8.14 Water Resources

8.14.1 Introduction

Water resources potentially affected by the proposed Vernon Power Plant (VPP) project include effects on water supply, wastewater discharge, surface and groundwater water quality, and stormwater.

This section evaluates the effect of the VPP project on water resources. Subsection 8.14.2 presents the laws, ordinances, regulations and standards (LORS). Subsection 8.14.3 describes the hydrologic setting, Subsection 8.14.4 characterizes water use and disposal, and Subsection 8.14.5 discusses precipitation, stormwater runoff, and drainage. Subsection 8.14.6 discusses the project's effects on water resources. Mitigation is discussed in Subsection 8.14.7. Subsection 8.14.8 provides the proposed monitoring plans and compliance verification procedures. Subsection 8.14.9 discusses cumulative impacts. Subsection 8.14.10 lists the permits required, and Subsection 8.14.11 provides agency contacts. Subsection 8.14.12 provides the references consulted in preparing this section.

8.14.2 Applicable Laws, Ordinances, Regulations, and Standards

Federal, state, and local LORS applicable to water resources and conformance are discussed in this section and summarized in Table 8.14-1.

8.14.2.1 Federal

The Clean Water Act authorizes the U.S. Environmental Protection Agency (USEPA) to regulate discharges of wastewater and stormwater into surface waters by issuing National Pollutant Discharge Elimination System (NPDES) permits and setting pretreatment standards. In California, the Regional Water Quality Control Boards implement these permits at the state level, but USEPA may retain jurisdiction at its discretion. Relevant NPDES permits are discussed below under State LORS.

In addition, Section 307 of the Clean Water Act requires pretreatment of industrial discharges into publicly-owned treatment works. Industrial discharges from VPP would be subject to these requirements, as implemented and enforced by the Sanitation Districts of Los Angeles County (LACSD), Wastewater Ordinance, Part IV—Industrial Wastewaters. Because the industrial pretreatment standards would be enforced by the LACSD, they are discussed below under local regulations.

8.14.2.2 State

8.14.2.2.1 State Water Resources Control Board and Los Angeles Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB) implements regulations under the federal Clean Water Act requiring that point source discharges of stormwater (which is a flow of rainfall runoff in some kind of discrete conveyance such as a pipe, ditch, channel, or swale) associated with industrial activity that discharge either directly to surface waters or indirectly through municipal separate storm sewers must be regulated by an NPDES permit (SWRCB, 1997). The SWRCB has issued Waste Discharge Requirements (WDRs) for

TABLE 8.14-1
Laws, Ordinances, Regulations, and Standards Applicable to VPP Water Resources

LORS	Applicability	How Conformance Is Achieved	Agency/Contact
Federal			
Clean Water Act/Water Pollution Control Act. P.L. 92-500, 1972; amended by Water Quality Act of 1987, P.L. 100-4 (33 USC 466 et seq.); NPDES (CWA, Section 402); Toxic and Pretreatment Effluent Standards (CWA, Section 307)	Prohibits discharge of pollutants to receiving waters unless the discharge is in compliance with an NPDES permit. Applies to all point-source discharges, including industrial wastewater and stormwater runoff, during both construction and operation. Sets forth pretreatment requirements for the industrial discharges into publicly owned treatment works.	Compliance with individual NPDES permit requirements from the California Regional Water Quality Control Board, Los Angeles Region (LARWQCB) (see below under State) and local agencies (see below under Local).	See below under State
State			
Federal Clean Water Act (implemented by State of California) and Porter-Cologne Water Quality Control Act	Implements and enforces the federal NPDES permit program through conformance with beneficial uses and water quality objectives in the Basin Plan as well as conformance with any applicable Total Maximum Daily Load requirements and industrial pretreatment requirements.	Operational discharges of industrial and sanitary wastewater streams are conveyed to the LACSD's sewer system for treatment and disposal; discharges are regulated under an existing NPDES permit for the Carson Joint Water Pollution Control Plant (NPDES Permit CA0053813, Order No. 00-043).	LARWQCB Municipal Permitting Department Attn. Jau Ren Chen Phone: (213) 576-6656
		Stormwater runoff is conveyed through the City of Vernon and Los Angeles County Flood Control District's storm drainage system; discharges are regulated under an existing NPDES permit for municipal stormwater (NPDES Permit CAS004001, Order No. 01-182).	LARWQCB Stormwater Permitting Department Attn. Carlos Urrunaga Phone: (213) 620-2083
		Construction stormwater discharges on sites greater than 1 acre require compliance with statewide construction discharge permit (NPDES Permit CAS000002, Order No. 99-08-DWQ).	SWRCB Stormwater Program Phone: (916) 341-5537

TABLE 8.14-1
Laws, Ordinances, Regulations, and Standards Applicable to VPP Water Resources

LORS	Applicability	How Conformance Is Achieved	Agency/Contact
		Stormwater discharges during operation of power plants require compliance with statewide program for industrial uses (NPDES Permit CAS000001, Order No. 97-03-DWQ).	SWRCB Stormwater Program Phone: (916) 341-5538
			LARWQCB Xavier Swamikannu 320 West 4th Street. Los Angeles, CA 90013-2343 Phone: (213) 620-2094
California Water Code §13550 et seq. and SWRCB Resolution 75-58	Encourages the conservation of water resources and the maximum reuse of wastewater, particularly in areas where water is in short supply.	California Water Code §13550 et seq. provides that use of potable water for specified uses is a prohibited waste of water resources when recycled water is currently available, as defined in that section. The VPP proposes to use recycled water for process and cooling water and is, therefore, in conformance with these code sections and Resolution No. 75-58.	
Title 22 of the California Code of Regulations (CCR) (Division 4, Chapter 15)	Sets forth requirements for treatment and quality of recycled water for cooling.	Recycled water will be treated with a 90-minute contact time using sodium hypochlorite solution, in conformance with Title 22 requirements.	

TABLE 8.14-1
Laws, Ordinances, Regulations, and Standards Applicable to VPP Water Resources

LORS	Applicability	How Conformance Is Achieved	Agency/Contact
Local			
LACSD, Wastewater Ordinance, Section 401	Regulates connections to the County's sewer system. Implements requirements of Federal program for industrial wastewater discharges (CWA, Section 307) and NPDES Permit for the Carson Joint Water Pollution Control Plant (NPDES Permit CA0053813, Order No. 00-043).	The City of Vernon will comply with Section 401 for all discharges to the sewer system and will obtain a Permit for Industrial Wastewater Discharge. The Applicant will comply with all permit conditions, including the following: discharge limitations, pretreatment requirements, peak flow restrictions, dewatering discharges, payment of fees, and monitoring and reporting requirements.	LACSD P.O. Box 4998 Whittier, CA 90607-4998 Attn: James F. Stahl, Chief Engineer and General Manager Phone: (562) 699-7411
City of Vernon, Chapter 21 of the Vernon Municipal Code (Stormwater and Runoff Pollution Control).	Regulates connections to storm drainage facilities. Implements stormwater quality requirements consistent with countywide permit (NPDES Permit CAS004001, Order No. 01-182).	The City of Vernon will issue a connection permit and will demonstrate compliance with countywide Standard Urban Stormwater Mitigation Plan.	City of Vernon 4305 Santa Fe Ave. Vernon CA 90058 Phone: (323) 583-8811

discharges of stormwater associated with industrial activities (such as the proposed project), excluding construction activities. On December 13, 2001, the LARWQCB, adopted Order No. 01-182. This Order is the NPDES Permit (NPDES No. CAS004001) for municipal stormwater and urban runoff discharges within the County of Los Angeles. Again, because the industrial pretreatment standards would be enforced by the LACSD, they are discussed below under local regulations.

Construction Stormwater NPDES Permit

The federal Clean Water Act effectively prohibits discharges of stormwater from construction sites unless the discharge is in compliance with an NPDES permit. The SWRCB is the permitting authority in California and has adopted a statewide General Permit for Stormwater Discharges Associated with Construction Activity (General Construction Permit; SWRCB, 1999) that applies to projects resulting in one or more acres of soil disturbance. The proposed project would result in disturbance of more than one acre of soil. Therefore, the project will require the preparation of a Stormwater Pollution Prevention Plan (SWPPP) that would specify site management activities to be implemented during site development. These management activities will include construction stormwater best management practices (BMPs), dewatering runoff controls, and construction equipment decontamination.

LARWQCB requires a notice of intent to be filed prior to construction activities. SWPPPs must be prepared prior to filing both the Construction and General Industrial Stormwater NPDES permits. The SWRCB Water Quality Order No. 99-08-DWQ applies to construction activity NPDES stormwater permits for construction areas of greater than one acre. SWRCB Order 97-03-DWQ authorizes general industrial stormwater permits.

8.14.2.2.2 California Water Code Sections 13550, 13551, and SWRCB Resolution No. 75-58

Water code section 13550 and 13551 encourage the conservation of potable water resources and the maximum reuse of wastewater to conserve potable water, particularly in areas where recycled water of adequate quality is available at reasonable cost.

Resolution No. 75-58 provides statewide water quality principles for adoption of discharge requirements and implementation actions for power plants that depend upon inland waters for cooling. This policy also provides guidance in the planning of new power plants to encourage the use of wastewater for cooling where appropriate, thus minimizing the use of potable water.

Consistent with these requirements, the California Energy Commission has stated that it has a policy against the offsite discharge of wastewater by requiring use of plant equipment to evaporate wastewater (i.e., “zero liquid discharge” technologies) (CEC, 2003). However, use of such technology is unnecessary for the VPP project because wastewater discharges will be relatively clean compared to effluent standards (see Table 8.14-5) and such discharges are considered assets by the wastewater service provider (Sanitation Districts of Los Angeles County) because of their ability to dilute other wastewater streams.

8.14.2.2.3 Title 22 of the California Code of Regulations

Title 22 addresses the use of recycled water; in particular, Section 60306 sets forth the criteria for the use of recycled water for cooling. Such cooling water is defined as disinfected tertiary recycled water in Section 60401.230.

8.14.2.2.4 Porter-Cologne Water Quality Control Act and the Basin Plan

The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) governs the regulation of water quality within California and establishes the authority of the SWRCB and the nine Regional Boards. LARWQCB established regulatory standards and objectives for water quality in the coastal watersheds of Los Angeles and Ventura Counties in the *Water Quality Control Plan, Los Angeles Region*, commonly referred to as the "Basin Plan" (LARWQCB, 1994). The Basin Plan identifies existing and potential beneficial uses and provides numerical and narrative water quality objectives designed to protect those uses.

8.14.2.3 Local Policies

8.14.2.3.1 Sanitation Districts of Los Angeles County

The Clean Water Act requires that publicly-owned treatment works regulate the discharge of industrial wastes into a sewer system subject to an NPDES permit. Accordingly, the LACSD has adopted detailed permit requirements for industrial dischargers. The discharge of any wastewater to the County's sewer system would be subject to the requirements of the County's Wastewater Ordinance, which regulates the quantity and quality of discharges to the sewer system.

In accordance with the Wastewater Ordinance, VPP would be required to obtain an Industrial Wastewater Discharge Permit (IWDP) from LACSD. The IWDP would specify the detailed project-specific requirements applicable to the VPP, including pretreatment standards, flow restrictions, and sampling, monitoring, and reporting requirements. The permit would be issued for a fixed time period, not to exceed 5 years, for Significant Industrial Users. As a condition of approval for an Industrial Waste Discharge Permit, the applicant may be required to participate in the District's Self Monitoring Program (SMP). The SMP would require the applicant to furnish chemical analysis of its industrial discharge on a regular basis. The type and frequency of the testing is determined on a case-by-case basis, and are included in the permit requirements.

Pretreatment systems are required by the LACSD to reduce pollutants to levels specified by local and federal limitations. LACSD provides minimum requirements for pretreatment that consists of a three-compartment, gravity separation interceptor (clarifier) and sampling box, with a minimum detention time of 30 minutes, and a minimum capacity of 500 gallons. Additional required pretreatment facilities may include pH neutralization, clarification, flocculation, dewatering, or other more extensive facilities (LACSD, 2005b).

8.14.2.3.2 Los Angeles County Department of Public Works

On December 13, 2001, LARWQCB adopted Order No. 01-182. This Order is the NPDES Permit (NPDES No. CAS004001) for municipal stormwater and urban runoff discharges within the County of Los Angeles.

As adopted in December 2001, the requirements of Order No. 01-182 cover 84 cities, including the City of Vernon, and the unincorporated areas of Los Angeles County. Under this, a stormwater quality management program (SQMP) has been implemented that addresses a number of different programs to reduce pollutants in stormwater and urban runoff. One of the programs implemented under the SQMP is the Development Planning Program. The Development and Planning Program requires that certain new development

or redevelopment projects comply with the Standard Urban Stormwater Mitigation Plan (SUSMP), which outlines the necessary BMPs that should be incorporated into design plans.

The VPP falls into the category of "redevelopment" under the SUSMP, and is thus required to follow the guidelines outlined in the Plan.

8.14.2.3.3 City of Vernon

City of Vernon Code Chapter 21 of the Vernon Municipal Code regulates the discharge of water to the storm system. Chapter 21 aims to protect the beneficial uses, marine habitats, and ecosystems of receiving waters that are carried by stormwater and non-stormwater discharges. This applies to all stormwater and/or runoff to the storm drain system and/or receiving waters within any area covered by a NPDES municipal stormwater permit.

The City code lists prohibited discharges from industrial or commercial activities, unless the discharger complies with an NPDES permit.

For potable water service, VPP will be required to submit an application of service. A similar permit will be required for connection to the City's wastewater collection system. As discussed previously, an Industrial Waste Discharge Permit from the LACSD will be required.

8.14.3 Hydrologic Setting

8.14.3.1 Surface Water

The VPP site is located in the City of Vernon in Los Angeles County, approximately 5 miles south of downtown Los Angeles. Vernon is located within the Los Angeles River Watershed (Figure 8.14-1, figures are at the end of this subsection). Annual precipitation in Los Angeles County averages about 15 inches, and can vary significantly depending on the location. Under the modified Köppen classification system, Los Angeles climate is categorized as Mediterranean, with dry summers and rainy winters with a relatively modest transition in temperature (NOAA, 2005).

The project is located within the Los Angeles River Watershed (LARW). The LARW covers approximately 324 square miles. The LARW is diverse in terms of its land use patterns, with portions of it lying in forest or open space; however, the majority of the watershed is highly developed. The Los Angeles River, a primarily concrete-lined river, is approximately 55 miles long and empties into the Pacific Ocean. The Los Angeles River flows through the San Fernando Valley past heavily developed residential and commercial areas, and in some areas is bordered by railyards, freeways, and major commercial and government buildings. From the confluence with the Rio Hondo river to the Pacific Ocean, the Los Angeles River flows through industrial, residential, and commercial areas, including major refineries and petroleum products storage facilities, major freeways, rail lines, and rail yards serving the Ports of Los Angeles and Long Beach.

The Los Angeles River is considered an "impaired water body" as defined by Section 303(d) of the Clean Water Act. The pollutants that have been identified as causing impairment in the Los Angeles River include aluminum, ammonia, cadmium, copper, high chloroform count, lead, algae, pH, scum (foam-unnatural), zinc, odors, oil, dichloroethylene, tetrachloroethylene, and trichloroethylene.

8.14.3.2 Groundwater

Groundwater underlying the project area is contained in the Los Angeles – Orange County coastal plain aquifer system (Figure 8.14-2). The coastal plain basin extends over 860 square miles and includes both Los Angeles and Orange counties. The Los Angeles – Orange County coastal plain basin is bounded on the north and east by the Santa Monica Mountains and the Puente Hills, on the south by the San Joaquin Hills, and on the west by the Pacific Ocean. The mountains are underlain by consolidated rocks of igneous, metamorphic, and marine-sedimentary origin. These consolidated rocks surround and underlie thick unconsolidated alluvial deposits. The major drainages in the basin are the Los Angeles, the San Gabriel, and the Santa Ana Rivers, all of which have headwaters outside the basin. Recharge to the groundwater basins mainly occurs through runoff and infiltration; however, increases in impermeable surfaces have caused a decrease in infiltration. Spreading grounds and other facilities operated by the County of Los Angeles have encouraged active recharge of the basins.

8.14.3.3 Flooding Potential

The plant site is not located within a flood hazard zone as defined by the Federal Emergency Management Agency (FEMA).

8.14.4 Water Use and Disposal

This section characterizes the sources of water needed for power generation and other purposes at the VPP facility and how that water would be conveyed for offsite disposal.

8.14.4.1 Water Sources and Use

Recycled water for the VPP's process and cooling water, and equipment wash water, will be supplied by the Central Basin Municipal Water District (CBMWD) (see "will serve" letter in Appendix 8.14A). A new recycled water pipeline, which would travel from the plant site to Boyle Avenue, would connect the plant to an existing recycled water pipeline, approximately 2,000 feet east of the plant. The CBMWD's recycled water system will require improvement before sufficient volume of recycled water will be available for VPP. CBMWD has committed to having the improvements to the recycled water line complete prior to plant startup.

The recycled water supply will be pumped to a recycled water storage tank. The Title 22 recycled water will then be divided into supply for the cooling towers and supply for compressor evaporative cooling. Cooling water treatment may require the addition of chemicals such as a pH control agent (acid or caustic), a mineral scale dispersant (i.e., polyacrylate polymer), a corrosion inhibitor (phosphate based), and a biocide (hypochlorite or equivalent). The water to be used in the Heat Recovery Stream Generator (HRSG) unit will be further treated, beginning with a reverse osmosis system followed by an electrodeionization system.

Daily and annual water demands are provided in Table 8.14-2.

TABLE 8.14-2
Daily and Annual Water Use for VPP Operations

Water Use	Water Source	Daily Use (gpm)		Annual Use (afy)
		Average	Maximum*	
Recycled Water	Central Basin MWD	2,510	3,850	4,048
Potable Water	City of Vernon	0.21	30	0.34

* Includes 10 percent peaking factor over Water Balance.

gpm = gallons per minute
afy = acre-feet per year (based on an annual operation of 8,760 hours/year)

Potable water will be supplied to the site by the City of Vernon, which obtains water from local groundwater wells and from the Metropolitan Water District (MWD). Potable water will be supplied, under a permit to be issued by the City of Vernon, through city mains located in Soto Street and Seville Avenue. It will be used for domestic purposes and as an emergency water supply for the project. A backup connection will allow potable water to be used for plant makeup in the event that recycled water is not available for longer than 8 hours. This connection will be equipped with an approved backflow preventer.

8.14.4.2 Wastewater Discharge

This subsection characterizes the volume and quality of wastewater that would be generated by VPP and the method of disposal. Estimated daily and annual wastewater discharge rates are provided in Table 8.14-3.

TABLE 8.14-3
Operational Wastewater Discharges from VPP

Waste Discharge Stream	Discharge Location	Daily Discharge (gpm)		Annual Discharge (mgy)
		Average	Maximum*	
Plant wastewater sump (discharge from process and cooling water, backwash water from ultra filters, and reject from reverse osmosis unit)	LACSD sanitary sewer system via the City sanitary sewer system	495	750	260
Domestic wastewater	LACSD sanitary sewer system via the City sanitary sewer system	0.21	30	0.11

* Includes 10 percent peaking factor over Water Balance.

mgy = million gallons per year (based on an annual operation of 8,760 hours/year)

8.14.4.2.1 Industrial Wastewater Discharges

As discussed in Section 2.0, cooling tower blowdown will be discharged to the City of Vernon sanitary sewer following five cycles of concentration. In addition, wastewater from miscellaneous plant uses will also be discharged to the sewer. Wastewater in the City of Vernon sanitary sewer ties into the LACSD facilities via a regional trunk sewer line.

8.14.4.2.2 Domestic Wastewater Disposal

Domestic wastewater generated at the VPP, estimated at 0.21 gpm average and 30 gpm maximum, will also be discharged to the LACSD sanitary sewer system. This volume would be considered a *de minimus* increase in demand on the sewer system; i.e., it would not be measurable within the overall dry weather flow and well within the treatment, conveyance, and disposal capacities of LACSD's system.

8.14.5 Precipitation, Stormwater Runoff, and Drainage

Table 8.14-4 provides average and maximum historical rainfall in downtown Los Angeles.

TABLE 8.14-4
Average and Maximum Monthly Rainfall near the Proposed Project Site

Precipitation	Total	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Average	15.06	0.48	1.34	2.43	3.15	3.21	2.67	1.04	0.31	0.07	0.01	0.05	0.24
Maximum	38.18	6.96	9.68	15.80	14.94	13.68	12.36	7.53	3.57	1.39	0.24	2.26	5.67

Source: NOAA, 1999.

Stormwater runoff under current conditions drains to the existing storm drain system, maintained by the Los Angeles County Department of Public Works (LACDPW) (acting as the Los Angeles County Flood Control District). Impervious surfaces (i.e., buildings, concrete pavement and asphalt pavement) account for approximately 89 percent of the existing site. Pervious surfaces (i.e., grassed and dirt areas) cover the remaining 11 percent of the existing site.

8.14.6 Effects on Water Resources

Significance criteria are derived from the California Environmental Quality Act Appendix G checklist. The project is considered to have a potentially significant effect if it would:

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or offsite or in flooding on- or offsite.
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality.
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted).
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows.

- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.
- Cause inundation by seiche, tsunami, or mudflow.

8.14.6.1 Drainage

The Los Angeles River is the only significant natural surface water in the project vicinity. The project site is flat, and would remain generally flat after development. The site grading and drainage will be designed to comply with all applicable federal, state, and local regulations. The general site grading will establish a working surface for construction and plant operating areas, and will provide positive drainage from buildings and structures, and adequate ground coverage for subsurface utilities. Therefore, the project would cause no substantial erosion or siltation on- or offsite, nor would the project alter the course of any stream or river.

Because the site had been in use as an industrial development, with an existing storm collection system, the volume and rate of runoff from the site would not be substantially altered as a result of project development. The project site would be designed to capture stormwater runoff in a series of drainage inlets that would convey runoff to the stormwater drainage system (Figure 8.14-3).

The total developed site area is approximately 5.8 acres. Impervious surfaces (i.e., buildings, concrete pavement and asphalt pavement) account for approximately 89 percent of the existing site. Pervious surfaces (i.e., grassed and dirt areas) cover the remaining 11 percent of the existing site. After project development, approximately 15 percent of the site would be dedicated to areas that would retain runoff (i.e., the cooling tower, ammonia unloading area, lube oil containment area, and the step-up/auxiliary transformer areas). Discharge from these areas would not occur during a rainfall event, and would therefore not contribute to the peak flow associated with the drainage system design storm. For the remaining developed project areas, approximately 55 percent would be impervious surfaces (i.e., buildings, equipment, foundations and pavement), and 30 percent would be pervious surfaces (i.e., crushed stone surfacing).

The plant storm drainage system would be designed in accordance with LACDPW requirements, including the LACDPW Hydrology Manual and all addendums. An LACDPW Flood Permit Application is required for connection to the existing LACDPW storm sewer system. Based on existing adjacent developments, storm water flow into the existing LACDPW storm sewer system may be limited by the LACDPW, and storm water detention vaults may be required to reduce the storm water flow below the LACDPW maximum specified flow rates. Connections to the existing LACDPW storm sewer system will be in accordance with applicable LACDPW requirements. A copy of the preliminary Flood Permit application is provided as Appendix 8.14B.

Additionally, because this site is considered “redevelopment,” as defined by the City of Vernon, a drainage concept and stormwater quality plan will be submitted to the City that includes details of facilities and measures that mitigate impacts to water quality. Redevelopment is described as land-disturbing activity that results in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building

footprint; addition or replacement of a structure; replacement of impervious surface area that is not part of a routine maintenance activity; and land disturbing activities related to structural or impervious surfaces.

The plans will be reviewed by the City of Vernon Building, Engineering and Health Departments to determine if SUSMP applies, and if proposed BMPs are appropriate. Compliance with SUSMP will reduce any impact from stormwater runoff to a level of less than significant.

8.14.6.2 Stormwater Quality

During construction, approximately 5.8 acres of land associated with the plant site will be disturbed. (No land will be disturbed for construction/laydown areas, since those locations are presently covered in asphalt). Surface water impacts are anticipated to be related primarily to short-term construction activity and consist of increased turbidity due to erosion of newly excavated or placed soils. Activities such as grading can potentially destroy habitat and increase rates of erosion during construction. In addition, construction materials could contaminate runoff or groundwater if not properly stored and used. Compliance with engineering and construction specifications, following approved grading and drainage plans, and adhering to proper material handling procedures will ensure effective mitigation of these short-term impacts. Best management practices for erosion control will be implemented. Additionally, erosion and sediment controls, surface water pollution prevention measures, and other BMPs will be developed and implemented for both construction and operational phases. These plans will be prepared in accordance with the NPDES construction permit issued by the State Water Quality Control Board and local agency requirements. A copy of the Notice of Intent to the State Water Quality Control Board is provided as Appendix 8.14B.

To qualify for the NPDES General Construction permit, the construction contractor will be required to develop a SWPPP (prior to beginning construction), to prevent the offsite migration of sediment and other pollutants and to reduce the effects of runoff from the construction site to offsite areas. Successful implementation of the SWPPP will ensure that construction impacts to water resources are mitigated to a less-than-significant level.

8.14.6.3 Waste Discharge Requirements

Circulating (or cooling) water system blowdown will consist of recycled water that has been concentrated at approximately five cycles of concentration along with residues of the chemicals added to the circulating water. These chemicals are added to control scaling and biofouling of the cooling tower and corrosion of the circulating water piping and condenser tubes. Cooling water treatment will require the addition of chemicals such as: a pH control agent (e.g., sulfuric acid), a mineral scale dispersant (e.g., polyacrylate polymer), a corrosion inhibitor (phosphate-based), and a biocide such as chlorine dioxide.

Cooling tower blowdown will be discharged to the plant's wastewater sump as required to maintain the level of dissolved solids in the cooling water within acceptable ranges. In addition, wastewater from miscellaneous plant uses will also be discharged to the wastewater sump. This wastewater would then be discharged to the City of Vernon sanitary sewer facilities, which tie into the LACSD system.

Table 8.14-5 summarizes the estimated water quality of wastewater discharges from the wastewater sump to the sanitary sewer system, based on five cycles of concentration of the cooling tower blowdown. The constituents listed below were selected to comply with the LACSD's Wastewater Ordinance.

TABLE 8.14-5
Summary of Average Water Quality Characteristics for Wastewater Compared to LACSD Industrial Discharge Limits

Constituent	Wastewater	Maximum Allowable Concentration at Any Time[a]
Cyanide (total)	0.03 mg/L	10 mg/L
Arsenic	0.00475 mg/L	3 mg/L
Cadmium (µg/L)	1 mg/L	15 mg/L
Chromium (total)	0.1425 mg/L	10 mg/L
Copper	0.155 mg/L	15 mg/L
Lead	0.005125 mg/L	40 mg/L
Mercury (µg/L)	0.2 mg/L	2 mg/L
Nickel	0.2325 mg/L	12 mg/L
Silver (µg/L)	0.77 mg/L	5 mg/L
Zinc	0.255 mg/L	25 mg/L
TICH[b]	0 mg/L	Essentially None
pH	7.17	> 6.0
Temperature	78.5 °F	< 140 °F

[a] Source: LACSD, 2005a.
[b] Total Identifiable Chlorinated Hydrocarbons (TICH) include such pesticides as aldrin, dieldrin, chlordane, dichlorodiphenyltrichloroethane (DDT), endrin, hexachlorocyclohexane, toxaphene, and polychlorinated biphenyls (PCBs). Chlorinated pesticides will likely be destroyed during treatment to meet Title 22 standards, resulting in an influent concentration of 0 mg/L.

Quality and quantity of industrial wastewater discharges to the LACSD's sanitary sewer system must be in compliance with an Industrial Wastewater Discharge Permit to be issued by LACSD (see "will serve" letter attached as Appendix 8.14A). As shown in Table 8.14-5, the anticipated quality of wastewater discharges from VPP would be well within the LACSD's discharge limitations. Meeting these industrial discharge limitations indicates that water quality downstream of the affiliated treatment plant will be protected. In addition, this relatively clean discharge would be an asset to LACSD because of its ability to dilute poorer quality wastewater streams. Therefore, impacts to the wastewater system, including the ultimate water quality objectives for treated wastewater, would be less than significant.

8.14.6.4 Groundwater

The VPP would not make any direct use of groundwater resources.

8.14.6.5 Flooding Potential

The general region is flat and there are no significant dams or levees in the project vicinity. Additionally, the project site is also flat and would remain generally flat after development. The site grading and drainage will be designed to comply with all applicable federal, state, and local regulations. The general site grading will establish a working surface for construction and plant operating areas, and will provide positive drainage from buildings and structures to reduce the potential of onsite flooding hazards. The project is not located in a flood hazard zone, as defined by FEMA, indicating it is likely in a moderate, minimal hazard area.

The project would not expose people or structures to significant risk of loss, injury or death resulting from a levee or dam failure. Similarly, the project is located approximately 14.5 miles from the Pacific Ocean and any potential inundation from seiche, tsunami, or mudflow is remote.

8.14.7 Mitigation

This section presents mitigation measures proposed to reduce impacts to water resources in areas affected by the project.

- Implement BMPs designed to minimize soil erosion and sediment transport during construction of the plant site and project corridor features. Design appropriate erosion and sediment controls for slopes, catch basins, culverts, stream channels, and other areas prone to erosion.
- Conduct operations at the plant site in accordance with the USEPA's Storm Water Phase I Final Rule. Design and implement the BMPs in accordance with the SUSMP Manual to prevent or control pollutants potentially associated with the operation of the plant from entering stormwater sewers.
- Perform refueling and maintenance of mobile construction equipment only in designated lined and/or bermed areas located away from stream channels. Prepare and implement spill contingency plans in areas where they are appropriate.
- Implement BMPs during construction of pipelines to control soil erosion.
- Prepare and submit a Title 22 Engineer's Report to the State Department of Health Services and RWQCB to ensure safe use of recycled water for the cooling water. Adhere to Reclamation Requirements issued by the Los Angeles Regional Water Quality Control Board.
- Prepare and submit a SWPPP to ensure quality of discharged stormwater. Obtain concurrence with the RWQCB for the SWPPP.

The mitigation measures proposed are prescribed by stormwater and erosion control management programs mandated under the NPDES permitting system. These programs have been in place for a number of years and the prescribed measures have proven effective. Under the General NPDES Permit for Construction, for example, various specific measures are prescribed, and a program of monitoring is required. Compliance with these programs should ensure that all residual impacts associated with the proposed project are mitigated to a level of less than significant.

8.14.8 Proposed Monitoring Plans and Compliance Verification Procedures

Routine monitoring and compliance verification would be required as part of the stormwater NPDES permitting of the project. The Applicant would be required to prepare a SWPPP specifying BMPs, monitoring and compliance measures to avoid adverse impacts to water quality. No additional monitoring of surface or groundwater would be required because no water quality impacts are expected to occur.

8.14.9 Cumulative Impacts

The VPP project will not cause or contribute to cumulative impacts on water resources. Good engineering practices and BMPs will be used in the project design and operation. Stormwater discharge will adhere to a SWPPP and SWRCB and local agency water quality standards. No significant impacts to surface water or groundwater quality are expected during construction or operation of the project. The project will contribute to water conservation by making use of recycled water for power plant cooling.

8.14.10 Permits Required

A summary of required permits is provided in Table 8.14-6.

TABLE 8.14-6
Permits and Permitting Agencies for VPP Water Resources

Permit	Schedule	Agency
Industrial Wastewater Discharge Permit	Minimum of 90 days prior to the commencement of the discharge	James F. Stahl Chief Engineer and General Manager LACSD PO Box 4998 Whittier, CA 90607-4998 (562) 699-7411
SUSMP	This occurs during the submittal phase for the design plans to the city for agency review	Kevin Wilson Director of Community Services and Water City of Vernon 4305 Santa Fe Avenue Vernon CA 90058 (323) 583-8811
Use of the National Pollution Discharge Elimination System General Permits for Construction and Operation	Submit Notice of Intent to use the permit at least 30 days in advance of use, prepare SWPPP for local review for construction, second SWPPP for operation	Jau Ren Chen Los Angeles RWQCB Municipal Permitting Department 320 4th Street, Suite 200 Los Angeles, CA 90013-2343 (213) 576-6656
Recycled Water User Agreement	The City of Vernon's existing User Agreement with the CBMWD will need to be amended prior to connection	Central Basin Municipal Water District 17140 South Avalon Blvd, Ste. 210 Carson, CA 90746-1296 (310) 217-2222
Application of Service for Potable Water		Kevin Wilson Director of Community Services and Water City of Vernon 4305 Santa Fe Avenue Vernon, CA 90058 (323) 583-8811

8.14.11 Agency Contacts

Agency contacts and required permits are listed in Table 8.14-6.

8.14.12 References

California Department of Water Resources (DWR). 1961. Planned Utilization of the Groundwater Basins of the Coastal Plain of Los Angeles County. Bulletin No. 104.

California Department of Water Resources (DWR). 2004. South Coast Hydrologic Region Coastal Plain of Los Angeles Groundwater Basin. Bulletin No. 118. February.

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Los Angeles Regional Water Quality Control Board (LARWQCB). 2004. *State of the Watershed – Report on Surface Water Quality. The Los Angeles River Watershed*. October.

National Oceanic and Atmospheric Administration (NOAA). Online Information: http://www.wrh.noaa.gov/lox/climate/climate_intro.php. Accessed September 2005.

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State Water Resources Control Board (SWRCB). 1999. Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity, General Permit No. CAS000002. Adopted August 19.

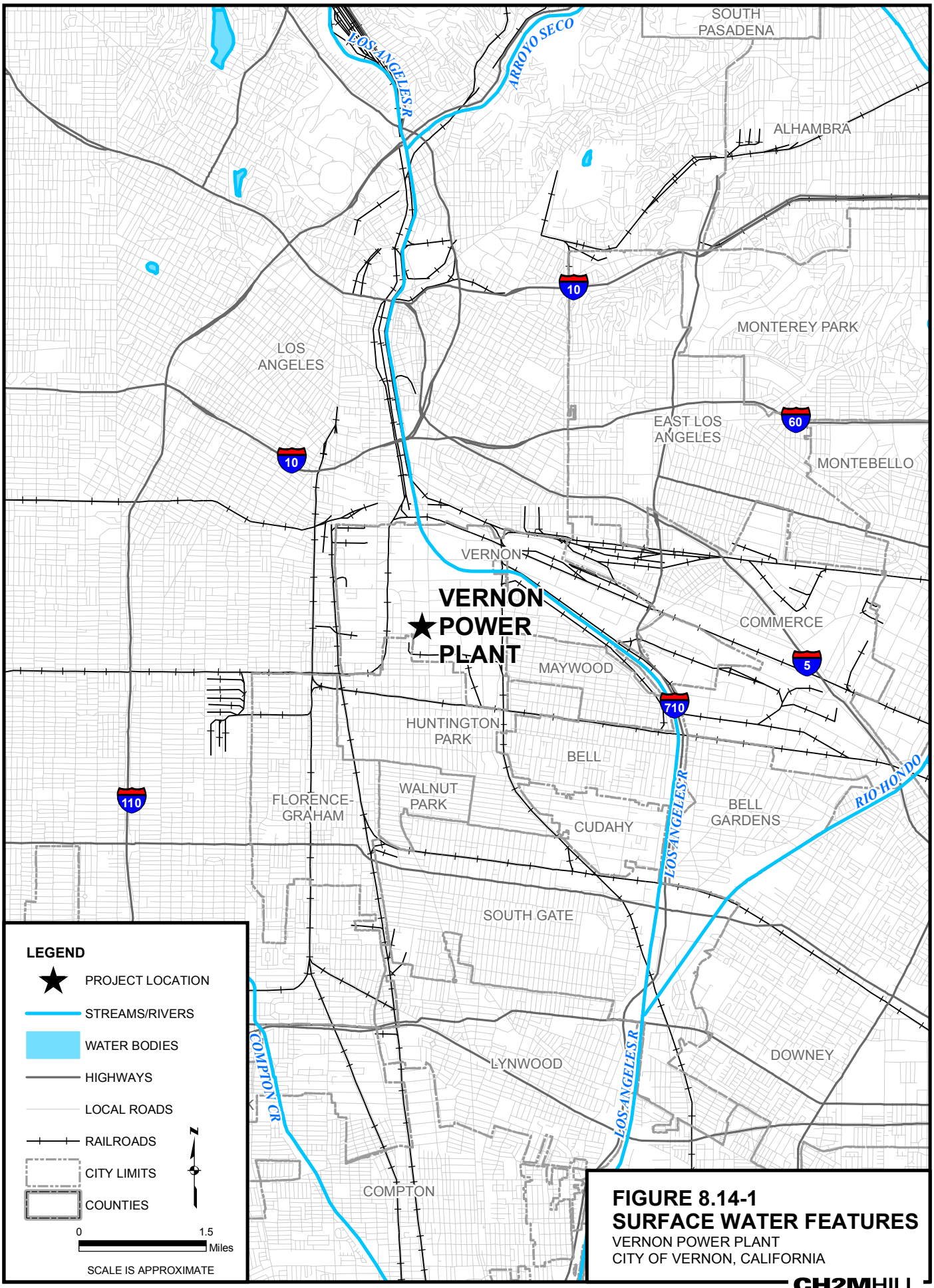


FIGURE 8.14-1
SURFACE WATER FEATURES
VERNON POWER PLANT
CITY OF VERNON, CALIFORNIA

CH2MHILL

RDD \\LOKI\PROJECTS\RDDGIS\VERNON\MXDS\VVP2\VPP2_FIG8_14-1_WATERFEATURES.MXD 1/31/2006 13:02:41

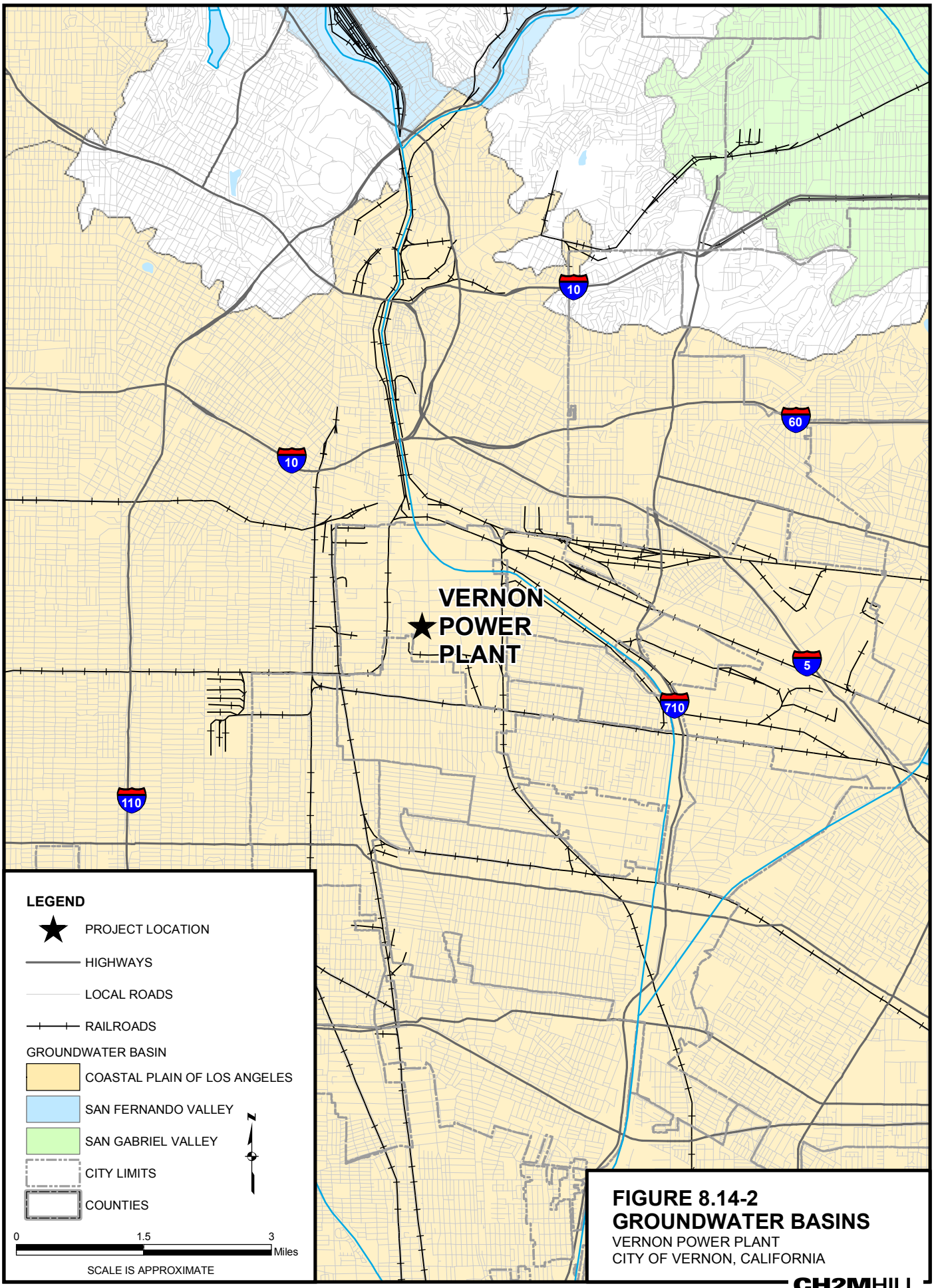
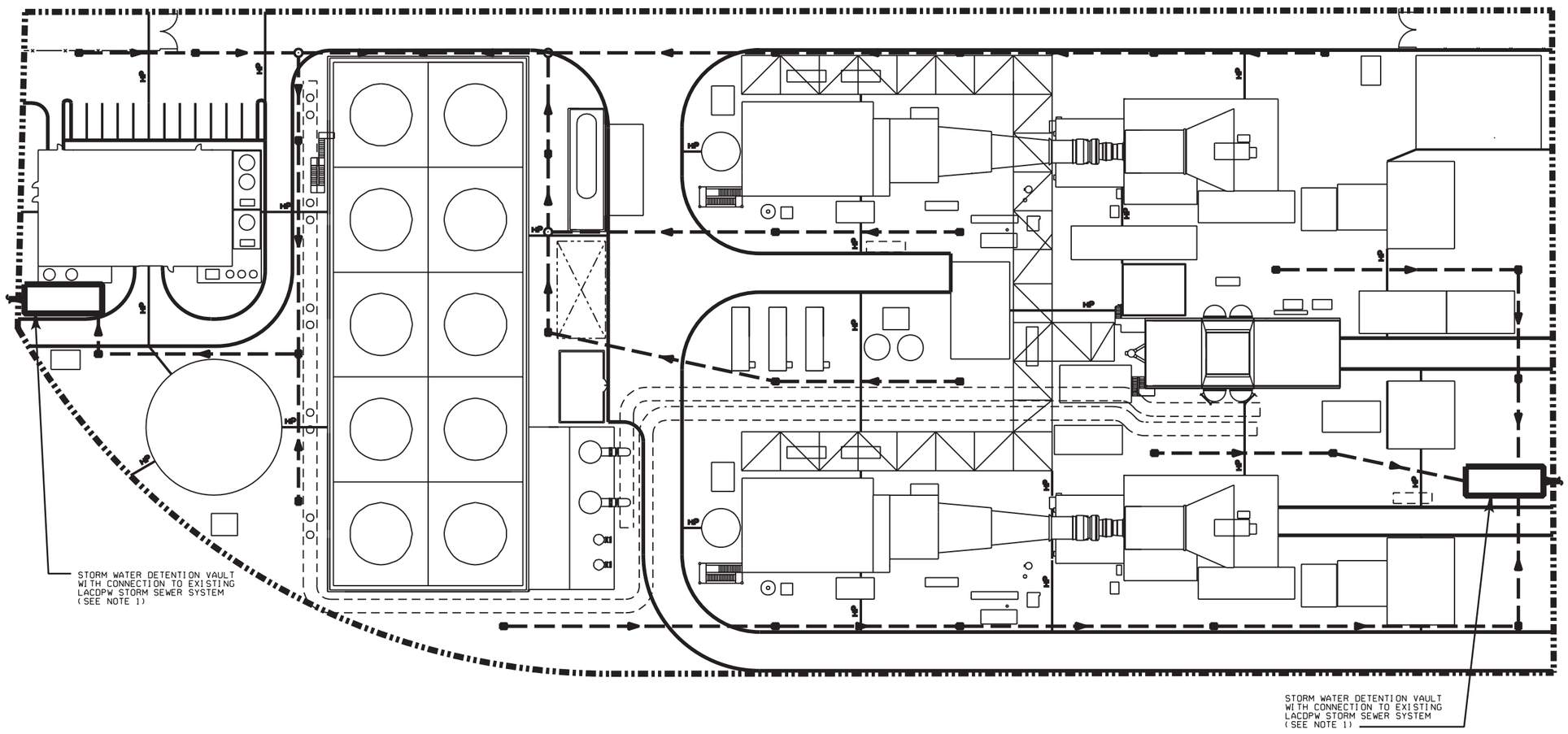


FIGURE 8.14-2
GROUNDWATER BASINS
VERNON POWER PLANT
CITY OF VERNON, CALIFORNIA

CH2MHILL

RDD \\LOKI\PROJECTS\RDDGIS\VERNON\MXDS\VVP2\VPP2_FIG8_14-2_GWBASINS.MXD 1/31/2006 13:06:31



NOTES

1. PLANT STORM WATER DRAINAGE SYSTEM REQUIREMENTS ARE AS FOLLOWS:

   THE PLANT STORM DRAINAGE SYSTEM SHALL BE DESIGNED IN ACCORDANCE WITH LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS (LACDPW) FLOOD CONTROL DISTRICT REQUIREMENTS, INCLUDING THE LACDPW HYDROLOGY MANUAL AND ALL ADDENDUMS. AN LACDPW FLOOD PERMIT APPLICATION SHALL BE OBTAINED FOR CONNECTION TO THE EXISTING LACDPW STORM SEWER SYSTEM, AND SHALL INCLUDE ALL REQUIRED HYDROLOGY CALCULATIONS, HYDRAULIC CALCULATIONS AND CONSTRUCTION DRAWINGS.

   STORM WATER FLOW INTO THE EXISTING LACDPW STORM SEWER SYSTEM SHALL BE LIMITED TO THE FLOW RATES SPECIFIED BY LACDPW. STORM WATER DETENTION VAULTS SHALL BE PROVIDED, AS REQUIRED, TO LIMIT STORM WATER FLOW TO THE LACDPW SPECIFIED FLOW RATES. STORM WATER DETENTION VAULTS SHALL BE LOCATED TO SUIT THE EXISTING LACDPW STORM SEWER SYSTEM. CONNECTION TO THE EXISTING STORM SEWER SYSTEM SHALL BE IN ACCORDANCE WITH APPLICABLE LACDPW REQUIREMENTS.

   THE PLANT STORM DRAINAGE SYSTEM SHALL ALSO BE DESIGNED TO CONTROL STORM WATER POLLUTION IN ACCORDANCE WITH THE LOS ANGELES COUNTY STANDARD URBAN STORM WATER MITIGATION PLAN (SUSMP). STRUCTURAL OR TREATMENT CONTROL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE INSTALLED TO TREAT STORM WATER IN ACCORDANCE WITH SUSMP REQUIREMENTS.
2. FOR PLANT EQUIPMENT DESIGNATIONS AND LOCATIONS SEE DRAWING NO. M210.

LEGEND

—·—·—·—	PLANT BOUNDARY
—►—	STORM DRAIN LINE
▦	CATCH BASIN INLET
⊙	MANHOLE
HP	HIGH POINT

N

0 15' 30' 60' 90'

FIGURE 8.14-3
PROPOSED DRAINAGE FACILITIES
VERNON POWER PLANT
CITY OF VERNON, CALIFORNIA

CH2MHILL

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