SECTION 3.0
PROJECT DESCRIPTION

3.1 BACKGROUND AND HISTORY

Precise Development Plan Process

Poseidon Resources (Channelside) LLC (Poseidon) has submitted an amendment to a pending Precise Development Plan (PDP) application to the City of Carlsbad (City) to obtain land use approvals to construct and operate an approximately 50 million gallon per day (mgd) Carlsbad Seawater Desalination Plant (desalination plant) and other appurtenant and ancillary water and support facilities to produce potable water. The PDP application was made jointly with Cabrillo Power I LLC (hereinafter referred to as Cabrillo), owner and operator of the Encina Power Station (EPS), which is adjacent to the site of the proposed desalination plant. Although Cabrillo is not a co-applicant for the desalination plant, the co-application on the PDP was necessary to satisfy a City of Carlsbad Zoning Code requirement for properties zoned PU-Public Utility.

The PDP serves three purposes: **(1)** to provide a comprehensive understanding of all existing facilities and features of land located in the P-U zone and owned by Cabrillo; **(2)** to establish development standards and permit and amendment procedures for the land; and **(3)** to serve as the permit for development of the desalination plant as proposed by Poseidon. As such, although the PDP covers the site of the Encina Power Station, the project analyzed by this EIR does not involve any modification to the Encina power plant, with the exception of demolition of a fuel oil tank, electrical connections and connection to the EPS seawater discharge.

The primary land use approval for the project is the PDP, which will establish land use controls for the overall power plant site, as well as allowing development of the proposed desalination plant. However, the primary focus of the environmental analysis contained in this Environmental Impact Report (EIR) is the desalination plant and its related offsite facilities, since they are the only elements of the project that require such an analysis. The offsite pipelines and appurtenant facilities necessary to deliver the product water from the desalination plant to existing water distribution networks in Carlsbad and neighboring areas are outside the scope of the PDP.

Desalination Plant Planning Background

Poseidon has been pursuing development of a regional seawater desalination facility at a site adjacent to the Encina power plant since 1998. In June 2000, Poseidon appeared before the Carlsbad Municipal Water District's (CMWD) Board of Directors to request approval and

endorsement of a study to be conducted by Poseidon and its consultants on the feasibility of constructing a seawater desalination plant in Carlsbad. The Water Board approved Poseidon's request (CMWD Board of Directors Resolution 1093, July 18, 2000), an action that set into motion the process that led to the preparation of this EIR. On July 12, 2001, Poseidon submitted a completed feasibility study to CMWD. The findings showed that a seawater desalination plant producing up to 50 mgd could be constructed adjacent to the Encina power plant. The study proposed a distribution system that would serve Carlsbad, surrounding communities, and the San Diego County Water Authority (CWA). Because the amount of water generated by the project would be more than Carlsbad required, Carlsbad encouraged the CWA and Oceanside to consider the Project. In May 2002, the CWA, in cooperation with CMWD and the City of Oceanside, completed a rigorous due diligence review of Poseidon's proposal that concluded that (i) the proposed project was technically viable; and (ii) the cost of water was reasonable. Carlsbad, CWA and Poseidon continued Project development negotiations until January 2004.

In January 2004, the CWA Board concluded that it would be in the region's best interest to allow Carlsbad and Poseidon to work on developing a local project rather than to continue direct negotiations with Poseidon and Carlsbad. In February 2004, the CWA board chairman sent a letter to the City of Carlsbad in support of Carlsbad's efforts to develop a local seawater desalination project. During this period, CMWD negotiated a Water Purchase Agreement (Appendix B) with Poseidon that was approved by the CMWD Board on September 28, 2004. Meanwhile, on August 12, 2004, the CWA Board approved a staff recommendation to reopen discussions with Carlsbad and Poseidon, and simultaneously continue independent planning and environmental studies for a regional seawater desalination facility at the EPS. Also on August 12, the CWA Board reaffirmed that successful development of a locally initiated seawater desalination plant at the Encina site would create a regional water reliability benefit, and would therefore support the City's efforts in processing such a facility.[1]

Poseidon has a long-term lease of the project site which precludes the construction of a separate project at this location. Therefore, while there may be two agencies processing two separate projects of the same nature in the same location simultaneously, it is anticipated that only one project will be built. This EIR addresses the scenario of a privately initiated project being built, and addresses the City's discretionary actions pursuant to such a project, as well as other permits and approvals that would be required for the project. For purposes of this EIR analysis, it is assumed that if the proposed project is approved and built, there would not be an additional project built by CWA on the site. This assumption is based on the following:

[1] The Board voted unanimously to "[r]eaffirm the Water Authority's support for local supply development as stated in the February 25, 2004 letter from [CWA] Chairman Rhinerson to [City of Carlsbad] Mayor Lewis."

1. The CWA does not have ownership or other form of control of the land upon which the facility is proposed and is not currently engaged in negotiations with the property owner (Cabrillo) to secure such ownership or control;

2. While the CWA retains the power of eminent domain to secure control over the site, the CWA Board of Directors authorized staff to complete the EIR for the regional seawater desalination project "with the clear understanding that nothing in this action is intended to authorize or suggest acquisition of Poseidon or Cabrillo's property interests by eminent domain;"[2] and,

3. The CWA reaffirmed its support for efforts by their member agencies to pursue local seawater desalination projects.[3] This leads the City of Carlsbad to the reasonable conclusion that successful development of a locally initiated project would not be displaced by a CWA initiated project at the same location.

Therefore, this analysis assumes that a single seawater desalination plant would be built and operated, and would consist of the components, capacity and specifications identified in *Section 3.4*, below.

Project Site History

The PDP application covers the EPS site, as well as the site of the proposed desalination plant. The desalination plant site is adjacent to the EPS, and is owned by Cabrillo, which leases the desalination plant site to Poseidon. The desalination plant site is a separate parcel from the EPS site, and Cabrillo will not exercise any control over the desalination plant. As discussed above, the PDP will serve three purposes: (1) to provide a comprehensive understanding of all existing facilities and features of land located in the P-U zone and owned by Cabrillo; (2) to establish development standards and permit and amendment procedures for the land; and (3) to serve as the permit for development of the desalination plant as proposed by Poseidon.

The project site can be divided into several components. First, the area covered by the PDP application includes both the EPS site and the desalination plant site. Second, the desalination plant site is a subset (4 acres) of the area covered by the PDP application. Third, the EPS site is another subset of the area covered by the PDP application. Finally, the offsite water-delivery improvements are located outside of the area covered by the PDP application, but are analyzed in this EIR. Importantly, the proposed project does not involve any modification of the EPS's existing facilities, other than connection to the seawater discharge channel, ~~and~~ electrical

2 August 12, 2004 CWA Board action.
3 Id.

connections and removal of a fuel oil storage tank. The following paragraphs discuss the history of the entire area covered by the PDP application.

In 1948, San Diego Gas and Electric (SDG&E) purchased 690 acres of land in what was then unincorporated San Diego County and began building an electricity generating station under a certificate of public convenience and necessity issued by the California Public Utilities Commission. In 1952, the City of Carlsbad was incorporated and the City's corporate boundaries included the power plant site. The plant's Unit 1 generator began operating in 1954, producing 100 megawatts (MW) of electricity. Units 2 and 3 came on line in 1956 and 1958, respectively, adding 200 MW.

The Carlsbad City Council approved SDG&E's Specific Plan for the site (SP144) in 1971. Since that time, several amendments have been made to SP 144. These amendments permitted changes to be made to the plant, namely the addition of the Unit 4 generator in 1973, and the Unit 5 generator in 1975, and addition of a 400 foot stack approved in 1976.

Seawater is used as the primary cooling source for the five boilers in operation and is considered non-contact once-through cooling water. Initial dredging of the Agua Hedionda Lagoon occurred at the time of construction of the Unit 1 generator in 1952. This initial dredging involved over 3 million cubic yards of sand, which was placed on North, Middle, and South Beaches facing the Pacific Ocean and adjacent to the lagoon's mouth. Concurrent with the dredging of the lagoon, 400 foot long jetties were constructed adjacent to the mouth of the lagoon to minimize the amount of sand entering the lagoon so as not to impede the flow of cooling water for the power plant. Subsequent to that time, storms and wave action have reduced the length of the jetties to approximately 200 feet.

SDG&E divested its wholesale natural gas fired generation assets, while maintaining other generating and its retail energy distribution. SDG&E sold approximately 386 acres of their original site, including the EPS, transmission lines, fuel storage tanks and ancillary facilities on the power plant site, ~~and~~ the outer, middle and inner basins of the Lagoon and the beach directly in front of the power plant to Cabrillo. While the lagoon basins remain in private ownership, the existing power plant/Agua Hedionda Lagoon intake channel and power plant discharge channel, and their associated jetties, are on sovereign lands under State Lands Commission jurisdiction. Furthermore, SDG&E has retained an easement over a portion of the power plant site for the transmission lines that run from the switch yard to the off-site transmission facilities. Lands that have been retained in ownership by SDG&E, as well as the Agua Hedionda Lagoon, are not part of the proposed PDP.

In 2001, the City of Carlsbad created the South Carlsbad Coastal Redevelopment Plan (SCCRP) area, which encompasses portions of Cabrillo owned property and SDG&E owned lands. A "Commercial-Visitor Serving" overlay zoning designation has been added to the power plant property per Chapter 21.208 of the Carlsbad Municipal Code. However, there are no existing or proposed commercial/visitor-serving uses on the power plant property that are included in the approvals being sought by the applicant.

3.2 PROJECT LOCATION

The desalination plant would be located adjacent to the existing EPS located immediately south of the Agua Hedionda Lagoon, within the City of Carlsbad, in northern San Diego County. The power plant and all properties included in the PDP are located at 4600 Carlsbad Boulevard, along the southern edge of the Agua Hedionda Lagoon on the Pacific Ocean. The basic operational and functional characteristics of the power plant have remained relatively constant since it began producing power in 1952, notwithstanding the ownership transfer to Cabrillo discussed in *Section 3.1*. The power plant has been in continual operation for over 50 years.

The ~~land and~~ facilities owned by Cabrillo within the PDP area ~~encompass~~ occupy approximately 95 acres of land, ~~and are~~ generally bounded by SDG&E property on the south, the Pacific Ocean and Carlsbad Boulevard on the west, Interstate 5 on the east, and the southern shore of the outer and middle basins of the Agua Hedionda Lagoon on the north. The regional context of the site is shown in *Figure 3-1, Regional Vicinity*, and *Figure 3-2, Site Vicinity* provides the local context for the PDP project site. *Figure 3-3, Aerial Photograph*, provides additional site context.

The desalination plant would occupy an approximately 4-acre parcel in the area currently containing Fuel Oil Tank #3, which is the southernmost of three large tanks nearest Carlsbad Boulevard. The fuel oil tank would be demolished to accommodate the desalination facility. Construction of the desalination plant would be limited to the 4-acre parcel. Associated onsite improvements would include the intake pump station and pipeline, concentrate return pipeline, sewer connection, solids handling building, electrical transmission lines, road improvements, and product water pipeline. Associated offsite improvements would be constructed outside of the area covered by the PDP. However, with the exception of the seawater discharge channel and electrical connections, which would not modify operation of the power plant, the project does not include any modification to the existing facilities of the EPS, with the exception of connections to the seawater discharge and electrical connections, as well as removal of a fuel oil storage tank.

Surrounding features and land uses include the Pacific Ocean and Carlsbad Boulevard to the west, the Carlsbad State Beach and Agua Hedionda Lagoon to the west and north, Interstate 5 and SDG&E properties to the east, and SDG&E electric utility properties to the south. A North

Figure 3-1 Regional Vicinity

Figure 3-2 Site Vicinity

Figure 3-3 Aerial Photograph

County Transit District (NCTD) railway bisects the power plant north to south just east of the proposed desalination facility. Primary access to the site is provided from Carlsbad Boulevard via the Cannon Road interchange at Interstate 5.

As noted in *Section 3.1*, in addition to the PDP project site, this EIR also evaluates potential environmental effects associated with the offsite water delivery infrastructure that is associated with the desalination plant. The offsite facilities primarily consist of water delivery pipelines, and a pump station. The alternative water delivery pipeline alignments generally follow existing and future roadways, including Cannon Road, Faraday Avenue, Avenida Encinas, Orion Street, Palmer Way, College Boulevard, Melrose Avenue, Shadowridge Drive, Sequoia Crest Drive, Lake Boulevard, Mesa Drive, Thunder Drive, and Waring Road, within the cities of Carlsbad, Oceanside and Vista. A more specific description of proposed pipe alignments is provided in *Section 3.4*.

3.3 ENVIRONMENTAL SETTING AND BASELINE CONDITIONS

Existing On-Site Land Uses and Conditions

Desalination Plant Site

The desalination plant site consists of a 4-acre parcel adjacent to the EPS. The site currently contains Fuel Oil Tank #3, which is the southernmost of three large tanks nearest Carlsbad Boulevard. The fuel oil tank and concrete foundation would be demolished to accommodate the desalination facility. The oil and steam pipelines serving Tank #3 would be removed and the pipelines serving Fuel Oil Tank #1 and Fuel Oil Tank #2 would be rerouted.

Encina Power Station Site

As discussed above, the PDP application covers the EPS, which is adjacent to the desalination plant site. The purpose of including the EPS in the PDP is to establish baseline conditions for existing facilities and operations on site as well as to establish development standards and procedures for administrative approvals and amendments for future changes within the PDP area. To accomplish this objective, the EPS and the power plant site are described below. However, with the exception of the desalination plant intake pump station and pipeline, concentrate return pipeline, sewer connection, backwash water treatment facility, electrical transformers, substation, electrical transmission lines, product water pipeline, and road improvements, all of which would not affect power plant operations, the project does not include any construction on the EPS site or any modification of the EPS. Furthermore, other than connection to the seawater discharge

channel, ~~and~~ electrical connections, and removal of a fuel oils storage tank, there are no modifications proposed to existing EPS facilities.

The EPS consists of the following major components:

- The main power plant building, or power generating facility, enclosing the control rooms, 5 steam turbines and associated boilers and generators, and attached single emissions stack
- One 16 megawatt natural gas combustion turbine
- A cooling water system and associated facilities infrastructure
- A switchyard where the plant interconnects with the electrical transmission grid
- An administration building
- fuel oil storage tanks
- Onsite Stormwater runoff/treatment/water quality facilities

Other existing onsite uses within the main plant area include:

- Chemical and chemical waste storage tanks
- Water tank storage facilities
- Communications facilities
- Construction materials storage
- Fabrication/machine shops
- Vehicle storage areas
- Shipping/receiving areas
- Administrative support areas
- Fire brigade facilities
- Trash recycling facilities
- Facilities for the processing, use and storage of natural gas, liquid natural gas, and water supplies
- Fuel oil pipelines and booster stations
- Maintenance, storage and operating facilities
- Railroad access and loading/unloading facilities
- Seawater desalination demonstration facility
- Seawater intake
- Upland aquaculture operations and processing areas

An SDG&E substation and other ancillary facilities, including the SDG&E Operations and Maintenance Yard, are located on SDG&E owned property outside of, but adjacent to the power plant area. *Figure 3-4, Existing Facilities*, shows the location of existing facilities within the PDP boundary.

Figure 3-4 Existing Facilities

Agua Hedionda Lagoon is connected with the ocean at the mouth of the jetty west of Carlsbad Boulevard. The lagoon is bridged by Carlsbad Boulevard, the NCTD railroad, and I-5. The power plant is heavily reliant upon the lagoon in that it provides the source of seawater that is used to condense steam from the five steam turbines that are currently in service.

Access points to the power plant and proposed desalination plant include two entrances along Carlsbad Boulevard (main and south entrance) and one entrance on Cannon Road. Carlsbad Boulevard and Cannon Road are both classified as Major Arterial Streets, 82 foot curb-to-curb with a 102-foot right of way. While all three access points are used, the guarded main entrance is where all visitors and deliveries enter and exit the site, for security reasons. Thus, this is considered the primary entrance. A parking lot inside the main entrance is used by the power plant employees, contractors, and visitors. The Average Daily Traffic (ADT) generated by the power plant is approximately 183 trips per day based on a traffic survey conducted for the power plant.

The most visually prominent features of the power plant area are located in the southwestern portion of the site, including the power generating facility and stack. The power generating facility, containing the boilers and turbines and other equipment, is the main building onsite and is approximately 200 feet in height. The stack reaches a maximum height of 400 feet. Other power generation-related facilities located in this area include water, steam, and natural gas pipelines. The main cooling water intake tunnel is located along the southern portion of the power plant site, parallel to Carlsbad Boulevard.

Electrical transforming and switching equipment is located in the southeastern portion of the site. The switching equipment controls the path and voltage of the electricity generated onsite for transmission and offsite distribution. Electricity is carried from the switching yard eastward across Interstate 5 via eight overhead transmission lines.

A temporary seawater desalination demonstration facility is located in a parking lot north of the main gate, immediately east of the main guard house and south of the outer Agua Hedionda Lagoon. The seawater desalination demonstration facility supply pump is capable of diverting 104 gallons per minute (GPM) of the power plant once through, non-contact cooling water into the demonstration facility. The objective of the seawater desalination demonstration plant has been to develop data for the design, permitting and public education of the proposed full-scale facility. This demonstration facility utilizes approximately 23 existing parking spaces which will be re-established when the seawater desalination demonstration facility is no longer needed onsite.

An NCTD rail line traverses the site and separates the main electrical generating facilities from four large fuel storage tanks located east of the rail line. The four tanks range in capacity from 250,000 to 450,000 barrels. While the power plant currently relies on natural gas as its primary energy source, the fuel oil remains on site as a back up method of generating electricity in case of natural gas curtailment or other instances where natural gas is not available as a fuel source for the power plant, or for testing. While no longer relied upon for daily operation, fuel oil was previously used as the plant's primary fuel source until the mid-1990s.

The California Independent Systems Operator (ISO) requires fuel oil to be stored on site as a back up fuel source for generating electricity. The ISO is regulated by the Federal Energy Regulatory Commission (FERC) and is the control area operator of the electrical transmission grid. Its responsibilities include maintaining the reliability and security of the grid. In recent years, natural gas curtailments resulted in a temporarily increased reliance on fuel oil for powering the power plant. It is therefore possible that the power plant may be forced to rely on fuel oil again in future years in the event of future natural gas curtailments or shortages. However, the necessity for fuel oil storage is greatly reduced due to the conversion of the power plant's primary fuel source from oil to gas. Fuel oil is delivered to the site via ocean tankers, which dock at sea, west of the project site at buoys constructed specifically for this use. The last tanker delivery of oil was in June 2001.

In addition to the four large fuel oil storage tanks, other land use activity east of the rail line includes the following:

- Facilities for the processing, use and storage of natural gas, liquid natural gas, and water supplies
- Facilities for the use and storage of petroleum-based fuels and fuel oils
- Fuel oil pipelines and booster stations
- Maintenance, storage and operating facilities
- Communications facilities
- Administrative and training support facilities
- Dredging operations facilities and storage

Existing ancillary land uses in this area include a sewer lift station owned and operated by the City of Carlsbad, materials, and equipment storage. A landscaped screening berm is located east of the tanks which separates the fuel oil storage tanks from Interstate 5, to the immediate east of the site.

Immediately west of the four large tanks, on the west side of the rail line and within the northwestern portion of the project site are three smaller above ground fuel oil tanks and water

treatment facilities. Other existing onsite uses in this portion of the site include wastewater treatment facilities, reverse osmosis water treatment (to produce purified water for steam generation) and wastewater and/or brackish water treatment and disposal, storage and reclamation facilities.

Although the three fuel storage tanks on the west side of the rail line are smaller than the four tanks east of the line, they are more visually prominent due to the fact that they are located at grade and can be seen from Carlsbad Boulevard.

Power Plant Baseline Operating Conditions

The PDP will not modify the Encina power plant's permitted operating capacity. However, the following information is provided to accomplish the City's objective of establishing baseline conditions for identifying existing facilities and operations on site for the purpose of increasing knowledge and understanding about station operation and onsite facilities. It should be noted this project does not include any modifications that would affect the power plant's operating capacity.

Power generation capacity, as described in the NPDES Permit, is provided by a total of six power generator units[4]:

- Unit 1 – 107 megawatts (MW)
- Unit 2 – 104 MW
- Unit 3 – 110 MW
- Unit 4 – 287 MW
- Unit 5 – 315 MW
- Gas Turbine – 16 MW

All of these generating units have been designated as "Reliability Must Run" (RMR) by the ISO.[5] The RMR Generation designation represents the minimum generation (number of units or MW output) required by the ISO to be available to maintain system reliability. At full production output, the Encina power plant has the capability to directly or indirectly serve roughly half of the power demand for San Diego County.

Units 1 through 5 are steam turbine generators, each with its own boiler that generates heat up to 1005 degrees Fahrenheit. Purified water runs through the boilers turning to high-pressure steam that is used to spin the turbines to generate electricity. The plant relies on seawater to cool and

[4] NPDES Permit, Order No. 2003-03, Regional Water Quality Control Board, February 16, 2000.
[5] California Independent System Operator website: www.caiso.com, accessed July 29, 2004.

condense the steam after its energy is expended spinning the turbine. Seawater flows into the Agua Hedionda Lagoon through the jetty west of Carlsbad Boulevard into the outer lagoon and into an intake channel located at the southwestern end of the lagoon. The seawater is then pumped into condensers to condense the steam on a non-contact heat transfer basis, and then is returned to the ocean via a discharge channel located to the south of the lagoon's confluence with the ocean.

The power plant cooling water discharge is regulated under a National Pollutant Discharge Elimination System (NPDES) permit, issued with the Regional Water Quality Control Board. The plant is currently permitted to discharge a maximum of approximately 860 million gallons per day (mgd) of cooling water. For purposes of this analysis, data for power plant operation includes records dating from 1980 to 2000. The generators identified above were phased in from the plant's initial construction in 1952 through 1978. Therefore, the dataset used in the EIR analysis represents operation of all production units, and is considered to provide data representing the current operational characteristics from which to analyze existing baseline conditions. The average cooling water discharge rate over the 20-year period was 576 mgd. Daily average flow rates have not fallen below 304 mgd in the 20-year dataset.

Surrounding Land Uses

Land uses surrounding the power plant area and planned desalination plant area include residential and active and passive recreational uses such as swimming, surfing, walking, bird watching, fishing, and aquaculture facility to the north; residential, commercial and industrial uses to the south; Interstate Freeway 5 and NCTD railroad tracks to the east; and beyond that open space and agriculture, and the Pacific Ocean to the west. As noted above, the NCTD railroad tracks bisect the PDP area. Also to the north, adjacent to the outer lagoon is the Hubbs-Seaworld Research Institute and fish hatchery. This facility has been in operation since 1995, and includes a 22,000-square-foot hatchery which is contributing to the restoration of the California white sea bass population through aquaculture and fishery enhancement. The hatchery is capable of producing over 350,000 juvenile white seabass annually.

Agua Hedionda Lagoon is one of three coastal lagoons within the City of Carlsbad and is located in the west-central portion of the City. The lagoon comprises approximately 230 acres of water surface and extends 1.7 miles inland from the coast. At its widest point, the lagoon is 0.5 mile wide. Agua Hedionda Creek enters the lagoon at its easternmost point. The area surrounding the lagoon is characterized by open areas along the northern and southern shorelines with residential development occurring on the bluffs above the lagoon to the north. Active agricultural fields occupy a portion of the slopes along the southern shoreline. The middle and inner lagoons are leased to the City as an aquatic-oriented recreational area. The middle lagoon has a recreation

facility that is used by the YMCA for water sports and overnight camp groups. The inner lagoon is used for water sports, such as boating and jet skiing, and is administered by the City of Carlsbad, which issues recreational use permits and collects fees.

South of the power plant area is the SDG&E Operations Center and Cannon Park. Single-family residential neighborhoods are located generally south of Cannon Road, and west of Carlsbad Boulevard. The neighborhood west of Carlsbad Boulevard is referred to as the Terra Mar subdivision. North and south of Cannon Road between the NCTD Railroad right-of-way and Interstate 5 are commercially and industrially zoned areas.

To the west of power plant across Carlsbad Boulevard, which forms the western boundary of the power plant, is the Pacific Ocean and the southern end of Carlsbad State Beach. Interstate 5 forms the eastern boundary of the Encina plant site.

Offsite (Water Delivery) Project Area

The offsite water delivery infrastructure associated with the project is shown in *Figure 3-5, Water Delivery Facilities*, and is described in detail in *Section 3.4*. The environmental setting for the facilities generally consists of existing and future roadways within the cities of Carlsbad, Oceanside and Vista. Roadway alignments have been identified as the primary pipeline alignments to facilitate right-of-way issues, and to avoid impacts that could be involved with off-road alignments. A number of alignment options have been identified to provide flexibility in alignment selection and to ensure that all potential alignment segments are analyzed in the EIR. Although the EIR includes project level environmental analysis of several potential alignment options (*Figure 3-5, Offsite Water Delivery Facilities*), only one of the potential alignment options will be constructed as part of the project. This provides for a worst case analysis, in that not all of the segments of pipe that are analyzed for potential impacts will be built.

Roadways that are proposed for pipeline alignments include Cannon Road (Carlsbad and Oceanside), Faraday Avenue (Carlsbad and Vista), Avenida Encinas (Carlsbad), Car Country Drive (Carlsbad), Orion Street (Carlsbad), College Boulevard (Carlsbad and Oceanside), Melrose Avenue (Carlsbad, Vista and Oceanside), Shadowridge Drive (Oceanside and Vista), Sequoia Crest Drive (Vista), Lake Boulevard (Vista and Oceanside), Mesa Drive (Oceanside), Thunder Drive (Oceanside), and Waring Road (Oceanside). In addition, off-road areas proposed for potential pipeline alignments include sections along Cannon Road; agricultural areas near Legoland and Armada Drives and the Flower Fields, all in Carlsbad; undeveloped areas in and near McClellan-Palomar Airport in Carlsbad; the Maerkle Reservoir area in Carlsbad near the Shadowridge area of Vista and Leisure Village/Ocean Hills community of Oceanside; and a parallel alignment within the area of the existing Tri-Agency Pipeline also in the Shadowridge

Figure 3-5, Offsite Water Delivery Facilities

and Leisure Village/Ocean Hills areas . The off-road areas that are potentially affected by the project are more fully described in *Section 4.0,* but generally consist of agriculture, non-native grassland and coastal sage scrub land covers.

3.4 PROJECT CHARACTERISTICS

3.4.1 Precise Development Plan

The Encina Power Station Precise Development Plan establishes general planning policies and development standards for the planning area and permits administrative processing for minor land use modifications. It also serves as the primary land use approval mechanism for approval of the desalination plant. The Plan establishes baseline conditions for existing facilities and operations on site as well as defines procedures for administrative approvals for future changes within the PDP area. The development standards would apply to all future onsite development, including major and minor additions and modifications. As discussed above, the project does not include any modifications to existing Encina power plant facilities, other than connection to the seawater discharge channel, ~~and~~ electrical connections and removal of a fuel oil storage tank. With the exception of the intake pump station and pipeline, concentrate return pipeline, sewer connection, backwash water treatment facility, electrical transformers, substation, electrical transmission lines, product water pipeline, and road improvements, all of which would not modify the power plant operations, construction of the desalination plant would be limited to the 4-acre desalination plant site and to the offsite improvements that lie outside of the PDP boundary. Certain future modifications to the EPS would require subsequent environmental review.

3.4.2 Desalination Plant

The proposed project includes the desalination plant, product water storage, a pumping station, and finished water conveyance pipelines. The proposed layout of the desalination plant is shown in *Figure 3-6, Desalination Plant Location*. The existing fuel oil storage tank (#3) will be removed to accommodate the proposed desalination facilities.

Source water for the project will come from once through-flow seawater in the existing cooling water discharge system at the power plant. Up to 104 mgd (long-term average) of seawater would be diverted from the combined outlet of the power plant condensers and piped to the desalination facility. The source water will be pre-treated and filtered through reverse osmosis (RO) membranes to produce drinking water. The product water would be stored temporarily in on-site facilities prior to transmission to local and/or regional storage and distribution systems.

Figure 3-6 Desalination Plant Location

New offsite pipelines would be constructed for conveyance of the product water to the City of Carlsbad, neighboring water agencies and/or the San Diego County Water Authority. However, the project as proposed does not include pipeline connections that would convey desalinated water to CWA distribution facilities.

The delivery area for the desalinated water may include portions of the geographical area served by the Carlsbad Municipal Water District, San Dieguito Water District, City of Oceanside, Olivenhain Water District, Vista Irrigation District, and Vallecitos Water District. Potential purchasing agencies include the Metropolitan Water District of Southern California (MWD), San Diego County Water Authority (SDCWA) and SDCWA member agencies and subagencies. Specific uses include municipal, industrial and agricultural water uses and potential users include municipal, industrial and agricultural water users.

The desalination facility will consist of an enclosed building approximately 44,552 square feet in size that would house the reverse osmosis process area, water treatment chemicals storage and pumps, product water pumps, administrative offices and other appurtenant facilities to support the plant. The building would be located on the eastern portion of the approximately 4-acre desalination project site. To the west of the building would be a 42,632 square foot pre-treatment area. The following describes the desalination process in order of the water flow through the facility.

Desalination Plant Intake and Discharge

Up to 104 mgd of cooling water that has passed through the Encina power plant condensers will be diverted from the power plant discharge to the desalination plant. An intake structure consisting of a pump station and a wet well tied-in to the power plant discharge channel will pump water through a 72-inch pipeline to be constructed from the power plant to the desalination plant. The 72-inch intake pipe will be constructed in parallel with a 48-inch seawater concentrate discharge pipe. The concentrate discharge pipeline will convey the discharge from the desalination plant as a by-product of the RO filtration process into the existing discharge channel from the power plant at a location that is approximately 850 feet downstream of the desalination intake structure to avoid intermixing of the concentrate discharge with the desalination plant source water. The parallel intake and discharge pipelines will run along the southern edge of the power plant facility within the toe of the slope that leads from the plant west up to Carlsbad Boulevard. From the power plant's southern boundary, the pipes will circle around the power plant heading east, turn north and run along the eastern edge of the Encina Switch Yard, and directly into the pretreatment intake channel within the desalination facility. The location of the proposed pipelines and a diagram of the intake and discharge flow for both the power plant and

Figure 3-7 Salt Water Intake and Desalination Water Flow Process

the desalination plant are shown in *Figure 3-7, Salt Water Intake and Desalination Water Flow Process.*

The following discussion of the water treatment process is organized in the order that the components of the process would occur in the flow of water through the desalination plant.

Pretreatment Facilities

Two types of pretreatment system technology are considered for implementation at the Carlsbad seawater desalination plant: **(1)** granular media (sand) filtration; and **(2)** membrane filtration. If the membrane filtration system is used, in order for it to operate effectively and efficiently, it would need to be accompanied by a microscreen filtration process upstream of the membrane filters. The granular media filtration system does not require the microscreen process, but may also include microscreening.

Microscreening System: The purpose of the microscreens is to remove particulates larger than 120 microns (0.005 inch) from the source seawater in order to reduce the solids loading and biological fouling of the downstream pretreatment facilities. Material separated out of the seawater through the microscreening process will be washed from the screens and collected in hoppers, then would be conveyed via gravity to a wet-well, from where they would be pumped to the power plant outfall canal for release back into the ocean.

Granular Media Pretreatment Filtration System: The granular media filtration system consists of a one or two-stage sand filtration process, designed to remove silt and organic materials from the seawater that are larger than 50 microns prior to entering the reverse osmosis filters. Prior to being passed through the sand filters, the source water would be treated with a coagulant (ferric chloride or ferric sulfate), which is injected as a liquid into the intake water stream to cause the suspended solids to bond together into larger particles to facilitate filtration of the material. As the seawater passes through the filter beds, sand granules contained within the filter beds remove particulate material that is then collected and processed for disposal. Through this process, virtually all (99.95%) of the coagulant is bonded as a solid and removed as particulate. Cleaning of the filters would be performed periodically by backwashing of the sand filters with filtered seawater. The washwater resulting from the backwashing process would be conveyed to a storage tank for settling. The settling tank (clarifier) is located within the pretreatment area. The settled filter backwash water will have the same characteristics as the intake ocean water. This settled backwash water will be either returned to the inlet of the desalination plant, upstream of the pretreatment filters, or will be discharged to the ocean via the concentrate disposal pipeline. The settled filter backwash water will contain approximately 1 percent of the solids retained in the pretreatment filters; 99 percent of the solids will be removed with the sedimentation basins'

sludge. The settled solids (sludge) will be dewatered on site to sludge concentration of 20% or higher and disposed of at a landfill. However, up to 500 pounds per day of the sludge may be conveyed as a liquid of 1 to 2% solids concentration to the local wastewater collection system for further treatment and disposal at the Encina Water Pollution Control Facility (EWPCF). The onsite dewatering option is described in more detail below.

Membrane Pretreatment Filtration System: As noted above, if membrane filtration is selected for source water pretreatment, it would require that microsceening be employed upstream to avoid performance problems. Use of microscreening would eliminate the need for coagulant conditioning of the source water. Source water would flow directly from the microscreening system to the membrane system, where a series of membrane filters would remove suspended solids prior to reverse osmosis filtration. Cleaning of the membrane filters would be conducted in three different processes: **(1)** membrane backwash; **(2)** Chemically Enhanced Backwash (CEB); and **(3)** Membrane Cleaning Solution wash.

The membrane backwash would be accomplished by reversing the flow of water through the filters and collecting the wash water. The membrane wash water will then be treated in a separate set of membrane backwash treatment tanks (concentrators), which are projected to recover/reduce the backwash water volume by 50%. As a result, 50% of the wash water would be recycled upstream of the pretreatment filters or discharged to the ocean via the concentrate disposal pipeline and the remaining 50% (approximately 5 mgd (average) and 7.5 mgd (maximum)) will be disposed as a final backwash water sidestream. Because the membrane pretreatment process does not require addition of chemicals for source seawater conditioning prior to filtration, the final waste backwash water stream will contain only solids naturally occurring in the ocean source water. Therefore, this final backwash water sidestream is proposed to be discharged back to the ocean along with the RO system concentrate and the microscreen washwater. Alternatively, the final backwash water will be dewatered on site a sludge concentration of 20% or higher and disposed of at a landfill. However, up to 500 pounds per day of the sludge may be conveyed as a liquid of 1 to 2% solids concentration to the local wastewater collection system for further treatment and disposal at the EWPCF.

Chemically Enhanced Backwash of the pretreatment membranes will be conducted daily using a combination of chlorine and acid and base conditioning of the membrane modules. The waste CEB sidestream will be stored in a separate tank (scavenger tank), neutralized and conveyed to the sanitary sewer system for further treatment and ultimate disposal at the Encina Water Pollution Control Facility.

Monthly pretreatment membrane system chemical cleaning will be completed using the same cleaning chemicals as these applied for cleaning of the RO membranes (see the "Membrane

Cleaning System" section below for further details). The pretreatment membrane waste cleaning solution will be conveyed for treatment to the same storage tank used for the CEB sidestream (the scavenger tank). From there it would be conveyed to the sanitary sewer system for further treatment and disposal at the Encina Water Pollution Control Facility.

Cartridge Filter System: The pretreatment filter effluent will be processed through 5-micron cartridge filters located downstream of the granular media filters and ahead of the RO membranes. The Cartidge Filter treatment is also proposed to be used with the Membrane Pretreatment option. These cartridge filters will provide further removal of fine particles which may be in the seawater. Particles retained on the cartridge filters will be removed with the filters every six to eight weeks. The spent cartridge filters will be disposed of at a sanitary landfill. The pretreated water would then be stored in 1MG filtrate storage tank located under a portion of the floor of the RO building.

Reverse Osmosis System

The reverse osmosis treatment system equipment will be arranged in 13 discrete treatment trains of total installed water production capacity of 54 mgd and will be designed to produce annual average flow of 50 mgd of product water with 12 trains in operation and one auxiliary train.

Filter Effluent Transfer Pumps: The purpose of the filter effluent transfer pumps is to convey the pretreatment filter effluent through the RO system cartridge filters into the suction of the high pressure RO feed pumps. Filtered water from the pretreatment system will be collected from the filter effluent channel to the 1 MG filtrate storage tank. A total of 13 vertical turbine pumps (one for each RO train) and their auxiliary equipment will be installed in the RO Building. The suction portion of these pumps will be submerged in the filtrate storage tank under the building.

High Pressure RO Feed Pumps: The high pressure pumps will feed the pretreated seawater to the reverse osmosis membrane treatment trains. The purpose of these pumps is to deliver the feed water to the membranes at high-enough pressure (typically 800 to 900 psi) in order to complete the water/salt separation process. The RO system will include a total of 13 high-pressure RO feed pumps (one per each RO treatment train). The high-pressure feed pump motor shafts will be connected to energy recovery equipment which will allow the facility to reuse an average of 25 % of the applied motor power and to reduce the maximum pump power motor demand from 3,500 hp to approximately 2,625 hp. All high-pressure RO pumps will be located in the RO Building.

Final Water Conditioning

The product water from the reverse osmosis system will be disinfected with chlorine followed by ammonia addition for chloramination. Controlling biological growth in the transmission pipelines and in the receiving reservoirs in the distribution system will be accomplished by adding ammonia to the chlorinated water to form chloramines. The desalinated water will be chloraminated by sequential application of sodium hypochlorite and ammonia to achieve a chloramine residual concentration at the point of delivery to the distribution system ~~is~~ in a range of 2 to 2.5 mg/L. The product water will also be conditioned using lime and carbon dioxide to provide corrosion control within the existing water delivery system. This is necessary because the RO process removes minerals from the water and creates a condition whereby the water molecules will attract minerals contained in the water delivery facilities, causing potential corrosion of the facilities.

Main Product Water Pump Station

Water that has completed the RO filtration process will be pumped via the Product Water Pump Station located in the RO building via a 48-inch pipeline to the offsite water distribution system.

Concentrated Seawater Disposal

Concentrated seawater (concentrate) will be produced in the RO membrane separation process. Approximately one gallon of concentrated seawater will be created for every gallon of potable drinking water produced; therefore, for the proposed 50-mgd desalination plant, approximately 50 mgd of concentrated seawater will be generated. The salinity of the concentrate will be 67,000 ppm, twice the concentration of the incoming seawater (33,500 ppm). The concentrated seawater will be conveyed to the power plant cooling water discharge canal, using the desalination plant concentrate pipeline as previously described, and then the concentrated seawater will be blended with the power plant cooling water prior to discharge of the blended stream into the ocean via the power plant discharge canal. The existing 15-foot wide, concrete discharge channel conveys the cooling water into an on-site discharge area by gravity before the cooling water travels through box culverts under Carlsbad Boulevard into a riprap-lined channel leading across the beach into the Pacific Ocean.

Membrane Cleaning System

The purpose of the membrane cleaning system is to remove, contain and dispose of fine particulates and other fouling materials that accumulate on the surface of the RO membranes over time during the routine operation of the RO system. Each membrane RO train would be

cleaned on average two times per year. Chemicals that are anticipated to be used for cleaning include:

- Citric Acid - (2% solution)
- Sodium Hydroxide B (0.1% solution)
- Sodium Tripolyphosphate B (2 % solution)
- Sodium Dodecylbenzene B (0.25% solution)
- Sulfuric acid B (0.1% solution)

During cleaning, the membrane train is taken out of service and cleaning solution is circulated through the membranes to remove the accumulated fouling materials. The particulates removed from the membranes, along with the wash water are collected in the 200,000 gallon Scavenger Tank located beneath the RO building, where it is treated by neutralization and discharged to the wastewater collection system, or treated onsite, as described below. The time required for cleaning of one train is typically one day. Typically, one RO train is taken out of service at a time for membrane cleaning. During the time a given RO train is down for cleaning, the 13th standby train is used to maintain constant desalination plant production capacity of 50 mgd. The membrane cleaning system ~~however~~ is designed with redundant equipment allowing cleaning of two RO trains simultaneously, if needed.

Solids Processing

Up to 500 pounds per day of the sludge may be conveyed as a liquid of 1 to 2% solids concentration to the local wastewater collection system for further treatment and disposal at the EWPCF. The remaining solids removed from the source seawater during the pretreatment processes will be settled and dewatered on site in a solids handling system. The backwash water from the pretreatment system will be settled in two settling tanks. The settling tank sludge removal pumps will convey the solids to a dewatering, or solids handling, building which will consist of two belt filter presses, two sludge conveyors and sludge chemical conditioning system. The sludge removal pumps will be located outdoors, adjacent to the settling tanks. All other equipment will be located in the solids handling building. The solids handling facility would be a new structure with a height of approximately 20 feet and a footprint of approximately 2,500 square feet. This facility would be constructed on one of the two optional locations shown in *Figure 3-6*. The final location and footprint of this building will be determined during the detailed design phase of the project.

3.4.3 Offsite Project Elements

Offsite infrastructure and facilities to carry and store product water from the desalination plant are not included as part of the PDP, but are part of the overall project described and analyzed in this EIR because they are essential to the operation of the desalination plant. Several options are being considered for pipeline alignments, including various combinations of segments. In general, there are two primary delivery route alignments, one that follows the Cannon Road alignment to College Boulevard into Oceanside, and the other follows Cannon Road to Faraday Avenue to Melrose Drive in Vista, and continues north on Melrose Drive into Oceanside. Associated with the primary alignments, there are several sub-alignments and/or options for segments of the alignments. For purposes of the analysis contained in the EIR, all potential alignments and sub-alignments that have been identified by the applicant are analyzed, since the precise alignment of the pipeline system has not yet been determined. All of the potential alignment segments are depicted in *Figure 3-5, Offsite Delivery Facility Pipelines and Pump Station.* Portions of the alignments are shown within future roadways as shown on *Figure 3-5*. It should be noted that if chosen alignments contained segments within future roadways, the pipelines would be constructed in conjunction with or subsequent to roadway construction. Pipeline construction would not precede roadway construction.

Regardless of which combination of segments is ultimately selected, it is anticipated that the longest potential network of pipeline will not exceed 16 miles**.** Pipe diameter will range from 48 inches in the upstream portions of the delivery system, to 24 inches in the downstream portions. Portions of the pipeline alignments will utilize trenchless construction in areas of sensitive environmental resources or at freeway and railroad crossings. The three methods under consideration are micro-tunneling, horizontal directional drilling, or auger boring. Generally, micro-tunneling involves the excavation of two jacking and receiving pits, which are vertical excavations with shoring and bracing systems (one on each side of the area to be crossed). A micro-tunneling machine, equipped with either an auger or slurry material removing device, is lowered into the jacking pit and creates a tunnel connecting the jacking and receiving pits. The pipeline can then be installed within the underground tunnel.

Horizontal directional drilling involves the drilling of a pilot hole at a prescribed angle from one end of the waterway/roadway to be crossed to the other utilizing a pilot drill string. Once the pilot hole is complete, the hole must be enlarged to a suitable diameter for the pipeline. This is accomplished by "pre-reaming" the hole to an appropriate diameter. A reamer is attached to the drill string and is pulled through the pilot hole by a drilling rig. Large quantities of slurry are pumped into the hole to maintain the integrity of the hole and to flush out cuttings. Once the drilled hole is enlarged, the pipeline is prefabricated, a reamer is once again attached to the drill string, and the pipeline is connected behind the reamer via a swivel. The drilling rig then pulls

the reamer and pipeline through the tunnel until surfacing at the opposite end, once again circulating high volumes of drilling slurry. The likely size of the impacted area for trenchless technology would be approximately of 20 feet by 40 feet at the beginning of the tunnel and 15 feet by 15 feet the end of the tunnel.

Auger boring is a trenchless technique that forms a bore hole between shafts by means of a rotating cutting head. Spoil is transported back to the drive shaft by helical-wound auger flights rotating inside a steel pipe casing that is being jacked in place simultaneously. The cutting head completely removes the spoil and does not compress the surrounding soil. Therefore, soil heave is not an issue of concern and roadways are not damaged during the drive.

For lengths of the pipeline not utilizing trenchless construction (the majority of the pipeline), open trench construction techniques would be utilized. For open trenching, the minimum coverage for a 42- to 48-inch pipe (the largest pipeline diameter proposed) would be at least five to six feet with two feet of available workspace on both sides of the pipe. This would require deep trenches (approximately 9 to 10 feet) with appropriate shoring. Including required lay-down area for supplies and equipment, a temporary 30-foot easement may be required for trenching operations.

A single offsite pump station is proposed within the City of Oceanside to boost water pressure for delivery into the Oceanside municipal water delivery system from the Melrose Drive alignment. This pump station would be located west of and near the intersection of Melrose Drive and Oceanside Boulevard. The College Boulevard alignment does not require an offsite pump station. The potential location is shown on *Figure 3-5*.

The pump station will have a total capacity of 10 mgd and will contain five 1,750 gpm pumps (four duty and one standby) equipped with constant speed motors. The pumps will be installed indoors in an enclosed concrete building, which will also contain the pump service facilities (instrumentation, control and power supply systems). The pump station duty and standby power will be supplied from the regional power grid through two separate power connections taking power from independent power grid loops.

The project also includes surge control facilities to ensure that any water pressure anomalies that may result from starting and stopping of the product water pumps will not adversely affect existing or proposed water delivery facilities. Surge control facilities are proposed to be located at the desalination plant and at the offsite pump station.

Public Dedications and Enhancements

Other potential community enhancements are being addressed with the City through a direct agreement between the City and Cabrillo. Enhancements would include easements for use, leases, or the dedication of land to the City of Carlsbad for general public benefit. These features are included as a part of the PDP:

- ***Fishing Beach*** - This ~~2.89~~approximately 3.5 to 4 acre site includes the land between Carlsbad Boulevard on the west, the Outer Agua Hedionda Lagoon on the east, the lagoon jetty on the north, and a gated fence that extends into the riprap and lagoon on the south. The distance between the lagoon jetty and fence is approximately 1,500 feet. The site is proposed for recreational and coastal access use, including public parking, with a reservation for staging activities associated with periodic dredging conducted by Cabrillo. ~~is located on the east side of Carlsbad Boulevard just south of the lagoon jetty along the western shore of the Outer Lagoon. The purpose of the dedication will be for recreational and coastal access use, with a reservation for staging activities associated with periodic dredging conducted by Cabrillo. An additional stretch of land extending south of this site to the north end of the PDP area (in the approximate location of the discharge pond and aquaculture facility buildings) is proposed for public parking.~~

- ***Bluff Area*** – This site is located on the west side of Carlsbad Boulevard, north of Tierra Del Oro Street. The site is approximately 13 acres in size, and is proposed to be dedicated for recreational and coastal access uses.

- ***Hubbs Site*** – This includes the land located on the north side of the lagoon just west of the railroad tracks, next to Hubbs Seaworld Research Institute. The site is approximately 2 acres in size and is proposed to be used as a site for expansion of fish hatchery and aquatic research uses.

- ***South Power Plant public parking area*** – This site is along the east side of Carlsbad Boulevard and near the south entrance to the power plant. The site is proposed to be used for public parking.

There are additional enhancements not addressed in the agreement between the City and Cabrillo but considered by this EIR. These enhancements are:

- ***Carlsbad Boulevard Widening*** - This enhancement would include construction of street improvements, sidewalk, and median improvements along the east half of the street to General Plan major arterial street standards. Construction would affect Carlsbad

Boulevard from its intersection with Cannon Road to a point approximately 800 feet north near the south boundary of the Encina Power Station.

- ***Screening Wall and Landscape Installation*** – This improvement would include construction of a decorative screening wall or fence and, where feasible, installation of landscaping and irrigation along the entire Carlsbad Boulevard frontage of the Encina Power Station.

3.5 PROJECT NEED AND OBJECTIVES

The fundamental purposes of the PDP include the following:

- To provide the primary land use approval mechanism and detailed exhibits for the City's review and approval of the proposed 50 mgd Carlsbad Seawater Desalination Facility to be located adjacent to the EPS.

- To establish a baseline for identifying existing facilities and operations on site for the purpose of increasing knowledge and understanding about station operations and onsite facilities.

- To establish a procedure for administrative approvals that will enable the City to issue administrative permits, building permits and other ministerial permits, establish amendment procedures for the PDP, and entitlements for property owned by Cabrillo zoned P-U.

- To provide development standards for the power plant.

The specific objectives related to the desalination plant and associated facilities and the land use applications through which they are processed include the following:

- To provide a local source of potable water to supplement imported water supplies available to the City of Carlsbad and the San Diego region.

- To improve water supply reliability for the City of Carlsbad and the San Diego region.

- To improve water quality for the City of Carlsbad and the surrounding communities.

- To complement local and regional water conservation, and water recycling programs.

- To locate and design a desalination plant in a manner that maximizes efficiency for construction and operation and minimizes environmental effects.

- To increase opportunities for public access to the coastal area through public enhancements and dedications of coastal property.

3.6 PROJECT PHASING

The project has a maximum capacity to deliver 50 mgd of product water on an average annual basis and would be constructed in one or more phases. Based on the Water Purchase Agreement entered into by and between the Carlsbad Municipal Water District and Poseidon Resources (Channelside) LLC September 28, 2004 (APPENDIX B), the initial phase of the project would have a capacity of at least 25 mgd. Construction of the plant is anticipated to begin in 2006, and would be completed in 2008. It is anticipated that the plant would be fully operational by mid to late 2008.

3.7 AGREEMENTS, PERMITS AND APPROVALS REQUIRED

As owner and operator of the power plant, Cabrillo is subject to multiple governmental agency regulations and jurisdictions. In addition to the City of Carlsbad, the power plant's operations, technology and facilities are regulated by the Federal Energy Regulatory Commission (FERC), the California Coastal Commission, the California Public Utilities Commission (CPUC), the California Independent System Operator (ISO), United States Fish & Wildlife Services (USFWS), National Marine Fisheries Service, United States Army Corps of Engineers, California Department of Fish and Game, San Diego County Air Pollution District (APCD) and the Regional Water Quality Control Board. Some of these agencies have ~~at their discretion~~ the authority to exercise ~~preemptive jurisdictional~~ regulatory powers over the siting, design, facilities, and operational characteristics of the power plant.~~, which are exclusive of the jurisdictional regulatory powers of the City of Carlsbad. The desalination plant is also subject to the regulatory power of some of the previously mentioned jurisdictional agencies.~~ The~~is~~ PDP does not confer additional regulatory ~~jurisdiction~~ authority upon the City of Carlsbad than it has under applicable state and federal law.

Pursuant to Section 15367 of the California Environmental Quality Act (CEQA), the City of Carlsbad (City) is the Lead Agency in the preparation of this EIR. Actions identified to achieve approval of the proposed project may include, but are not limited to:

City of Carlsbad Actions

- Certification of a Project EIR and approval of the Encina Power Station Precise Development Plan;
- An Amendment to the Encina Specific Plan No. 144 to incorporate the PDP into the specific plan;
- A Coastal Development Permit (CDP) for the offsite project elements located within the Coastal Zone but outside the Agua Hedionda segment of the City's Local Coastal Program;
- A Floodplain Special Use Permit;
- A Development Agreement
- Approval of Improvement Plans
- Right-of-Way Permit(s)
- Encroachment Permit(s)
- Easements/Acquisition of Right-of-Way
- Grading Permit(s)
- Haul Route Permit
- Water Purchase Agreement
- A Habitat Management Plan Permit
- Redevelopment Permit

California Coastal Commission Action

- A Coastal Development Permit (CDP) for the desalination plant. This permit is necessary as the Encina Power Station and portions of the offsite elements are located in the Agua Hedionda segment of the City of Carlsbad's Local Coastal Program - a segment ~~in~~ over which the City does not have permit authority, because jurisdiction has been retained by the California Coastal Commission.

Other Agency Actions

- ~~Amendments to existing leases with~~ A lease for portions of the project that are state-owned lands under jurisdiction of the California State Lands Commission;
- A Domestic Water Supply Permit from the California Department of Health Services;

- A separate National Pollutant Discharge Elimination System (NPDES) Permit from the San Diego Regional Water Quality Control Board for the desalination plant;
- An Industrial Waste Permit from the Encina Wastewater Authority
- Additional review may be provided by Federal, State and regional agencies including, but not limited to: the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, National Oceanic & Atmospheric Administration, U.S. National Marine Fisheries Service, U.S. Army Corp of Engineers, CALTRANS, and California Department of Fish and Game;
- Land use and development permits from the cities of Oceanside and Vista, and;
- Right-of-Way Permit(s) (Cities of Vista and Oceanside)
- Encroachment Permit(s) (Cities of Vista and Oceanside)
- Easements/Acquisition of Right-of-Way (Cities of Vista and Oceanside)
- Grading Permit(s) (Cities of Vista and Oceanside)
- Haul Route Permit (Cities of Vista and Oceanside)
- Permits to connect to facilities of various local water districts.