4.4 WATER

Would the proposal result in:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?	☐	☐	X	☐
b) Exposure of people or property to water-related hazards such as flooding?	☐	☐	☐	X
c) Discharge into surface waters or other alteration of surface water quality (e.g., temperature, dissolved oxygen, or turbidity)?	☐	☐	X	☐
d) Changes in the amount of surface water in any water body?	☐	☐	X	☐
e) Changes in currents, or the course or direction of water movements?	☐	☐	X	☐
f) Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations, or through substantial loss of groundwater recharge capability?	☐	☐	X	☐
g) Altered direction or rate of flow of groundwater?	☐	☐	X	☐
h) Impacts to groundwater quality?	☐	☐	X	☐
i) Substantial reduction in the amount of groundwater otherwise available for public water supplies?	☐	☐	X	☐

SDG&E's power plants use and discharge water in areas for which the State Water Resources Control Board (SWRCB) and the San Diego Regional Water Quality Control Board (RWQCB) have designated beneficial uses, and over which they have regulatory authority. The Setting section, below, describes the water resources in the region and in the vicinity of the two fossil-fueled power plants under study. The water resources related to the other tangible assets—the combustion turbines (CTs) and the 24th Street Terminal Refueling Facility—are then described.

SETTING

REGIONAL SETTING

Both the Encina and South Bay power plants use marine waters for once-through cooling. This section describes the environmental setting for the regional marine waters. Other surface waters and groundwater at each of the sites are described below under Local Setting.

Physiography, climate, and general oceanography all contribute to the general character of the Southern California Bight, the coastal region extending south from Point Conception to the Mexican border. Any effects of thermal discharges into coastal waters are influenced by the complex interactions of these factors, as well as by the nature of the biota present. All of these factors have natural long- and short-term cycles, as well as periodic components. Winds, tides, and currents are particularly important since they determine to the greatest extent the actual fate of the thermal effluent. The physiography and currents of the region are discussed below. Other important features of the marine waters are tides, up welling, temperature, dissolved oxygen, salinity, and pH (ENTRIX, 1996).

Physiography

The general orientation of the coastline of the Southern California Bight is northwest to southeast. The coastline is predominantly cliffed and broken by the coastal plains in the Oxnard-Ventura, Los Angeles, and San Diego areas. The coastal region is drained by many relatively small streams that normally flow only during rainstorms. Only a small part of the storm runoff ever reaches the ocean, most being impounded by dams and diverted for other uses (ENTRIX, 1996).

Water circulation and oceanographic characteristics of the coastal region are strongly influenced by eight offshore islands. The mainland shelf is narrow, ranging in width from less than 2 miles to more than 11.2 miles and averaging approximately 4.4 miles. Seaward of the mainland shelf is an irregular and geologically complex region known as the continental borderland. The borderland is composed of basins and ridges that extend from near the surface to depths of more than 7,800 feet (ENTRIX, 1996).

Currents

Water in the north Pacific Ocean is driven eastward by prevailing westerly winds until it impinges on the western coast of North America, where it divides and flows north and south. The southern component is the California Current, a diffuse southeastward-flowing water mass. No true western boundary of this current exists, but more than 90 percent of the southeastward transport is within 450 miles of the California coast. South of Point Conception, the current diverges. One branch turns northward and flows inshore through the Channel Islands, forming the inner edge of the Southern California Counter Current. The flow pattern is complicated by small eddies within the Channel Island region that fluctuate seasonally, being more developed in summer and autumn and weak or occasionally absent in winter and spring.

Currents in the near-shore area are affected by many factors, including wind, weather, tide, local topography, density structure, and offshore oceanic currents. The latter, which are super-imposed on the tidal motion, usually have a strong diurnal (day/night) component in response to local wind patterns. Therefore, short-term observations of currents near the coast often vary in both direction and speed as a result of combined wind-induced and tidal motions (ENTRIX, 1996).

LOCAL SETTING

The following section discusses the processes at the plants that use water and the water resources and water quality regulations at both the Encina and South Bay plant sites.

Encina Power Plant

Plant Process and Discharges

The Encina plant discharges once-through (non-contact) cooling water, low-volume wastes, metal cleaning wastes, and stormwater to the Pacific Ocean.

The Encina plant employs the once-through cooling method using seawater to cool the plant's condensers. Operation of the generating units involves a closed cycle in which steam is produced in fossil-fuel-burning boilers. The steam from the boilers is passed through turbines to generate electricity and then condensed into a liquid by the cooling water system. The five steam turbine generator units share the facility's cooling water system. A single combustion turbine generator at the site is air-cooled. Water for the steam units is drawn into an intake structure located within the outer lagoon of Agua Hedionda Lagoon, screened through trash racks and traveling screens to minimize entrainment of fish and debris, and then pumped into the condenser chamber, where the cooling water absorbs heat. A significant water quality concern from the once-through cooling processes is the effects of the increased temperature of the cooling water on the receiving water. It is common for thermal electric power plants to increase the temperature of the intake water by 20–25 degrees Fahrenheit (°F) and then discharge the heated water. National Pollution Discharge Elimination System (NPDES) permits issued by the Regional Water Quality Control Board, San Diego Region, establish upper thermal limits and other water quality constituent limits for the discharge (see Table 4.4.1). At full capacity, the discharge of cooling water is 857 million gallons per day (mgd). Other wastewaters contribute about 5 mgd (RWQCB, 1994).

Wastes from a variety of plant industrial processes are commonly called low-volume wastes. These wastes include boiler blowdown (a watery residue that is a source of increased salts), and waste products from the demineralizer, the water softener, condenser cleaning, reverse osmosis brine and cleaning chemicals, floor drains, and a number of other processes. The maximum design flow of low-volume wastes is 3.8 mgd.

TABLE 4.4.1
SDG&E POWER PLANT NPDES PERMITS SUMMARY

Power Plant	Permit Number	Order Number	Expiration Date	Outfall Number	Receiving Water	Allowable Maximum Flow (mgd)	Allowable Maximum Temperatures (°F)
Encina	CA0001350	94-59	11/10/99	001	Pacific Ocean	862.5	20 degrees above incoming lagoon water. 25 degrees above incoming lagoon water during heat treatment, not to exceed 120 degrees.
South Bay	CA0001368	96-05	11/14/2001	001	San Diego Bay	601.2	15 degrees above intake water during any 24-hour period. At no time shall the discharge exceed 25 degrees above intake water.

NOTES: mgd = million gallons per day. °F = degrees Fahrenheit.

Metal cleaning wastes are from cleaning the boiler, evaporator, air heater, boiler fireside (soot), and the selective catalytic reduction (SCR) equipment. The maximum flow rate for metal cleaning wastes is 0.8 mgd.

The once-through cooling water and most of the low-volume wastes pass through a discharge pond and then are discharged to the ocean through a channel without treatment. The balance of the low-volume wastes and the metal cleaning wastes is treated before discharge to the ocean. The on-site treatment plant uses neutralization, flocculation, chemical precipitation, and filtration processes. Treated wastewaters are collected in tanks for testing and verification of the NPDES permit limits prior to their discharge to the ocean (RWQCB, 1994).

Some encrusting organisms are small enough to pass through the trash racks and screens and enter the intake tunnels. In order to prevent encrusting organisms from developing into significant sizes that could restrict the flow of cooling water, a thermal tunnel recirculation treatment process (heat treatment) is used at five- to eight-month intervals. This process involves recirculating the condenser discharge water through the condenser and piping to increase the temperature and dislodge the organisms. The flow to the discharge channel can reach 120°F. Chlorine is injected intermittently into the cooling water flow to minimize the formation of slime in the condenser tubes (RWQCB, 1994).

Existing Water Resources

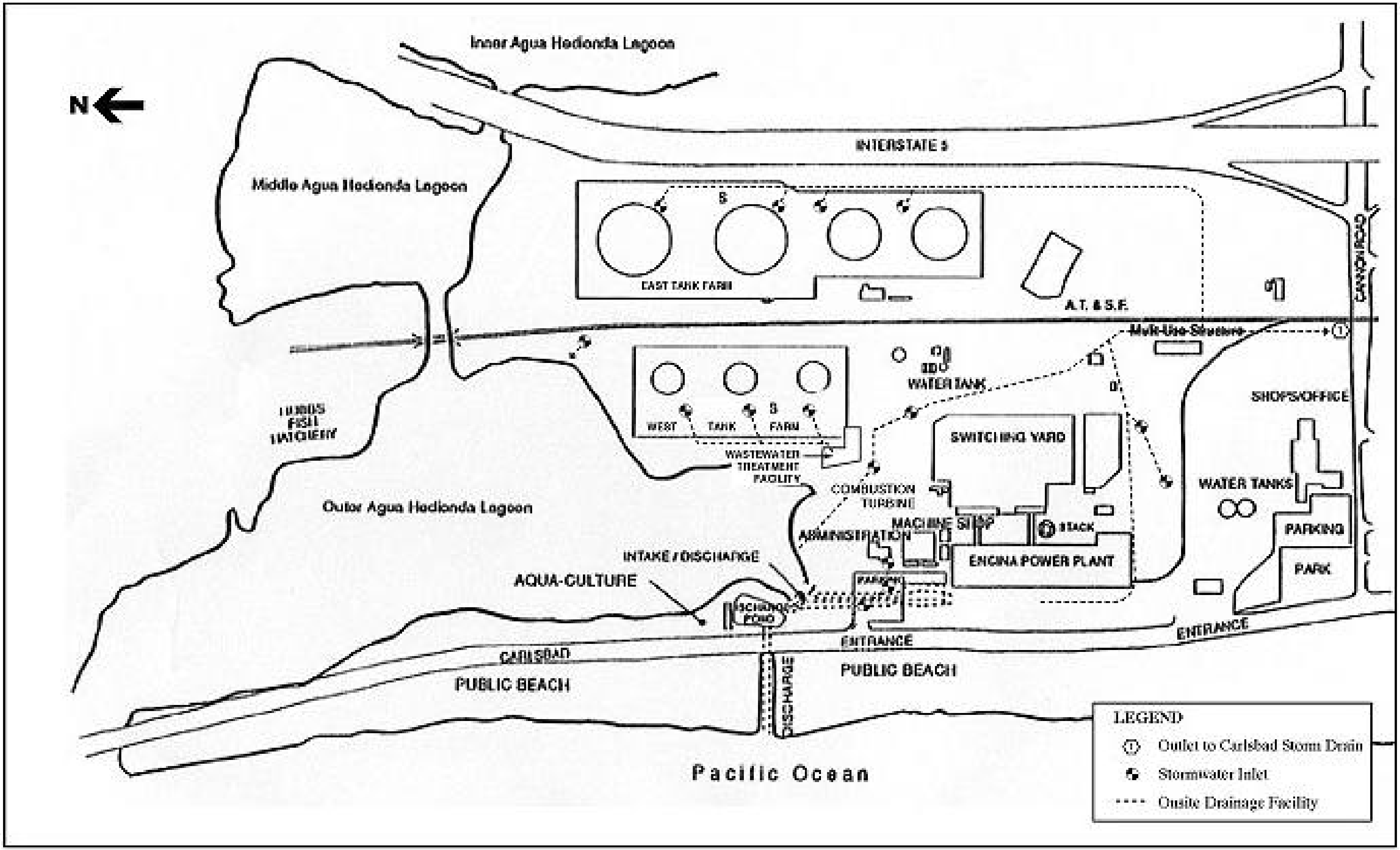
The Encina Power Plant is located along the coast south of and adjacent to Agua Hedionda Lagoon (see Figure 4.4.1). The Pacific Ocean is approximately 300 feet to the west of the plant's western site boundary. The coastline in the vicinity of the plant consists of a sandy beach with bluffs rising 40-80 feet. Offshore, the ocean floor is sandy with scattered low-lying rock outcrops. The ocean floor generally slopes uniformly to a depth of approximately 600 feet at 1.5 miles offshore. Then the ocean floor consists of a series of troughs and ridges and submarine canyons, including the Carlsbad Canyon located offshore of the plant site. The canyons and troughs serve as conduits of water flow between deep offshore areas and the shallow nearshore areas (Woodward-Clyde, 1986a).

The Agua Hedionda Lagoon is a coastal estuary extending approximately 1.7 miles inland and up to half a mile wide. Water enters the lagoon from the ocean through an open channel at the northwestern end of the lagoon, about 3,000 feet north of the plant (SDG&E, 1997; Woodward-Clyde, 1986a). Three roadways cross the lagoon and divide it into what is commonly called the outer, middle, and inner lagoons. The outer lagoon is approximately 66 acres, the middle is 23 acres, and the inner is 167 acres at high tide. The lagoon was constructed in 1954 to provide cooling water for the power plant. Intake water is obtained through an inlet channel located in the outer lagoon. Sand from the ocean periodically reduces the depth of the inner and outer lagoons, which can reduce the ability of the plant to obtain cooling water. SDG&E has permits from the California Coastal Commission and the U.S. Army Corps of Engineers for the removal by dredging of specific quantities of sand. Upstream of the lagoon is Agua Hedionda Creek, which discharges to the lagoon approximately one mile from the plant and drains an area of approximately 29 square miles.

Records from the closest climatological station (Oceanside) show a mean annual precipitation of 14.5 inches per year, with a minimum of 8.7 inches and a maximum of 24.6 inches. Surface runoff from the plant is channeled through lined and unlined drainage facilities to Agua Hedionda Lagoon. Stormwater flows from the site are estimated to be a maximum of 0.6 mgd (RWQCB, 1994). The elevation of the plant site ranges from 0 feet mean sea level (MSL) adjacent to the lagoon along the northern end of the site to 65 feet above MSL at the southern end of the site.

Stormwater runoff from the site flows either through brow ditches and dirt swales to a City of Carlsbad storm drain to the south of the plant, or through pipelines that discharge to the lagoon or to the cooling water discharge channel. Stormwater from the above ground storage tanks and other chemical storage facilities is retained in bermed areas and released to conveyance facilities through valves after a check of the water quality.

Groundwater at the plant site is brackish due to infiltration from the ocean and the lagoon. Several organic compounds were detected at trace concentrations in groundwater adjacent to the waste impoundments. No springs or water supply wells have been identified within a one-mile radius of the plant (Woodward-Clyde, 1986a).



SOURCE: SDG&E

Divestiture of Assets by SDG&E / 980084

Figure 4.4.1
Encina Power Plant
Water Resources Features

Freshwater is consumed at the plant for drinking water, other domestic uses, and in-plant uses, such as boiler make-up. This water is supplied by the City of Carlsbad.

Wastewater Discharge Regulations

The Encina Power Plant discharges water under NPDES Permit No. CA00013509, San Diego RWQCB Order No. 94-59, which is summarized in Table 4.4.1. The permit is based on full-capacity operation of the power plant and the protection of beneficial uses of the receiving water. The beneficial uses are identified in the Regional Board's Water Quality Control Plan and the state's Ocean Plan. The state's Thermal Plan contains objectives for discharges of elevated-temperature wastes.

The discharge specifications of the permit contain numeric effluent limitations for settleable solids, turbidity, pH, and acute toxicity, as well as toxic materials. Limitations are also provided specific to the low-volume wastes and metal cleaning wastes.

Stormwater flowing off-site from the plant is regulated by the State Water Resources Control Board through the state's NPDES General Permit for discharges of stormwater associated with an industrial facility. In April 1992, SDG&E filed a Notice of Intent to comply with the state's general permit and the plant has been assigned ID# 937S005563. The power plant is required to implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP inventories the various processes and materials at the facility that are considered potential pollution sources. The emphasis of the SWPPP is to determine, implement, and monitor Best Management Practices (BMPs) to control stormwater runoff quality. Examples of BMPs from the Encina Plant SWPPP for the various potential pollution sources at the plant are shown in Table 4.4.2.

South Bay Power Plant

Plant Process and Discharges

Water-dependent processes at the South Bay Power Plant include plant cooling, metal cleaning, and low-volume wastes. The plant uses four steam electrical generating units that are water-cooled and a combustion turbine that is air-cooled.

The South Bay Power Plant, as with the Encina Power Plant, uses the once-through cooling method with seawater for cooling the steam units. Water is drawn into an intake structure, screened to minimize entrainment of fish and debris, and then delivered into the condenser chamber, where the cooling water absorbs heat.

The plant discharges the cooling water through a discharge canal located to the south of the plant. The discharge is regulated by the RWQCB through NPDES Permit No. CA0001368. The NPDES permit establishes the upper thermal limits, which are based on the plant's maximum generation capacity. At full capacity, the plant discharges 601 mgd of cooling water and 1 mgd of metal cleaning wastes and low-volume wastes (RWQCB, 1996). The metal cleaning wastes and low-volume wastes are from essentially the same plant processes as described above for the Encina Power Plant.

TABLE 4.4.2
POTENTIAL POLLUTION SOURCES AND CORRESPONDING BEST MANAGEMENT PRACTICES SUMMARY

Area	Activity	Pollutant Source	Pollutant	Best Management Practices
Tank farms	Storage and transfer of fuel oil, diesel oil, displacement oil, and Jet A fuel	▪ Spills and leaks during delivery and transfer ▪ Leakage from above-ground tanks ▪ Failure of roof drain hose	#6 fuel oil; diesel; displace-ment fuel oil; Jet A fuel	▪ Use of secondary containment around tank farm perimeter, as well as truck unloading areas ▪ Inspection of areas three times per day ▪ Visual inspection and/or laboratory analysis of samples taken in containment areas prior to stormwater discharge ▪ Apply Spill Prevention, Control and Countermeasure (SPCC) plan measures when applicable ▪ Perform regular inspections of fueling area ▪ Maintain spill kit in vicinity of areas in case of spill incident ▪ Provide employee training regarding proper fueling, cleanup, and spill response techniques
Storeroom/ Warehouse	Handling, storage, and delivery of supplies	Spills during delivery	Small quantities of various supplies	▪ Apply SPCC plan measures when applicable ▪ Perform regular inspections of area ▪ Maintain spill kit in vicinity of area in case of spill incident ▪ Provide employee training regarding proper cleanup and spill response techniques
Equipment repair area	As needed repairs of various equipment	▪ Metal shavings ▪ Paints ▪ Lubricating materials	Small quantities of various supplies used in equipment maintenance	▪ Train contractors using the facility's contractor safety notice program ▪ Encourage housekeeping during and after maintenance repairs
Paint booth/shop	Parts and equipment painting	▪ Spills/leaks of paint supplies ▪ Overspray from paint	Paints, solvents, and thinners	▪ Use of secondary containment around paint supplies ▪ Use of dispenser drums with containment structures ▪ Keep containers covered and sealed
Sandblasting shack	Sandblasting of parts and equipment	Particulates generated during sandblasting activities	Abrasive blast material (e.g., lead, copper)	▪ Use of baghouse to capture particulates ▪ Daily cleanup of shack ▪ Prohibition of water in shack
Satellite hazardous materials storage	Storage of hazardous materials and waste (e.g., waste oils)	Leaks and spills	Various	▪ Use of secondary containment ▪ Restricted access to personnel ▪ Regular employee training ▪ Regular inspections

TABLE 4.4.2 (Continued)
POTENTIAL POLLUTION SOURCES AND CORRESPONDING BEST MANAGEMENT PRACTICES SUMMARY

Area	Activity	Pollutant Source	Pollutant	Best Management Practices
Plant maintenance shops	Welding/grinding materials	Leaks and spills	Various	▪ Regular employee training ▪ Daily housekeeping required
Wastewater treatment facility	Wastewater treatment	Spills and leaks	Metal cleaning waste	▪ Use of secondary containment ▪ Use of alarms ▪ Regular employee training and use of the SPCC plan, and regular inspections
Trash racks	Seaweed debris removal	Equipment leaks	Oil and grease	▪ Regular maintenance of equipment
Hazardous materials and waste storage	Drum handling	Residue on containers, leaks, spills	Various	▪ Use of mechanical drum handling tools ▪ Inside storage when possible
Transformers and switch yard	Transformer maintenance	Leaks; maintenance activities	Mineral oil (non-PCB)	▪ Regular equipment inspections ▪ Personnel training ▪ Alarms provided on sumps associated with transformer areas
Vehicle parking	Parking/driving	Vehicle fluid leaks	Oil, antifreeze, gasoline	▪ Cleanup of significant stains
Recycle bins	Storage of waste products	Leaching during rainstorms; leakage	Metal shavings; oils	▪ Placement of roll-off bins away from storm drains ▪ Regular housekeeping ▪ Provide covers for bins
Vehicle washing	Not allowed	Not applicable	Not applicable	▪ Employ “dry cleaning” method; no wastewater produced

SOURCE: Brown & Caldwell, 1997a.

Cooling water is withdrawn from San Diego Bay through a dredged intake channel. Floating materials are removed by a series of skimming booms. The water then enters one of three intake structures located approximately 200 feet from the power plant. Units 1 and 2 are served by a common intake structure. Units 3 and 4 are served by separate intake structures, one for each unit. Water passes through trash racks and traveling screens to minimize entrainment of fish and debris and then is pumped to the condensers (RWQCB, 1996).

SDG&E regularly adds chlorine to the cooling water to remove marine biological growth in the plant's condenser tubes and associated pipes. Accumulated growth restricts the flow of cooling water and increases the volume of cooling water needed to maintain constant condenser temperatures. Cooling water volumes can be increased by increasing the speed of variable speed pumps or by adding additional pumps. However, once all the pumps are running at full speed, volume can no longer be increased and condenser temperatures will begin to rise, thus significantly reducing the generating efficiency of the plant and eventually damaging equipment.

To reduce biological growth, a sodium hypochlorite solution is injected into the cooling water immediately upstream of the cooling water pumps for each unit. The injection is conducted intermittently throughout the day on each unit that is operating on an as-needed basis. The quantity of sodium hypochlorite use depends on the rate of slime and algae formation. More treatments are needed in the summer than in the winter (RWQCB, 1996). Residual amounts of chlorine are discharged with the cooling water, and the concentration and mass loading are regulated by the plant's NPDES permit. Chlorine decays to non-toxic chloride ions when it reacts with other constituents, such as ammonia and organic compounds. During the chlorine treatment, the cooling water from the unit being treated is blended with the cooling water from the other operating units, resulting in an average four-fold dilution even before discharge to the bay (Lauer, 1996). The allowable chlorine residual final limit for the cooling water effluent was substantially reduced in the 1996 NPDES permit compared to prior permits due to a decision by the RWQCB to use the California Ocean Plan as the basis for the permit limit. The final limit is scheduled to replace the interim limit on December 15, 1999. However, SDG&E and the RWQCB have revisited the applicability of the stricter limit. SDG&E and the Regional Board staff, with concurrence from the Deputy Attorney General and Counsel of the Regional Board, have reached resolution on the issue. The Regional Board is scheduled to adopt an amended permit with reasonably implementable limits in October 1998, and public notice of the proposed amendment has been issued.

Unlike the Encina plant, heat treatment is not conducted to remove encrusting organisms. Any organisms or sediments are manually removed from the intake structure and discharged to the outlet basin (RWQCB, 1996).

Metal cleaning wastes are generated from chemical cleaning operations within the power plant, including boiler fireside washes, air preheater washes, and boiler waterside acid and chelant cleanings. Wastes are collected in aboveground tanks. The effluent from the impoundments and portions of the low-volume wastes are sent to the chemical treatment facility. The treated wastewaters are collected in tanks for testing and verification of the NPDES permit limits prior to discharge to the intake basin. Sediment that accumulates in the tanks is periodically removed and disposed of as a hazardous waste (Woodward-Clyde, 1988).

Low-volume wastes include boiler blowdown and wastes from floor drains, the water softener, and the reverse osmosis brine. The low-volume wastes are conveyed to the on-site treatment plant. The power plant also maintains an Industrial Waste Permit (No. 13-0019) from the Cities of Chula Vista and San Diego, which allows discharges to the sewer system of industrial wastes of up to 100,000 gallons per day meeting certain quality requirements (SDG&E, 1997).

Existing Water Resources

The South Bay Power Plant is located near the southern end of San Diego Bay, a natural crescent-shaped estuary (see Figure 4.4.2). The bay is approximately 14 miles long and 2.5 miles wide at its widest point. The floor of the bay in the vicinity of the plant is composed of fine-grained materials, silts and clays, as opposed to the larger grained sands near the bay outlet to the ocean at Point Loma. The shallower water depths (1 to 8 feet, with dredged areas up to 20 feet) and higher levels of salinity in the southern portion of the bay are due to the tidal velocities, which are greater near the bay outlet than at the far end (SDG&E, 1997). There are extensive tidal marshes and salt evaporation ponds on the bay in the vicinity of the plant.

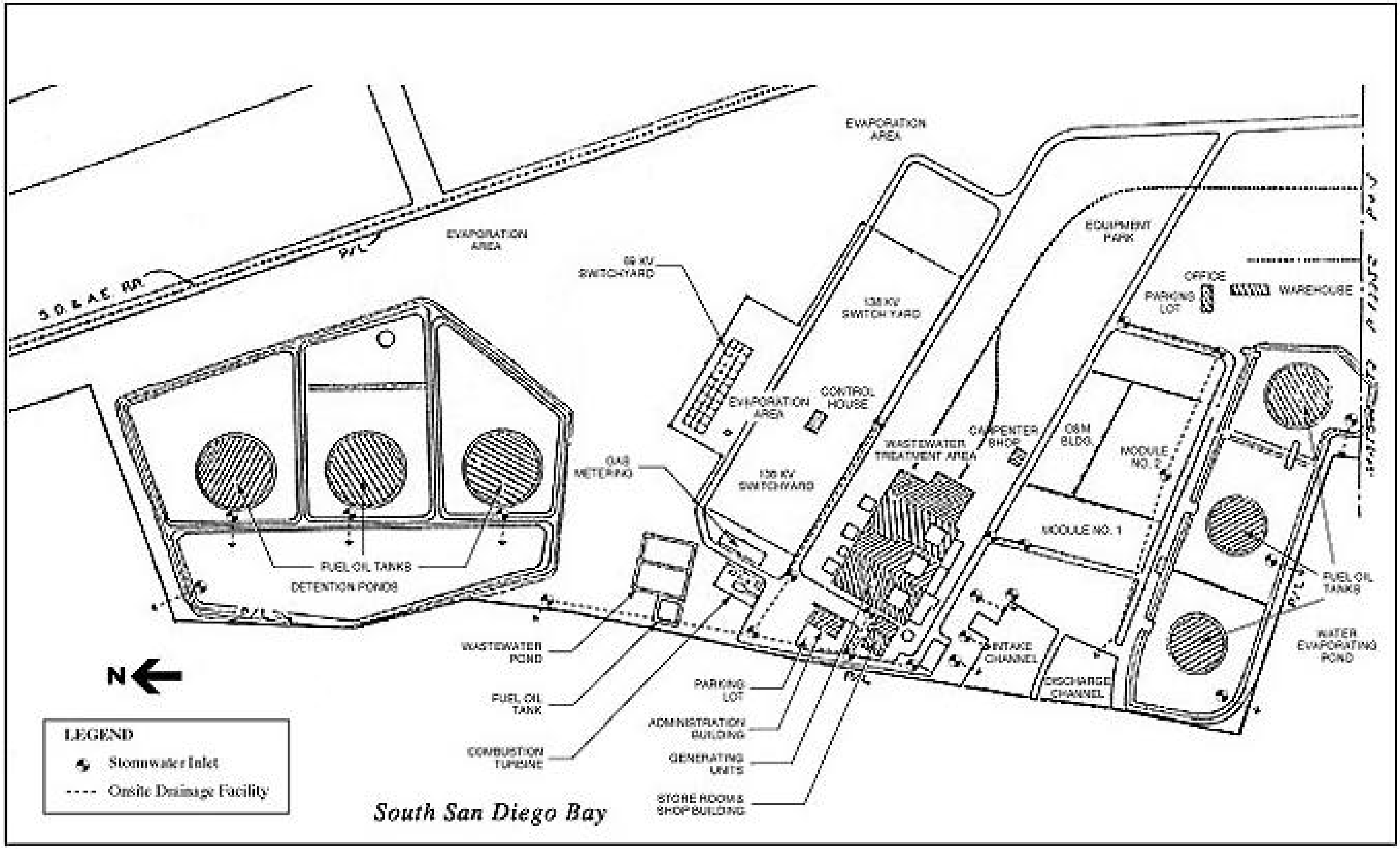
The Otay River flows into the bay approximately one mile to the south of the plant, and the Sweetwater River flows into the bay nearly three miles to the north of the plant. There is an unnamed drainage channel at the northern boundary of the site. The channel flows west to the bay. Telegraph Canyon Creek flows northwesterly across the power plant site through an unlined channel.

Rainfall records from the nearest climatological station to the plant (Chula Vista) show an average annual rainfall of 9.1 inches, with a minimum of 0.9 inches and a maximum of 16.1 inches. Rainfall runoff from the site generally flows west and into Telegraph Canyon Creek or the unnamed drainage channel.

Stormwater runoff from the site flows through drainage facilities directly to San Diego Bay or to the inlet or discharge channels. Much of the rainfall is contained in bermed sections of the plant and evaporates. Above ground storage tank areas and other chemical storage areas are bermed and the runoff is a drained through valves after the water quality is checked.

No water supply wells or springs are located within a one-mile radius of the plant (Woodward-Clyde, 1986b).

The plant is located within the Telegraph Hydrographic Subarea of the Lower Sweetwater Hydrographic Subunit of San Diego County. The main water-bearing geologic unit under the plant is the Holocene fill, consisting of alluvial and estuarine sediments. Groundwater beneath the site exists from as shallow as 2 feet below ground surface (bgs) to 10 feet bgs and is tidally influenced. The water is generally brackish. The groundwater generally flows east to west to the bay (Woodward-Clyde, 1986b).



SOURCE: SDG&E

Figure 4.4.2
South Bay Power Plant Water Resources Features

Freshwater for boiler make-up and potable water is obtained from the Sweetwater Authority.

Wastewater Discharge Regulations

The South Bay Power Plant discharges water under NPDES Permit No. CA0001368, San Diego RWQCB Order No. 96-05, which is summarized in Table 4.4.1. The permit is based on full-capacity operation of the power plant and the protection of beneficial uses of the receiving water. The beneficial uses are identified in the Regional Board's Water Quality Control Plan and the state's Ocean Plan. The state's Thermal Plan contains objectives for discharges of elevated-temperature wastes.

The discharge specifications of the permit contain numeric effluent limitations for settleable solids, turbidity, pH, and acute toxicity, as well as toxic materials. Limitations are also provided specific to the low-volume wastes and metal cleaning wastes. Limits on many constituents are based on both concentration (e.g., grams/liter) and mass emissions (e.g., lbs/day).

Stormwater flowing off-site from the plant is regulated by the RWQCB through the state's NPDES General Permit for discharges of stormwater associated with an industrial facility. In April 1992, SDG&E filed a Notice of Intent to comply with the state's general permit, and the plant has been assigned ID# 937S005562. A SWPPP has been prepared for the plant with BMPs similar to the BMPs shown in Table 4.4.2 for the Encina plant (Brown and Caldwell, 1997b).

Combustion Turbines

The combustion turbines (CTs) use small amounts of municipal water for oxides of nitrogen (NO_x) emission reduction. No groundwater is used and no wastes are discharged (SDG&E, 1997).

24th Street Terminal Refueling Facility

The 24th Street Terminal does not directly discharge water (SDG&E, 1997). Stormwater runoff flows directly to the bay.

The refueling facility is a receiving station for marine shipments of residual fuel oil. Residual oil is pumped from ships to the South Bay Power Plant via a 5-mile pipeline. The facility has three fuel storage tanks with a total storage capacity of roughly 13.9 million gallons.

CHECKLIST ISSUES

a) ABSORPTION RATES, DRAINAGE PATTERNS, AND SURFACE RUNOFF

The construction envisioned at each power plant, if any, includes only minor facilities, such as fencing and access improvements to separate the new owner's generation facilities from the remaining SDG&E facilities. These potential new facilities would not be expected to result in any substantial changes to the amount of impermeable surfaces at the plants and thus would not have measurable effects on existing absorption rates, drainage patterns, or surface runoff.

The project would not be expected to result in additional significant contamination of stormwater runoff or additional significant runoff volume. However, the project could potentially advance the cleanup of contaminated soils. The remediation activities would disturb soils and may result in short-term erosion and contamination of runoff. More information on site contamination is provided in Section 4.9, Hazards.

Contamination of runoff from soil remediation activities has the potential to affect surface water quality, but permits would be obtained prior to any remediation work, and a remediation plan would be prepared before such work begins. Remediation plans, and sometimes permits themselves, require that specified precautions be taken during remediation in order to protect human health and the environment. Examples of procedural and operational controls that typically are implemented during remediation activities include covering soil stockpiles to prevent erosion and reduce infiltration; installing a leachate-control system to capture any leachate generated; constructing a containment cell to prevent runoff; installing treatment systems for treating groundwater, surface water, or air containing hazardous substances; collecting and analyzing test samples; watering disturbed areas to reduce dust generation; and wearing proper protective equipment to prevent worker contact with contaminated soil or groundwater. Many of these controls are contained in permit requirements that are issued by the regulatory agencies overseeing remediation activities. The entities that own these plants—whether SDG&E or a future purchaser—would be subject to the same environmental and worker safety laws, rules, and regulations. The plants, under whatever ownership, would be expected to conform to all pertinent environmental and safety requirements. Therefore, no significant impacts are anticipated from the project.

Conclusion

The project would result in some minor physical modifications (e.g., fence construction or site remediation activities); however, the amount of impermeable surfaces at the plants would not be substantially changed, if at all. These physical changes would thus not have measurable effects on existing absorption rates, drainage patterns, or surface runoff, and the impact of the project would be less than significant.

b) WATER-RELATED HAZARDS

The power plants are located adjacent to the ocean (Encina) and San Diego Bay (South Bay) and are subjected to potential coastal flooding. However, the project would not involve physical modifications that would alter current hydrologic conditions.

Conclusion

The project would not result in any physical modifications that would expose people or property to water-related hazards. Therefore, there is no impact from the project.

c) DISCHARGES AND SURFACE WATER QUALITY

Discharges caused by the project would be significant if they would result in violations of state or federal numerical effluent limitations. Discharges from the plants include water used for cooling, which is raised in temperature, and various wastes from industrial processes, including metal cleaning wastes and low-volume wastes.

Each of the power plants is regulated by the San Diego RWQCB by NPDES permits for both direct discharge to receiving waters and for stormwater runoff. The NPDES permits for each of the plants allow for discharges up to the amount of water required to operate the plant at design capacity. Cooling water discharges from the power plants are the predominant sources of thermal loading to San Diego Bay and to the marine environment in the vicinity of the Encina Power Plant.

The production of the low-volume and metal cleaning waste streams occurs as part of scheduled maintenance. For example, each boiler at the Encina plant normally undergoes boiler cleaning once every four years. However, the volume of metal cleaning wastes produced on an annual basis is dependent on plant operations (RWQCB, 1994). With higher production rates, maintenance may be conducted at more frequent intervals. Therefore, the project may result in the increased production of low-volume waste or metal cleaning wastes, but the amount of discharge of these wastes would be regulated by the NPDES permit limitations.

The project could result in additional generation of energy and, therefore, require additional water for cooling. Cooling water, however, is controlled at the plants by the use of variable-speed drive pumps that operate at different levels depending on the level of generation at the plant, or the use of multiple pumps, some of which turn off when not operating at maximum capacity. Therefore, the amount of thermal discharge from the plants has some relationship to the level of electricity being generated at the plants. If a unit is completely off, some or all of the unit's circulation pumps are typically off, although at times a volume of water that is less than full-operation volume is kept circulating for various process needs. Therefore, additional energy generation would likely require additional time when the pumps are in full operation. The pumps would extract and subsequently discharge additional water. The additional amount of water would not correlate directly with the increase in generation, but, in general, higher generation rates would result in higher volumes of intake water and higher volumes of heated discharge water. However, these discharges would have to comply with the existing NPDES permit conditions for flow quantity, thermal limits, and effluent constituent limits.

Although operation by new owners could result in additional discharges of cooling water, the operation of the plants would be constrained by the existing effluent limitations in NPDES permits, which would be transferred to the new owner and would continue to be enforced by the San Diego RWQCB. No significant impacts would be expected, since the permit limits account for operation at full design capacity. In the event that permit violations were to occur, the San Diego RWQCB, which monitors discharges from the plants monthly, would take action to eliminate chronic violations.

As discussed in (a), above, the project would not be expected to result in additional significant contamination of stormwater runoff or additional significant runoff volume.

The discharge of groundwater pumped for the minor construction and/or soil remediation activities that may be a part of the project could potentially alter the quality of surface water. Dewatering the soils would involve localized pumping of groundwater. Depending on the location of the work, the groundwater would most likely be discharged either directly to the bay (South Bay) or the lagoon (Encina) or to drainage facilities that discharge to these water bodies. An NPDES permit would be required for the discharge, and the quality of the discharged water would need to meet the RWQCB standards.

An increase in generation could theoretically require an increase in the use of the 24th Street Marine Terminal, the offloading of fuel oil offshore of the Encina plant, and the conveyance of fuel to the power plants. This would increase the potential for spills at these facilities, which would impact water quality (see Section 4.9, Hazards). The increase in frequency of use of these facilities is anticipated to be minor.

Conclusion

The project's impacts on discharges into surface waters or other alteration of surface water quality would be less than significant. For the discharge of construction dewatering water, the quality of the discharge would have to meet RWQCB standards, so the impact would be less than significant. The minor increase in the potential for spills from the fuel oil offloading, storage, and conveyance facilities is also a less than significant impact.

d) AMOUNT OF SURFACE WATER

The project would not alter the amount of surface water in any water body, since the water used from the ocean or bay is ultimately returned to the ocean or bay with minor evaporation losses. An increase in the use of the CTs would increase the amount of water use, which would likely be obtained from a surface water source such as Colorado River water, which is conveyed by the Metropolitan Water District of Southern California. However, the amount of additional municipal water potentially used by the CTs is minor and would not have any regional or local significance.

Conclusion

The project would not substantially affect surface water quantity, either at the plants or within the region. Therefore, the project impact would be less than significant.

e) CURRENTS AND WATER MOVEMENTS

Local Issues

Additional intake of cooling water at the plants and the effects of additional thermal discharges from the project could have a minor impact on ocean currents. Increases in cooling water intakes and discharges from either of the divested plants have the potential to cause changes in the direction or rate of flow of surface waters. However, such surface water impacts would be regulated by the Regional Water Quality Control Board under Section 316(b) of the Clean Water Act. Power plants are required to perform analyses of currents caused by cooling water intakes and may be required to institute Best Technology Available (BTA) measures to avoid significant impacts caused by intakes. These studies and the BTA measures are required in the NPDES permit for each plant. Therefore, any impacts related to changes in the direction or rate of flow of surface water would be less than significant.

Regional Issues

Regional effects on ocean currents would not be expected from the relatively small volumes of water involved.

Conclusion

Impacts to surface currents and water movement would be minor. Therefore, the impact is less than significant.

f) QUANTITY OF GROUNDWATERS

The project may involve construction of minor facilities to separate retained SDG&E assets from divested assets. This could involve temporary dewatering activities to lower the groundwater table.

Conclusion

The minor amount of groundwater involved would be insignificant.

g) DIRECTION AND FLOW OF GROUNDWATER

As described above, the minor construction activities that may occur from the project could necessitate temporary dewatering, which could cause local modifications of groundwater flow and direction.

Conclusion

The minor amount of groundwater involved would be insignificant.

h) GROUNDWATER QUALITY

As discussed in Section 4.9, the sale of the properties could potentially hasten the identification and cleanup of contaminated groundwater. This would be a potentially beneficial impact.

Conclusion

The project may result in a beneficial impact to groundwater quality.

i) GROUNDWATER AVAILABLE FOR PUBLIC WATER SUPPLIES

Increases in the rate of CT generation would increase the amount of municipal water used for NO_x emissions reduction.

Conclusion

The increase in the amount of water used would be minor. No significant impacts are anticipated.

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