## 5.5 WATER RESOURCES

This section evaluates water resources use by ESPR and the impact it has on those resources. ESPR is a repowering of two older units at a coastal power plant utilizing once-through seawater cooling. Several key characteristics distinguish ESPR from nearly all other once-through cooling projects before the CEC in recent years.

**Key Project Characteristics of ESPR**

- Replacement of two aged, declining, and increasingly unreliable steam cycle units with combined cycle technology, all within the existing operating envelope created by the current NPDES Permit (Appendix H) for El Segundo Generating Station (ESGS).

- No modification to intake or outfall structures, nor any increase in flow rates or pumping capacity.

- No new NPDES Permit for plant operation.

- New combined cycle units using same location as old units, thus minimizing soil disturbance and all associated environmental impacts.

- Greatly improved efficiency in use of water resources by increasing power generated per unit of water used.

In addition to these key characteristics, the ESPR team has developed this AFC and this section to include:

- Prepared data adequacy checklist with locations of information responding to each requirement provided.

- Stipulation to all standard CEC conditions for water resources.

- Proposed conditions that address remaining unique issues of ESPR and its use of water resources.

- Proposed enhancement conditions that allow ESPR to benefit the community and the water resources that serve the community, thus ensuring that ESPR provides a benefit rather than an impact in the area of water resources.

- Extensive pre-submittal consultation with the following agencies or city entities:

1) Los Angeles Regional Water Quality Control Board (Los Angeles Regional Board)
2) California Coastal Commission
3) City of El Segundo
4) City of Manhattan Beach
5) National Marine Fisheries Agency
6) United States Fish and Wildlife Service
7) California Department of Fish and Game
8) State Water Resources Control Board (State Board)
9) United State Environmental Protection Agency (USEPA)
10) California Energy Commission

The ESPR team anticipates a focussed assessment of the project by CEC staff water resources specialists, by other agencies, and local interested agencies, organizations, and community members. The ESPR team looks forward to participating cooperatively and actively to complete any final shaping that is required to ensure that ESPR is an enhancement to the environment.

**Overview of Water Resources Aspects of Project**

The location of ESGS, the intake and discharge conduits and other intake and discharge conduits in the vicinity of the project are identified in Figure 5.5-1. Maximum volume discharges proposed for ESPR will not increase and the maximum temperature of the discharge will be significantly less than currently permitted by the Los Angeles Regional Board. Thus, ESPR will utilize an existing cooling system infrastructure within its existing permit parameters. This use was studied at the ESGS in compliance with specifications set forth by the Los Angeles Regional Board. Finding 16 of the NPDES Permit (Order No. 00-84) (Appendix H) states:

> To determine compliance with the Thermal Plan and in accordance with Los Angeles Regional Board specifications, SCE conducted a thermal effect study that was completed in 1975. The study demonstrated that wastes discharged at temperature levels prescribed in this Order have no adverse impacts on the beneficial uses of the receiving waters. Thus, the power plant with temperature discharges prescribed in this Order is in compliance with the Thermal Plan. (Appendix H)

Neither ESGS nor the Scattergood Generating Station, located approximately ½ mile north of ESGS, has been modified since this study was completed. Thermal modeling studies prepared for this AFC confirmed that fluid dynamics and thermal loading today continues to fall within the same envelope as when originally studied.

The use of seawater for cooling has been periodically evaluated at ESGS and has been found, in the issuance of each five-year term NPDES Permit by the Los Angeles Regional Board, to be consistent with the protection of the beneficial uses of Santa Monica Bay. This assessment is based on historical and recent studies and thermal discharge modeling of existing and projected discharges.

Recognizing that the existing discharges to the Pacific Ocean were not impacting the beneficial uses of Santa Monica Bay, the ESPR team determined that ESPR would be designed to advance efficiency and energy resource use within the existing, permitted cooling system parameters. Using the existing once-through seawater cooling system used for Units 1 and 2 without modification also eliminated potential construction-related impacts in shoreline and offshore areas.

As discussed in detail in Section 5.5.2, water-related environmental consequences of ESPR are too small to be significant. On the contrary, the ESPR will further reduce the demands on water resources by using seawater cooling resources to produce electricity more efficiently, by eliminating the discharge of sanitary wastes, and by reducing the demand on the municipal water supply through the use of reclaimed water.

Specific beneficial aspects of ESPR related to water resources are:

- Consistency with State Board policies favoring the use of marine, rather than inland waters for power plant cooling.
- Optimizing use of water
    - Reducing, by almost 46 percent, the volume of cooling water required per megawatt (MW) generated.
    - Reducing, by almost 53 percent, the British thermal unit (Btu) loading on the ocean per MW generated.
- Avoiding impacts on local potable water supply by continuing use of seawater for once-through power plant cooling.
- Optimizing operational procedures for the four cooling water pumps, reducing cooling water flow rates at less-than-peak operation.
- Reducing the maximum discharge temperature into Santa Monica Bay during peak power generation and worst case ocean temperatures by about 12° F compared with the permitted discharge temperature.

- Reducing the maximum thermal loading to Santa Monica Bay from Outfall No. 001 from 46,488 MMBtu/day to 33,298 MMBtu/day.

- Eliminating discharge of treated sanitary wastes into Santa Monica Bay.

- Minimizing demand on municipal water supply through the use of reclaimed water.

- Using existing intake and discharge structures without modification, thereby eliminating potential marine construction impacts.

### 5.5.1 Affected Environment

#### 5.5.1.1 Power Plant

ESGS is located on the eastern shore of Santa Monica Bay at the southwest corner of the City of El Segundo, approximately midway between Imperial Highway and Rosecrans Avenue. Immediately east of and adjacent to ESGS is the Chevron El Segundo Refinery. Approximately ½ mile north of ESGS is the Scattergood Generating Station operated by the Los Angeles Department of Water and Power. The Scattergood Generating Station also uses seawater for once-though cooling. A schematic of the water and wastewater flows through ESGS is presented in Figure 5.5-2.

The existing operations at ESGS are consistent with the preference hierarchy set forth by the State Board in the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling (Policy) (Appendix H) by virtue of the use of once-through seawater cooling water design and discharge location. The Policy establishes a preference for coastal power plants, using the ocean as a source of cooling water, rather than inland sites that require the use of limited supplies of fresh water. This Policy provides guidance in the planning and permitting of new power plants using inland waters for cooling and suggests methods for keeping the consumptive use of freshwater to a minimum. The first of the principles of the Policy describes this preference:

> "It is the Board's position that from a water quantity and quality standpoint the source of power plant cooling water should come from the following sources in this order of priority depending on site specifics such as environmental, technical and economic feasibility consideration: (1) wastewater being discharged to the ocean, (2) ocean, (3) brackish water from natural sources or irrigation return flow, (4) inland wastewaters of low TDS, and (5) other inland waters."

Statement three of the Basis of Policy justifies this preference as follows:

> "Although many of the impacts of coastal power plants on the marine environment are still not well understood, it appears the coastal marine environment is less susceptible than inland waters to the water quality impacts associated with power plant cooling. Operation of existing coastal power plants indicate that these facilities either meet the standards of the State's Thermal Plan and Ocean Plan or could do so readily with appropriate technological modifications. Furthermore, coastal locations provide for application of a wide range of cooling technologies which do not require the consumptive use of inland waters and therefore would not place an additional burden on the State's limited supply of inland waters. These technologies include once-through cooling which is appropriate for most coastal sites, potential use of saltwater cooling towers, or use of brackish water where more stringent controls are required for environmental considerations at specific sites."

**5.5.1.1.1 <u>Water Supply</u>**. Water supply for cooling is the greatest water use at the ESGS constituting approximately 99 percent of the water usage. Other sources of water include potable and reclaimed water. Table 5.5-1 summarizes the current and projected water usage by source category.

**TABLE 5.5-1**

**EXISTING AND PROJECTED WATER USAGE**

| | Existing | | | ESPR Project | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | Average (gpd) | |
| **Units** | **Cooling (mgd-max)** | **Reclaimed (no R.O.) (gpd-avg)** | **Potable[(1)] (gpd-avg)** | **Cooling (mgd-max)** | **Reclaimed (no R.O.) (gpd-avg)** | **Reclaimed (R.O.)** | **Potable** |
| 1 & 2 | 207 | Minimal | 49,940 | -- | -- | -- | -- |
| 3 & 4 | 398 | Minimal | 129,998 | 398 | Minimal | 0 | 129,998 |
| 5 & 7 | -- | -- | -- | -- | -- | | |
| 6 | -- | -- | -- | 207 | Minimal | 64,000 | 93,000 |
| **Total** | **605** | **85,936** | **179,938** | **605** | **85,936** | **64,000** | **222,998** |

[1] Volumes estimated based on relative capacity utilization of 13.1% for Units 1&2 and 34.1% for Units 3&4 applied to total average volume utilized.

**<u>Ocean Cooling Water</u>**. The beneficial uses of Santa Monica Bay include industrial service supply; navigation; water contact recreation; non-contact water recreation; commercial and sport fishing, marine habitat; wild habitat; preservation of biological habitats; rare threatened or endangered species; migration of aquatic organisms; and spawning, reproduction and/or early development. Cooling water supply is included in the category of Industrial Service Supply. Santa Monica Bay provides an abundant source of cold ocean water which dissipates the heat from the once-through cooling systems at ESGS. Pacific Ocean currents supply enormous quantities of cold ocean water to Santa Monica Bay. The average surface water circulation off Southern California is illustrated in Figure 5.5-3. The expected quality of seawater used for once-through cooling is presented in Table 5.5-2.

**TABLE 5.5-2**

**EXPECTED QUALITY OF WATER SUPPLY SOURCES**
**(MG/L AS IONS, EXCEPT AS NOTED)**

| Constituent | Seawater | Potable | Reclaimed | Reclaimed – R.O. |
|---|---|---|---|---|
| **Calcium** | 400 | 46 | 59 | 0.06 |
| **Magnesium** | 1,100 | 19 | 20 | 0.03 |
| **Sodium** | 11,000 | 59 | 164 | 4.8 |
| **Potassium** | 380 | 3 | 15 | 0.34 |
| **M-Alkalinity as $CaCO_3$** | NR | 100 | 266 | 14 |
| **Sulfate** | 1,900 | 129 | 126 | ND |
| **Chloride** | 19,000 | 60 | 182 | 2.7 |
| **Nitrate (as N)** | 0.59 | 0 | 3.3 | 0.13 |
| **Fluoride** | 0.7 | 0.20 | NR | 0.10 |
| **Aluminum** | 0.1 | 0.08 | NR | ND |
| **Silica** | 0.01-7.0 | NR | 25 | 0.14 |
| **TDS** | 33,000 | 440 | 747 | 25 |
| **pH** | 7.7-8.3 | 8.2 | 7.1 | 7.4 |
| **TSS** | 3.0 | NR | 2 | ND |
| **$BOD_5$** | 1.0 | NR | <3 | NR |
| **COD** | 49 | NR | 35 | NR |

Water supply for cooling at the ESGS is provided by two separate ocean intakes from Santa Monica Bay, one for Units 1 and 2 and one for Units 3 and 4. The intake (Outfall No. 003) and discharge (Outfall No. 001) for Units 1 and 2 are located approximately 2,590 and 1,989 feet offshore. The Units 1 and 2 intake and discharge conduits and structures are illustrated in Figure 5.5-4. The intake and discharge conduits for Units 1 and 2 are located approximately 240 feet north of the intake (Outfall No. 002) and discharge (Outfall No. 004) conduits for Units 3 and 4. The intake structure for Units 1 and 2 was constructed in 1954 and was modified in 1956 to incorporate a velocity cap. The design of the intake riser is illustrated in Figure 5.5-5. The vertical intake riser has an inside diameter of 11 feet 4 inches x 14 feet and is covered by a 23-foot x 29-foot, 1-foot thick velocity cap suspended 3 feet above the riser. The velocity cap imparts a horizontal current of 2.4 feet per second (fps) at the point of withdrawal. The circulating water flow of 144,000 gallons per minute (gpm) (maximum) is conveyed to the Units 1 and 2 onshore screen well structure through a 10-foot inside diameter conduit at a velocity of 4.1 fps.

The screen well structure is illustrated in Figures 5.5-6 and 5.5-7. Water enters the screen well structure and passes through trash bars that remove heavy debris. The water then passes through traveling screens, which remove the fine debris. The calculated average velocity approaching the screens is 0.8 fps and through the screens is 1.8 fps.

The material retained by the screens is removed during screen rotation and washing, which is initiated either by a timer at approximately 4-hour intervals or when the across-screen hydraulic differential exceeds a predetermined maximum. During screen washing, spray nozzles wash the material into a surrounding sluiceway. The sluiceway empties into a stainless steel mesh basket that drains into the common condenser discharge conduit of Units 1 and 2.

From the screens the water then passes to four vertical wet pit type circulating water pumps. These pumps supply 137,000 gpm to the main condensers and 7,000 gpm to auxiliary heat exchangers for plant equipment cooling functions. Each of the two existing generating units has two circulating water pumps that pump cooling water to the condensers through 4-foot inside diameter conduits at a velocity of 6.4 fps.

Passing through the condenser tubes at a velocity of 7.0 fps, the water temperature is raised 23.7°F at maximum load. The water from each condenser returns to the discharge through a 66-inch inside diameter pipe at a velocity of 6.7 fps, where the flows from each condenser join to return to the ocean through a 10-foot inside diameter pipe at a velocity of 5.1 fps. The total water transit time, from offshore intake to discharge is 21.5 minutes.

The intake and discharge for Units 3 and 4 are located approximately 2,595 and 2,091 feet offshore, respectively. The Units 3 and 4 intake and discharge conduits and structures are illustrated in Figure 5.5-8. The intake riser is approximately 16 foot x 21 foot and is covered by a 30 x 35 foot 1-foot thick velocity cap suspended 3 feet above the riser.

Table 5.5-3 provides a contrast of existing and projected system parameters.

## TABLE 5.5-3

## CURRENT AND PROPOSED COOLING SYSTEM DESIGN LOADS AND FLOWS

| | **HISTORIC** (Design) | **CURRENT** (Actual) | **PROJECTED** (Design) |
|---|---|---|---|
| **Intake – Units 1&2** | | | |
| Intake Flow Rate (mgd) | 207 | 207 | -- |
| **Discharge – Units 1&2** | | | |
| Total Flow Rate (mgd) | 207 | 207 | -- |
| Maximum Temperature (°F) | 105 | 105 | -- |
| Net Generating Capacity (MW) | 350 | 350 | -- |
| Heat Load at Maximum Capacity (Million Btu/min) | 46,488 | 46,488 | -- |
| **Intake – Units 3&4** | | | |
| Intake Flow Rate (mgd) | 398 | 398 | 398 |
| **Discharge – Units 3&4** | | | |
| Total Flow Rate (mgd) | 398 | 398 | 398 |
| Maximum Temperature (°F) | 105 | 105 | 105 |
| Net Generating Capacity (MW) | 670 | 670 | 670 |
| Heat Load at Maximum Capacity (Million Btu/min) | 73,332 | 73,332 | 73,332 |
| **Intake – ESPR** | | | |
| Intake Flow Rate | -- | -- | 207 |
| **Discharge – ESPR** | | | |
| Total Flow Rate (mgd) | -- | -- | 207 |
| Maximum Temperature (°F) | -- | -- | 93 |
| Net Generating Capacity (MW) | | | 646.8 |
| Heat Load at Maximum Capacity (Million Btu/min.) | -- | -- | 33,298 |
| **Combined Discharge** | | | |
| Total Flow Rate (mgd) | 605 | 605 | 605 |
| Net Generating Capacity (MW) | 1020 | 1020 | 1,316.8 |
| Heat Load at Maximum Capacity (Million Btu/min) | 119,820 | 119,820 | 106,630 |

In accordance with federal and state guidelines for §316(b) of the Clean Water Act, a study was conducted to determine whether the cooling water intake structures are in compliance with regulations established pursuant to §316(b) of the Clean Water Act. Section 316(b) of the Clean Water Act requires that the location, design, construction and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. The study adequately addressed the important ecological and engineering factors specified in the guidelines, demonstrated that the ecological impacts of the intake system were environmentally acceptable, and determined that no modification to the intake structure was required. The design, construction and operation of the intake structure represents Best Available Technology (BAT) as required by §316(b) of the Clean Water Act. As described in Section 5.6.2, the velocity cap has proven to be highly effective in preventing impingement at the ESGS.

**Potable Water**. Potable water is supplied to the ESGS by the City of El Segundo. The City of El Segundo obtains potable water from the Metropolitan Water District of Southern California. The City of El Segundo provides water for commercial, industrial and domestic users within the City of El Segundo. The average potable water usage at the ESGS during 1999 was 179,938 gallons per day (gpd). The expected water quality of the potable water source is presented in Table 5.5-2.

**Reclaimed Water**. Reclaimed water is produced by the Hyperion Treatment Plant operated by the City of Los Angeles Bureau of Sanitation and further treated and distributed by the West Basin Municipal Water District. The reclaimed water is currently delivered to ESGS in a six-inch line at 45-75 psi. Summaries of water quality analyses of the reclaimed water are provided in Appendix H. The West Basin Municipal Water District provides water for commercial and industrial users and landscape irrigation within west Los Angeles County. Reclaimed water is primarily used for landscape irrigation and a small amount is used to augment "seal water" at ESGS. Seal water consists primarily of reject water from the portable reverse osmosis units and is augmented by reclaimed water. Seal water is water used for lubrication and cooling of cooling water circulation pumps and bearings. Seal water mixes with circulated water or is collected by sumps or floor drains and discharged through the ocean outfall. The average reclaimed water usage at the ESGS during 1999 was 85,936 gpd.

Table 5.5-1 summarizes the current and projected water usage by source category. The expected water quality of the reclaimed water source is presented in Table 5.5-2.

#### 5.5.1.1.2 Hydrology and Water Quality.

**100-Year Flood Plain**. The average annual precipitation is approximately 12.20 inches based upon data from the Western Regional Climate Center for station number 045114 (Los Angeles WSO Airport) for the period August 1944 through July 2000. Most precipitation occurs during the winter months of October through April and summers are relatively dry (less than 0.35 inches). The annual average for days with rainfall greater than 0.01 inches is 35 days. Rainfalls exceeding 0.5 inches occur at an average of only eight days per year. Table 5.5-4 provides the average monthly rainfall in inches based on 56 years of data.

**TABLE 5.5-4**

**AVERAGE MONTHLY RAINFALL AMOUNTS[1]**
**EL SEGUNDO, CALIFORNIA**

| Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.76 | 2.60 | 2.00 | 0.80 | 0.16 | 0.06 | 0.02 | 0.08 | 0.18 | 0.28 | 1.54 | 1.72 |

ESGS is located on the east shore of Santa Monica Bay below Vista Del Mar in El Segundo. The northern end of the existing ESGS site has been graded and paved with the top of the asphalt pavement varying from Elevation 18 feet to Elevation 20 feet in the area of the proposed power block.

The existing topography at the south end of the site slopes down from the entrance road to the retention basin and fuel oil tank areas at a 1.5 to 1 slope. Elevations vary from a high point at the gatehouse of 90 feet down to elevation 39 feet at the fuel tank area and down to Elevation 25 feet at the retention basin area. The existing fuel tank area is level and is surrounded by an earthen containment berm. Grading and drainage is depicted on Figure 3.4-1.

**Flooding and Tsunamis.** Flooding within the project vicinity can be earthquake-induced or can result from intense rainfall. The project site is not located within a 100-year flood or 500-year flood zone. There are no major dams or waterways located near the project site or the City of El Segundo. Thus, the potential for flood hazards within the area is most specifically related to localized flooding that may result from inadequate storm drainage during periods of heavy rainfall.

Along the City of El Segundo's coastal area, tsunamis and seiches associated with seismic events could cause devastating damage (City of El Segundo, 1992). The coastal portions of the City and adjacent portions of the City of Los Angeles are identified by the State as tsunami hazard areas, and as a result, there is the potential for damage to the ESGS, Chevron facilities, and Hyperion Treatment Plant (City of El Segundo, 1992).

**Surface Waters**. There are no lakes, ponds or streams in the immediate vicinity of the ESGS. Storm water from Vista Del Mar flows in a storm drain across the ESGS and

[1] Western Regional Climate Center

discharges to Santa Monica Bay at Dockweiler Beach. Storm water from the ESGS is not co-mingled with off-site storm water.

Within the proposed power block area, the site has been graded and paved to direct all surface runoff to existing drop inlets. The storm water is collected, sent through an oil water separator, and the effluent discharged to the ocean through the existing Discharge No. 001.

Santa Monica Bay is an open embayment with a designated surface area of approximately 266 square miles and is the receiving water body for surface water drainage from approximately 414 square miles of land. The existing beneficial uses of Santa Monica Bay (Nearshore and Offshore Zones) are: industrial service supply; navigation; water contact recreation; non-contact water recreation; commercial and sport fishing; marine habitat; wildlife habitat; preservation of biological habitats; rare, threatened, or endangered species; migration of aquatic organisms; spawning, reproduction, and/or early development of fish; and shellfish harvesting.

The biological community in Santa Monica Bay has been identified as being imbalanced, severely stressed, or known to contain toxic substances in concentrations that are hazardous to human health.

On May 27, 1998, the State Board adopted Resolution No. 98-055 approving the 1998 California Section 303(d) list of waters not meeting California's water quality standards[2]. The 303(d) list names each impaired water by reach, the pollutant/stressor, the source of the pollutant/stressor, the size of each impaired reach and the priority for remediation. The Santa Monica Bay Nearshore and Offshore Zones have been designated as impaired by mercury, cadmium, copper, lead, nickel, silver, zinc, chlordane, DDT and PCBs. Dockweiler Beach has been designated as impaired due to coliform levels. Table 5.5-5 lists the pollutant/stressors, the priority, the size of the impaired area, and the year the Los Angeles Regional Board must complete the TMDL.[3]

**<u>Groundwater</u>**. Groundwater is encountered in the Old Dune/Gage Sand Aquifer generally at 12 feet below ground surface under unconfined conditions. This would correspond to approximately elevation 8.0 Mean Lower Low Water (MLLW). Groundwater elevations monitored in the Old Dune/Gage Sand Aquifer indicate that the water levels are tidally influenced. Differences in elevation indicate changes of approximately 0.3 feet on the western side of the site. As measured on December 15, 1997, the direction of groundwater

[2] Under Section 303(d) of the Clean Water Act, states, territories, and authorized tribes are required to develop lists of impaired waters. Impaired waters are waters that do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. Priority rankings must be identified for impaired waters and Total Maximum Daily Loads (TMDLs) must be developed for impaired waters.

[3] In conformance with a Consent Decree, the Los Angeles Regional Board has a 13-year schedule for development and implementation of TMDLs for the region.

## TABLE 5.5-5

## 1998 CALIFORNIA 303(D) LIST FOR SANTA MONICA BAY POLLUTANTS/STRESSORS EXCEEDING WATER QUALITY STANDARDS OFFSHORE AND NEARSHORE

| Pollutant | Stressor | Priority | Acres Affected | Year for TMDL Completion |
|---|---|---|---|---|
| Cadmium | Elevated levels of cadmium in sediment | Low | 16,640 | 2003/04 |
| Copper | Elevated levels of copper in sediment | Low | 16,640 | 2003/04 |
| Lead | Elevated levels of lead in tissue and sediment | Low | 16,640 | 2003/04 |
| Mercury | Elevated levels of mercury in sediment | Medium | 16,640 | 2003/04 |
| Nickel | Elevated levels of nickel in sediment | Low | 16,640 | 2003/04 |
| Silver | Elevated levels of silver in sediment | Low | 16,640 | 2003/04 |
| Zinc | Elevated levels of zinc in sediment | Low | 16,640 | 2003/04 |
| Chlordane | Elevated levels of chlordane in sediment | Low | 16,640 | 2005/06 |
| DDT | Elevated levels of DDT in tissue and sediment | High | 16,640 | 2009/10 |
| PAHs | Elevated levels of PAHs in sediment | High | 16,640 | |
| PCB's | Elevated levels of PCB's in tissue and sediment | High | 16,640 | 2009/10 |
| Coliform[1] | | | | 2001/02 |
| Trash & Debris | | Low | 16,640 | 2009/10 |
| Fish Consumption Advisory | | High | 16,640 | NA |
| Sediment Toxicity | | Medium | 16,640 | 2009/10 |

[1] Coliform is a listed source of an impairment for Dockweiler Beach.

flow in the Old Dune/Gage Aquifer was generally to the northwest at a gradient of 0.0015 feet.

Designated beneficial uses for the West Coast Groundwater Basin include agricultural supply, municipal and domestic supply, industrial process supply, and industrial service supply. However, groundwater from these formations is not used for domestic supplies, irrigation, stock watering or other uses, largely because the quality of existing groundwater in the area is poor.

**5.5.1.1.3 Wastewater Treatment and Disposal.** The ESGS discharges a total of up to 607 mgd of wastes consisting of once-through cooling water, treated chemical metal cleaning wastes, storm water, non-chemical metal cleaning wastes, low volume inplant wastes and treated sanitary wastes into Santa Monica Bay. Wastewater from Units 1 and 2 is discharged through Outfall No. 001 and wastewater from Units 3 and 4 is discharged through Outfall No. 002. The discharge for Units 1 and 2 (Outfall No. 001) is located approximately 1,989 feet offshore and the intake for Units 3 and 4 (Outfall No. 002) is located approximately 2,091 feet offshore. All wastewater is disposed to Santa Monica Bay under the NPDES Permit. The water quality data for the existing discharges to Santa Monica Bay during 1997, 1998 and 1999 are summarized in Table 5.5-6.

The NPDES Permit establishes the following effluent limitations for ESGS discharges to Santa Monica Bay:

1. Wastes discharged shall be limited to those described in the findings only, as proposed.

2. The temperature of wastes discharged shall not exceed 105ºF during normal operation of the facility. During heat treatment, the temperature of wastes discharged shall not exceed 125ºF except during adjustment of the recirculation gate at which time the temperature of wastes discharged shall not exceed 135ºF. Temperature fluctuations during gate adjustment above 125ºF shall not last for more than 30 minutes.

3. The pH shall at all times be within the range of 6.0 to 9.0 pH units.

4. The discharge of wastes in excess of the limits identified in Table 5.5-7 is prohibited.

The expected quality of the water sources available to ESGS is presented in Table 5.5-7.The discharge of wastes from Discharge Serial Nos. 001 and 002 with constituents in excess of the concentration limits identified in Table 5.5-8 is prohibited.

# TABLE 5.5-6

## SUMMARY OF AVERAGE ANNUAL DISCHARGE WATER QUALITY

| Parameter | 1997 - Outfall No. | | 1998 - Outfall No. | | 1999 - Outfall No. | |
|---|---|---|---|---|---|---|
| | **001** | **002** | **001** | **002** | **001** | **002** |
| Effluent | | | | | | |
| pH (max) | 8.14 | 8.12 | | 8.1 | 8.1 | 8.2 |
| pH (min) | 7.95 | 7.93 | | 8.0 | 8.1 | 8.0 |
| Chronic Toxicity | | | | | | |
| Germination (Tuc) | 1 | 1 | | 1 | 1 | 1 |
| Germ Tube Length (Tuc) | 1 | 1 | | 1 | 1 | 1 |
| Chlorine | | | | | | |
| Free Avail – daily max (mg/l) | .23 | .23 | | 0.17 | 0.14 | 0.17 |
| Free Avail – daily min (mg/l) | .05 | 0.05 | | 0.04 | 0.05 | 0.10 |
| Total – max (mg/l) | .26 | 0.28 | | 0.22 | 0.15 | 0.18 |
| Total – min (mg/l) | .05 | 0.05 | | 0.05 | 0.06 | 0.06 |
| Circulating Water Discharge | | | | | | |
| Temp (max) ºF | 86.4 | 88.4 | | 97.5 | 88.5 | 88.4 |
| Temp (min) ºF | 64.0 | 71.3 | | 69.2 | 65.1 | 68.9 |
| Heat Treat Temp ºF | 107.4 | 114.1 | | 123 | 114.6 | 106.0 |
| Coliforms (MPN:100 ml) | 5 | 9 | | 35 | 11 | 2 |

**TABLE 5.5-7**

**EFFLUENT LIMITATIONS**

| | | Discharge Serial 001 | | Discharge Serial 002 | |
|---|---|---|---|---|---|
| **Constituent** | **Units** | **Monthly Average** | **Daily Maximum** | **Monthly Average** | **Daily Maximum** |
| Arsenic | µg/L | 68 | 380 | 98 | 554 |
| Cadmium | µg/L | 13 | 52 | 19 | 76 |
| Chromium (hexavalent) | µg/L | 26 | 104 | 38 | 152 |
| Copper | µg/L | 15 | 132 | 21 | 192 |
| Lead | µg/L | 26 | 104 | 38 | 152 |
| Mercury | µg/L | 0.51 | 2.07 | 0.75 | 3.03 |
| Nickel | µg/L | 65 | 260 | 95 | 380 |
| Selenium | µg/L | 195 | 780 | 285 | 1,140 |
| Silver | µg/L | 7 | 35 | 10.4 | 50.3 |
| Zinc | µg/L | 164 | 944 | 236 | 1,376 |
| Chronic Toxicity | TUc | --- | 13 | --- | 19 |
| Radioactivity | Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30269 of the California Code of Regulations | | | | |

**TABLE 5.5-8**

**CHLORINE EFFLUENT LIMITS**

| | | Discharge Limitations | |
|---|---|---|---|
| **Constituent** | **Units** | **Daily Average** | **Daily Maximum** |
| Total residual chlorine | mg/L | --- | 0.4 |
| Free available chlorine | mg/L | 0.2 | 0.5 |

The NPDES Permit also establishes effluent and receiving water monitoring requirements. In addition, the Los Angeles Regional Board in conjunction with the USEPA and other coastal dischargers is developing a regional database to provide for integrated analysis and transfer of monitoring data. The ESGS participated in the Southern California Bight Regional Marine Monitoring Surveys in 1994 and 1998. It is anticipated that this survey, conducted by the Southern California Coastal Water Research Project, will be repeated in 2002. The objective of this survey is to characterize the Southern California Bight and individual populations within the Bight to provide a context for interpreting the effects of individual discharges.

**<u>Once-Through Cooling Water</u>**. ESGS discharges increasing volumes of once-through cooling water as capacity utilization increases. Once-through cooling water from Units 1 and 2 is discharged through Outfall No. 001, located 1,989 feet offshore, and once-through cooling water from Units 3 and 4 is discharged through Outfall No. 002, located 2,091 feet offshore (Figures 5.5-4 and 5.5-8). The riser for Outfall No. 001 is 11 feet x 14 feet in diameter and the riser for Outfall No. 002 is 23 feet x 18 feet. Both risers direct warm seawater to the surface. The effect at the surface is visible as two circular areas of small-scale turbulence, 50-100 feet in diameter. The NPDES permit limits the temperature of these discharges to 105°F. The fact that considerable cold water is entrained by the rising water is evident from the diameter of the surface manifestations and from their temperatures, which may be only 5°F above ambient. The discharged water is dynamically active due to both its temperature and initial velocity.

Units 3 and 4 are newer and are generally operated under baseload conditions. It should be noted that modifications that will result in air emission reductions of 85-90 percent will make Unit 3 more viable in the energy market. It is projected that Unit 3 will operate with a similar capacity utilization as Unit 4 upon completion of these modifications. Units 1 and 2 are generally brought into operation after both Units 3 and 4 are in operation. The general operating sequence and associated volumes of once-through cooling water are summarized as follows:

- <u>Stage 1</u>: Under baseload conditions, Units 3 or 4 operates and 199 mgd of seawater is circulated through Outfall No. 002 for once-through cooling. The baseload thermal loading at full load is estimated to be 36,666 MMBtu/day.

- <u>Stage 2</u>: With increased capacity utilization, Units 3 and 4 operate with 398 mgd of seawater circulated for once-through cooling through Outfall No. 002. The thermal loading under this condition at full load is estimated to be 73,332 MMBtu/day.

- <u>Stage 3</u>: With further increase in capacity utilization, Units 3, 4 and Units 1 or 2 operate. 398 mgd of seawater is circulated through Outfall No. 002 and 104 mgd of seawater is circulated through Outfall No. 001 (total of 502 mgd). The thermal loading under this condition at full load is estimated to be 96,578 MMBtu/day.

- <u>Stage 4</u>: At full capacity utilization, Units 1, 2, 3 and 4 operate. 207 mgd of seawater is circulated through Outfall No. 001 and 398 mgd of seawater circulated through Outfall No. 002 (total of 605 mgd). The thermal loading under this condition at full load is estimated to be 119,820 MMBtu/day.

The existing discharge conditions are summarized in Table 5.5-9. The cooling water flow profile is presented in Figure 5.5-9 and the thermal loading profile is illustrated in Figure 5.5-10.

**TABLE 5.5-9**

**EXISTING DISCHARGE CONDITIONS**

| | Days Operating | MWH | Maximum Flow (mgd) | MWH/ mgd | Annual Volume (Acre-ft) | MMBtu/ day | MMBtu/ MWH | Annual Thermal Loading (BMBtu) |
|---|---|---|---|---|---|---|---|---|
| Unit 1 | 77 | 175 | 103.5 | 1.69 | 24,457 | 23,244 | 132.8 | 1,790 |
| Unit 2 | 152 | 175 | 103.5 | 1.69 | 48,280 | 23,244 | 132.8 | 3,533 |
| Unit 3 | 244 | 335 | 199 | 1.68 | 149,013 | 36,666 | 109.5 | 8,947 |
| Unit 4 | 342 | 335 | 199 | 1.68 | 208,862 | 36,666 | 109.5 | 12,540 |
| | **Total** | **1,020** | **605** | **1.69** | **430,612** | **119,820** | **117.5** | **26,820** |

Finding 16 of Order No. 00-84 (NPDES No. CA0001147), the Waste Discharge Requirements for ESGS, states:

> "To determine compliance with the Thermal Plan and in accordance with Regional Board specifications, SCE conducted a thermal effect study that was completed in 1975. The study demonstrated that wastes discharged at temperature levels prescribed in this Order have no adverse impacts on the beneficial uses of the receiving waters. Thus the power plant with temperature discharges prescribed in this Order are in compliance with the Thermal Plan."

The extent of the thermal plume is depicted in Figure 5.5-11, based on 2 sampling dates, February 7 and 8, 1973. The NPDES permit has required ongoing monthly monitoring of the temperature of receiving waters.

The thermal plume and effects of the thermal discharge from ESGS were characterized in a Thermal Effects study conducted in 1973 under the auspices of the Los Angeles Regional Board, which is presented in Appendix H. This study was conducted to demonstrate that the thermal discharge will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in/on Santa Monica Bay in conformance with §316(a) of the CWA. In summary, the Thermal Effects Study found the discharge in compliance with the requirements of the Thermal Plan:

- No shoreline impingement of heated water was detected and the bulk of evidence indicated that heated water does not contact the substrate.

- The effect of ESGS heat addition at a distance of 1000 feet from the outfalls exceeded natural temperature by 4°F or less only during the May survey. The conditions during the May survey were exceptional in that a substantial amount of heat was apparently being added from another source to the north of ESGS. The study goes on to state: "Excluding these exceptional cases, the reach of heated water attributable to SCE (ESGS) is well within the requirement for new thermal discharges that water heated 4°F above ambient shall not reach 1000 feet beyond the outfall."

- There was no impact on the benthic community as compared to a control.

- There was no impact on the aquatic community as compared to a control.

As the discharge location and structures, temperature and volume of the discharge will not change, the findings of this study are applicable to ESPR. Nevertheless, a thermal model was conducted for AFC preparation, which verified the continued accuracy and viability of the permit basis. The discharge has been in compliance with the requirements of the Thermal Plan based on monitoring required by the NPDES Permit.

Temperature profiles are measured semi-annually (summer and winter) each year at Stations RW1 through RW12 from surface to bottom at a minimum of one-meter intervals. All stations are measured on both a flooding tide and an ebbing tide during each semi-annual survey. Tables 5.5-10 through 5.5-15 summarize the results of the semi-annual monitoring from 1997, 1998 and 1999. The tables provide the surface and bottom temperatures at each receiving station, the average surface and bottom temperature at each receiving water station depth grouping, and identify the maximum variation of surface and bottom water temperatures. The temperature variations measured are small and are not correlated with proximity to the discharge. The maximum and minimum temperatures measured at the receiving water stations are illustrated in Figures 5.5-12 through 5.5-17.

The Thermal Effects Study found that the thermal discharges from ESGS are in compliance with the requirements of the California Thermal Plan and that the discharges result in no significant impact to benthic or aquatic communities. The results of the ongoing monitoring studies confirm continued compliance with the requirements of the California Thermal Plan and that there are no significant impacts resulting from these discharges at the benthic or receiving water monitoring stations.

## Table 5.5-10

## WINTER 1999 RECEIVING WATER TEMPERATURE MEASUREMENTS (°C)
## February 24, 1999

| | | Surface Temperatures | | | Bottom Temperatures | | |
|---|---|---|---|---|---|---|---|
| Station Depth | Station | Temperature | Average Temperature | Max/Min Temperatures | Temperature | Average Temperature | Max/Min Temperatures |
| 20’ | RW 1 | 13.66 | 13.56 | | 13.01 | 13.25 | |
| | RW 2 | 13.88 | | 13.88 | 13.51 | | 13.51 |
| | RW 3 | 13.49 | | | 13.34 | | |
| | RW 4 | 13.19 | | | 13.12 | | |
| | | | | | | | |
| 40’ | RW 5 | 13.87 | 13.62 | | 12.00 | 12.00 | |
| | RW 6 | 13.63 | | | 12.24 | | |
| | RW 7 | 13.63 | | | 11.56 | | |
| | RW 8 | 13.35 | | | 12/19 | | |
| | | | | | | | |
| 60’ | RW 9 | 13.13 | 13.32 | 13.13 | 11.83 | 11.60 | |
| | RW 10 | 13.54 | | | 11.78 | | |
| | RW 11 | 13.35 | | | 11.29 | | 11.29 |
| | RW 12 | 13.25 | | | 11.51 | | |
| | | | **Delta T** | **0.75** | | | **2.22** |

| Units | Intake Temperature | Discharge Temperature | Flow Rate (mgd) | Gross MWH Generated | Daily Average Capacity Utilization | Maximum Flow Rate |
|---|---|---|---|---|---|---|
| 1 & 2 | 15.6 | 16.1 | 0.07 | Unit 1: 0 Unit 2: 0 | Unit 1: 0 Unit 2: 0 | 207.40 |
| 3 & 4 | 16.7 | 21.7 | 162.5 | Unit 3: 0 Unit 4: 680 | Unit 3: 0 Unit 4: 16.1% | 398.80 |
| Scattergood | 14.4 | 27.7 | 256.0 | | | 495.36 |

## Table 5.5-11

## SUMMER 1999 RECEIVING WATER TEMPERATURE MEASUREMENTS (°C)
## August 13, 1999

| | | Surface Temperatures | | | Bottom Temperatures | | |
|---|---|---|---|---|---|---|---|
| **Station Depth** | **Station** | **Temperature** | **Average Temperature** | **Max/min Temperatures** | **Temperature** | **Average Temperature** | **Max/Min Temperatures** |
| 20’ | RW1 | 20.51 | 20.98 | | 19.73 | 19.01 | |
| | RW2 | 21.12 | | | 20.20 | | 20.20 |
| | RW3 | 21.00 | | | 19.22 | | |
| | RW4 | 21.29 | | 21.29 | 16.87 | | |
| | | | | | | | |
| 40’ | RW5 | 20.53 | 20.08 | | 17.39 | 16.20 | |
| | RW6 | 20.51 | | | 16.45 | | |
| | RW7 | 19.48 | | | 16.15 | | |
| | RW8 | 19.78 | | | 14.79 | | |
| | | | | | | | |
| 60’ | RW9 | 19.79 | 19.53 | | 13.79 | 13.77 | |
| | RW10 | 19.73 | | 19.27 | 14.27 | | |
| | RW11 | 19.27 | | | 13.42 | | 13.42 |
| | RW12 | 19.34 | | | 13.58 | | |
| | | | **Delta T** | **2.02** | | | **6.78** |

| Units | Intake Temperature | Discharge Temperature | Flow Rate (mgd) | Gross MWH Generated | Daily Average Capacity Utilization | Maximum Flow Rate |
|---|---|---|---|---|---|---|
| 1 & 2 | 19.4 | 30.0 | 103.7 | Unit 1: 214 Unit 2: 0 | Unit 1: 5.0% Unit 2: 0% | 207.40 |
| 3 & 4 | 20.0 | 28.3 | 398.6 | Unit 3: 458 Unit 4: 451 | Unit 3: 5.7% Unit 4: 5.6% | 398.80 |
| Scattergood | 15.6 | 29.5 | 390.0 | | | 495.36 |

## Table 5.5-12

## WINTER 1998 RECEIVING WATER TEMPERATURE MEASUREMENTS (°C)
## April 10, 1998

| | | Surface Temperatures | | | Bottom Temperatures | | |
|---|---|---|---|---|---|---|---|
| **Station Depth** | **Station** | **Temperature** | **Average Temperature** | **Max/Min Temperatures** | **Temperature** | **Average Temperature** | **Max/Min Temperatures** |
| 20' | RW1 | 16.33 | 16.45 | | 15.68 | 15.58 | |
| | RW2 | 16.32 | | | 15.96 | | 13.51 |
| | RW3 | 16.26 | | 16.26 | 15.48 | | |
| | RW4 | 16.90 | | | 15.21 | | |
| | | | | | | | |
| 40' | RW5 | 16.34 | 16.54 | | 14.83 | 13.79 | |
| | RW6 | 16.31 | | | 13.15 | | |
| | RW7 | 16.60 | | | 13.37 | | |
| | RW8 | 16.90 | | 16.90 | 13.82 | | |
| | | | | | | | |
| 60' | RW9 | 16.27 | 16.50 | | 13.09 | 13 | |
| | RW10 | 16.54 | | | 12.53 | | 12.53 |
| | RW11 | 16.39 | | | 12.79 | | |
| | RW12 | 16.79 | | | 13.60 | | |
| | | | **Delta T** | **0.64** | | | **3.40** |

| Units | Intake Temperature | Discharge Temperature | Flow Rate (mgd) | Gross MWH Generated | Daily Average Capacity Utilization | Maximum Flow Rate |
|---|---|---|---|---|---|---|
| 1 & 2 | 17.4 | N/A | 0.0 | Unit 1: 0 Unit 2: 0 | Unit 1: 0 Unit 2: 0 | 207.40 |
| 3 & 4 | 17.4 | 19.7 | 168.4 | Unit 3: 320 Unit 4: 0 | Unit 3: 4.0% Unit 4: 0 | 398.80 |
| Scattergood | 17.8 | 22.2 | 181.1 | | | 495.36 |

## Table 5.5-13

## SUMMER 1998 RECEIVING WATER TEMPERATURE MEASUREMENTS (°C)
## August 11, 1998

| | | Surface Temperatures | | | Bottom Temperatures | | |
|---|---|---|---|---|---|---|---|
| Station Depth | Station | Temperature | Average Temperature | Max/Min Temperature | Temperature | Average Temperature | Max/Min Temperature |
| 20’ | RW1 | 21.91 | 22.24 | | 21.51 | 20.21 | 21.51 |
| | RW2 | 22.37 | | | 20.44 | | |
| | RW3 | 22.28 | | | 20.52 | | |
| | RW4 | 22.40 | | | 18.38 | | |
| | | | | | | | |
| 40’ | RW5 | 22.37 | 22.33 | | 17.21 | 16.51 | |
| | RW6 | 21.66 | | 21.66 | 16.39 | | |
| | RW7 | 22.58 | | | 16.17 | | |
| | RW8 | 22.69 | | | 16.28 | | |
| | | | | | | | |
| 60’ | RW9 | 21.84 | 22.34 | | 16.38 | 15.61 | |
| | RW10 | 22.46 | | | 15.61 | | |
| | RW11 | 22.23 | | | 15.13 | | 15.13 |
| | RW12 | 22.83 | | 22.83 | 15.30 | | |
| | | | **Delta T** | **1.17** | | | **6.38** |

| Units | Intake Temperature | Discharge Temperature | Flow Rate (mgd) | Gross MWH Generated | Daily Average Capacity Utilization | Maximum Flow Rate |
|---|---|---|---|---|---|---|
| 1 & 2 | 21.1 | 28.9 | 103.7 | Unit 1: 400 Unit 2: 1180 | Unit 1: 9.5% Unit 2: 28.0% | 207.40 |
| 3 & 4 | 20.4 | 30.7 | 389.3 | Unit 3: 2,980 Unit 4: 3,100 | Unit 3: 37.0% Unit 4: 38.6% | 398.80 |
| Scattergood | 22.2 | 33.3 | 436.0 | | | 495.36 |

## Table 5.5-14

## WINTER 1997 RECEIVING WATER TEMPERATURE MEASUREMENTS (°C)
## April 26, 1997

| | | Surface Temperatures | | | Bottom Temperatures | | |
|---|---|---|---|---|---|---|---|
| **Station Depth** | **Station** | **Temperature** | **Average Temperature** | **Max/Min Temperature** | **Bottom** | **Average Temperature** | **Max/Min Temperature** |
| 20’ | RW1 | 14.71 | 15.11 | 14.71 | 13.99 | 14.39 | |
| | RW2 | 15.16 | | | 14.34 | | |
| | RW3 | 14.96 | | | 13.88 | | |
| | RW4 | 15.62 | | 15.62 | 15.36 | | 15.36 |
| | | | | | | | |
| 40’ | RW5 | 15.19 | 15.29 | | 13.14 | 13.23 | |
| | RW6 | 15.39 | | | 12.45 | | |
| | RW7 | 15.04 | | | 12.71 | | |
| | RW8 | 15.52 | | | 14.60 | | |
| | | | | | | | |
| 60’ | RW9 | 15.17 | 15.32 | | 12.49 | 12.15 | |
| | RW10 | 15.25 | | | 11.90 | | |
| | RW11 | 15.46 | | | 11.53 | | 11.53 |
| | RW12 | 15.38 | | | 12.67 | | |
| | | | **Delta T** | **0.91** | | | **3.83** |

| **Units** | **Intake Temperature** | **Discharge Temperature** | **Flow Rate (mgd)** | **Gross MWH Generated** | **Daily Average Capacity Utilization** | **Maximum Flow Rate** |
|---|---|---|---|---|---|---|
| 1 & 2 | 13.9 | 16.7 | 51.8 | Unit 1: 0 Unit 2: 0 | Unit 1: 0 Unit 2: 0 | 51.8 |
| 3 & 4 | 13.9 | 23.6 | 194.8 | Unit 3: 640 Unit 4: 0 | Unit 3: 8.0% Unit 4: 0 | 398.80 |
| Scattergood | 13.3 | 20.0 | 112.0 | | | 495.36 |

## Table 5.5-15

## SUMMER 1997 RECEIVING WATER TEMPERATURE MEASUREMENTS (°C)
## July 29, 1997

| | | Surface Temperatures | | | Bottom Temperatures | | |
|---|---|---|---|---|---|---|---|
| **Station Depth** | **Station** | **Temperature** | **Average Temperature** | **Max/Min Temperature** | **Bottom** | **Average Temperature** | **Max/Min Temperature** |
| 20' | RW1 | 20.84 | 20.92 | | 19.05 | 19.36 | |
| | RW2 | 20.95 | | | 18.83 | | |
| | RW3 | 20.72 | | | 19.60 | | |
| | RW4 | 21.16 | | 21.16 | 19.97 | | 19.97 |
| | | | | | | | |
| 40' | RW5 | 20.01 | 20.53 | | 18.56 | 17.00 | |
| | RW6 | 20.60 | | | 17.71 | | |
| | RW7 | 20.40 | | | 16.54 | | |
| | RW8 | 21.09 | | | 15.20 | | |
| | | | | | | | |
| 60' | RW9 | 19.39 | 20.04 | 19.39 | 16.12 | 14.80 | |
| | RW10 | 19.79 | | | 14.43 | | |
| | RW11 | 20.09 | | | 14.42 | | |
| | RW12 | 20.09 | | | 14.24 | | 14.24 |
| | | | **Delta T** | **1.77** | | | **5.73** |

| Units | Intake Temperature | Discharge Temperature | Flow Rate (mgd) | Gross MWH Generated | Daily Average Capacity Utilization | Maximum Flow Rate |
|---|---|---|---|---|---|---|
| 1 & 2 | 15.6 | 17.3 | 194.8 | Unit 1: 0 Unit 2: 0 | Unit 1: 0 Unit 2: 0 | 103.7 |
| 3 & 4 | 15.5 | 26.4 | 398.6 | Unit 3: 1,890 Unit 4: 0 | Unit 3: 23.5% Unit 4: 0 | 398.80 |
| Scattergood | 13.9 | 22.2 | 304.0 | | | 495.36 |

**Heat Treatment Waste**. ESGS controls marine fouling of the cooling water conduits (intake and discharge) by temporarily recirculating (thus increasing the temperature) and reversing the flow of the once-through cooling water alternately in each offshore conduit (i.e., the discharge point becomes the intake point, and the intake point becomes the discharge point). This procedure, referred to as “heat treatment,” is used to remove mussels and to minimize the growth of other macro-fouling organisms on the piping and heat exchangers. Heat treatment is typically conducted approximately every six weeks, lasts for about six hours per conduit, and creates high temperature lasting for one hour during gate adjustment. During the heat treatment, the temperature of the water discharged must be raised no higher than 125°F (except during gate adjustment) for two hours to remove encrusting organisms. During gate adjustments, the discharge temperature can be increased up to 135°F for no more than 30 minutes. Gate adjustments control the temperature of the water recirculated in the intake and discharge points during heat treatment.

Calcareous shell debris accumulates in the intake structure as a result of heat treatments. Approximately once a year, this shell debris is physically removed and may be disposed in the Pacific Ocean.

During the period covered by the 1999 Receiving Water Monitoring Report (October 1, 1998 through September 30, 1999) two heat treatments were conducted on Outfall No. 001 and two heat treatments were performed on Outfall No. 002. The 1999 Receiving Water Monitoring Report is presented in Appendix H. During this period the number of heat treatments was artificially reduced pending correction of a clerical error that reduced the temperature permitted for heat treatment. This clerical error was corrected with the renewal of the NPDES permit on June 29, 2000 and the approximate six week-cycle for heat treatment restored.

**Treated Chemical Metal Cleaning Waste**. When produced, the chemical metal cleaning wastes from all the units are collected in portable storage tanks and treated to remove metals through a contractor-owned mobile lime treatment unit. The contractor maintains a tiered treatment unit (TTU) permit from the Department of Toxic Substances Control that allows for treatment of hazardous wastes on-site. The chemical metal cleaning operations occur approximately once every four years per generating unit and discharge occurs every two years**.** Units 1 & 2 and Units 3 & 4 are scheduled for chemical metal cleaning on alternating bi-annual cycles**.** The duration of the discharge is normally approximately 36 to 48 hours per generating unit. The treated metal cleaning wastes and other low volume wastes are stored in a retention basin prior to discharge to the Pacific Ocean through Outfall No. 002. The discharge limitations for the treated chemical metal cleaning wastes established in the NPDES Permit are presented in Table 5.5-16.

**TABLE 5.5-16**

**DISCHARGE LIMITATIONS – TREATED CHEMICAL METAL CLEANING WASTES**

| Constituent | Units | Monthly Average | Daily Maximum |
|---|---|---|---|
| Suspended Solids | mg/L | 30 | 100 |
| Oil and Grease | mg/L | 15 | 20 |
| Copper, total | mg/L | 1.0 | 1.0 |
| Iron, total | mg/L | 1.0 | 1.0 |

The NPDES Permit also requires monthly monitoring of the treated chemical metal cleaning wastes. Treated chemical metal cleaning waste effluent monitoring data are provided in Appendix H.

**Low Volume Wastes (excluding sanitary wastes)**. Low volume wastes consist of the following intermittent waste streams:

- Floor drain wastes
- Boiler blowdown
- Fireside and air preheater wastes
- Fuel pipeline hydrostatic test water
- Condenser sump
- Storm water runoff
- Chemical laboratory drains.

Approximately 152,000 gpd of low volume wastes are generated at the ESGS. The discharge limitations for the low volume wastes established in the NPDES Permit are presented in Table 5.5-17.

**TABLE 5.5-17**

**DISCHARGE LIMITATIONS – LOW VOLUME WASTES**

| Constituent | Units | Monthly Average | Daily Maximum |
|---|---|---|---|
| Suspended Solids | mg/L | 30 | 100 |
| Oil and Grease | mg/L | 15 | 20 |

The NPDES Permit also requires monthly monitoring of low volume wastes. Effluent monitoring data are provided in Appendix H. The low volume monitoring data are summarized in Table 5.5-18.

**TABLE 5.5-18**

**1999 LOW VOLUME WASTE MONITORING DATA SUMMARY**

| Constituent | Units | Monthly Average | Daily Maximum |
|---|---|---|---|
| pH | | 8.9 | N/A |
| Suspended Solids | mg/L | 16.6 | 28.6 |
| Oil and Grease | mg/L | 6.1 | 32.5 |

Storm water and floor drain wastes are passed through oil/water separators before combining with the cooling water and treated sanitary wastes prior to discharge to the Pacific Ocean through Outfall Nos. 001 and 002. Within the fuel oil tank area, all stormwater is currently collected within the containment berm and then periodically pumped out to the adjacent areas beyond the berm. However, storm water runoff from upslope of the facility flows into an easement conveyance then to the beach without commingling with the runoff from ESGS.

**Chlorination**. To control biological growths (defouling), the condenser tubes (arranged two banks per generating unit, each bank is called condenser half) are treated by intermittently injecting approximately 13 gallons of chlorine (in the form of 12½% sodium hypochlorite), for a maximum of two hours per generating unit per day, into the cooling water stream.

At times of peak demand during defouling treatment, total residual chlorine (TRC) levels in the once-through cooling water have exceeded effluent limitations based on 40 CFR Part 423 guidelines (0.20 mg/L) and the 1983 Ocean Plan objectives (0.533 mg/L and 0.780 mg/L for Outfall Nos. 001 and 002, respectively. The current Ocean Plan objectives are more stringent. However, chlorination bioassay studies (1988) performed by Southern California Edison (SCE) showed no significant adverse impact on the receiving waters as a result of the discharge from the ESGS.

In 1983, SCE submitted an application for a variance under Section 301(g) of the CWA from the BAT requirements for TRC. In 1984, SCE also applied for a variance for TRC limitations from the 1983 Ocean Plan objectives. In July 1988, the State Board adopted Resolution No. 88-80 that granted an exception from the 1983 Ocean Plan for TRC. The Los Angeles

Regional Board and the State Board approved the variance request for TRC and forwarded it to the USEPA in August 1988, for concurrence, pursuant to Section 301(g) of the CWA.

In May 1996, the USEPA approved the request for a variance from BAT for TRC (Appendix H) pursuant to Section 301(g) of the CWA and approved the proposed modified TRC effluent limitations (PMELs). In approving the PMELs, the USEPA Region IX made the following findings with regard to the alternate PMELs compliance with the statutory criteria (Appendix H):

- TRC is a nonconventional pollutant.

- The State of California has concurred with the variance. This is documented in SWRCB Resolution 88-80, and the NPDES permit issued by the Los Angeles Regional Board.

- The original PMELs, and therefore the more stringent alternate PMEL, will result in compliance with the Ocean Plan WQS for TRC. This conclusion by the State Board is documented in State Board Resolution 88-80. USEPA concurred with State Board Resolution 88-80 on February 15, 1989.

- The PMEL will not result in any additional treatment requirements on any other point or nonpoint sources.

- The PMEL should not interfere with the attainment and maintenance of water quality necessary to:

  - Protect public water supplies;
  - Allow recreational activities in and on the water;
  - Assure protection and propagation of a balanced population of shellfish, fish and wildlife.

- The PMEL should not:

  - Result in the discharge of pollutants which may reasonably be anticipated to pose an unacceptable risk to human health or the environment because of bioaccumulation; persistency in the environment; acute or chronic toxicity (including carcinogenicity, mutagenicity, teratogenicity); or synergistic propensities.

The USEPA approved the request for the variance with the following conditions:

a) The effluent from Outfall Nos. 001 and 002 must meet an alternate proposed modified effluent limitation (PMEL) of 0.4 mg/L TRC (instantaneous maximum) based on daily sampling at Outfall Nos. 001 and 002 during periods of chlorination.

b) The effluent from Outfall Nos. 001 and 002 must meet chronic toxicity daily maximum limits of 13 and 19 Tuc, respectively. The chronic toxicity tests must be representative of actual discharge conditions (at a minimum) or of the alternate PMEL of 0.4 mg/L. This means that, at a minimum, the effluent samples must be chlorinated in the laboratory to levels consistent with the maximum TRC effluent concentration measured during the previous three months chlorination events. This requirement to chlorinate samples in the laboratory applies only if the recorded effluent chlorine concentrations exceed the BAT limit of 0.2 mg/L during the previous three months.

c) In the event the effluent chronic toxicity limitations are exceeded at either Outfall Nos. 001 or 002, ESGS shall increase the monitoring frequency at the subject outfalls to monthly in accordance with the NPDES permit. If the chronic toxicity limit is exceeded again during the accelerated monitoring period, ESGS shall conduct a toxicity reduction evaluation (TRE). The TRE shall be conducted in accordance with USEPA's most current TRE/toxicity identification evaluation (TIE) manuals.

d) SCE was required to conduct a chlorine residual receiving water study, as set forth in the NPDES Permit (December 5, 1994), to assess the impacts of chlorine and chlorine byproducts within the receiving waters during periods of maximum chlorination.

e) The variance can be reviewed and revised by USEPA at any time if subsequent information indicates that the alternate PMEL will not result in compliance with all 301(g) criteria. The information includes, but is not limited to subsequent chronic toxicity test results, receiving water monitoring data, and TIE/TRE findings indicating that the discharge of TRC at concentrations greater than the BAT limit of 0.2 mg/l results in exceedance of the toxicity limit.

Finding 23 of the NPDES Permit states:

> "Based on the 1996 chronic test results, the infrequent exceedance of the BAT limit for TRC, and findings of the 1987 study on chlorine concentrations in the receiving water (all mentioned in Finding No. 23), the receiving water study on the impact of chlorine discharge required in the December 5, 1994 permit was determined to be no longer necessary."

**Treated Sanitary Waste**. Treated sanitary wastes from Units 1 and 2 are currently discharged to Santa Monica Bay through Outfall 001. Similarly, treated sanitary wastes from

Units 3 and 4 are currently discharged to Santa Monica Bay through Outfall 002. The discharge limitations for the treated sanitary wastes established in the Permit are presented in Table 5.5-19.

**TABLE 5.5-19**

**DISCHARGE LIMITATIONS TREATED SANITARY WASTES**

| Constituent | Units | Monthly Average | Daily Maximum |
|---|---|---|---|
| $BOD_5$ 20ºC | mg/L | 30 | 45 |
| Suspended Solids | mg/L | 30 | 100 |
| Settleable Solids | ml/L | 0.1 | 0.3 |
| Oil and Grease | mg/L | 15 | 20 |

The NPDES Permit also requires monthly monitoring of the treated sanitary wastes. Effluent monitoring analysis data are provided in Appendix H. A summary of the monthly monitoring of the treated sanitary wastes is summarized in Table 5.5-20. ESGS has been in compliance with NPDES Permit requirements related to the discharge of sanitary wastes.

**TABLE 5.5-20**

**TREATED SANITARY WASTES**
**SUMMARY OF MONTHLY MONITORING DATA**
**SANITARY PLANT NO. 1**

| Constituent | Units | Monthly Average | Daily Maximum |
|---|---|---|---|
| $BOD_5$ 20ºC | mg/L | 3 | 6 |
| Suspended Solids | mg/L | 7.7 | 16 |
| Settleable Solids | ml/L | 0.10 | 0.10 |
| Oil and Grease | mg/L | 1.0 | 1.0 |

### 5.5.2 Environmental Consequences

The environmental water resources consequences of the ESPR relate to the use of potable water, the use of seawater from Santa Monica Bay for once-through cooling, and construction groundwater issues.

### 5.5.2.1 Power Plant

ESPR involves the demolition and removal of Units 1 and 2 on the ESGS site, except for the seawater cooling system. Following the demolition/removal, a new combined cycle power plant will be constructed on site with the addition of Units 5, 6 and 7 in the location previously occupied by Units 1 and 2. ESPR will continue to use the once-through cooling water system without modification, and thus will not impact the beneficial uses of Santa Monica Bay.

**5.5.2.1.1 Demolition and Construction.** During construction, the use of potable water at the site is expected to increase to serve the needs of construction workers and construction activities. Drinking water will be distributed daily. Average use of construction water is expected to be approximately 5,000 gpd. During hydrotest, water usage is estimated at 20,000 gpd. The potable water demand will be more than offset by the reduced demand for industrial purposes resulting from the decommissioning of Units 1 and 2. Wastewater generated during demolition and construction activities will include sanitary wastes, dust suppression drainage, equipment wash water and stormwater runoff. Construction-related sanitary wastes, collected in portable self-contained chemical toilets, will be pumped periodically and transported by licensed contractors to a sanitary wastewater treatment facility.

During demolition and construction, approximately 6 acres of land associated with the ESGS site will be disturbed. This includes construction parking, some construction lay-down, and storage areas at the ESPR site. Only a portion of the lay-down area will be utilized at any one time. BMP’s and a drainage control plan will be implemented to assure no significant increase in erosion from construction activities. Erosion and sediment controls and other BMPs as appropriate will be identified in the Construction Storm Water Pollution Prevention Plan (SWPPP) and implemented during demolition and construction. The SWPPP will be implemented in accordance with the California NPDES General Permit for Storm Water Discharges Associated with Construction Activity (including any new revisions to this permit) and other laws, ordinances, regulations and standards (LORS) as applicable. During demolition and construction, storm water runoff will be discharged through Outfall No. 002. The entire ESGS drains into oil water separators.

Equipment wash water, with the potential for contamination, will be contained at specifically designated wash areas and transported to a wastewater treatment facility via a licensed hauler. Wastewater, from wash down of concrete trucks and other construction activities that does not have the potential to be contaminated, will be directed to the construction stormwater collection system.

The site is not a groundwater recharge area. However, due to the high groundwater conditions, dewatering will be conducted during demolition of the existing Unit 1 and 2 foundations and during the construction of the ESPR Project. Treatment and disposal of dewatering wastes are addressed in Section 5.14, Waste Management. Treatment and disposal of dewatering wastes will be performed in conformance with applicable regulatory requirements, as developed by the Los Angeles Regional Board during consultation as part of the AFC process. There is an existing plume of hydrocarbons in the vicinity of the ESGS from historic operations of the adjacent Chevron refinery. The Waste Management Plan in Appendix S describes how water will be treated to remove hydrocarbons. Section 5.14, Waste Management, and Appendix S, Waste Management Plan, address expected levels of constituents and volumes of produced water, and how the water will be treated.

ESPR will apply for an NPDES permit for the dewatering phase of construction. The NPDES application will specify projected water quality, expected water volume, and proposed method of treatment.

#### 5.5.2.1.2 Water Supply.

**Ocean Cooling Water**. Cooling water requirements for ESPR will be met through the use of once-through seawater taken from the existing intake structure currently serving Units 1 and 2 located in Santa Monica Bay (Outfall No. 003) and discharged through the existing discharge structure (Outfall No. 001). This ocean cooling water will be used for steam turbine condenser and auxiliary cooling requirements. Power cycle heat rejection will consist of a two-pass de-aerating, wet surface condenser and a once-through non-contact circulating water system. The expected quality of seawater used for once-through cooling is presented in Table 5.5-2.

Under peak operating conditions during the summer months, once through cooling water needs will not exceed the existing maximum volume of 144,000 gpm or 207 mgd. However, the potential exists for operation of the ESPR without all pumps running when not at full load. Two pump operations will likely occur at 50% load on Unit 6 and three pump operations will likely occur at 75 percent load on Unit 6. Further, the ESPR is designed to limit the temperature difference across the intake and outfall to 20°F. In addition, the maximum thermal loading from the ESPR Project will be substantially less than the maximum thermal loading from Units 1 and 2.

ESPR will optimize the use of once-though cooling water for the production of power by almost 46 percent. As noted in Table 5.5-21, the capacity will be increased from 350 MW to 646.8 MW with the same volume of cooling water required.

**TABLE 5.5-21**

**EXISTING AND PROPOSED GENERATING CAPACITIES AND COOLING SYSTEM FLOWS**

| | Existing | | | ESPR Project | | | |
|---|---|---|---|---|---|---|---|
| | **Unit 1** | **Unit 2** | **Total Units 1&2** | **Unit 5** | **Unit 6** | **Unit 7** | **Total Units 5,6&7** |
| Capacity (MW) | 175 | 175 | 350 | 183.4 | 280 | 183.4 | 646.8 |
| MMBtu/day | 36,666 | 36,666 | 73,332 | 14,209 | | 14,209 | 33,298 |
| Flow (mgd) | | | 207 | N/A | 207 | N/A | 207 |
| MW/MMBtu/day | | | | | | | |
| MW/MGD | | | .59 | | | | .32 |

**Cooling Water Intake**. No modifications will occur to the existing Unit 1 and 2 intake structure. The intake structure, located approximately 2590 feet (790 meters) offshore, was constructed in 1954 and was modified in 1956 to incorporate a velocity cap. This meets Clean Water Act 316(b) requirements.

Section 316(b) of the Clean Water Act requires the location, design, construction and capacity of cooling water intake structures to reflect the best available technology (BAT) for minimizing adverse environmental impact. The definition of this standard is a matter of debate. Compliance with the requirements of Section 316(b) is affected by several variables, which may result in differing approaches for different installations. These variables include site location, local environment, aquatic species and organisms, plant configuration (i.e., new or existing facility) and cost effectiveness.

In August 2000 the USEPA published a draft regulation implementing CWA section 316(b) for “new” facilities. This regulation is unique in that it applies to the intake of water and not the discharge. It is important to note that the intake for the ESPR would be classified as an “existing” facility under this draft regulation. A major goal of this draft regulation is to minimize the impingement and entrainment of fish and other aquatic organisms as they are drawn into a facility’s cooling water intake. Impingement occurs when fish and other aquatic life are trapped in cooling water intake screens. Entrainment occurs when aquatic organisms, eggs and larvae are sucked into the cooling system, through the heat exchanger, and then pumped back out. As required by Court Order, EPA must propose a similar regulation for existing facilities by July 20, 2001.

For ocean intakes, the proposed 316(b) regulations would impose less stringent requirements for “new” intakes located more than 1,640 feet (500 meters) offshore. As the ESPR intake structure is located 2,590 feet (790 meters) from shore, these less stringent requirements would apply if this were a "new" intake structure. As the circulating system will not be modified in terms of structure or data operation and the maximum volume and velocity will not change, the existing intake structure is classified as an "existing" facility under the draft regulations.

In the proposed regulations, EPA has identified a number of intake technologies available for installation at cooling water intake structures to minimize adverse environmental impact. The intake technologies can be classified into four categories:

- Intake screen systems
- Passive Intake Systems
- Diversion or avoidance systems
- Fish handling systems.

Diversion or avoidance devices are also called behavioral barriers. These devices are designed to take advantage of the natural behavioral patterns of fish so that the fish will not enter an intake structure.

Velocity caps, as implemented at the ESGS, are included in the technologies identified by EPA in the draft regulations for use in new facilities to minimize adverse environmental impact.

> *EPA considers the following intake technologies to be fish diversion and avoidance systems: louvers,* ***velocity caps*** [emphasis added]*, barrier nets, air bubble barriers, electrical barriers, light barriers, sound barriers, cable and chain barriers, and water jet curtains.*

Therefore, although the intake structure will be an "existing" facility, it appears that the existing intake structure meets the proposed requirements to reduce impingement of aquatic organisms for a "new" facility. As described in Section 5.5.1.1.1, the velocity cap has proven to be very effective in controlling impingement in actual operations that will be experienced with the ESPR Project.

**Potable Water**. Potable water provided by the City of El Segundo will be used for potable, plant and equipment drains, evaporative cooler makeup and quench water needs. The expected water quality of the potable water source is presented in Table 5.5-2. It is estimated that operational needs for ESPR potable water will increase from 49,940 gpd (current Units 1 & 2 usage) to 93,000 gpd (new Units 5, 6 & 7 usage) as reflected in Table 5.5-1. The construction and operational demands can be accommodated by the existing supply and site infrastructure. No significant adverse impacts on water supply are projected.

**Reclaimed Water**. California Water Code §13550 (California Codes, Water Code, 2000) (Appendix H) requires the use of reclaimed water, where available. The use of potable domestic water for non-potable uses, including industrial uses, is a waste or an unreasonable use of the water within the meaning of Section 2 of Article X of the California Constitution if recycled water is available and:

- Is of adequate quality
- Is of reasonable cost
- Its use will not be detrimental to public health and/or
- It will not degrade receiving water quality or be injurious to plant life, fish and wildlife

Consistent with this requirement, reclaimed water produced by the Hyperion Treatment Plant and further treated and distributed by the West Basin Municipal Water District will continue to be used for landscape irrigation at the ESGS. In addition, ESGS is finalizing negotiations with the West Basin Municipal Water District (WBMWD) to obtain additional reclaimed water of appropriate quality (treated by reverse osmosis) for makeup to the HRSG cycle and combustion turbine steam injection. The expected water quality of the reclaimed water and the reclaimed water treated by reversed osmosis is presented in Table 5.5-2. Implementation of the ESPR will result in a reduction in the demand on potable water of 64,000 gpd at ESPR. The further use of reclaimed water to reduce potable water use is limited due to the high corrosivity of the reclaimed water. The source of potable water is imported water supplied by the Metropolitan Water District of Southern California. Therefore, the use of reclaimed water to limit the demand on this source is an important beneficial feature of the ESPR.

#### 5.5.2.1.3 Hydrology and Water Quality.

**100-Year Flood Plain**. The ESGS drainage facilities will be designed to prevent flooding of permanent plant facilities and overflow of plant roads. The final grade for the new power block area will be similar to the existing grade. The power block complex will be at a level elevation of 20 feet and the top of pavement will slope down at the drop inlet locations to Elevation 18 feet.

The final grade for the fuel oil tank area will be similar to the existing topography with grades sloping from Elevation 40 feet down to new drop inlets at Elevation 38 feet. The existing earthen berm will remain unchanged except that a portion of the berm along the west side will be removed to allow road access into the tank area.

A new Administration/Maintenance Building will be situated on a level area located north of the fuel oil tank area and east of the retention basin. The existing elevation of 25 feet in this area will remain unchanged. A portion of the building will extend into the existing slope and therefore, the lower level building wall will also serve as a retaining wall. All existing and proposed grades and drainage are depicted on figures provided in Section 3.4.

**Surface Waters**. The ESPR site is relatively small in area and annual precipitation is low. Runoff and infiltration from the ESPR site do not contribute to the production or movement of surface waters. Therefore, no impacts to surface water quality or quantity are expected during demolition, construction or operation of the ESPR.

**Groundwater**. Groundwater contaminated with TPH and VOCs will be encountered during demolition-phase dewatering. The Regional Board and the Department of Toxic Substances Control (DTSC) have overseen previous assessment and remediation activities at this site related to onsite and offsite soil and groundwater contamination sources. The Los Angeles Regional Board oversees ongoing groundwater management activities at the Chevron Refinery. Therefore, notification of these state agencies will be required during dewatering. Coordination with Chevron will be necessary to develop the best dewatering program to lower the water table to the desired depth without reducing the effectiveness of the ongoing groundwater management program at the Chevron Refinery. Groundwater encountered during dewatering may be managed by one of two alternatives: (1) pumped to onsite Baker tanks and transported by vacuum trucks to an offsite treatment facility in Long Beach or Carson, California or (2) treated onsite and discharged to Santa Monica Bay via Outfall No. 002. Dewatering issues are addressed in Section 5.14, Waste Management.

#### 5.5.2.1.4 Wastewater Treatment and Disposal.

**Wastewater Disposal**. Continued use of the existing once-through cooling water system, use of a wet cooling tower and use of an air-cooled condenser were considered for heat rejection. The wet cooling tower and air-cooled condenser alternatives were rejected based on several considerations, including space constraints. An in-depth analysis of the alternative cooling technologies is presented in Section 4.3.

Expected average steady-state waste streams and flow rates for the facility based on summer-time operating conditions are shown on the water mass balance diagrams, Figures 3.4-5 and 3.4-6. Characterization of the process wastewater streams is shown in Table 5.5-22. The estimated liquid process wastewater volumes discharged to Outfall No. 001 are presented in Table 5.5-23.

**TABLE 5.5-22**

**EXPECTED PROCESS WASTE CHARACTERIZATION[1]**
**(mg/L as ions, except as noted)**

| Constituent | Circulating Water Discharge | Existing Retention Basin Effluent | Combined Waste to Outfall 001 | Sanitary Waste to Sewer |
|---|---|---|---|---|
| Calcium | 400 | 43 | 400 | 50 |
| Magnesium | 1,100 | 18 | 1,100 | 20 |
| Sodium | 11,000 | 57 | 11,000 | 60 |
| Potassium | 380 | 3 | 380 | 3 |
| M-Alkalinity, as $CaCO_3$ | NR | 97 | NR | 100 |
| Sulfate | 1,900 | 123 | 1,900 | 130 |
| Chloride | 19,000 | 58 | 19,000 | 60 |
| Nitrate | 0.59 | 0 | 0.59 | 0 |
| Fluoride | 0.7 | 0.18 | 0.7 | 0.20 |
| Aluminum | 0.1 | 0.06 | 0.1 | 0.08 |
| Silica | 0.01-7.0 | 1 | 0.01-7.0 | NR |
| TDS | 33,000 | 420 | 33,000 | 440 |
| pH | 7.7-8.3 | 8.1 | 7.7-8.3 | 8.2 |
| TSS | 3.0 | <1 | 3.0 | 500 |
| Phosphate | NR | 4 | 0 | NR |
| Ammonia | NR | 0 | 0 | 5 |
| Oil and grease | NR | 0 | 0 | NR |
| BOD5 | 1.0 | ND | 1.0 | 400 |
| COD | 49 | ND | 49 | 100 |

NR = Not Reported
[1] All numbers are approximate.

**Once-Through Cooling Water**. No changes to the maximum daily volume of discharges from the ESGS will occur with the implementation of ESPR. ESPR is also designed to *reduce* the temperature increase during normal operations to 20°F above ambient (estimated maximum of 93°F assuming a maximum intake water temperature of 73 °F) while the maximum temperature of the thermal discharge for the existing Units 1 and 2 is 105°F.

A mixing zone analysis was conducted to estimate the dilution from Outfall Nos. 001 and 002. This study involved the application of various discharge models such as USEPA's CORMIX and PLUMES models with inputs on effluent conditions and ambient conditions. Based on an evaluation of the ambient conditions, the model was applied for two scenarios corresponding to winter and spring conditions. Since the near-field dilution is about the same

## TABLE 5.5-23

## ESTIMATED LIQUID PROCESS WASTEWATER VOLUMES TO DISCHARGE[1]

| Waste Stream | Source | Quantity/Day |
|---|---|---|
| Circulating Water Return | Condenser | 206,000,000 gal. |
| Stormwater Oil/Water Separators Effluent | Plant and equipment drains, area precipitation | 3,100 gal |
| Existing Retention Basin Effluent | HRSG, oil water separator effluent | 80,000 gal |
| Total Waste to Outfall 001 | Circulating water and oil water separator effluent | 207,000,000 gal |
| Total Waste to City Sewer | Sanitary drains system | 750 gal |

as reported in the Thermal Effects Study and the heat rejection rate is about the same, the far-field plume should be about the same size, between 30 and 40 acres. The Mixing Zone Analysis is provided in Appendix H. The far-field diameter of the thermal plume (area approximately 1 °F above ambient) is illustrated in Figure 5.5-18.

Although it is anticipated that ESPR will realize greater utilization and hence a more regular discharge and a greater total annual volume, the Thermal Effects Study and decades of operational experience have demonstrated that there are no significant impacts associated with this discharge. Section 5.6 Biological Resources fully explores impacts from the circulating water cooling system. In addition, it is projected that ESPR will result in an overall reduction in the maximal thermal loading to Santa Monica Bay from ESGS. The anticipated operation of the ESGS following completion of ESPR is described as follows:

- Stage 1: Under baseload conditions, it is projected that Units 5, 6 and 7 will operate and a maximum of 207 mgd of seawater will be circulated for once-through cooling (i.e., no increase). However, the potential exists for operation of ESPR without all pumps running when not at full load. Two pump operation will likely occur at 50% load on Unit 6 and three pump operation will likely occur at 75% load on Unit 6. The thermal loading under this condition at full load is estimated to be 33,298 MMBtu/day. Therefore, the maximum thermal loading of ESPR will be significantly less than the maximum thermal loading of 46,488 MMBtu/day realized with operation of Units 1 and 2.

- Stage 2: At full capacity utilization, Units 3, 4, 5, 6 and 7 will operate. A maximum of 207 mgd of seawater will be circulated through Outfall No. 001 and a maximum of 398 MGD of seawater will be circulated through Outfall No. 002 (maximum total of 605 MGD). The thermal loading under this condition at full load is estimated to be 106,630

Btu/day. Therefore, the maximum thermal loading of the ESGS with implementation of ESPR will be significantly less than the current maximum thermal loading of 119,820 MMBtu/day.

The Thermal Effects Study found that the thermal discharges from ESGS are in compliance with the requirements of the California Thermal Plan and that the discharges result in no significant impact to benthic or aquatic communities. The results of the ongoing monitoring studies confirm continued compliance with the requirements of the California Thermal Plan and that there will be no significant impacts resulting from these discharges at the benthic or receiving water monitoring stations.

For the purposes of this analysis it is projected that ESPR will operate at a capacity utilization of 93 percent. However, market demands during the life of the ESGS may dictate higher or lower levels of capacity utilization. Also, with the planned completion of modifications that will result in emission reductions of 85 to 90 percent and make Unit 3 more viable in the energy market, both Units 3 and 4 are projected to operate at a capacity utilization equivalent to the current capacity utilization of Unit 4. Again, these projections are for purposes of analysis and actual utilization will be determined by market demands. The projected ESPR discharge conditions are summarized in Table 5.5-24. The projected cooling water discharge profile for the ESGS is presented in Figure 5.5-19 and the projected thermal loading profile is presented on Figure 5.5-20.

**TABLE 5.5-24**

**PROJECTED DISCHARGE CONDITIONS**

| | Days Operating | MWH | Maximum Flow (mgd) | MWH/ mgd | Annual Volume (Acre-ft) | MMBtu/ day | MMBtu/ MWH | Annual Thermal Loading (BMBtu) |
|---|---|---|---|---|---|---|---|---|
| Unit 3 & 4 | 210 | 670 | 398 | 1.68 | 256,498 | 73,332 | 109.5 | 15,40 |
| ESPR Project | 342 | 646.8 | 207 | 3.12 | 217,259 | 33,298 | 51.5 | 11,388 |
| **Total** | | **1,316.8** | **605** | **2.18** | **473,757** | **106,630** | **81.0** | **26,788** |

Notes: Operating days are based on estimations of future operations used for impact assessment purposes.

**<u>Heat Treatment Waste</u>**. Heat treatment will continue to be conducted as described in Section 5.5.1.1.3. Due to increasing energy demands and projected increased utilization of the ESGS with continued operation of Units 1 and 2 or implementation of the ESPR Project, additional heat treatments of Outfall No. 003 will be required. During 1999, Outfall No. 004, serving Units 3 and 4, received 2 heat treatments and Outfall No. 003, serving Units 1 and 2, received 2 heat treatments. During this period, the number of heat treatments was artificially reduced, pending correction of a clerical error that reduced the temperature permitted for heat treatment. This clerical error was corrected with the renewal of the NPDES permit on June 29, 2000 and the approximate six week cycle for heat treatment has been restored.

It is projected that the need to heat treat Outfall No. 004 may reduce with decreased annual average utilization of Units 3 and 4. In addition, it is projected that Outfall No. 003 will require more heat treatments annually with implementation of ESPR. As described in Section 5.6.2.2.2, there are no significant impacts associated with heat treatments.

**Treated Chemical Metal Cleaning Wastes**. The volume and quality of the treated chemical metal cleaning wastes will not change significantly from existing conditions and the effluent quality will continue to meet limitations established in the NPDES permit. Further, wastes from cleaning of the new units will be treated and disposed of off site (i.e., the treated chemical metal cleaning wastes will not be discharged to the ocean). Therefore, there will not be any impacts to the receiving waters associated with these wastes.

**Low Volume Wastes**. No modifications to the existing treatment and disposal of low-volume in-plant wastes are expected with the implementation of the ESPR Project. It is expected that the volume and quality of the low volume wastes will not change significantly from existing conditions and the effluent quality will continue to meet limitations established in the NPDES permit. No low volume wastes will be discharged through Outfall No. 001. HRSG blowdown, evaporative cooler blowdown and oily water separator effluent from plant and equipment drains will be routed to the existing retention basin. The effluent from the retention basin will be directed to the existing circulating water system Outfall No. 001, when the existing Units 3 and 4 are not operating. During operation of Units 3 and 4, the effluent from the retention basin will be discharged into Outfall No. 002. The discharges will comply with the limitations established in the NPDES Permit. Further, as these discharges have not resulted in impacts during historic operation as evidenced by discharge and receiving water monitoring, there will not be any impacts to the receiving waters associated with these wastes.

**Stormwater Treatment and Disposal**. Runoff from the ESGS will be routed and discharged to Santa Monica Bay via Outfall Nos. 001 and 002. Impervious area and volume of storm water runoff are not expected to increase with the implementation of ESPR. Stormwater will continue to be routed by gravity flow to oil water separators prior to discharge to Santa Monica Bay via Outfall Nos. 001 and 002. After redevelopment has been implemented, all stormwater from the fuel oil tank area will be collected, sent through an oil water separator, and the effluent discharged to the ocean through the existing Discharge No. 002. Within the proposed power block area, the site has been graded and paved to direct all surface runoff to the existing drop inlets. The storm water from the proposed power block area will be collected, sent through an oil water separator, and the effluent discharged to the ocean through the existing Outfall No. 001.

**Chlorination**. No modification to the existing procedures for chlorination to control biofouling are expected with the implementation of ESPR. Discharges will continue to comply with the TRC variance. The TRC variance was approved by EPA based on findings that discharges in compliance with the variance will not impact beneficial uses. Therefore, there will be no significant impacts associated with this discharge.

**Treated Sanitary Waste**. Due to the public concern with bacterial contamination of beaches, all sanitary wastes, including sanitary wastes from Units 3 and 4, will be diverted to the municipal sanitary sewer as an element of ESPR. The sanitary wastes will be conveyed by pipeline to the municipal sanitary sewer operated by the City of Manhattan Beach. The wastes will then be transmitted to the Los Angeles County Sanitation District for treatment and disposal. ESPR is coordinating with the City of Manhattan Beach to obtain a permit for connection with the sanitary sewer. Therefore, there will be no impacts associated with the disposal of sanitary waste.

A summary of the existing and ESPR discharges is presented in Table 5.5-25.

# TABLE 5.5-25

## EXISTING AND ESPR DISCHARGES [a]

| Discharge Serial No. | | Existing 001 | Existing 002 | Project 001 | Project 002 |
|---|---|---|---|---|---|
| Generating Units Served | | 1 & 2 | 3 & 4 | 5, 6 & 7 | 3 & 4 |
| Diameter of conduit (feet) | | 10 | 12 | 10 | 12 |
| Diameter of riser (feet) | | 14 (round) | 16 X 21 (rectangle) | 14 (round) | 16 X 21 (rectangle) |
| Distance Offshore (feet) | | 1,900 | 2,100 | 1,900 | 2,100 |
| Depth of Terminus, (feet below Mean Lower Low Water) | | 20 | 20 | 20 | 20 |
| Angle of Riser | | 90° (discharge directed toward surface | | | |
| Latitude | | 33° 54' 30" | 33° 54' 27" | 33° 54' 30" | 33° 54' 27" |
| Longitude | | 118° 25' 50" | 118° 25' 50" | 118° 25' 50" | 118° 25' 50" |
| Maximum Temperature (°F) | Winter (October to April) | 105[b] | 105[b] | **79** | 105[b] |
| | Summer (May to September) | 105[b] | 105[b] | **93**[e] | 105[b] |
| | Heat Treatment/Gate Adjustment | 125/135[b] | 125/135[b] | 125/135[b] | 125/135[b] |
| Waste Streams (maximum volume, mgd) [c] | Once-through Cooling Water | 207.00 | 398.00 | 207.00 | 398.00 |
| | Chemical Metal Cleaning Wastes [d] (Units 1 to 4) | 0.00 | 0.06 | 0.00 | 0.06 |
| | Low Volume Wastes | | | | |
| Total Maximum Flow (MGD)[c] | | 207.01 | 399.59 | 207.01 | 399.59 |

(a) Increases and decreases noted in bold text.
(b) Permit limitation.
(c) Not a Permit limitation.
(d) These flows are intermittent.
(e) Design objective assuming 73°F maximum intake temperature.
(f) Design objective assuming 59°F maximum intake temperature.

### 5.5.2.2 Offsite Pipelines

ESPR will include the construction of offsite pipelines for the firewater, reclaimed water, aqueous ammonia and sanitary wastes.

**5.5.2.3.1 Potable Water Supply Pipeline**. Potable water from the City of El Segundo will continue to be utilized as the primary source of firewater for the ESGS. Ocean water is currently used as the secondary source of firewater, and because of the potential for contaminating the firewater system with saltwater, ESPR proposes to install a new 12-inch diameter city water pipeline from the City of El Segundo to the ESGS. The pipeline is described in Section 3.7.

Construction of the proposed water line will meet the requirements established by the state and the City of El Segundo. The pipeline will be constructed of 12-inch diameter HDPE pipe and will extend approximately 1.85 miles from the tie-in point to the termination point within the plant site. Approximately 1.75 miles of the new city water line will be routed parallel to the new reclaim water line and installed within a trench shared by both pipelines.

**5.5.2.2.2 Reclaimed Water Pipeline**. The reclaimed water pipeline will use the same trench as the potable water pipeline. Impacts from these two pipelines will be limited to land disturbance during construction. The amount of land disturbed will be approximately 8.48 acres. If heavy rain should occur during construction, a small amount of accelerated erosion may occur. ESPR will reduce the potential for accelerated erosion arising from construction of the water supply lines through the use of erosion control measures and scheduling of construction activities. The amount of erosion due to construction activities will be insignificant compared to the large amounts of natural erosion occurring in this area. No significant impacts are expected due to construction or operation of the water pipeline.

**5.5.2.2.3 Sanitary Wastewater Pipeline**. Sanitary wastes generated at ESPR and the existing Units 3 and 4 will be discharged via a new line to the municipal sanitary sewer operated by the City of Manhattan Beach. Connection to the municipal sanitary sewer will necessitate construction of a lift station on the ESGS site, the routing of pipe onsite to the south property line, and the routing of approximately 150 feet of forced flow sewer line from the site to an existing manhole at the intersection of The Strand and 45$^{th}$ Street. The average sanitary waste discharge will be approximately 750 gpd from the ESGS.

### 5.5.2.4 Ammonia Line

Aqueous ammonia (19% solution) is currently in use at the ESGS in a selective catalytic $NO_x$ reduction (SCR) system in service on one of the existing thermal units. Because of the addition of SCRs on Units 5 and 7, a significant increase in ammonia usage will occur. To prevent increased truck traffic to deliver aqueous ammonia to the ESGS, ESPR proposes to purchase aqueous ammonia from the adjacent Chevron Refinery and install a pipeline directly connecting the refinery aqueous ammonia production system to the onsite storage tank.

The new pipeline will begin at a tie-in point within the Chevron Refinery and will be routed to the north perimeter fence of the power plant site via the Vista Del Mar overpass. Construction of the proposed aqueous ammonia line will meet the requirements established by the state, City of El Segundo and applicable industry codes and standards. The pipeline will be constructed of 3-inch diameter carbon steel pipe.

### 5.5.3 Stipulated Conditions

The stipulated CEC standard conditions ensure that basic needed mitigation is provided. Below, ESP II proposes additional conditions that provide mitigation and enhancements. These additional conditions ensure that ESPR will be constructed and operated to minimize impacts while providing benefits.

**WAT-1: Dewatering Controls**

- Owner shall implement and utilize sufficient dewatering control methods to ensure dewatering volumes do not impact groundwater conditions.

**WAT-2: Remove Sanitary Waste Discharge**

- Upon operation of new sanitary waste pipeline system, sanitary waste for ESGS shall be directed to the pipeline and not to the ocean.

**WAT-3: Maximize Reclaimed Water Use**

- Owner shall utilize maximum volumes of reclaimed water onsite and reduce potable water use to extent practicable.

These conditions present candid offers of further mitigation and project enhancement. The ESPR team looks forward to the discovery phase of this AFC, wherein these conditions can be developed and implemented.

### 5.5.4 Mitigation Measures

Because the beneficial uses of water resources in the vicinity of ESPR are expected to continue to remain protected as described in this section, no significant adverse impacts on water resources are projected. No construction activities will occur in fresh or marine water environments, and the ESPR operation will result in no increase in maximum cooling water flows or heat loads. Therefore, no surface or groundwater resource-related mitigation measures are proposed for ESPR. However, the ESPR will utilize reclaimed water to substantially reduce the projected increased demand on potable water sources.

### 5.5.5 Applicable Laws, Ordinances, Regulations, and Standards

Construction and operation of ESPR, including pipelines, will be conducted in accordance with all LORS pertinent to hydrology and water quality. The applicable LORS are discussed below and presented in Table 5.5-26.

**TABLE 5.5.26**

**LORS APPLICABLE TO WATER RESOURCES**

| LORS | Applicability | Conformance (section) |
|---|---|---|
| **Federal** | | |
| 40 CFR Part 423 Effluent Guidelines and Standards for Steam Electric Generating Point Source Category | Prescribe effluent limitation guidelines for once-through cooling water and various in-plant waste streams | Existing NPDES (Appendix H) |
| Clean Water Act § 402, 33 USC § 1342; 40 CFR Parts 122 - 136. | NPDES permit for construction activities and preparation of a SWPPP and Monitoring Program.<br>Coverage under NPDES General Construction Activity Stormwater Permit needed. | Section 5.5.2.1 |
| Clean Water Act § 316 (b) | Requires that the location, design, construction and capacity of cooling water intake structures reflect Best Available Technology (BAT) for minimizing adverse environmental impacts. | Section 5.5.1.1.1<br>Section 5.5.2.1.2 |
| Clean Water Act § 311; 33 USC § 1321; 40 CFR Parts 110, 112, 116, 117. | Reporting of any prohibited discharge of oil or hazardous substance. | Section 5.5.1.1.3 |
| California Porter-Cologne Water Quality Control Act of 1972; Cal. Water Code, § 13000-14957. Division 7. Water Quality. | Siting, operation and closure of waste disposal requires submission of waste and site classification for waste discharge permit. | Section 5.5.2.1.4 |
| **State** | | |
| California Constitution, Article 10 § 2. | Avoid the waste or unreasonable uses of water. Regulates methods of use and methods of diversion of water. | Section 5.5.2.1.2 |
| Water Quality Control Plan for the Ocean Waters of California (Ocean Plan) | Establishes water quality objectives for the coastal waters of California | Section 5.5.1 |

**TABLE 5.5-26**
**(CONTINUED)**

| LORS | Applicability | Conformance (section) |
|---|---|---|
| State Water Resources Control Board, Resolution 75 - 58 (June 18, 1975). | Comply with policy on the use and disposal of inland water used for power plant cooling. | Section 5.5.1.1 |
| California Water Code §§ 13271 – 13272; 23 CCR §§ 2250 - 2260. | Reporting of releases of reportable quantities of hazardous substances or sewage and releases of specified quantities of oil or petroleum products. | Section 5.5.1.1.3 |
| State Water Resources Control Board Resolution 75 (September 18, 1975). Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California | Establishes temperature objectives for the Pacific Ocean | Section 5.1.1.3 |
| California Public Resources Code § 25523(a); 20 CCR §§ 1752, 1752.5, 2300 - 2309, and Chapter 2 Subchapter 5, Article 1, Appendix B, Part (1). | Requires information concerning proposed water resources and water quality protection. | Section 5.5.1 |
| **Local** | | |
| No local LORS apply to Water Resources | | |

ESPR will be in compliance with LORS related to fresh and ocean water resources during construction and operation, principally through the Los Angeles Regional Board permitting process. The LORS so covered include:

- NPDES Permit under federal Clean Water Act
- Regulation of thermal discharges under California Thermal Plan and California Ocean Plan
- Spill Prevention Control and Countermeasures (SPCC) Plan and release reporting requirements
- State Water Use Regulations (General and specific to Power Plant Cooling)
- California Water Code §13550 (California Codes, Water Code, 2000) requiring the use of reclaimed water; where available).

Compliance with the LORS related to operation of the cooling water system and other discharges from the site will be accomplished by applying for and obtaining coverage under additional NPDES permits from the Regional Board. ESPR will also update current SWPPP and SPCC plans.

The Commission review of this AFC covers the other applicable LORS, including:

- Information concerning water resources protection in Appendix B under 20 California code of Regulations (CCR)
- CEQA Guidelines 14 CCR §15000, Appendix G

Principal federal, state, and local regulations related to water resources follow.

### 5.5.5.1 Federal Authorities and Administering Agencies

#### 5.5.5.1.1 Clean Water Act (CWA) of 1977 (including 1987 amendments)

**Section 402, 40 CFR part 122.1.** The CWA requires a NPDES permit for any discharge of pollutants from a point source to waters of the United States. An NPDES Permit for discharges through outfall No. 001, 002, 003 and 004 is currently in place. An additional NPDES Permit for construction dewatering will also be required. The administering agency is the Los Angeles Regional Board, with oversight provided by USEPA.

**Section 311; 33 USC §1321; 40 CFR Parts 110, 112, 116, 117.** These sections of the CWA include provisions for spills into navigable waters of the United States. An SPCC Plan is currently in place at MBPP, and will be updated every three years. The administering agency is the Los Angeles Regional Board, with oversight provided by USEPA.

**Section 316(a); 33 USC §1326; 40 CFR part 401**. This section of the CWA requires point source discharges with effluent limitations for the control of the thermal component to be stringent enough to assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife that rely on the water where the discharge is made. The administering agency is the Los Angeles Regional Board with oversight provided by USEPA.

**Section 316(b); 33 USC §1326(b); 40 CFR part 401**. This section of the CWA requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing environmental impact. The administering agency is the Los Angeles Regional Board, with oversight provided by USEPA.

**Section 402; 33 USC §1342; 40 CFR part 122-136**. The CWA requires a general construction activities permit for discharge of stormwater from construction sites that disturb 5 acres or more. Project construction activities will be performed in accordance with a SWPPP and associated monitoring pursuant to the NPDES General Permit for Storm Water Discharges Associated with Construction Activity. This federal permit requirement is administered by the Los Angeles Regional Board, with oversight provided by the State Board and the USEPA.

#### 5.5.5.1.2 National Flood Insurance.

**42 USC §1401 et seq., 44 CFR part 70**. These sections of the National Flood Insurance statute provides for mapping areas subject to flooding and revisions to those maps. The administering agency is the Federal Emergency Management Agency (FEMA).

### 5.5.5.2 State Authorities and Administering Agencies

**5.5.5.2.1 California Porter-Cologne Water Quality Control Act 1972; California Water Code §13000-14957; 23 CCR**. This Act establishes the State Board and the Regional Water Quality Control Boards as the principal state agencies with primary responsibility for the coordination and control of water quality. Discharges of wasted must comply with the ground water protection and monitoring requirements of the Resource Conservation and Recovery Act of 1976, as amended (RCRA) (42 USC *Sec*. 6901 *et seq*.), together with any more stringent requirements necessary to implement this revision or Article 9.5 (commencing with §25208) of Chapter 6.5 of Division 20 of the Health and Safety Code. The administering agency is the Los Angeles Regional Board.

**5.5.5.2.2 California Constitution, Article 10 §2**. This article prohibits the waste or unreasonable use of water and regulates the method of use and method of diversion of water. The administering agency is the State Board.

**5.5.5.2.3 California Water Code §13269; 23 CCR Chapter 9**. The code requires the filing of a report of waste discharge and provides for the issuance of waste discharge requirements with respect to the discharge of any waste that can affect the quality of waters of the state. The waste discharge requirements may incorporate requirements based on the Clean Water Act §402(p) and implementing regulations at 40 CFR Parts 122 *et seq*., as administered by the Los Angeles Regional Board.

**5.5.5.2.4 California Water Code §13550 (California Water Code, 2000)**. This code section requires the use of reclaimed water, where available. The use of potable domestic water for non-potable uses, including industrial uses, is a waste or an unreasonable use of water within the meaning of Section 2 of Article X of the California Constitution if recycled water is available and:

- Is of adequate quality
- Is of reasonable cost
- Its use will not be detrimental to public health and/or
- Will not degrade receiving water quality or be injurious to plant life, fish and wildlife.

The administering agency is the Los Angeles Regional Board.

**5.5.5.2.5 State Water Resources Control Board Resolutions.**

**SWRCB Resolution 74-43**. This resolution contains a number of prohibitions against waste discharges including chemical, biological and petroleum related waste. The administering agency is the Los Angeles Regional Board.

**5.5.5.2.6 Water Quality Control Plan for Control of Temperature in Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan)**. This plan sets specific water quality objectives related to temperatures allowed for receiving waters, to assure protection of beneficial uses. The plan was established in conjunction with 40 CFR 316(a) for thermal discharges. It is administered by the Los Angeles Regional Board.

**5.5.5.2.7 California Ocean Plan, California Water Code §13170.2**. This provision requires the State Board to formulate and adopt a water quality control plan for the ocean waters of California. In formulating the plan, the State Board is to evaluate the effect of municipal and industrial waste discharges on the ocean marine environment.

**5.5.5.2.8 California PRC §25523(a) and §25523(b): 20 CCR §§1752.5, 2300-2309, and Chapter 2 Subchapter 5, Article 1, Appendix B, Part (1)**. These code sections provide for the inclusion of requirements in the Commission's decision on an AFC to assure protection of environmental quality and require submission of information to the Commission concerning proposed water resources and water quality protection. Under Section 24423(b), the Commission is to ensure that a project located in a coastal zone complies with the requirement of the California Coastal Act and report recommendations prepared pursuant to that Act submitted by the California Coastal Commission as an advisory agency. The administering agency is the Commission.

### 5.5.5.3 Local Authorities and Administering Agencies

No LORS or codes are applicable.

### 5.5.5.4 Regulatory Programs Related to Water Resources

**State Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling**. The Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling[4] (Policy) establishes a preference for coastal power plants, using the ocean as a source of cooling water, rather than inland sites that require the use of limited supplies of fresh water. This Policy provides guidance in the planning and permitting of new power plants using inland waters for cooling and suggests methods for keeping the consumptive use of freshwater to a minimum. The first of the principles of the Policy describes this preference:

> "It is the Board's position that from a water quantity and quality standpoint the source of power plant cooling water should come from the following sources in this order of priority depending on site specifics such as environmental, technical and economic feasibility consideration: (1) wastewater being discharged to the ocean, (2) ocean, (3) brackish water from natural sources or irrigation return flow, (4) inland wastewaters of low TDS, and (5) other inland waters."

Statement three of the Basis of Policy justifies this preference as follows:

Although many of the impacts of coastal power plants on the marine environment are still not well understood, it appears the coastal marine environment is less susceptible than inland waters to the water quality impacts associated with power plant cooling. Operation of existing coastal power plants indicate that these facilities either meet the standards of the State's Thermal Plan and Ocean Plan or could do so readily with appropriate technological modifications. Furthermore, coastal locations provide for application of a wide range of cooling technologies which do not require the consumptive use of inland waters and therefore would not place an additional burden on the State's limited supply of inland waters. These technologies include once-through cooling which is appropriate for most coastal sites, potential use of saltwater cooling towers, or use of brackish water where more stringent controls are required for environmental considerations at specific sites.

**Water Quality Control Plans**.

The ocean discharges are regulated under the following water quality control plans:

- Water Quality Control Plan for the Los Angeles Region (Basin Plan)

[4] California State Water Resources Control Board Resolution No. 75-58: Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power plant Cooling, June 19, 1975.

- Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan)

- California Ocean Plan (Ocean Plan).

**Basin Plan**. The Los Angeles Regional Water Quality Control Board (Regional Board) has jurisdiction over water quality within the region of the proposed project. The Regional Board developed the *Water Quality Control Plan (Basin Plan) for the Los Angeles Region*[5], which guides conservation and enhancement of water resources and establishes beneficial uses for inland surface waters, tidal prisms, harbors, and groundwater basins within the region. The Basin Plan was updated by the Regional Board in 1995. Beneficial uses are designated so that water quality objectives can be established and programs that enhance or maintain water quality can be implemented. In addition, the Basin Plan incorporates by reference all applicable State and Regional Board water quality control plans and policies and other pertinent water quality policies and regulations. There are two applicable statewide plans—the California Ocean Plan and the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan).

**Thermal Plan**. The Thermal Plan was first adopted by the State Board in 1971 and was amended in 1975. The State Board is currently in the process of updating the Thermal Plan. The Thermal Plan sets limits on the discharge of elevated temperature wastes into coastal, estuarine, and interstate waters of California. Special provisions are included for control of "thermal waste," defined as cooling water and industrial process water used to carry waste heat, for example, from power plants.

The Thermal Plan establishes two categories of discharges: "existing," which generally covers discharges in place prior to adoption of the Thermal Plan in 1971, and "new," which generally covers discharges commencing more recently. This distinction was intended to obviate the need for operators of existing discharges to reconstruct or retrofit their facilities with expensive fixes in order to meet the new temperature requirements in the Thermal Plan. Operators would, however, as previously, be required to comply with limitations necessary to assure protection of beneficial uses." In some cases, these classes are regulated by different limitations.

The ESGS is classified as an "Existing Discharge" under the Thermal Plan. The Regional Board approved two repowering projects similar to the ESPR Project subsequent to the 1975 amendment to the Thermal Plan. The Long Beach Generating Station was repowered in the late 1970's and the Los Angeles Department of Public Works Harbor Generating Station was

[5] California Regional Water Quality Control Board, Los Angeles Region 4, Water Quality Control Plan, Los Angeles Region - Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, June 13, 1994.

repowered in 1992/93. In both instances, the Regional Board retained categorization of the discharges as "existing" under the Thermal Plan. Based on these precedents, it is anticipated that the Regional Board will similarly retain the "existing" designation of Outfall 001.

The "Specific Water Quality Objectives" section of the Thermal Plan contains no prohibitions, water quality objectives or effluent limitations. The Thermal Plan empowers a Regional Board, with State Board concurrence, to grant a discharger exceptions from specific water quality objectives of the Thermal Plan.

The State Board initiated an update of the Thermal Plan in 1998. The purpose of this review is to determine, with public input, whether any changes are needed in the water quality standards. The update of the Thermal Plan, which has been delayed due to staffing shortages. A staff report has been prepared and addresses the following issues for review:

- **Administrative:** This includes internal organization of the Thermal Plan, clarifying its scope and application, updating references, terminology and definitions and consistency with other water quality control plans, laws and regulations.

- **Categories of Discharges:** The current categories of "existing" and "new" discharges (grandfathering) with alternatives for future treatment of these categories.

- **Water Quality Objectives and Effluent Limitations:** This will address the continued appropriateness of these standards and their interpretation and the distinction between "elevated" and "thermal" discharges.

- **Implementation:** This will address monitoring requirements, mixing zones for discharges and the Plan's application to non-point source pollution.

- **Special Provisions:** This covers the "exception" provision of the Thermal Plan, including review and expiration of "exceptions" and their treatment in discharge permits.

In compliance with the Thermal Plan and in accordance with Regional Board specifications, a thermal effects study was conducted in 1973 for the El Segundo Generating Station. The study demonstrated that waste discharges from the power plant were in compliance with the Thermal Plan and beneficial uses of the receiving waters were protected, as required by §316(a) of the Clean Water Act. All of the conditions, including thermal discharge, discharge structure, volume and operating and maximum temperatures of the discharges are and will be the same with the Project. Therefore, to repeat this study present day will not provide any substantive new information that was not evident or available in 1973.

**Ocean Plan**. The purpose of the Ocean Plan is to protect the quality of the ocean waters through the control of the discharge of wastes. The Ocean Plan was last updated in 1997 and is reviewed and updated every three years. The State Board is currently in the process of the 1999-2002 Triennial Review of the Ocean Plan. The Ocean Plan establishes beneficial uses for the nearshore and offshore ocean waters and establishes water quality objectives to ensure the reasonable protection of beneficial uses and the prevention of nuisance. Based on information reviewed, it does not appear that Santa Monica Bay has been designated an Area of Special Biological Significance (ASBS) or an Outstanding National Resource Water (ONRW). In such “high quality” waters, the lowering of water quality is prohibited. Further, it does not appear that the existing discharge from the El Segundo Generating Station is resulting in an impairment of Santa Monica Bay.

**National Pollutant Discharge Elimination System Program**. The CWA prohibits the discharge of pollutants to waters of the United States from any point source unless the discharge is in compliance with a NPDES permit. In accordance with the CWA, the USEPA promulgated regulations for permitting storm water discharges by municipal and industrial facilities and construction activities through the NPDES program. The municipal storm water NPDES program generally applies to urban areas with a population greater than 100,000 while the industrial program applies to specific types of industry, including airports. The NPDES program for construction applies to activities that disturb an area of five acres or more. In March of 2002, this permit will be expanded to include activities that disturb an area of one acre or more.

**Area-wide Municipal Storm Water NPDES Permit**. In accordance with the CWA, an NPDES permit is required for certain municipal separate storm sewer discharges to surface waters. The ESPR Project is within the area covered by NPDES Permit No. CAS614001 issued by the Regional Board on July 15, 1996. The permit is a joint permit, with the County of Los Angeles as the “Principal Permittee” and 85 incorporated cities within the County of Los Angeles, including the City of El Segundo, as “Permittees.” The objective of the permit, and the associated storm water management program, is to effectively prohibit non-storm water discharges and to reduce pollutants in urban storm water discharges to the “maximum extent practicable” in order to attain water quality objectives and to protect the beneficial uses of receiving waters. This area-wide municipal storm water permit expires July 30, 2001 and a renewal process will be initiated in February 2001.

As part of the municipal storm water program, the Regional Board adopted the Standard Urban Storm Water Mitigation Plan (SUSMP) to address storm water pollution from new development and redevelopment projects. The SUSMP is a model guidance document for use by Permittees in the review and approval of project plans to ensure that project proponents have adequately incorporated post-construction Best Management Practices (BMPs) to manage the quality of storm water and urban runoff. Generally, three types of BMPs are described in the SUSMP, including source control, structural, and treatment control.[6] The SUSMP also specifies numeric standards for the design of structural and treatment control BMPs for infiltration and/or treatment of storm water runoff.

**NPDES - Construction Permit**. The SWRCB issued a statewide NPDES general permit for storm water discharges associated with construction activities (Construction Storm Water Permit), in accordance with federal storm water regulations. Project proponents planning construction activities that disturb an area greater than five acres are required to file a Notice of Intent (NOI) to comply with the requirements of the Construction Storm Water Permit. After a NOI has been submitted, the discharger is authorized by the SWRCB to discharge storm water under the terms and conditions of the Construction Storm Water Permit. The major provisions of the Construction Storm Water Permit are the minimization or elimination of non-storm water discharges to the storm drain system, implementation of BMPs to control construction materials and wastes, erosion, and sediment, and monitoring to assure the maintenance and adequacy of the BMPs that are being implemented. As indicated previously, in March 2002, these permit requirements will extend to construction activities that disturb an area equal to or greater than one acre.

**NPDES - Industrial Permit**. The SWRCB issued a statewide Industrial Activities Storm Water General Permit (Industrial Storm Water Permit) that applies to all industrial facilities that discharge storm water and require a NPDES permit. The major provisions of the Industrial Permit require that the permittees eliminate or reduce non-storm water discharges, develop and implement a SWPPP, and perform monitoring of discharges to the storm water system from their facilities. Since ESGS is considered a facility, it is required to have its storm water discharges permitted under the NPDES program.

**Wastewater/Stormwater Permitting.** The Waste Discharge Requirements[7] (Permit) for the ESGS was renewed by the Regional Board on June 29, 2000. The Permit implements the requirements of the Basin Plan. The Permit authorizes discharges from the following four outfalls that discharge to Santa Monica Bay:

- Outfall 001 discharges up to 207 mgd at a depth of 20 feet Mean Lower Low Water (MLLW) at a distance of 1,900 feet offshore. Wastes discharged through Outfall 001 consist of condenser cooling water and condenser sump wastes from Units 1 and 2,

[6] As defined in the SUSMP: "Source control BMP" means any schedules of activities, prohibition of practices, maintenance procedures, managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source of pollution. "Structural BMP" means any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution (e.g. canopy, structural enclosure). The category may include both source control and treatment BMPs. "Treatment control BMP" means any engineered system designed to remove pollutants by simple gravity setting of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological, or chemical process.

[7] NPDES Permit No. CA0001147, CI No. 4667

treated sanitary wastes from Wastewater Treatment Plant No. 1, floor drain wastes, and small amounts of storm water runoff. Floor drain wastes and rainfall runoff are passed through an oil/water separator before discharge.

- Outfall 002 discharges up to 398.6 mgd at a depth of 20 feet MLLW at a distance of 2,100 feet offshore. Wastes discharged through Outfall 002 consist of condenser cooling water from Units 3 and 4, pretreated chemical metal cleaning wastes, non-chemical metal cleaning wastes (fireside and air preheater tube), treated sanitary wastes from Wastewater Treatment Plant No. 2, hydrostatic test wastes, floor drains and boiler blowdown from the four generating units. Chemical cleaning wastes are collected in the chemical cleaning retention basin and pretreated through a mobile lime treatment unit. Storm water runoff and floor drain wastes are passed through oil/water separators. Except for storm water runoff and treated sanitary wastes from Wastewater Treatment Plant No. 2, the pretreated metal cleaning wastes and other low volume wastes are stored in a retention basin prior to discharge to Santa Monica Bay through Outfall 002.

- Marine fouling of the cooling water conduits (intake and discharge) are controlled by temporarily recirculating and reversing the flow of the once-through cooling water alternatively in each offshore conduit (i.e., the discharge point becomes the intake point). The cooling water intake structures discharge during heat treatment and are designated in the Permit as Outfall 003 and Outfall 004. These outfalls discharge at a depth of 20 feet at a distance of 2,600 feet offshore. The temperature limit during heat treatment is 125°F.

Since each of the outfalls discharge at a depth less than 30 feet, they are classified as discharging in the "nearshore zone." The beneficial uses of the nearshore zone are: industrial service supply (which includes cooling water supply), navigation, water and non-water contact recreation, ocean commercial and sport fishing, preservation of rare and endangered species, marine habitat, shellfish harvesting and fish spawning.

On January 26, 2000 the Regional Board adopted storm water treatment design standards for new development and redevelopment in Los Angeles County. These standards were upheld on appeal by the State Water Resources Control Board on October 5, 2000. These new requirements will apply to the design, construction and operation of the project.

**Total Maximum Daily Load Program**. Under Section 303(d) of the CWA, states are required to identify the water bodies that do not meet water quality objectives necessary to support designated beneficial uses. This list of impaired water bodies is often referred to as the "303(d) list." For these impaired water bodies, states are required to develop total maximum daily loads (TMDLs). TMDLs are the sum of the individual pollutant load allocations for point sources, nonpoint sources, and natural background conditions, with an appropriate margin of safety for a designated water body. The TMDLs are established based on a quantitative assessment of water quality problems, the contributing sources, and load reductions or control actions needed to restore and protect an individual water body.[8]

**City of El Segundo Program PS 5-1.1A**. The City shall amend the building, fire, electrical. plumbing, and mechanical code design, construction, and use standards to ensure that the threat of fire hazard and hazardous materials releases is adequately mitigated in coastal high-risk areas including provisions requiring the following:

a) Where feasible, flammable and hazardous materials/waste should be stored in anchored watertight containers or storage tanks, and be protected from impacts by debris contained in flood torrents; and

b) Fuel lines and electrical ignition sources (such as fuse boxes) should be protected from impacts by flood debris.

### 5.5.5.5 Agency Contacts

ESPR has been coordinated with several resources agencies concerned with water quality and biological resources. The resources agencies contacted, names of staff contacts and their phone numbers and addresses are provided in Table 5.5-27.

### 5.5.5.6 Applicable Permits

The permits required for this project are listed in Table 5.5.28. Both the NPDES General Construction Activities Permit and the municipal sanitary sewer connection requirements will be obtained prior to construction. A modification to the existing NPDES Permit will be obtained prior to plant operation. The Hazardous Materials Business Plan will be updated prior to construction and prior to operation.

[8] United States Environmental Protection Agency, Total Maximum Daily Load Fact Sheet, Available: www.epa.gov/region09/water/tmdl/fact.html [4/24/00]

## TABLE 5.5-27

## RESOURCES AGENCY CONTACTS

| Agency | Contact | Phone | Address |
|---|---|---|---|
| Los Angeles Regional Board | Debbie Smith/ Mark Pumford | 213/576-6609 | 320 West 4th St., Suite 20<br>Los Angeles |
| CDF&G | Marilyn Fluharty<br>William Paznokas | 858/467-4231<br>858/467-4218 | 4949 View Ridge Ave.<br>San Diego |
| USF&WS | Kevin Clark | 760/431-9440 | 2730 Loker Ave. West<br>Carlsbad 92008 |
| CEC | Jim Brownell<br>Paul Richins | 916/654-4169<br>916/654-4074 | 1516 9th St.<br>Sacramento 96814-5512 |
| NMFA | Bob Hoffman | 562/980-4043 | 501 W. Ocean Blvd., Suite 4200<br>Long Beach |
| Coastal Commission | Michael Bowen | 415/904-5249 | 45 Freemont St., Ste 2000<br>San Francisco<br>Mbowen@coastal.ca.gov |

## TABLE 5.5-28

## APPLICABLE PERMITS

| Jurisdiction | Potential Permit Requirements |
|---|---|
| **Federal** | No permits have been identified |
| **State** | |
| State Water Resources Control Board/Los Angeles Regional Water Quality Control Board | NPDES General Construction Activities Permit |
| Los Angeles Regional Water Quality Control Board | Modification to NPDES Permit to reflect deletion of sanitary wastes and description of generating facilities. |
| **Local** | |
| City of Manhattan Beach | Municipal sanitary sewer connection requirements |

### 5.5.6 References


California Water Code. 2000. § 13550.

California Regional Water Quality Control Board, Los Angeles Region 4. 1994. *Water Quality Control Plan, Los Angeles Region - Basin Plan for the Coastal Water sheds of Los Angeles and Ventura Counties*, June 13, 1994.

City of El Segundo. 1992. The City of El Segundo General Plan. Adopted December 1992.

Federal Register. 2000. National Pollutant Discharge Elimination System – Regulations Addressing Cooling Water Intake Structures for New Facilities – Proposed Rule.

Markus, Felicia. 1996. Regional Administrator, Region IX, USEPA to Southern California Edison. Final Decision, Regional Administrator, Region 9, Pursuant to Section 301(g) of the Clean Water Act, May 23, 1996.

NPDES. 1999. Receiving Water Monitoring Report- El Segundo and Scattergood Generating Stations, Los Angeles County, California.

1998. Receiving Water Monitoring Report- El Segundo and Scattergood Generating Stations, Los Angeles County, California.

NPDES. 1997. Receiving Water Monitoring Report- El Segundo and Scattergood Generating Stations, Los Angeles County, California.

Regional Water Quality Control Board. ND. Order No. 00-84 (NPDES No. CA0001147), Waste Discharge Requirements for El Segundo Power, LLC.

Santa Monica Bay Restoration Project. 1993; 1994. *Characterization Study of the Santa Monica Bay Restoration Plan – State of the Bay*.

Southern California Edison Company. 1196. Final Analysis of 301(g) Variance Application for the Southern California Edison Company El Segundo Generating Station, USEPA Region 9, Water Management Division, May 1996.

1973. El Segundo Generating Station Thermal Effect Study- Final Report- July 1973.

UD. Southern California Edison Company 316(b) Demonstration.

State Water Resources Control Board. ND. Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling.

Unknown. ND. Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California.

Adequacy Issue: Adequate ____ Inadequate ____ DATA ADEQUACY WORKSHEET Revision No. ____ Date ________

Technical Area: **Water Resources** Project: ________ Technical Staff: ________

Project Manager: ________ Docket: ________ Technical Senior: ________

| Siting Regulations | Information | AFC Page Number and Section Number | Adequate Yes or No | Information Required to Make AFC Conform with Regulations |
|---|---|---|---|---|
| Appendix B (g) (1) | ...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation. | Section 5.5.1 (Affected Environment/Current Conditions)<br>Section 5.5.2 (Environmental Consequences)<br>Section 5.5.4 (Mitigation Measures) | | |
| Appendix B (g) (14) (A) | All information required by the Regional Water Quality Control Board in the region where the project will be located to apply for: | Section 5.5.2.1.2 (Environmental Consequences- Water Supply)<br>Section 5.5.4 | | |
| Appendix B (g) (14) (A) (i) | Waste Discharge Requirements; and | Appendix H<br>Section 5.5.1.1.3 | | |
| Appendix B (g) (14) (A) (ii) | a National Pollutant Discharge Elimination System Permit. | Section 5.5; Appendix H-10, Section 5.5.1.1.3, Section 5.5.4 | | |
| Appendix B (g) (14) (B) | A description of the hydrologic setting of the project. The information shall describe, in writing and on maps at a scale of 1:24,000, the chemical and physical characteristics of the following water bodies that may be affected by the proposed project: | Section 5.5.1.1.2 (Hydrology and Water Quality) | | |
| Appendix B (g) (14) (B) (i) | Ground water bodies and related geologic structures; | Section 5.5.1.1.2<br>Figure 5.3-2<br>Section 5.14.1.1<br>Section 5.14.2 | | |
| Appendix B (g) (14) (B) (ii) | Surface water bodies; and | Section 5.5.1.1.2<br>Figure 5.5-3 | | |
| Appendix B (g) (14) (B) (iii) | Water inundation zones, such as the 100-year flood plain and tsunami run-up zones. | Section 5.5.1.1.2 | | |
| Appendix B (g) (14) (C) | A description of the water to be used and discharged by the project. This information shall include: | Section 5.5.1.1.1 (Water Supply); Section 5.5.1.1.3 (Wastewater Treatment & Disposal) | | |

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. ____ Date ____

Technical Area: **Water Resources** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

| Siting Regulations | Information | AFC Page Number and Section Number | Adequate Yes or No | Information Required to Make AFC Conform with Regulations |
|---|---|---|---|---|
| Appendix B (g) (14) (C) (i) | Source of the water and the rationale for its selection, and if fresh water is to be used for power plant cooling purposes, a discussion of all other potential sources and an explanation why these sources were not feasible; | Section 5.5.2.1.2 and Section 5.5.1.1.1 | | |
| Appendix B (g) (14) (C) (ii) | The physical and chemical characteristics of the source and discharge water; | Section 5.5.1.1.1 and Section 5.5.1.1.3 | | |
| Appendix B (g) (14) (C) (iii) | Average and maximum daily and annual water demand and waste water discharge for both the construction and operation phases of the project; and | Sections 5.5.1.1.1 and Section 5.5.1.1.3 Section 3.4.7 | | |
| Appendix B (g) (14) (C) (iv) | A description of all facilities to be used in water conveyance, treatment, and discharge. Include a water mass balance diagram. | Section 5.5.1.1.1 (Water Supply) Figures 3.4-5 and 3.4-6 | | |
| Appendix B (g) (14) (D) | A description of pre-, and post-construction runoff and drainage patterns, including: | Section 5.5.2.1.1 (Demolition and Construction); Section 5.5.2.1.4 (Wastewater Treatment & Disposal); Section 5.5.1 and 5.5.2.1.3 | | |
| Appendix B (g) (14) (D) (i) | Precipitation and storm runoff patterns; and | Sections 5.5.1.1.2 and 5.5.2.1.3; Figure 3.4-1 | | |
| Appendix B (g) (14) (D) (ii) | Drainage facilities and design criteria. | Sections 5.5.2.1.3; Figure 3.4-1 | | |
| Appendix B (g) (14) (E) | An assessment of the effects of the proposed project on water resources. This discussion shall include: | | | |
| Appendix B (g) (14) (E) (i) | The effects of project demand on the water supply and other users of this source; | Section 5.5.2.1.2 | | |
| Appendix B (g) (14) (E) (ii) | The effects of construction activities and plant operation on water quality; and | Section 5.5.2.1.2 | | |
| Appendix B (g) (14) (iii) | The effects of the project on the 100-year flood plain or other water inundation zones. | Sections 5.5.1.1.2 and 5.5.2.1.3 and Table 5.5-5 | | |

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| Project Manager: | | | Docket: | | Technical Senior: |

| **SITING REGULATIONS** | **INFORMATION** | **AFC PAGE NUMBER AND SECTION NUMBER** | **ADEQUATE YES OR NO** | **INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS** |
|---|---|---|---|---|
| Appendix B (h) (1) (A) | Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, and permits applicable to the proposed project, and a discussion of the applicability of each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; | Section 5.5.6 (LORS)<br>Table 5.5-26 | | |
| Appendix B (h) (1) (B) | Tables which identify each agency with jurisdiction to issue applicable permits and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities. | Section 5.5.5.6<br>Table 5.5-26 | | |
| Appendix B (h) (2) | A discussion of the conformity of the project with the requirements listed in subsection (h)(1)(A). | Section 5.5.6 | | |
| Appendix B (h) (3) | The name, title, phone number, and address, if known, of an official within each agency who will serve as a contact person for the agency. | Section 5.5.5<br>Table 5.5-27 | | |
| Appendix B (h) (4) | A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits. | Section 5.5.5.6 | | |