

D.7 Hydrology and Water Quality

D.7.1 Environmental Setting for the Proposed Project

The Proposed Project is located on the south coast of California adjacent to the Pacific Ocean at MCBCP. The climate is mild, with warm, dry summers and mild, wet, winters. Maximum summer temperatures, as measured at the nearby Oceanside Marina (Western Regional Climate Center, 2005), are approximately 74 degrees Fahrenheit in August. Minimum winter temperatures average 44 degrees in December and January. Rainfall is highly seasonal, with 90 percent of the average annual 10 to 14 inches of precipitation falling between December and April (Western Regional Climate Center, 2005, MCBCP, 2001).

In addition to the adjacent Pacific Ocean, surface water features within the project area include the Santa Margarita River, Cockleburr Canyon, French Canyon, Aliso Canyon, Las Flores Creek, Horno Creek, Foley Creek, and eleven unnamed drainageways. The Santa Margarita River watershed is the largest, at 742 square miles. The proposed transportation route would cross the Santa Margarita River near Oceanside at a point where this river is a tidal estuary.

The Santa Margarita River is known to have excessive levels of dissolved solids and nitrates, and increasing concentrations of magnesium and sulfate. It is probable that Las Flores Creek also has excessive dissolved solids levels (MCBCP, 2001). The Santa Margarita estuary is listed as impaired by the Regional Water Quality Control Board because of being eutrophic. The upper Santa Margarita River is impaired because of phosphorus (San Diego Regional Water Quality Control Board, 2005a).

FEMA has mapped a coastal flood zone at San Clemente, approximately 2.4 miles from the SONGS site. At nearby San Clemente, the coastal flood elevation is 13 feet above mean sea level.

D.7.2 Applicable Regulations, Plans, and Standards

Clean Water Act. The Clean Water Act (CWA) (33 U.S.C. Section 1251 et seq., formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). In California, NPDES permitting authority for industrial and construction activities is delegated to, and administered by, the nine Regional Water Quality Control Boards (RWQCB). The SONGS Nuclear Power Plant currently operates under discharge permits issued by the RWQCB to discharge up to 2,400 million gallons of cooling and industrial process wastewater into the Pacific Ocean (San Diego Regional Water Quality Control Board, 2005b). The State Water Resources Control Board (SWRCB) has adopted a statewide General NPDES Permit that applies to all storm water discharges associated with construction activity. This General Permit requires all dischargers where construction activity disturbs one acre or more to:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off site into receiving waters.
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation.
- Perform inspections of all BMPs.

Section 401 of the CWA requires that any activity, including river or stream crossings during road, pipeline, or transmission line construction, which may result in a discharge into a State waterbody must be certified by the RWQCB. This certification ensures that the proposed activity does not violate State and/or federal water quality standards.

Section 404 of the CWA authorizes the U.S. Army Corps of Engineers (ACOE) to regulate the discharge of dredged or fill material to the waters of the U.S. and adjacent wetlands. The ACOE issues individual site-specific or general (Nationwide) permits for such discharges.

California Fish and Game Code, Section 1600 et seq. – Streambed Alteration Agreement. Section 1602 of the California Fish and Game Code requires an agreement between the Department of Fish and Game and an applicant proposing to substantially divert or obstruct the natural flow or effect changes to the bed, channel, or bank of any river, stream, or lake. The agreement is designed to protect the fish and wildlife values of a river, lake, or stream.

Porter Cologne Water Quality Control Act. The Porter Cologne Water Quality Control Act of 1967, Water Code section 13000 et seq., requires the State Water Resources Control Board and the nine RWQCBs to adopt water quality criteria to protect State waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. The criteria for the project area are contained in the San Diego Region Basin Plan (see Local Ordinances and Policies below).

Local Ordinances and Policies

Water Quality Control Plan for the San Diego Basin. The San Diego Region Basin Plan is administered by the State Water Resources Control Board. The Basin Plan is the master policy document that contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the basin, which includes the project site (California Regional Water Quality Control Board, San Diego Region, 1994).

D.7.3 Environmental Impacts and Mitigation Measures for the Proposed Project

D.7.3.1 Definition and Use of Significance Criteria

Hydrology and water quality impacts would be considered significant if the project:

- Violates any water quality standard or waste discharge requirement.
- Provides additional sources of polluted runoff, or otherwise degrades water quality to a point that would violate local, State, or federal water quality standards.
- Depletes groundwater supplies or interferes with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level to a point that the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted.
- Alters the existing drainage pattern, including alteration of the course of a stream or river, in a manner that would cause flooding or result in erosion or siltation.

- Increases the rate or amount of surface runoff in a manner that would result in flooding, exceed the capacity of existing or planned stormwater drainage systems, or otherwise worsen the risk of flooding.
- Places within a 100-year flood hazard area structures that would be subject to flood damage or impede or redirect flood flows to the detriment of adjacent property.
- Exposes people or structures to a risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam, or through inundation by seiche, tsunami, or mudflow.

Applicant-Proposed Measures

SCE has proposed to include the following measures as part of the Proposed Project in order to control erosion and avoid impacts to water quality during transport of RSGs, installation of temporary facilities, or other steam generator replacement activities (SCE, 2004b):

- **Hydro-1:** BMPs for erosion control will be applied as needed. The likelihood for impacts on water quality is very low.
- **Hydro-2:** Avoid potential impacts to water quality if a spill occurs during transport or during other activities. In the event of a spill or leak, containment measures would be implemented to prevent the spill from reaching surface waters. If soils become contaminated, they will be collected, disposed of at an approved site, and the disturbance areas restored.

D.7.3.2 Replacement Steam Generator Transport

Replacement steam generator transport would consist of offloading the RSGs from a barge at the MCBCP Del Mar Boat Basin and transporting them to the SONGS site. The proposed route (Beach and Road Route) would run along the beach to approximately Las Flores Creek, transition briefly to I-5 to bypass Skull Canyon by crossing on the freeway, then continue on a dirt road to Old Highway 101. The remainder of the trip would be on the paved Old Highway 101 to SONGS. The proposed Beach and Road Route would cross the Santa Margarita River, Cocklebur Canyon, French Canyon, Aliso Canyon, Las Flores Creek, and several minor drainageways as shown in Figure D.7-1, as well as Figures B-1 and B-6. The road portion of the route would cross Horno Creek (Skull Canyon) and Foley Creek as well as several minor drainageways.

Potential water resources impacts during transport on the Beach and Road Route consist of water quality impacts at the Del Mar Boat Basin due to offloading operations and contamination of surface water or ground water by heavy machinery along the transport route.

Transport of the replacement steam generators along paved or dirt roads would be consistent with the current use of those roads, and is not expected to have any impact to water resources. Although it is possible for oil leaking from the vehicles to drip to the ground, this occurrence is expected to be very minor, and the effects would be similar to those occurring with the current uses of the roads. As shown in the Applicant-Proposed Measures above, there would be actions taken to minimize spills, and there would be a spill contingency plan in place. No adverse water resources impact is expected along existing paved or dirt roads, but potential impacts could occur along beach portions of the route. The beach is currently used as a transport route for heavy equipment by the military, but is not an established and constructed road. The beach route also includes several drainageways crossing the beach.

Impact W-1: Offloading the steam generators at the Del Mar Boat Basin could disturb marine sediments or accidentally introduce contaminants to the ocean water

The transport barge would be brought to and secured to an existing bulkhead at the water's edge at the Del Mar Boat Basin. There would be no work on the sea floor, and the existing bulkhead would not need to be modified for the purpose. Disturbance of marine sediments is not considered a significant water quality impact for the reason that there would be no work on the sea floor, and the proposed activity would be consistent with existing Marine Corps operations at the boat basin, which is used for loading of heavy military equipment. Spills of materials used by offloading vehicles would be unlikely occurrences and, should they occur, they would likely be of small quantities since the offloading process uses no more of these materials than is normally used for the operation of similar military equipment. The impact of barge and tugboat activity at the boat basin would be less than significant (Class III).

Impact W-2: Transport of the steam generators along the beach could result in contamination of beach or stream waters

Beach or stream waters could be contaminated by disturbance of sediments, or through spill of material used by the vehicles in the transport process. River crossings would be by ford, involving the use of heavy motorized equipment on the beach and in the river crossings. Although contamination is a possibility, the impact during transport on the beach or near stream waters would be minimized through the practices identified in the Project Description:

- Disturbance of beach sands and river crossings will be minimized through the use of mats if a wheeled transporter is used.
- Weather predictions and river flows will be monitored to avoid transporting at times of heavy river flows.
- River crossings will not occur if the depth of water exceeds six inches.
- Most of the drainageways, particularly the small ones, are expected to be dry at the time of transport.
- Refueling of vehicles will take place off the beach, and with a spill contingency plan in place.
- Drip pans will be used on parked vehicles to prevent motor oil from contaminating the beach.
- The Project Description includes a plan to prevent, minimize and clean any spills related to portable toilets.
- Layover stops will avoid river channels.

Applicant-Proposed Measures identified above would also help to control erosion and avoid impacts to water quality. With these practices in place, the potential impacts to water quality would be reduced to less than significant levels (Class III). To further reduce this less than significant impact, implementation of Mitigation Measures H-1a (Implement SONGS and/or MCBCP spill response procedures), H-1b (Conduct routine inspections and maintenance of transporter), and H-2a (Properly handle maintenance waste), identified in Section D.6, Hazardous Materials, is also recommended.

Figure D.7-1. Map of Waterways in the Project Vicinity
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D.7.3.3 Staging and Preparation

Impact W-3: Construction of temporary facilities associated with staging and preparation could result in sediment disturbance or materials spills that would contaminate stormwater

Staging and preparation would consist of construction and use of buildings and other facilities on previously disturbed surfaces within the SONGS site. Stormwater draining to San Onofre Creek and the Pacific Ocean could be contaminated by disturbed sediment and spilled materials during construction and use of these facilities.

Construction of these facilities will require a Stormwater Pollution Prevention Plan (SWPPP) under Section 402 of the Clean Water Act. This SWPPP and the spill contingency plan would ensure that sediment disturbance and spills are kept to a minimum and contained to the maximum extent possible and that spills are cleaned up in a timely manner should they occur. Applicant-Proposed Measures identified above and spill response procedures and proper handling of hazardous waste (recommended in Mitigation Measures H-1a, H-1b, and H-2a) would also help to control erosion and avoid impacts to water quality. With the Applicant-Proposed Measures, water quality impacts during construction and use of staging and preparation facilities would be less than significant (Class III).

D.7.3.4 Original Steam Generator Removal, Staging, and Disposal

Removal of the original steam generators would take place entirely within the SONGS facility. As with staging and preparation activities, implementing the SWPPP would eliminate the likelihood of sediment disturbances or spills affecting water resources. Since the activity would take place entirely within the existing facility, and under spill containment procedures already in place, no project-related impact to water resources is expected.

Original Steam Generator Disposal

Offsite transportation for disposal would be by rail, and although heavy equipment would be used to load the rail cars, no offsite use of heavy duty transporters would be needed. Because rail transport would need to comply with NRC and DOT guidelines and regulations, offsite transport is unlikely to result in a water-resources impact. Upon reaching their final location, disposal of the OSGs would take place above-ground in a licensed facility specifically designed for the purpose. No water resources impact is expected.

D.7.3.5 Steam Generator Installation and Return to Service

As with removal of the original steam generators, installation of the replacement steam generators would take place entirely within the SONGS facility under spill containment procedures already in place by SONGS. These activities would not cause any significant adverse impacts to water resources.

D.7.4 Environmental Impacts and Mitigation Measures for the Alternatives

D.7.4.1 Transportation Route Alternatives

I-5/Old Highway 101 Route Alternative

The I-5/Old Highway 101 Route Alternative shown in Figure C-1 would involve transport almost entirely along existing paved or dirt roads. Short transitions and a temporary ramp would need to be installed in order to access I-5 and avoid low overpasses. As with the Proposed Project, transport of the steam generators along paved or dirt roads would be consistent with the current use of those roads. Although it is possible for oil to leak on to the ground from the vehicles, this occurrence is expected to be very minor, and consistent with the current uses of the roads. There would be a spill contingency plan in place. Spill response procedures, proper handling of hazardous waste, and proper maintenance of heavy duty transporters (Mitigation Measures H-1a, H-1b, and H-2a) would reduce potential water quality impacts; however, because of implementation of the Applicant-Proposed Measures, potential impacts would be less than significant (Class III).

MCBCP Inland Route Alternative

Similar to the Proposed Project and the I-5/Old Highway 101 Route described above, the MCBCP Inland Route Alternative (also shown in Figure C-1) would involve transport of the steam generators along paved or dirt roads, which would be consistent with the current use of those roads. Spill response procedures, proper handling of hazardous waste, and proper maintenance of heavy duty transporters (Mitigation Measures H-1a, H-1b, and H-2a) would reduce potential water quality impacts; however, these impacts would be reduced to a less than significant level by the Applicant-Proposed Measures. As a result, the MCBCP Inland Route Alternative would not be expected to have any adverse impact to water resources (Class III).

D.7.4.2 OSG Disposal Alternative

OSG Onsite Storage Alternative

There are two potential locations for the onsite OSG Storage Facility — either within the OCA in the general vicinity of Unit 1 or in the Mesa area east of I-5. This alternative would require the construction of a large concrete structure, approximately 12,000 square feet in size and 30 feet high. The construction activities would occur on previously disturbed areas of the SONGS site. As with the Proposed Project, stormwater draining to San Onofre Creek and the Pacific Ocean could have the potential to be contaminated by disturbed sediment and spilled materials during construction and use of the facility. However, as discussed in Section D.7.3.3 (Staging and Preparation), construction of the OSG Storage Facility would require a SWPPP pursuant to Section 402 of the Clean Water Act. Implementation of the SWPPP would ensure that sediment and spills are contained to the maximum extent possible, and that spills are cleaned in a timely manner should they occur. Therefore, as with the Proposed Project, the OSG Onsite Storage Alternative would have less than significant impacts on water resources (Class III).

D.7.5 Environmental Impacts of the No Project Alternative

The No Project Alternative could involve development of several new gas turbine power plants plus the transmission lines to distribute the power. It is reasonable to conclude that the hydrology/water quality impacts of several new power plants would be substantially greater than those identified for the Proposed Project because the construction involved with building new power plants, which would involve a much larger scale of construction than does the Proposed Project. Construction of new power plants or other energy infrastructure (e.g., windmill farms) would require much larger project footprints than the Proposed Project. Approximately 25 to 30 acres of land are needed to construct and operate a typical 500 MW combined cycle power plant (CEC, 2002), which would be one of the more likely replacements for the generation lost at SONGS under the No Project Alternative (see Section C.6). Such large footprints require substantial excavation and earth movement, which would likely result in detrimental effects on nearby streams and waterbodies as a result of related erosion, sedimentation, and altered watercourses. In addition, the greater amounts of construction activity would substantially increase the construction equipment used and therefore the associated risk of a fuel or other chemical (e.g., oil, etc.) spill that could affect local water quality.

The larger scale of construction activity resulting from the No Project Alternative would be expected to cause substantially greater impacts than the Proposed Project.

D.7.6 Mitigation Monitoring, Compliance, and Reporting Table

Given that there are no potentially significant impacts related to hydrology and water quality resulting from the Proposed Project or alternatives, no mitigation measures would be required.

D.7.7 References

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