from a 2008 geotechnical study at the site[7] and Drawdown Streamlines (DREAM) modeling software, which is generally used to identify wellhead protection areas. The Corps' modeling results showed that pump tests would cause drawdowns of less than 0.3 feet in the estuary. The Corps believes that because this drawdown is less than the daily tidal variation at the site, it is an insignificant water level reduction. However, Commission staff notes that water levels in the estuary do not necessarily correlate to the height of the tides and that the estuary can be completely or very nearly dry during parts of the year.[8] The surface connection between the estuary and the ocean is often closed due to the presence of a sand bar, so any tidal influence in the estuary during these closures would be due to subsurface flows, which would be reduced to some degree by the pump tests.

Additionally, a February 12, 2010 letter from the National Marine Fisheries Service (NMFS) states that it is critical to maintain a connection between the creek and ocean during periods of adult and juvenile steelhead migration and recommends that pumping occur only between July and October of any year. This is a less critical time for steelhead migration and is during the dry season when the creek mouth is often closed and the estuary may be dry. Therefore, **Condition 1** provides that pump tests occur within this period – from September 1 to November 1 only – which not only reduces potential impacts on steelhead but also reduces potential impacts on other species, as described below.

Additional Timing Restrictions to Avoid and Minimize Marine Life Impacts: As noted previously, the project site provides seasonally important habitat for several species. Although not used for nesting, the site provides foraging habitat for the endangered western snowy plover. Although not a pupping site, harbor seal pups may be present on the beach from March through May of any year. The California grunion sometimes spawns in the upper intertidal portions of the beach between March and August. The timing restrictions of **Condition 1**, which limit major project activities to the period from September 1 to November 1, will further reduce the potential for project activities adversely affecting any of these species during these critical times and during the breeding and nesting season of most species that may use the site.

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[7] Advanced Geoscience, Inc. *Summary Report: Subsurface Geophysical Investigation At Santa Rosa Creek Beach For Proposed Desalination System, Cambria, California*, prepared for Cambria Community Services District, July 21, 2008.

[8] See, for example, page C-19 of the 2005 USFWS *Recovery Plan for the Tidewater Goby*, which states that the lower Santa Rosa lagoon is sometimes completely dry during periods of low rainfall.

Avoiding Potential Noise Effects on Marine Life: As noted above, the Corps would use a drill rig that produces about 85 to 90 decibels at 70 to 100 feet distance, which would likely disturb marine life within those distances. However, to the extent practicable, the Corps will use sound attenuation measures, such as baffles, to minimize noise effects from the rigs. The project also includes use of a generator to power the pumps during the pump tests, and the Corps will use similar sound attenuation equipment to maintain sound levels from the generator at or below 75 decibels at 50 feet distance.

The project would not use any sound generating equipment within coastal waters, although sounds from the drill rig and generator could produce some relatively minor sound increases in nearby waters. A 2006 sound attenuation study conducted for a similar sonic drilling proposal at San Simeon State Beach identified the expected inwater sound increase due to drilling at about 9 decibels.[9] Ocean surf is about 75 decibels, so this would represent a relatively minor and temporary increase over existing inwater sounds.

Further, even though the above discussion suggests the project would cause few, if any, adverse effects to marine life due to noise, the timing restrictions of **Condition 1** will further reduce potential effects, since the project's main sound-producing activities would occur outside of breeding, nesting, or pupping seasons of sensitive species that may be present in the project area.

Avoiding Contaminated and Turbid Discharges to Coastal Waters: The project involves mechanized activities on the beach that could lead to contaminated or turbid discharges to the nearby ocean or estuarine waters; however, the Corps has included several measures that will avoid or reduce potential adverse effects – for example, the sonic rig to be used does not require drilling muds, and so avoids potential effects resulting from accidental release of those muds.

Additionally, and as noted above, sediments or groundwater at the project site may include mercury or methylmercury contamination that could be mobilized due to the project's pump tests. Water samples taken during the above-referenced 2008 geotechnical study were tested for several water quality parameters and were found to be below the relevant discharge criteria, though those samples were not tested for mercury or methylmercury and were not taken during a pump test.[10] To minimize the potential for contaminant releases, the Corps has included the following project measures:

- **Sediment sampling, testing, containment and removal:** The Corps will test borehole sediments for hazardous waste constituents pursuant to California Title 22 toxicity testing requirements. Regardless of test results, the Corps will dispose of all borehole sediments offsite – if testing indicates sediments are toxic, they will be disposed of as hazardous waste; if nontoxic, they will be disposed of as non-hazardous waste.

[9] See Technical Memorandum No. 1 Mini-Sparker Test, Carollo Engineers, April 2006.

[10] A July 2008 report from Fugro West, Inc. identified test results from two water samples taken from within the beach. Samples were tested for 21 constituents (e.g., total hardness, total dissolved solids, copper, pH, etc.), and all were below listed criteria of the NPDES Low Threat Discharge Permit.

- **Water sampling and testing:** The Corps will sample and test water taken from within the test wells before discharging to the beach. The Corps's sampling and testing protocols will be consistent with those of the Regional Board's NPDES General Permit No. R3-2006-0063 for Low-Threat Discharges. The Corps will take three grab samples (one from each test well) and one QC (quality control) sample and will test each sample for approximately 120 potential contaminants – i.e., all chemical constituents listed on Attachment D of the above-referenced NPDES Permit (see Exhibit 4). The Corps will not discharge water from the test wells until test results are complete. Test results are expected about three to four weeks after samples are received at the testing lab. Until then, the Corps will store water from the initial grab sampling in several 55-gallon drums at the Cambria Wastewater Treatment Plant. If test results are below the Ocean Discharge Criteria as shown in Appendix D, the Corps will apply to the Regional Board for coverage under this NPDES Permit to allow water from the pump tests to be discharged at the beach. The discharge would be filtered through a geotextile bag or hay bale diffusion basin to reduce any turbidity before the discharge reaches coastal waters. If test results show exceedances of the Ocean Discharge criteria, the Corps will not conduct the pump tests, project activities will be halted, and the water disposed of as hazardous or non-hazardous waste, depending on results. The Corps will also sample and test several additional water quality parameters before, during, and at the end of the pump tests, including the flow rate and discharge volume, pH, temperature, color, dissolved oxygen, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), and Settleable Solids.

  However, even with the above provisions, the Commission finds that additional measures are necessary to ensure the proposed project is consistent with the CCMP's marine resource protection policies. As noted above, the Santa Rosa Creek watershed includes naturally-occurring mercury in surface and subsurface deposits, some of which appears to have moved downstream into nearby sediments, with some now in the form of methylmercury. The pump tests will draw water from relatively deep deposits below the beach and could mobilize mercury or other contaminants that may be present within those deeper sediments. The tests will also mobilize water from a larger area beneath the beach that could include mercury contamination not detected in the static, pre-test water samples. The Commission is therefore requiring through **Condition 2** that the Corps collect and test water samples to be taken near the end of the pump tests to determine whether the tests have mobilized contaminants that may not have been present in the initial samples. Samples will be tested using the same protocols as those described above.

  These additional test results will help ensure discharges from the pump test are protective of coastal resources and conform to the permitted discharge limits. These results will also help indicate whether the pump tests result in contaminant mobilization and whether it is a feasible location for the possible CCSD intake wells. If this information is not provided as part of the current project, it will likely be needed as part of any future proposals at this site, which would require re-installation of test wells, new pump tests, and other activities that could substantially increase the impacts associated with any future proposed project.

Spill Prevention: The Corps provided with its consistency certification a Hazardous Spill Contingency Plan. That Plan includes measures meant to avoid or handle spills from three potential sources – drilling muds, soil cuttings that may contain drilling muds, and petroleum products from project vehicles and equipment. The Corps has since committed to using a drill rig that does not require drilling muds. Although soil cuttings will therefore not contain drilling muds, the measures described above to contain and remove all well core sediments will further reduce the potential release of toxics that may be associated with those sediments. To prevent petroleum spills, the Plan includes measures the Corps will implement, including keeping equipment in good working condition, inspecting all equipment daily for leaks and conducting fueling and maintenance only at the equipment staging areas and away from the beach. The Corps will also maintain an onsite spill response team and equipment needed to provide an immediate spill response – e.g., absorbent boom and pad material, shovels, storage bags, etc. The Plan also identifies a secondary response contractor available if needed, and provides a list of agency contacts that will be notified in the event of a spill.

Additionally, the timing restrictions in **Condition 1** are expected to further reduce the potential for spills and adverse effects that may be caused by a spill. Generally, waves and swells at the site are lower during the September – November period each year when mechanized equipment would be allowed on the beach, so limiting heavy equipment use to that period reduces the risk of spills or upsets.

In conclusion, the Commission finds that for the project activities to be consistent with the applicable CCMP marine resource protection policies, the Corps would need to modify the project to implement the above-referenced **Conditions 1** and **2**. The Commission concludes that, only as conditioned to include these measures, would proposed project activities be consistent with applicable CCMP marine resource protection policies (Sections 30230 – 30232). As provided in 15 CFR § 930.4(b), should the Corps not agree with the Commission's conditions of concurrence, then all parties shall treat this conditional concurrence as an objection.

B. PUBLIC ACCESS AND RECREATION

CCMP Section 30210 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.*

CCMP 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.*

CCMP 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. . . .*

CCMP 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.*

Proposed project activities would take place on Santa Rosa State Beach (part of the Hearst San Simeon State Park) and within Shamel County Park. These parks provide several types of recreation and public access to the shoreline, including swimming, surfing, kayaking, beachcombing, and passive recreation. Upland portions of the County Park include a swimming pool, children's playground, and picnic areas. Project activities would occur next to the Santa Rosa Creek Natural Preserve, which is part of the State Park and which includes riparian forests and coastal wetlands that provide recreational opportunities for birdwatching and similar activities. Shamel Park has two staircases and a ramp providing beach access, and access is also available from nearby Moonstone Beach at low tide or when the Santa Rosa Creek mouth is closed due to sand buildup. Public parking is available at Shamel Park and Moonstone Beach.

The Corps' consistency determination states that the project will not adversely affect public access or recreation because project activities will be temporary, will not occupy the full beach, and will maintain continuous lateral beach access. The Corps has included several measures in the project meant to avoid and reduce potential adverse impacts. To ensure the project does not prevent lateral beach access, the Corps has agreed to conduct activities only when the beach is wide enough to provide lateral public access while accommodating project equipment and a safety zone of approximately fifty feet around the equipment. The Corps will have vehicles and heavy equipment on the beach only during weekdays and will remove them to the CCSD property during nights and weekends. As noted above, the Corps will reduce potential adverse impacts to access and recreation due to wellhead exposure by burying the wellheads at least three feet below the existing Mean High Tide beach elevation. If the wellheads become exposed, the Corps will modify the wellhead (using hand tools only) by cutting them below the new existing grade and reburying them. The Corps will also post a sign with contact information if the public has questions about the project or wants to notify the Corps about exposed wellheads.

However, even with these measures, some adverse effects on public access and recreation will remain, though they are expected to be relatively minor and temporary. Some project activities – mainly the movement of equipment and vehicles to and from the beach – would affect recreation in nearby upland portions of the County Park, as the Corps would use an access road and ramp within the Park to provide access for project equipment and vehicles. The most intensive use of the road and ramp would be during the approximately four to six total weeks of well installation, pump testing, and removal, when equipment will access the beach early in the day and return to the CCSD equipment storage yard in the evening. The Corps may also use up to about ten of the Park's parking spaces during these work periods, which represents about 15% of the available

parking. At these times, project activities would result in short-term adverse effects to public access and recreation due to temporary exclusion, noise, and the proximity of heavy equipment to the park area. However, the timing restrictions of **Condition 1** will reduce many of these remaining impacts by ensuring major project activities occur after the summer peak recreation season and when the beach is generally wider due to the seasonal lower wave energy in the ocean and lower water levels in the estuary.

In conclusion, the Commission finds that it is necessary to condition its concurrence with the Corps' proposed project activities; however, with the timing restrictions imposed through **Condition 1**, the Commission finds the proposed project is consistent with the public access and recreation policies of the CCMP (Coastal Act Sections 30210 – 30224).

C. LAND RESOURCES

CCMP Section 30240 states:

> *a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
> *b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

The project site is subject to occasional or seasonal wave runup, and is therefore only sparsely vegetated (estimated 20% coverage). Vegetation is that of a disturbed Central Foredune plant community, with species such as native beach-bur (*Ambrosia chamissonis*) and beach saltbush (*Atriplex leucophylla*), as well as non-native sea rocket (*Cakile maritima*), sea-fig (*Carpobrotus chilensis*), shortpod mustard (*Hirschfeldia incana*), dock (*Rumex conglomeratus*), and New Zealand spinach (*Tetragonia tetragonioides*).

The consistency determination states that beach vegetation will be avoided to the extent possible, though project activities may adversely affect some species, including the native beach-bur. As described above, the Corps' biologist will conduct a pre-project biological survey to identify sensitive species that may be present. The biologist will also guide the drill rig and other vehicles during project activities to avoid native vegetation as much as possible.

Around the estuary to the east of the project site are areas of dune scrub, freshwater marsh, and willow woodland plant communities. The project would be expected to adversely affect these communities only in the event of spills or water drawdown in the estuary; however, these potential impacts are avoided and minimized through project mitigation measures described in Section V.A. above. Vegetation along the access road consists of landscape ornamentals and will not require cutting or clearing to provide vehicle and equipment access.

Based on the above, the Commission therefore finds the proposed project is consistent with the environmentally sensitive habitat protection policies of the CCMP (Coastal Act Section 30240).

D. GEOLOGIC RISK

CCMP Section 30253 states, in relevant part:

> *New development shall do all of the following:*
> *(a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*

The consistency determination states that the project activities will not place life or property in areas of high geologic risk. However, as identified in the CCSD's *Master Water Plan – Final Program Environmental Impact Report* (July 2008), the Santa Rosa Creek floodplain has very high potential for liquefaction during seismic events. Liquefaction occurs when unconsolidated and saturated soils are converted to a fluid state during strong seismic vibrations. If a seismic event causing a significant amount of liquefaction occurs while project personnel or heavy equipment is on the beach, it could result in an accident, spill, or damage. However, the risk of such an occurrence is low, largely because the main project activities will occur during relatively short periods of time – a total of four to six weeks for the initial well installation and field studies, pump tests, and well removal. Given the site characteristics, the short duration of project exposure to potential liquefaction provides adequate minimization of risk.

Based on the above, the Commission therefore finds that the proposed project is consistent with the geologic risk minimization policies of the CCMP (Coastal Act Section 30253).

E. VISUAL RESOURCES

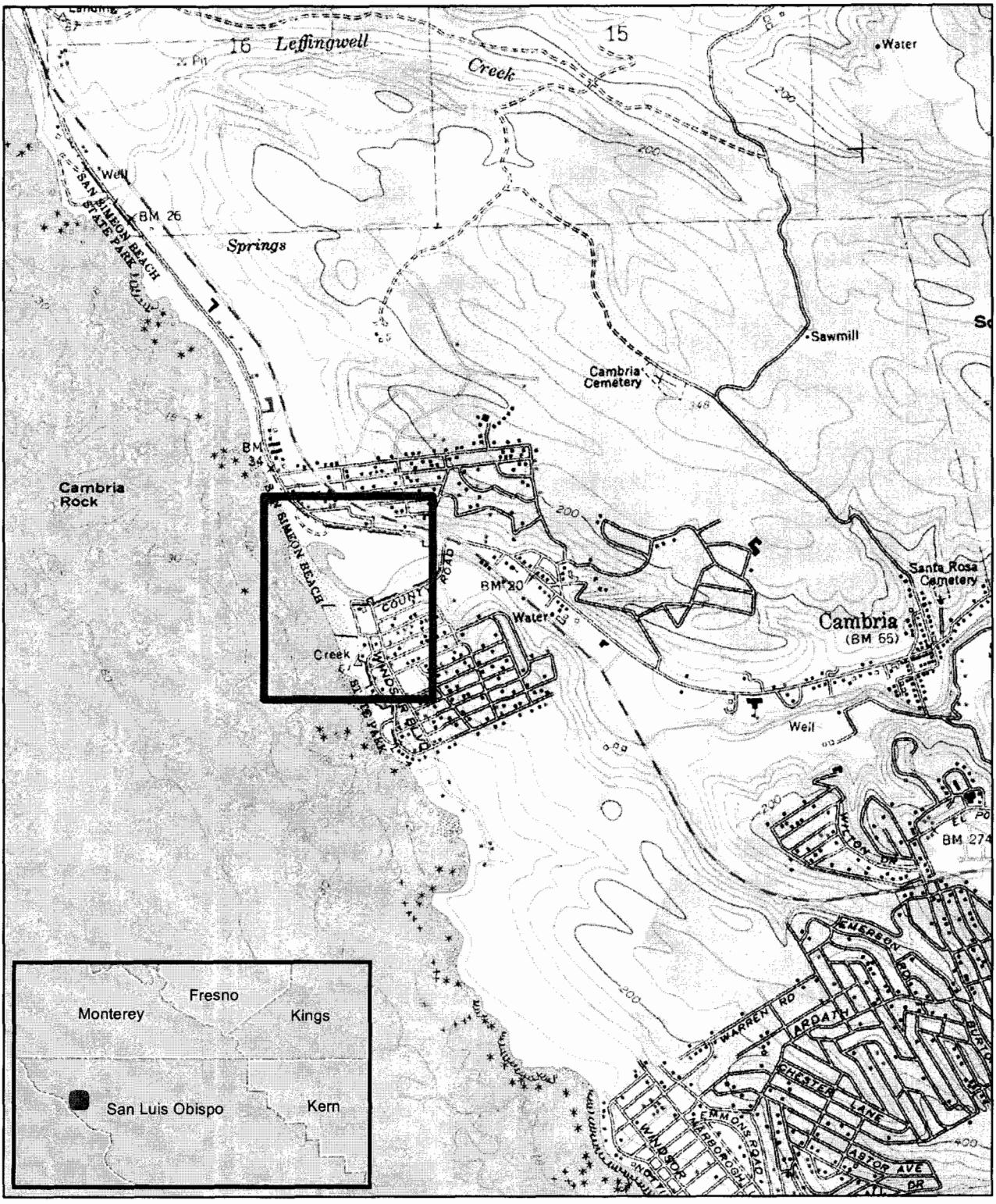
CCMP Section 30251 states:

> *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.*

Proposed project activities would result in adverse visual effects in a scenic coastal area, with the primary adverse effects caused by the presence of vehicles and relatively large heavy equipment on and near the beach. However, both the project and its visual impacts will be temporary, with vehicles and equipment present on the beach only during the two to four weeks needed for project installation, pump testing, and removal. Other than the generator used during the pump tests and the subgrade monitoring equipment installed with the wells, equipment and vehicles will not be present at the site during nights or weekends. Additionally, pursuant to **Condition 1**, this work will be done only from September to November, after the summer recreation season.

As noted previously, the project's monitoring wells will be in place for up to about 14 months; however, to avoid visual impacts, the Corps will locate the wellheads and associated equipment several feet below grade, based on expected seasonal sand movement, as described above. If the equipment or wellheads are exposed, the Corps will lower the wellheads and rebury them.

Based on the above, the Commission finds that the proposed project is consistent with the visual resource policy of the CCMP (Coastal Act Section 30251).



Legend

Project Location

N
W E
S

0 1,000 2,000 4,000 Feet

Figure 1
USACE Cambria Geotechnical
Project Vicinity Map

EXHIBIT NO. 1
CD-002-10

Schematic Cross-section of Coastal Aquifer

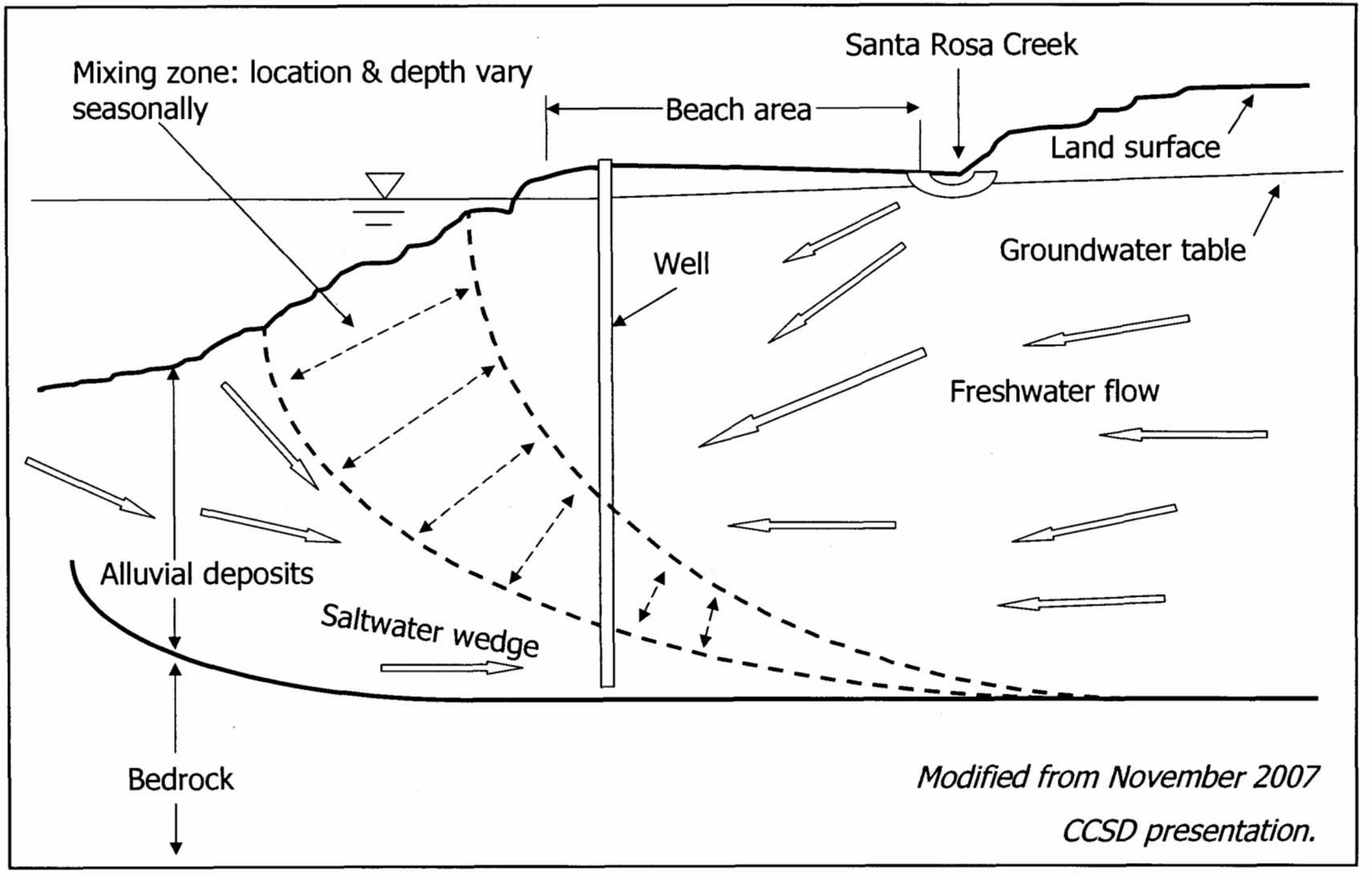


EXHIBIT NO. 2
CD-002-10

K:\datafls\PROJECTS\2006\2006-023.12\GIS\SiteMaps\Site Plan Page 1.mxd; Revised February 26, 2010

Aerial photo and streets reference: Terraserver, 2007

Legend

- Approximate test hole location
- Approximate test well location
- Approximate monitoring well location
- Santa Rosa River Bank - High Flow Year (Chambers Group, 2009)
- Above Mean Higher High Water Line (Chambers Group, 2009)
- Proposed Beach access route
- A — Approximate Paleochannel Location (Advanced Geoscience, Inc., 2008)

NAME	NAD83 Long	NAD83 Lat
1	-121.11044	35.568185
Test Well 2	-121.11003	35.567664
3	-121.10979	35.567292
4	-121.109437	35.56688
Test Well 5	-121.109077	35.566414
6	-121.109971	35.568105
7	-121.109629	35.567536
8	-121.108856	35.565929
Test Well 9	-121.108631	35.565437
10	-121.108557	35.564966
Monitoring Well 2b	-121.110002	35.56763
Monitoring Well 2a	-121.110055	35.567704
Monitoring Well 5a	-121.109093	35.566446
Monitoring Well 5b	-121.10905	35.566371
Monitoring Well 9a	-121.108645	35.565473
Monitoring Well 9b	-121.10862	35.565391

0 100 200 Feet

Figure 4 - SUBSURFACE EXPLORATION AND SITE LOCATION PLAN

EXHIBIT NO. 3
CD-002-10

ATTACHMENT D

LOW THREAT WATER QUALITY CRITERIA

Chemical Constituent	CAS Number	Basis	Inland Surface Waters, Enclosed Bays, and Estuaries Criteria (µg/L or noted)	Ocean Discharge Criteria (µg/L or noted)	Acceptable Analytical Methods[B]
VOLATILE ORGANICS					
1,1 Dichloroethane	75343	Primary MCL	5	–	GC, GCMS
1,1 Dichloroethene	75354	California Toxics Rule, Ocean Plan	0.057	0.9	GC
1,1,1 Trichloroethane	71556	Primary MCL, Ocean Plan	200	540,000	GC, GCMS
1,1,2 Trichloroethane	79005	California Toxics Rule, Ocean Plan	0.6	9.4	GC
1,1,2,2 Tetrachloroethane	79345	California Toxics Rule, Ocean Plan	0.17	2.3	GC
1,2 Dichlorobenzene	95501	Secondary MCL, Ocean Plan	10	5,100[A]	GC, GCMS
1,2 Dichloroethane	107062	California Toxics Rule, Ocean Plan	0.38	28	GC
1,2 Dichloropropane	78875	California Toxics Rule	0.52	--	GC
1,3 Dichlorobenzene	541731	California Toxics Rule, Ocean Plan	400	5,100[A]	GC, GCMS
1,3 Dichloropropene	542756	Primary MCL, Ocean Plan	0.5	8.9	GC, GCMS
1,4 Dichlorobenzene	106467	Primary MCL, Ocean Plan	5	18	GC, GCMS
Acrolein	107028	National Ambient Water Quality Criteria, Ocean Plan	21	220	GC, GCMS
Acrylonitrile	107131	California Toxics Rule, Ocean Plan	0.059	0.10	GC, GCMS
Benzene	71432	Primary MCL, Ocean Plan	1	5.9	GC
Bromoform	75252	California Toxics Rule, Ocean Plan	4.3	130[A]	GC, GCMS
Methyl Bromide	74839	California Toxics Rule, Ocean Plan	48	130[A]	GC, GCMS
Carbon Tetrachloride	56235	California Toxics Rule, Ocean Plan	0.25	0.90	GC
Chlorobenzene	108097	Primary MCL, Ocean Plan	70	570	GC, GCMS
Chlorodibromomethane	124481	California Toxics Rule, Ocean Plan	0.401	8.6	GC
Chloroethane	75003	Primary MCL	300	--	GC, GCMS
2-Chloroethyl vinyl ether	110758	No Criteria Available	--	--	GC, GCMS
Chloroform	67663	National Toxics Rule, Ocean Plan	5.7	130	GC, GCMS
Chloromethane	74873	USEPA Health Advisory, Ocean Plan	3	130[A]	GC, GCMS
Dichlorobromo-methane	75274	California Toxics Rule, Ocean Plan	0.56	6.2	GC
Dichloromethane	75092	California Toxics Rule, Ocean Plan	4.7	450	GC, GCMS
Ethylbenzene	100414	Primary MCL, Ocean Plan	300	4,100	GC, GCMS
Tetrachloroethene	127184	National Toxics Rule, Ocean Plan	0.8	2.0	GC
Toluene	108883	Primary MCL, Ocean Plan	150	85,000	GC, GCMS
Trans-1,2 Dichloroethylene	156605	Primary MCL	10	–	GC
Trichloroethene	79016	National Toxics Rule, Ocean Plan	2.7	27	GC, GCMS
Vinyl Chloride	75014	Primary MCL, Ocean Plan	0.5	36	GC, GCMS

EXHIBIT NO. 4
CD-002-10

Chemical Constituent	CAS Number	Basis	Inland Surface Waters, Enclosed Bays, and Estuaries Criteria (µg/L or noted)	Ocean Discharge Criteria (µg/L or noted)	Acceptable Analytical Methods[B]
SEMI VOLATILES					
1,2 Benzanthracene	56553	California Toxics Rule, Ocean Plan	0.0044	0.0088[A]	GCMS
1,2 Diphenylhydrazine	122667	California Toxics Rule, Ocean Plan	0.04	0.16	GCMS
1,2,4 Trichlorobenzene	120821	Public Health Goal	5	--	GC, GCMS
2 Chlorophenol	95578	California Toxics Rule	120	--	GC, GCMS
2,4 Dichlorophenol	120832	California Toxics Rule	93	--	GC, GCMS
2,4 Dimethyphenol	105679	CA Notification Level (DHS)	100	--	GC, GCMS
2,4 Dinitrophenol	51285	California Toxics Rule, Ocean Plan	70	4.0	GC, GCMS
2,4 Dinitrotoluene	121142	California Toxics Rule, Ocean Plan	0.11	2.6	GCMS
2,4,6 Trichlorophenol	88062	California Toxics Rule, Ocean Plan	2.1	0.29	GC, GCMS
2,6 Dinitrotoluene	606202	National Ambient Water Quality Criteria	230	---	GCMS
2-Nitrophenol	25154557	National Ambient Water Quality Criteria	150[C2]	--	GCMS
2- Chloronaphthalene	91587	National Ambient Water Quality Criteria	1600[C3] / 7.5[F]	--	GCMS
3,3' Dichlorobenzidine	91941	California Toxics Rule, Ocean Plan	0.04	0.0081	GCMS
3,4 Benzofluoranthene	205992	California Toxics Rule, Ocean Plan	0.0044	0.0088[A]	GCMS, LC
4 Chloro-3-methylphenol	59507	National Ambient Water Quality Criteria	30	--	GC, GCMS
4,6 Dinitro-2-methylphenol	534521	National Ambient Water Quality Criteria, Ocean Plan	13.4	220	GCMS
4-Nitrophenol	100027	National Ambient Water Quality Criteria	150	--	GC, GCMS
4-Bromophenyl phenyl ether	101553	National Ambient Water Quality Criteria	122[C1]	--	GC, GCMS
4-Chlorophenyl phenyl ether	7005723	National Ambient Water Quality Criteria	122[C1]	--	GCMS
Acenaphthene	83329	National Ambient Water Quality Criteria	520 / 500[F]	--	GC, GCMS, LC
Acenaphthylene	208968	National Ambient Water Quality Criteria, Ocean Plan	300[F]	0.0088[A]	GCMS, LC
Anthracene	120127	California Toxics Rule, Ocean Plan	9600	0.0088[A]	GCMS, LC
Benzidine	92875	California Toxics Rule, Ocean Plan	0.00012	6.9×10^{-5}	GCMS
Benzo(a)pyrene (3,4 Benzopyrene)	50328	California Toxics Rule, Ocean Plan	0.0044	0.0088[A]	LC
Benzo(g,h,i)perylene	191242	National Ambient Water Quality Criteria, Ocean Plan	300[F]	0.0088[A]	GCMS, LC
Benzo(k)fluoranthene	207089	California Toxics Rule, Ocean Plan	0.0044	0.0088[A]	LC
Bis (2-Chloroethoxyl) methane	111911	No Criteria Available, Ocean Plan	--	4.4	GCMS
Bis(2-chloroethyl) ether	111444	California Toxics Rule, Ocean Plan	0.031	0.045	GCMS
Bis(2-chloroisopropyl) ether	39638329	National Ambient Water Quality Criteria, Ocean Plan	122[C1]	1,200	GC, GCMS
Bis(2-Ethylhexyl) phthalate	117817	California Toxics Rule, Ocean Plan	1.8	3.5	GCMS
Butyl benzyl phthalate	85687	Basin Plan	2[C4]	--	GC, GCMS
Chlorine Residual, Total	--	Ocean Plan	--	60	COLOR
Chrysene	218019	California Toxics Rule, Ocean Plan	0.0044	0.0088[A]	LC

Chemical Constituent	CAS Number	Basis	Inland Surface Waters, Enclosed Bays, and Estuaries Criteria (µg/L or noted)	Ocean Discharge Criteria (µg/L or noted)	Acceptable Analytical Methods[B]
Di-n-butylphthalate	84742	Basin Plan, Ocean Plan	2[C4]	3,500	GCMS
Di-n-octylphthalate	117840	Basin Plan	2[C4]	–	GCMS
Dibenzo(a,h)-anthracene	53703	California Toxics Rule, Ocean Plan	0.0044	0.0088[A]	LC
Diethyl phthalate	84662	Basin Plan, Ocean Plan	2[C4]	33,000	GC, GCMS
Dimethyl phthalate	131113	Basin Plan, Ocean Plan	2[C4]	820,000	GC, GCMS
Fluoranthene	206440	California Toxics Rule, Ocean Plan	300	15	GC, GCMS, LC
Fluorene	86737	California Toxics Rule, Ocean Plan	1300	0.0088[A]	GCMS, LC
Hexachlorocyclopentadiene	77474	National Ambient Water Quality Criteria, Ocean Plan	5.2	58	GC, GCMS
Hexachlorobenzene	118741	California Toxics Rule, Ocean Plan	0.00075	2.1×10^{-4}	GCMS
Hexachlorobutadiene	87683	California Toxics Rule, Ocean Plan	0.44	14	GCMS
Hexachloroethane	67721	California Toxics Rule, Ocean Plan	1.9	2.5	GCMS
Indeno(1,2,3-cd)pyrene	193395	California Toxics Rule, Ocean Plan	0.0044	0.0088[A]	LC
Isophorone	78591	California Toxics Rule, Ocean Plan	8.4	730	GCMS
N-Nitrosodiphenylamine	86306	California Toxics Rule, Ocean Plan	5	2.5	GCMS
N-Nitrosodimethylamine	62759	California Toxics Rule, Ocean Plan	0.00069	7.3	GCMS
N-Nitrosodi-n-propylamine	621647	California Toxics Rule, Ocean Plan	0.005	0.38	GCMS
Naphthalene	91203	Taste and Odor	21	--	GC, GCMS, LC
Nitrobenzene	98953	California Toxics Rule, Ocean Plan	17	4.9	GC, GCMS
Pentachlorophenol	87865	California Toxics Rule	0.28	–	GC
Phenanthrene	85108	National Ambient Water Quality Criteria, Ocean Plan	300[C5,F]	0.0088[A]	GCMS, LC
Phenol	108352	Basin Plan	1	–	GC, GCMS, COLOR
Pyrene	129000	California Toxics Rule, Ocean Plan	960	0.0088[A]	GCMS, LC
PESTICIDES					
2,4'-DDT	--	Ocean Plan	–	1.7×10^{-4} [A]	GC
2,4'-DDE	--	Ocean Plan	–	1.7×10^{-4} [A]	GC
2,4'-DDD	--	Ocean Plan	–	1.7×10^{-4} [A]	GC
4,4'-DDD	72548	California Toxics Rule,	0.00083	1.7×10^{-4} [A]	GC
4,4'-DDE	72559	California Toxics Rule, Ocean Plan	0.00059	1.7×10^{-4} [A]	GC
4,4'-DDT	50293	California Toxics Rule, Ocean Plan	0.00059	1.7×10^{-4} [A]	GC
alpha-Endosulfan	959988	California Toxics Rule, Ocean Plan	0.056[C6] / 0.0087[C6,F]	0.027[A]	GC
alpha-BHC	319846	California Toxics Rule, Ocean Plan	0.0039	0.012[A]	GC
Aldrin	309002	California Toxics Rule, Ocean Plan	0.00013	2.2×10^{-5}	GC
beta-Endosulfan	33213659	California Toxics Rule, Ocean Plan	0.056[C6] / 0.0087[C6,F]	0.027[A]	GC
beta-BHC	319857	California Toxics Rule, Ocean Plan	0.014	0.012[A]	GC
Chlordane	57749	CA Toxics Rule, Ocean Plan	0.00057	2.3×10^{-5}	GC

Chemical Constituent	CAS Number	Basis	Inland Surface Waters, Enclosed Bays, and Estuaries Criteria (µg/L or noted)	Ocean Discharge Criteria (µg/L or noted)	Acceptable Analytical Methods[B]
delta-BHC	319868	Ocean Plan	--	0.012[A]	GC
Dieldrin	60571	California Toxics Rule, Ocean Plan	0.00014	4.0×10^{-5}	GC
Endosulfan Sulfate	1031078	National Ambient Water Quality Criteria, Ocean Plan	0.056 / 0.0087[F]	0.009[A]	GC
Endrin	72208	California Toxics Rule, Ocean Plan	0.036 / 0.0023[F]	0.002	GC
Endrin Aldehyde	7421934	California Toxics Rule	0.76	--	GC
Heptachlor	76448	California Toxics Rule, Ocean Plan	0.00021	5×10^{-5}	GC
Heptachlor Epoxide	1024573	California Toxics Rule, Ocean Plan	0.0001	2×10^{-5}	GC
Lindane (gamma-BHC)	58899	California Toxics Rule, Ocean Plan	0.019	0.012[A]	GC
Aroclor 1016	12674112	California Toxics Rule, Ocean Plan	0.0001 [C7]	1.9×10^{-5} [A]	GC
Aroclor 1221	11104282	California Toxics Rule, Ocean Plan	0.00017[C7]	1.9×10^{-4} [A]	GC
Aroclor 1232	11141165	California Toxics Rule, Ocean Plan	0.00017[C7]	1.9×10^{-4} [A]	GC
Aroclor 1242	53469219	California Toxics Rule, Ocean Plan	0.00017[C7]	1.9×10^{-4} [A]	GC
Aroclor 1248	12672296	California Toxics Rule, Ocean Plan	0.00017[C7]	1.9×10^{-4} [A]	GC
Aroclor 1254	11097691	California Toxics Rule, Ocean Plan	0.00017[C7]	1.9×10^{-4} [A]	GC
Aroclor 1260	11096825	California Toxics Rule, Ocean Plan	0.00017[C7]	1.9×10^{-4} [A]	GC
Toxaphene	8001352	California Toxics Rule, Ocean Plan	0.0002	2.1×10^{-4}	GC
2,3,7,8-TCDD (Dioxin)	1746016	California Toxics Rule	1.30E-08	--	GC
INORGANICS					
Ammonia as N	7664417	Ocean Plan	--	600	--
Antimony	7440360	Primary MCL, Ocean Plan	6	1,200	FAA, GFAA, ICPMS, SPGFAA, HYDRIDE
Arsenic	7440382	National Toxics Rule, Ocean Plan	0.018	8	GFAA, ICP, ICPMS, SPGFAA
Asbestos	1332214	California Toxics Rule	7 MFL[D]	--	TEM
Beryllium	7440417	Primary MCL, Ocean Plan	4	0.033	FAA, GFAA, ICP, ICPMS, SPGFAA, DCP
Cadmium	7440439	National Toxics Rule, Basin Plan, Ocean Plan	1[G] / 0.2[E]	1	GFAA, ICPMS, SPGFAA
Chromium III	7440473	Primary MCL, Ocean Plan	50[H]	190,000	FAA, GFAA, ICP, ICPMS, SPGFAA
Chromium VI	18540299	National Toxics Rule, Ocean Plan	10	2	FAA, COLOR
Copper	7440508	California Toxics Rule, National Toxics Rule, Ocean Plan	9[G] / 2.4[F,G]	3	GFAA, ICPMS, SPGFAA
Cyanide	57125	CA Toxics Rule, Ocean Plan	5.2[G] / 1[F,G]	10	COLOR
Lead	7439921	California Toxics Rule, Ocean Plan	2.5[G]	2	ICPMS, SPGFAA
Mercury	7439976	National Toxics Rule, Ocean Plan	0.012	0.04	CVAA

Chemical Constituent	CAS Number	Basis	Inland Surface Waters, Enclosed Bays, and Estuaries Criteria (µg/L or noted)	Ocean Discharge Criteria (µg/L or noted)	Acceptable Analytical Methods[B]
Nickel	7440020	California Toxics Rule, Basin Plan, Ocean Plan	52[G] / 2[E1]	5	FAA, GFAA, ICP, ICPMS, SPGFAA
Selenium	7782492	California Toxics Rule, Ocean Plan	5	15	GFAA, ICPMS, SPGFAA, HYDRIDE
Silver	7440224	California Toxics Rule, Ocean Plan	3.4[G] / 1.9[F,G]	0.7	GFAA, ICPMS, SPGFAA
Thallium	7440280	California Toxics Rule, Ocean Plan	1.7	2	ICPMS
Zinc	7440666	National Toxics Rule, Basin Plan, Ocean Plan	100[G] / 20[E]	20	FAA, ICP, ICPMS, SPGFAA
OTHER PARAMETERS					
Acute Toxicity	--	Ocean Plan	--	0.3	TUa
Chronic Toxicity	--	Ocean Plan	--	1	Tuc
Phenolic Compounds	--	Ocean Plan	--	30	µg/L
Chlorinated Phenolics	--	Ocean Plan	--	1	µg/L
Tributyltin	688733	Ocean Plan	--	0.0014	µg/L
TCDD Equivalents[I]	--	Ocean Plan	--	3.9×10^{-9}	µg/L

NOTES:

A. Constituent Criteria shall mean the sum of:

Constituent	Criteria is Sum of Constituents
dichlorobenzenes	1,2 Dichlorobenzene and 1,3 Dichlorobenzene
halomethanes	Bromoform, Methyl Bromide, Chloromethane
PAHs	1,2 Benzanthracene, 3,4 Benzofluoranthene, Acenaphthylene, Anthracene, Benzo(a)pyrene (3,4 Benzopyrene), Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)-anthracene, Fluorene, Indeno(1,2,3-cd)pyrene, Phenanthrene, Pyrene
DDT	4,4'-DDD, 4,4'-DDE, 4,4'-DDT, 2,4-DDT, 2,4-DDE, 2,4-DDD
Endosulfan	alpha-Endosulfan, beta-Endosulfan, Endosulfan Sulfate
HCH	alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane
PCBs	Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260

B. For each constituent the Discharger may select one of the indicated analytical methods, which are described in 40 CFR 136.3. The abbreviations refer to the following:

1. GC ..... Gas Chromatography
2. GCMS ..... Gas Chromatography/Mass Spectrometry
3. LC ..... High Pressure Liquid Chromatography
4. FAA ..... Flame Atomic Absorption
5. GFAA ..... Graphite Furnace Atomic Absorption
6. Hydride ..... Gaseous Hydride Atomic Absorption
7. CVAA ..... Cold Vapor Atomic Absorption
8. ICP ..... Inductively Coupled Plasma
9. ICPMS ..... Inductively Coupled Plasma/Mass Spectrometry
10. SPGFAA ..... Stabilized Platform Graphite Furnace Atomic Absorption
11. DCP ..... Direct Current Plasma
12. TEM ..... Transmission Electron Microscopy
13. COLOR ..... Colorimetric

C. Indicate a regulatory decision that the cited concentration is either necessary or sufficient for full protection of beneficial uses or indicate meaning of uncommon acronyms

[C1] – For haloethers
[C2] – For nitrophenols
[C3] – For chlorinated naphthalenes
[C4] – For phthalate esters
[C5] – For polynuclear aromatic hydrocarbons
[C6] – Criteria for sum of alpha and beta forms
[C7] – Criteria for sums of all PCBs

D. MFL is defined as Million Fibers per Liter in the measurement of asbestos in water (EPA Method 600/R-93/116). Its detection limits are at 0.2 MFL of length greater than 10 microns

E. Criteria for protection of Marine Habitat Beneficial Use (CCWB's Basin Plan)

[E1] – value cited as objective pertains to nickel salts (not pure metallic nickel)

F. Criteria only applies to discharges to saltwater inland surface waters, enclosed bays, and estuaries.

G. Criteria values for metals are expressed as a function of a total hardness of 100 mg/L

H. For total Chromium

I. See "TCDD Equivalents" definition in Ocean Plan 2005