

## 8.13 Waste Management

This subsection evaluates the potential effects on human health and the environment from nonhazardous and hazardous waste generated at the AES Highgrove Project and describes the regulatory framework pertaining to cleanup and demolition activities associated with development of the project. This subsection also presents an overview of the Highgrove Project and a description of the various properties that will be involved in the demolition and construction activities. It describes waste disposal sites for nonhazardous and hazardous waste and methods that will be employed to manage the generated waste and mitigate its impacts on the environment.

### 8.13.1 Project Site Overview

The new facility will be located on property that was once part of Southern California Edison's (SCE) former Highgrove Generating Station, which was constructed in the 1950s. Equipment in the Highgrove Generating Station consisted of four thermal generating units with a nominal capacity of 154 megawatts (MW) (combined), cooling towers, boilers, tanks, and associated equipment. The station initially used both fuel oil and natural gas for fuel supply. The fuel oil storage tanks were located north of the generating equipment.

The existing plant, currently known as Riverside Canal Power Company, was used for peaking service before and during the 2000-2001 California power crisis. The plant was decommissioned shortly after being acquired by AES in 2001 due to the lack of environmental controls.

When the Highgrove Generating Station was under SCE ownership, different areas of the property were characterized by four general areas of activity:

- SCE's 115-kilovolt (kV) electrical substation (Highgrove Substation)
- Generating equipment (boilers, steam turbine-generators, cooling towers and auxiliary equipment, etc.) and controls for the SCE 115-kV substation located in the generator control room (Generating Station Property)
- Fuel oil storage tanks (Tank Farm Property)
- Cage Park Property, a privately-owned park used by SCE and its employees

Figure 2.1-2 shows the location of each of these areas. Activities associated with each area, with respect to this project, are described below.

#### 8.13.1.1 Highgrove Substation

The 115-kV Highgrove Substation property is a 3.1-acre parcel owned by SCE and located west of the Generating Station equipment. The Substation is an integral part of the SCE-owned regional grid. Controls for the substation are located inside the control rooms of the existing Generating Station.

Before demolition of the existing plant can occur, the substation controls will need to be relocated. It is anticipated that the substation controls and associated telecommunications

equipment will be housed in a new building located inside the existing substation boundaries to provide SCE with sole access to SCE's equipment.

The new facility will interconnect to the electrical grid using existing substation bays that will be vacated when the existing plant is demolished. Therefore, the only other project activity that will occur on the Substation property will be those activities associated with the interconnection of the new facility.

#### **8.13.1.2 Generating Station Property**

The Generating Station Property encompasses approximately 10.1 acres with frontage on Taylor Street. Equipment currently located on the Generating Station Property includes 4 small thermal units rated at 30 to 40 MW each, steam turbine-generators and condensers, control buildings, cooling towers, onsite wells for process and non-potable domestic water supply, administration and maintenance building, storage tanks and fuel delivery equipment. The property is currently owned by a wholly owned subsidiary of AES and is currently operating as Riverside Canal Power Company.

Project activities associated with this property will include demolition of the existing equipment and grading to allow continued access from Taylor Street. The existing plant includes some asbestos-insulated piping, and some steel outdoor structures painted with lead-based paint. Removal of these components will be handled by specialty contractors authorized to perform necessary abatement activities in accordance with applicable laws, ordinances, regulations, and standards (LORS). The majority of site demolition activities will include removal of steel structures and equipment that will either be recycled or taken to an appropriate offsite landfill. Demolition activities will include foundation removal and removal of underground piping. A portion of the Generating Station Property will also be used for parking and laydown area during construction.

#### **8.13.1.3 Tank Farm Property**

The Tank Farm Property encompasses approximately 7.6 acres north of the Generating Station Property. At one time, three large storage tanks were located on the property to store fuel oil for the existing plant. When SCE sold the Generating Station property, the Tank Farm Property was excluded from the sale. The oil storage tanks were originally constructed approximately 10 feet below grade inside bermed areas. The fuel oil tanks were later removed from the Tank Farm Property by SCE, and the Tank Farm Property was sold to the City of Grand Terrace Redevelopment Agency, the current owner. All that remains on the vacant site are the berms that used to contain the storage tanks.

#### **8.13.1.4 Project Site**

AES has entered into an agreement with the Redevelopment Agency to acquire the Tank Farm Property. The agreement provides that AES will remove existing equipment from the Generating Station Property. Once these demolition activities are complete, the Redevelopment Agency may, at its option, elect to take title to the Generating Station Property or be compensated in full for the Tank Farm Property. The Agreement further provides for a parcel line split and lot line adjustment such that the parties each retain title to a parcel of comparable size to the one they began with. After these changes, AES will own a 9.8-acre parcel, on which the new facility will be constructed (Project Site).

Therefore, the Project Site will include all of the Tank Farm Property and a portion of the Generating Station Property that currently abuts the Tank Farm Property on its south boundary as shown on Figure 2.2-1.

### 8.13.1.5 Cage Park Property

Cage Park Property is a 6.5-acre parcel located south of the Generating Station Property. The property was used in the past by SCE as a privately owned park and is currently owned by AES. This property is not part of, nor will it be affected by, the project.

## 8.13.2 Laws, Ordinances, Regulations, and Standards

Nonhazardous and hazardous waste handling at the Highgrove Project will be governed by federal, state, and local laws. Applicable laws and regulations address proper waste handling, storage, and disposal practices to protect the environment from contamination and protect facility workers and the surrounding community from exposure to nonhazardous and hazardous waste. The LORS applicable to waste handling and to closure of the former SCE hazardous waste management units and corrective action for solid waste management units and other areas of concern are summarized in Table 8.13-1.

**TABLE 8.13-1**  
Laws, Ordinances, Regulations, and Standards Applicable to AES Highgrove Waste Management

LORS	Purpose	Applicability (AFC Section Explaining Conformance)
<b>Federal</b>		
RCRA Subtitle D	Regulates design and operation of solid waste landfills	Solid waste will be collected and disposed of by a collection company in conformance with Subtitle D (Subsections 8.13.6.1, 8.13.7, 8.13.3.1).
RCRA Subtitle C	Controls storage, treatment, and disposal of hazardous waste.	Hazardous waste will be handled by contractors in conformance with Subtitle C (Subsection 8.13.7).
CWA	Controls discharge of wastewater to the surface waters of the U.S.	The Highgrove Project will not discharge industrial wastewater to surface waters. Sanitary wastewater will be discharged to the City of Grand Terrace's sanitary sewer. Industrial wastewater will be discharged to the SARI brine line (Subsections 8.13.5, 8.13.9, and 8.14).
Title 40 CFR, Part 265	Requires closure certification for hazardous waste treatment, storage, and disposal units operating under permit or interim status.	SCE, as the former owner/operator, is in the process of completing a closure demonstration report certifying clean closure of their formerly operated hazardous waste management units and ancillary features located within the Project Site. (See Subsection 8.13.10)
RCRA 3008(h)	Requires corrective action for hazardous constituent releases at facilities operating under Interim Status.	SCE, as the former property owner, is responsible for completing corrective action for solid waste management units and other areas of concern at the site under oversight from DTSC. (See Subsection 8.13.10)

**TABLE 8.13-1**

Laws, Ordinances, Regulations, and Standards Applicable to AES Highgrove Waste Management

<b>LORS</b>	<b>Purpose</b>	<b>Applicability (AFC Section Explaining Conformance)</b>
<b>State</b>		
California Integrated Waste Management Act (CIWMA)	Controls solid waste collectors, recyclers, and depositors.	Solid waste will be collected and disposed of by a collection company in conformance with the CIWMA (Subsections 8.13.5.1, 8.13.6.1 and 8.13.6).
CA Hazardous Waste Control Law (HWCL)	Controls storage, treatment, and disposal of hazardous waste.	Hazardous waste will be handled by contractors in conformance with the HWCL (Subsections 8.13.6.1 and 8.13.6.2).
Title 22 CCR, Section 66265 et seq.	Requires closure of federal and state regulated hazardous waste management units.	SCE, as the former owner/operator, is in the process of completing a closure demonstration report certifying clean closure of the former hazardous waste management units located within the Project Site. (See Subsection 8.13.10)
Health & Safety Code Section 25187, Section 25200.10	Requires corrective action for hazardous constituent releases at facilities operating under state and/or federal hazardous waste permits.	SCE, as the former operator, is responsible for conducting corrective action for solid waste management units and other areas of concern at the facility under oversight from DSTSC. (See Subsection 8.13.10)
Porter-Cologne Water Quality Control Act	Controls discharge of wastewater to the surface and ground waters of California.	The Highgrove Project will not discharge industrial wastewater to surface or ground water. Sanitary wastewater will be discharged to the City of Grand Terrace's sanitary sewer. Industrial wastewater will be discharged to the SARI brine line (Subsections 8.13.4, 8.13.8 and 8.14).
California Fire Code	Controls storage of hazardous materials and wastes and the use and storage of flammable/combustible liquids.	Wastes will be accumulated and stored in accordance with Fire Code requirements. Permits for storage containers will be obtained, as needed, from the San Bernardino County Fire Department (Subsection 8.13.10).
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	
SARA	Superfund Amendments and Reauthorization Act	
RMP	Risk Management Plan	
TPQ	Threshold Planning Quantity	
HMBP	Hazardous Materials Business Plan	
CAA	Clean Air Act	
CUPA	Certified Unified Program Agency	
EHS	Extremely hazardous substance	
SERC	State emergency response commission	
LEPC	Local emergency planning committee	
RCRA	Resource Conservation and Recovery Act	
DTSC	Department of Toxic Substances Control	

### 8.13.2.1 Federal

Wastewater is regulated by U.S. Environmental Protection Agency (USEPA) under the Clean Water Act (CWA). Industrial wastewater will be discharged to the Santa Ana Regional Interceptor (SARI) brine line, as described in Section 2.0. Sanitary wastewater will be discharged to the City sanitary sewer (see Subsection 8.14).

The federal statute that controls both nonhazardous and hazardous waste is the Resource Conservation and Recovery Act (RCRA), 42 USC 6901, et seq. RCRA's implementing regulations are found at 40 CFR 260, et seq. Subtitle D makes the regulation of nonhazardous waste the responsibility of the states; federal involvement is limited to establishing minimum criteria that prescribe the best practicable controls and monitoring requirements for solid waste disposal facilities. Subtitle C controls the generation, transportation, treatment, storage, and disposal of hazardous waste through a comprehensive "cradle-to-grave" system of hazardous waste management techniques and requirements. It applies to all states and to all generators of hazardous waste (above certain levels of waste produced). The Highgrove Project will conform with this law in its generation, storage, transport, and disposal of any hazardous waste generated at the facility. The USEPA has delegated its authority for implementing the law to the State of California.

As discussed above, the Project Site is located on a portion of the property formerly owned and used by SCE as part of its Highgrove generating station. The SCE plant operated various RCRA hazardous waste management treatment and storage units under RCRA Interim Status (ISD) pursuant to 40 CFR 265, and these units require closure pursuant to federal and California hazardous waste closure regulations contained in 22 CCR 66265. The California Environmental Protection Agency's Department of Toxic Substances Control (DTSC) is the lead agency responsible for oversight of the RCRA closure process. The DTSC is also responsible for oversight of a RCRA Corrective Action for the former SCE facility pursuant to the 1984 Hazardous and Solid Waste Amendments (HSWA) to RCRA. Specifically, Section 3008(h) of RCRA provides authority for issuance of administrative orders to require corrective action when there is, or has been, a release of hazardous constituents from a facility operating under an ISD. The process requires facilities that operated hazardous waste management units to identify, investigate, and remediate solid waste management units (SWMUs) and other areas of concern identified as having potentially released hazardous substances to the environment (see Subsection 8.13.10).

### 8.13.2.2 State

Nonhazardous solid waste is regulated by the California Integrated Waste Management Act (CIWMA) of 1989, found in Public Resources Code (PRC) Section 40000, et seq. This law provides an integrated statewide system of solid waste management by coordinating state and local efforts in source reduction, recycling, and land disposal safety. Counties are required to submit Integrated Waste Management Plans to the state. This law directly affects San Bernardino County and the solid waste hauler and disposer that will collect the Highgrove Project's solid waste. It also affects the Highgrove Project to the extent that hazardous wastes are not to be disposed of with solid waste.

Wastewater is regulated by the State and Regional Water Quality Control Boards under the Porter-Cologne Water Quality Control Act. They regulate both sanitary and industrial

wastewater, which are discharged to the City of Grand Terrace's sanitary sewer and the SARI brine line, respectively (see Subsection 8.14).

RCRA allows states to develop their own programs to regulate hazardous waste. The programs must be at least as stringent as RCRA. California has developed its own program in the California Hazardous Waste Control Law (HWCL) (Health and Safety Code Section 25100, et seq.). The HWCL performs essentially the same regulatory functions as RCRA and is the law that will regulate hazardous waste at the Highgrove Project, since California has elected to develop its own program. However, the HWCL includes hazardous wastes that are not classified as hazardous under RCRA. Since hazardous wastes will be generated at the power plant during construction and operation, the HWCL will require the Applicant to adhere to storage, recordkeeping, reporting, and training requirements for these wastes.

Since the HWCL is broader in application than RCRA, certain units (e.g., wastewater treatment units) that are exempt from RCRA hazardous waste management requirements are subject to the California hazardous waste management regulations under 22 CCR 66260 et seq. These regulations require DTSC to authorize the operation of these units and to approve the closure of these units. The California Health and Safety Code, Section 25187 and 25200.10 provides DTSC the authority to implement and to oversee corrective action to ensure potential releases of hazardous constituents to the environment from the regulated units and other facility features are investigated and mitigated appropriately. Therefore, in addition to the RCRA units, the SCE plant contained additional California hazardous waste regulated units within the Project Site that also require closure and trigger corrective action under DTSC or local unified program agencies (see Subsection 8.13.10).

### **8.13.2.3 Local**

The County of San Bernardino Solid Waste Management Division will have the responsibility for administering and enforcing the CIWMA for solid, nonhazardous waste for the Highgrove Project.

For hazardous waste, local regulation consists primarily of the administration and enforcement of the HWCL. The San Bernardino County CUPA is the local entity that will regulate hazardous waste at the Highgrove Project. The San Bernardino County Fire Department is the designated CUPA for San Bernardino County. San Bernardino has a formally trained Hazardous Materials Response Team to provide assistance during a spill cleanup. The County Fire Department will respond and will identify the type and source of the hazardous material, oversee evacuation of people, and confine the spilled material if possible. Cleanup of the material is the responsibility of the facility causing the spill. The San Bernardino County Fire Department Station No. 23 in Grand Terrace is the primary response unit. This station is backed up by the City of Colton Fire Department in Colton California. The Hazardous Materials Response Team is located at the San Bernardino County Fire Department Station No. 74. This response team is also supported by Hazardous Materials Specialists employed by the County (Palkiewicz, 2005).

#### 8.13.2.4 Codes

The design, engineering, and construction of hazardous waste storage and handling systems will be in accordance with all applicable codes and standards, including:

- The Uniform Fire Code
- The Uniform Building Code
- The Uniform Plumbing Code
- California Building Code
- California Fire Code

#### 8.13.3 Environmental Condition of Site

Several environmental investigations have been conducted incorporating the Project Site, in whole or in part, and adjoining facilities, including:

- Annual Groundwater Monitoring Report, Groundwater Detection Monitoring Program, Highgrove Generating Station, February 16, 2004; prepared for Southern California Edison by P. Hamilton, CEG.
- RCRA Facility Assessment for Riverside Canal Power Company, September 2001; prepared by Golder Associates.
- Final Remediation Report, Station Fuel Oil Facilities, Highgrove Tank Farm Decommissioning, April 2001; prepared by Engineering & Technical Services, Southern California Edison Company.
- Phase I Environmental Site Assessment for EPTC Property at Former Highgrove Generating Station, March 3, 2000; prepared by ARCADIS Geraghty & Miller, Inc. for SCE (copy provided in Appendix 8.13A).
- Soil Gas Sampling, West Retention Basin, Riverside Canal Power Company, Grand Terrace, California, November 1999; prepared for Thermo Ecotek Corporation by Golder Associates, Inc.
- Phase II Environmental Site Assessment, Retention Basins, Riverside Canal Power Company, Grand Terrace, California, March 1999; prepared for Thermo Ecotek Corporation by Golder Associates, Inc.
- Groundwater Assessment, Riverside Canal Power Company, Grand Terrace, California, January 1999; prepared for Thermo Ecotek Corporation by Golder Associates, Inc.
- Phase II Environmental Site Assessment Highgrove Generating Station, March 1998; prepared by Golder Associates, Inc. for Thermo Ecotek Corporation.
- Highgrove Generating Station Phase II Environmental Site Assessment, June 6, 1997; Prepared by Geraghty & Miller, Inc. for SCE.
- Leak Detection Investigation, Highgrove Generating Station, May 5, 1997; prepared by P. Hamilton, CEG, for SCE.

- Phase I Environmental Site Assessment Highgrove Generating Station, May 1997; prepared for Southern California Edison Company by CH2M HILL (copy provided in Appendix 8.13A).
- Sump Integrity Report, February 28, 1997, prepared by P. Hamilton, CEG, for SCE.
- Baseline Tank Study Report, Above Ground Oil Storage Tanks 1, 2, 3 and Day Tanks 1 and 2, Highgrove Generating Station, February 19, 1996; prepared by Southern California Edison Company EPE&C Geotechnical Group.
- Other investigations have been conducted and are included in whole or in part within appendices of the above-referenced reports.

As discussed above, the majority of the Project Site includes the Tank Farm Property, which historically was occupied by three 80,000-barrel aboveground storage tanks (ASTs) that contained No. 6 fuel oil and diesel fuel, a pump house, a 39,000-gallon AST, associated pipelines, and a former acid tank/sludge disposal area along the western fence line. The southern portion of the Project Site includes a portion of the Generating Station Property and is currently occupied by structures including a floor drain retention basin (west basin), boiler wastewater pond (east basin), pipelines, a septic tank and seepage pits, demineralizer sump, acid/caustic tanks and oil/water separator pond. These features and the results of pertinent environmental investigations are discussed in Subsection 8.13.3.1.

Features on the portion of the Generating Station Property that will not be incorporated into the Project Site have been identified as potential environmental concerns during environmental investigations. The discussion in Subsection 8.13.3.2 summarizes the conclusions of the environmental investigations conducted for specific features of that portion of the Generating Station Property that will not be incorporated into the Project Site, but may be relevant to demolition activities (although not directly affecting the development of the project within the Project Site boundaries).

Additionally, surrounding properties subjected to environmental investigation included the Cage Park Property located south of the Generating Station Property, agricultural lands located east of the Project Site, and a former plating facility located southeast of the Generating Station Property.

#### **8.13.3.1 Project Site Portion of Tank Farm Property**

A Phase I Environmental Site Assessment (ESA) for the Tank Farm Property portion of the Project Site was conducted in accordance with the ASTM Standard E 1527-97, Standard Practice for Environmental Site Assessments. The ESA report, prepared by ARCADIS Geraghty & Miller, Inc., for SCE, dated March 3, 2000, did not identify any recognized environmental conditions (RECs) resulting from present or past activities on the Tank Farm Property. This Phase I ESA report was prepared prior to decommissioning of the three 80,000-barrel (ASTs), the pump house, and associated piping.

A summary of historic structures and associated activities on the Tank Farm Property is presented below.

- **Acid Tank Sludge Disposal Area:** An acid tank sludge disposal area located near the western fence line and west of the location of the westernmost 80,000-barrell AST

(Tank #3) was used to dispose of residues from acid/caustic tank removal on the Highgrove Generating Station. This disposal activity resulted in a limited area of impacted soil containing low pH (<1.0 to 4.3) and elevated cadmium concentrations. This area of impacted soil was reportedly removed by SCE, with metals concentrations returned to background concentrations and soil pH near neutral (Geraghty & Miller, 1997 Phase II ESA).

- **Pipelines:** No affected soils related to the fuel pipelines have been reported, except for a minor concentration of total petroleum hydrocarbons (TPH), below the regulatory screening level, and an arsenic concentration of 7.6 mg/kg, which is above the preliminary regulatory screening level of 2.4 mg/kg; both results were reported by Geraghty & Miller (Phase II ESA; 1997) in sample OM-1, collected near the western fence line, northwest of Tank #3, at 9 feet below ground surface (bgs). The significance of the arsenic concentration reported requires further evaluation in comparison to background concentrations, and natural variability within local soils. In general, California soils often contain naturally-elevated concentrations of arsenic above USEPA Preliminary Remediation Goals for Industrial Site Soils; however, a site-specific screening concentration has not been established with the regulatory agencies.
- **Aboveground Tanks:** The Tank Farm Property was investigated for potential environmental contamination in 1996 (SCE EPE&C Geotechnical Group). During this investigation, four trenches were excavated around the perimeter of each of the three 80,000-barrell aboveground storage tanks to depths of approximately 2 to 3 feet below ground surface (bgs) and soil samples were collected and analyzed for TPH by EPA Method 418.1. Only low concentrations of TPH were detected in the soil samples, all below regulatory screening levels (100 milligrams per kilogram [mg/kg]), except a single shallow sample reported with 110 mg/kg TPH. The slightly elevated TPH appeared to be associated with an anti-corrosion coating on a tank.
- **Demolition Activities and Confirmation Sampling:** In February 2001, the three ASTs, pump house, and associated pipelines were removed. Following demolition activities, soil samples were collected and analyzed from beneath each AST and the former pump house location. As reported by Engineering & Technical Services, Southern California Edison Company (April, 2001), petroleum hydrocarbons were not detected in soil samples collected following demolition of the ASTs or pump house. Soil samples collected following demolition activities included five soil samples beneath each AST and two samples collected beneath the pump house. According to the April 2001 report, visual inspections beneath pipeline areas and the containment basin areas did not reveal any indications of contamination.

Based on the results of these previous investigations, no impacted soils have been identified as remaining on the Tank Farm Property, except for a concentration of arsenic slightly above a preliminary screening level. However, identification of site-specific screening levels for arsenic may identify this single detection as not requiring any further action.

### 8.13.3.2 Project Site Portion of Generating Station Property

Features identified as potential environmental concerns on that portion of the Generating Station Property that will be incorporated into the Project Site are discussed below.

- **Floor Drain Retention Basin (West Basin) and Boiler Wastewater Pond (East Basin):** Several phases of investigation of the East and West Basins have been conducted to determine if releases from the Basins occurred. Based on the results of shallow and deep soils investigations of both basins and soil gas investigation at the West Basin, no releases from the basins are reported. According to recent informal communications with DTSC (May 2006), no further investigations of the East or West Basin appears to be required at this time.
- **Highgrove Substation:** An investigation was conducted of the perimeter of the Highgrove Substation (also referred to as the Electrical Switchyard) (Phase II ESA; Geraghty & Miller, 1997) in areas of likely surface water runoff and potential sources of TPH and polychlorinated biphenyls (PCBs). No PCBs or TPH were reported in the five soil borings sampled, which were sampled and analyzed at nominal depths of approximately 1 foot and 3 feet bgs from each boring. Based on these sampling results, no affected soil along the perimeter of the Highgrove Substation has been identified. Transformers are currently located on the Generating Station Property along the eastern perimeter of the Highgrove Substation. The demolition activities will include removal of these transformers as this portion of the Generating Station Property will be included in the Project Site and used for interconnection of the transmission line to the Highgrove Substation. If during transformer removal activities evidence of a release is discovered, further investigation may be required.
- **Septic Tank and Seepage Pits:** A septic tank and seepage pits are located on the portion of the Generating Station Property that will be incorporated into the Project Site. The results of Phase II investigation (Geraghty & Miller, 1997) within the Septic Tank and associated Seepage Pit area did not identify impacts from VOCs, TPH, acidic or basic soils, or metals, except for a concentration of arsenic in a soil sample from 60 feet bgs in boring SP-1 of 2.9 mg/kg, slightly exceeding the preliminary screening concentration of 2.4 mg/kg. This concentration of arsenic at 60 feet bgs does not pose a direct-exposure pathway to the surface environment, and therefore is not considered significant. However, as arsenic has been detected in other samples from the site at concentrations greater than the preliminary screening concentration, establishment of a regulatory agency-accepted site-specific screening concentration for arsenic is recommended, to verify that no additional investigation, remediation, or risk-management is required for arsenic.
- **Demineralizer Sump and Acid/Caustic Tanks:** The demineralizer sump, located in the northern portion of the Generating Station Property, south of the East Basin, was investigated for potential leaks in 1996 (P. Hamilton; February, 1997). One soil boring from the eastern portion of the Demineralizer Sump was reported as containing low pH soils (pH 3.60 to 4.37) at depths of up to 7 feet bgs. Elevated sulfate and calcium were also reported in this boring. However, the report did not conclude that the sump leaked, as a nearby sulfuric acid AST located east of the sump was identified as a potential source of the release (see discussion below).

The acid/caustic tank area, located southeast of the East Basin and east of the demineralizer sump, was investigated for potential impacts to soil via a single soil boring sample collected at 5.5 feet bgs (Phase II ESA; Geraghty & Miller, 1997). Although

surface degradation of the asphalt was noted near the sulfuric acid tank dispensing area, soil pH at 5.5 feet bgs was reported as 8.73. Based upon this single sample result, it does not appear that a release has occurred from the acid/caustic ASTs. Additional soil samples were analyzed by Golder Associates, Inc., (Phase II ESA; 1998), in the vicinity of the Demineralizer Sump, and reported results indicated that soils in the vicinity were slightly basic. Therefore, a localized release of acids may have occurred in the Demineralizer Sump area, which may require further investigation and possible localized remediation during demolition activities.

- **Oil/Water Separator Pond:** An oil/water separator pond is located near the East Basin. Results of a Phase II ESA (Golder Associates, Inc., 1998) reported a minor concentration of TPH (20 mg/kg) in a sample collected at 10 feet bgs in a soil boring adjacent to the oil/water separator. TPH was not detected at 15 or 20 feet bgs in this boring, and VOCs were not detected in the soil samples. Elevated photoionization detector soil-headspace readings were also reported in the soil boring sample containing TPH. Based on these results, a minor release may have occurred from the oil/water separator; however, soil sample results for TPH did not exceed regulatory screening levels. Further investigation and potentially localized remedial action (soil removal) may be required if impacted soils are encountered during demolition activities.

### 8.13.3.3 Portions of the Generating Station Property Not Incorporated Into Project Site

The following features of the Generating Station Property, while not directly affecting the Project Site, may be relevant to regulatory agency closure matters related to the overall Generating Station Property and associated demolition activities.

- Additional features of the adjoining Generating Station Property that were identified during the Phase II assessment (Geraghty & Miller, Inc., 1997) as potentially requiring additional investigation and potential remediation during demolition activities include:
  - Transformers with reported releases of PCBs to soil exceeding 50 parts per million (ppm) were reported near four transformers.
  - Areas of the power block that have not been accessible for sampling during previous site assessments.

As discussed previously, arsenic concentrations above preliminary screening levels have been reported in various areas of the Project Site and are also reported in some areas of the Generating Station Property that will not be incorporated into the Project Site. Further evaluation of the significance of these arsenic concentrations will be required following future negotiations with regulatory agencies regarding applicable site-specific screening levels for arsenic.

Other regulated areas of the Highgrove Generating Station have been investigated during Phase II site assessments; based on the results of these previous investigations, environmental impacts at these areas have not been identified at this time.

### 8.13.3.4 Other Surrounding Properties

The K&N Plating facility, located at 21750 Main Street, has been identified with past hazardous waste discharging activities at the facility, including acid solutions likely

containing metals. Although no documentation exists linking these discharges to impacts on either the Project Site, or portions of the Generating Station Property that will not be incorporated into the Project Site, these releases are a potential threat to the environment from surface runoff and impacts to groundwater at project facilities.

Adjoining agricultural areas to the east and north of the Project Site and Generating Station Property have been investigated for potential impacts to the environment. Pesticides, PCBs and TPH were not detected in the samples collected, except for low concentrations of pesticides and TPH below applicable screening criteria. Concentrations of arsenic were detected slight above preliminary screening criteria; however, these concentrations would not pose an environmental risk for the Project Site.

### **8.13.3.5 Groundwater**

Groundwater in the vicinity of the East and West Basins is subject to on-going monitoring. The February 2004, Annual Groundwater Monitoring Report for the Highgrove Generating Station (P. Hamilton, 2004), indicates that groundwater is present at depths of approximately 120 feet bgs, with a very slight gradient (0.0005 foot per foot) toward the southwest. This gradient and groundwater depth were generally consistent during the year of monitoring; however, groundwater production well pumping to the north of the Project Site may influence groundwater depths and gradients. The sampling events have not indicated any groundwater impacts related to the overlying Basins. Chromium-VI has been detected consistently in monitoring wells at the site, including an upgradient monitoring well, with a maximum concentration reported of 1.6 micrograms per liter ( $\mu\text{g}/\text{L}$ ). The presence of chromium-VI in the upgradient well indicates this constituent is generally present in the aquifer.

## **8.13.4 Project Waste Generation**

Wastewater, solid nonhazardous waste, and liquid and solid hazardous waste will be generated at the power plant site during facility construction and operation. Solid nonhazardous waste will also be generated during the construction of the electric transmission line, the natural gas supply line, and waterlines.

### **8.13.4.1 Construction Phase**

During construction, the primary waste generated will be solid nonhazardous waste. However, some nonhazardous liquid waste and hazardous waste (solid and liquid) will also be generated. Most of the hazardous wastes will be generated at the plant site, but a minimal quantity of hazardous waste will be generated during construction of the natural gas supply line, water supply and sanitary sewer line, and from demolition of the existing plant. The types of waste and their estimated quantities are described below.

#### **8.13.4.1.1 Nonhazardous Solid Waste**

Listed below are nonhazardous waste streams that could potentially be generated from construction of the new generating facility, the natural gas supply line, and the water supply line and from demolition of the existing plant.

**Demolition Waste**

Demolition of the old plant will generate an estimated 4,000 cubic yards of nonrecyclable nonhazardous waste materials. Nonrecyclable materials will be disposed of at a landfill. Reusable metals are expected to consist of an additional 6,200 cubic yards of material that will be sold as scrap. Concrete foundations will be chipped into 2-inch pieces and used onsite as fill material or trucked offsite at an acceptable disposal facility.

In addition to the nonhazardous waste from demolition, materials containing asbestos and lead-based paint will be generated during the project. Waste soil containing site contaminants may be generated during the removal of underground infrastructure of the old plant. These materials are described in Subsection 8.13.4.1.2 below.

**Construction Waste**

**Paper, Wood, Glass, and Plastics.** Paper, wood, glass, and plastics will be generated from packing materials, waste lumber, insulation, and empty nonhazardous chemical containers. Approximately 36 tons of these wastes will be generated during project construction. These wastes will be recycled where practical. Waste that cannot be recycled will be disposed of weekly in a Class III landfill. Onsite, the waste will be placed in dumpsters.

**Concrete.** Approximately 24 tons of excess concrete will be generated during construction. Waste concrete will be disposed of weekly in a Class III landfill or at clean fill sites, if available.

**Metal.** Metal will include steel from welding/cutting operations, packing materials, salvaged rebar, and empty nonhazardous chemical containers. Aluminum waste will be generated from packing materials and electrical wiring. Approximately 9 tons of metal will be generated during construction. Waste will be recycled where practical and non-recyclable waste will be deposited in a Class III landfill.

**Drilling Mud.** Some drilling could be required to install the natural gas pipeline. Most pipeline installation involves excavation of trenches, but crossing water features and sometimes roads can involve trenchless construction techniques (e.g., horizontal directional drilling) to avoid disturbance of the feature. Drilling mud, consisting of nontoxic bentonite clay, is used to lubricate and cool the drilling bit. For this project, only one crossing is assumed to involve horizontal directional drilling. Approximately 160 tons of drilling fluid is used in drilling each half-mile crossing of a creek or street. The single crossing that may require drilling on this project is only 250 feet long, so will generate only 10 percent of the volume of waste, or 16 tons of drilling mud. In addition, an estimated 3.5 cubic yards (5 tons) of soil cuttings will be generated by the drilling process. An additional 2 cubic yards (3 tons) of soil cuttings will be generated by the trenching or jack-and-bore methods used for the other crossings. This waste will require disposal at a Class II or III landfill.

**Soil.** Waste soil may be generated during foundation and underground utility excavation activities if the soil is not suitable for reuse at the site due to contaminant levels or other properties. Additionally, waste soil may be generated as a result of site remediation activities, if required. This material is further discussed in Subsection 8.13.4.1.3 below.

**8.13.4.1.2 Nonhazardous Wastewater**

Nonhazardous wastewater will be generated during construction and demolition activities, including sanitary wastewater, equipment wash water, stormwater runoff, and wastewater

from pressure testing the gas supply line. Sanitary waste will be collected in portable, self-contained toilets. Equipment wash water will be contained at specifically designated wash areas and disposed of offsite. Stormwater runoff will be managed in accordance with the contractor-developed stormwater pollution prevention plan (SWPPP) that will be approved by the appropriate agencies prior to the start of construction. The SWPPP will include site-specific measures to address the presence of soil contaminants at the site.

The gas supply pipeline hydrostatic test water will be filtered to collect any sediment and welding fragments. The water will be collected, tested, and discharged into the local storm drain per a permit obtained by SoCalGas from the appropriate water quality control board. If the water does not pass the required testing, it will be disposed of offsite.

#### **8.13.4.1.3 Hazardous Waste**

Most of the hazardous waste generated during construction will consist of liquid waste, such as flushing and cleaning fluids, passivating fluid (to prepare pipes for use), and solvents. Some hazardous solid waste, such as welding materials and dried paint, may also be generated. Hazardous waste that will be generated during demolition includes asbestos-containing building materials and lead-based paint. Additionally, hazardous soil waste may be generated during site remediation and site preparation excavation activities.

**Demolition Waste.** Approximately 500 tons of asbestos waste, including asbestos-containing building materials, and exterior insulation and interior refractory materials from the old generating units, associated piping, and turbines, will be produced during demolition. This waste will be shipped offsite to a hazardous waste landfill in Arizona. This waste is considered hazardous by the state of California if it contains one percent or more of friable asbestos.

Asbestos waste will be managed by a licensed asbestos abatement contractor. The appropriate notice will be filed with the South Coast Air Quality Management District prior to beginning removal of asbestos-containing materials.

Structural components containing lead-based paint will be removed by a contractor and shipped to an appropriate disposal facility. Structures with paint intact will be cut with a torch and are not required to be sprayed with water or have other methods employed to control loose or flaking paint.

Any soil excavated in conjunction with the removal of underground utilities and structure foundations associated with the Generating Station during demolition will be characterized to determine appropriate soil management protocol and disposition. Any soil removed from the site will be disposed of at an appropriate landfill facility based on characterization results.

**Construction Waste.** Flushing and cleaning waste liquid will be generated when pipes and boilers are cleaned and flushed. Passivating fluid waste is generated when high temperature pipes are treated with either a phosphate or nitrate solution. The volume of flushing, cleaning and passivating liquid waste generated is estimated to be one to two times the internal volume of the pipes cleaned. The quantity of welding, solvent, and paint waste is expected to be minimal.

Any soil excavated and removed from the site for the purpose of site remediation or excavations for underground utilities and structure foundations will be characterized to determine appropriate soil management protocol and whether the soil requires disposal as a hazardous or non-hazardous waste. It is currently unknown whether soil excavation and disposal will be required for the purpose of site environmental remediation. Underground utility and foundation excavations are not expected to generate excess soil; all soil will remain onsite unless contaminant levels require offsite disposal of excavated materials. Any soil removed from the site will be disposed of at an appropriate landfill facility based on characterization results.

The construction contractor will be considered the generator of hazardous construction waste and will be responsible for proper handling of hazardous waste in compliance with all applicable federal, state, and local laws and regulations, including licensing, personnel training, accumulation limits and times, and reporting and recordkeeping. The hazardous waste will be collected in satellite accumulation containers near the points of generation. It will be moved daily to the contractor's 90-day hazardous waste storage area, located at the site construction laydown area. The waste will be removed from the site by a certified hazardous waste collection company and delivered to an authorized hazardous waste management facility, prior to expiration of the 90-day storage limit.

#### **8.13.4.2 Operation Phase**

During facility operation, the primary waste generated will be nonhazardous solid waste. Varying quantities of both solid and liquid hazardous waste will also be generated periodically. The types of waste and their estimated quantities are discussed below.

##### **8.13.4.2.1 Nonhazardous Solid Waste**

The majority of solid waste will include rags, turbine air filters, broken and rusted metal and machine parts, defective or broken electrical materials, empty containers, the typical refuse generated by workers and small office operations, and other miscellaneous solid wastes. The quantity generated is estimated to be about 30 cubic yards per year (approximately 21 tons per year). Large metal parts will be recycled.

##### **8.13.4.2.2 Nonhazardous Wastewater**

Water balance diagrams, provided in Figures 7.1-2a and 7.1-2b, illustrate the expected liquid waste streams and flow rates for the AES Highgrove generating facility. The wastewater collection system will collect sanitary wastewater from sinks, toilets, and other sanitary facilities to be discharged to the City of Grand Terrace's sanitary sewer.

***Plant Drains-Oil/Water Separator.*** General facility drainage will consist of area washdown, sample drains, equipment leakage, and drainage from facility equipment areas. Water from these areas will be collected in a system of floor drains, hub drains, sumps, and piping and routed to the facility wastewater collection system. Drains that could contain oil or grease will first be routed through an oil/water separator. Water from the plant wastewater collection system will be recycled to the cooling tower basin. Wastewater from combustion turbine water washes will be collected in a holding tank. If cleaning chemicals were not used during the water wash procedure, the wastewater will be discharged to the oil/water separator. Wastewater containing cleaning chemicals will be trucked offsite for disposal at an approved wastewater disposal facility.

### 8.13.4.2.3 Hazardous Waste

Hazardous waste generated will include waste lubricating oil, used oil filters, spent selective catalytic reduction (SCR) and oxidation catalysts, and chemical cleaning wastes. The catalyst units will contain heavy metals that are considered hazardous. Chemical cleaning wastes will be generated from the periodic cleaning of the turbines. They will consist of alkaline cleaning solutions used during chemical cleaning of the turbine wash. These wastes generally contain high concentrations of heavy metals and will be collected for offsite disposal.

The chemical feed area drains will collect spillage, tank overflows, effluent from maintenance operations, and liquid from area washdowns. After neutralization, if required, water collected from the chemical storage areas will be directed to the cooling tower basin. The quantity of this effluent is expected to be minimal.

Wastes that will be generated at the facility are summarized in Table 8.13-2.

**TABLE 8.13-2**  
Hazardous Wastes Generated at the AES Highgrove Facility

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Lubricating oil	Small leaks and spills from the gas turbine lubricating oil system	Hydrocarbons	180 lb/year	Hazardous	Cleaned up using sorbent and rags – disposed of by certified oil recycler
Lubricating oil filters	Gas turbine lubricating oil system	Paper, metal, and hydrocarbons	360 lb/year	Hazardous	Recycled by certified oil recycler
Laboratory analysis waste	Water treatment	Sulfuric acid	240 gals/year	Hazardous	Recycled by certified recycler
SCR catalyst units	SCR system (Warranty is 3 years; use tends to be 3 to 5 years)	Metal and heavy metals, including vanadium	360 lb every 3 to 5 years	Hazardous	Recycled by SCR manufacturer or disposed of in Class I landfill
CO catalyst units	Auxiliary boiler (Use tends to be 3 to 5 years)	Metal and heavy metals, including vanadium	360 lb every 3 to 5 years	Hazardous	Recycled by manufacturer
Oily rags	Maintenance, wipe down of equipment, etc.	Hydrocarbons, cloth	120 lb/year (~300 rags/year)	Hazardous	Recycled by certified oil recycler
Oil sorbents	Cleanup of small spills	Hydrocarbons	90 lb/year	Hazardous	Recycled or disposed of by certified oil recycler
Cooling tower sludge	Deposited in cooling tower basin by cooling water	Dirt from air	60 tons/year	Could be hazardous, but usually not	Class II landfill if nonhazardous; Class I if hazardous

**TABLE 8.13-2**  
Hazardous Wastes Generated at the AES Highgrove Facility

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Chemical feed area drainage	Spillage, tank overflow, area washdown water	Water with water treatment chemicals	Minimal	May be hazardous if corrosive	Onsite neutralization, if required, then discharged to cooling tower basin

### 8.13.5 Waste Disposal Sites

Nonhazardous solid waste (often referred to as solid waste, municipal solid waste (MSW), or garbage) will be recycled or deposited in a Class III landfill. Hazardous wastes, both solid and liquid, will be delivered to a permitted offsite Treatment, Storage, and Disposal (TSD) facility for treatment or recycling or deposited in a permitted Class I landfill. The following subsections describe the waste disposal sites feasible for disposal of the Highgrove Project wastes.

#### 8.13.5.1 Nonhazardous Waste

The County of San Bernardino Department of Public Works Solid Waste Management Division (SWMD) is responsible for the operation and management of the County of San Bernardino's solid waste disposal system, which consists of six regional landfills, eight transfer stations and five community collection centers. The County contracts with Burrtec Waste Industries for disposal site operations and maintenance.

In addition, the Division administers the County's solid waste handling franchise program and the refuse collection permit program that authorizes and regulates trash collection by private haulers in the unincorporated area (source: <http://www.sbcounty.gov/wsd/>).

For the City of Grand Terrace, solid waste hauling is exclusively contracted with Waste Management of the Inland Empire. All containers and hauling services, for solid waste and recyclables produced during the construction period, will be provided by Waste Management of the Inland Empire. Waste Management of the Inland Empire hauls all solid waste to San Timoteo Landfill in Redlands, California and Colton Landfill in Colton, California. These landfills have adequate capacity to handle and dispose of solid waste generated by the Highgrove Project facility, as shown in Table 8.13-3. Colton Landfill is in the process of expanding its life expectancy. There are no open enforcement actions against either the Colton or San Timoteo Landfill (Hurse, 2005).

**TABLE 8.13-3**  
Solid Waste Disposal Facilities for AES Highgrove Waste

Landfill/MRF/ Transfer Station	Location	Class <sup>a</sup>	Permitted Capacity <sup>a</sup>	Permitted Throughput <sup>a</sup>	Remaining Capacity <sup>a</sup>	Estimated Closure Date <sup>a</sup>	Comments
San Timoteo Sanitary Landfill	Redlands	III	20.4 million cubic yards	1,000 tons/day	2 million cubic yards	2016	Operated by County of San Bernardino Solid Waste Management Division. No record of enforcement actions <sup>a</sup>
Colton Sanitary Landfill	Colton	III	13.3 million cubic yards	3,100 tons/day	380,716 cubic yards (2001)	2006 <sup>b</sup>	Operated by County of San Bernardino Solid Waste Management Division. In the process of extending permitted operating life. <sup>b</sup> No record of enforcement actions <sup>a</sup>
Mid-Valley Sanitary Landfill	Rialto	III	62 million cubic yards	7,500 tons/day	72.3 million cubic yards <sup>a</sup>	2033	Operated by County of San Bernardino Solid Waste Management Division. No record of enforcement actions <sup>a</sup>
California Street Landfill	Redlands	III	10 million cubic yards	829 tons/day	473,888 cubic yards	2031	Operated by County of San Bernardino Solid Waste Management Division. No record of enforcement actions <sup>a</sup>
Victorville Sanitary Landfill	Victorville	III	83.2 million cubic yards <sup>d</sup>	1,600 tons/ day	721,913 cubic yards (2001)	2059 <sup>b</sup>	Operated by County of San Bernardino Solid Waste Management Division. In the process of extending permitted operating life. <sup>b</sup> No record of enforcement actions <sup>a</sup>
Barstow Sanitary Landfill	Barstow	III	3.6 million cubic yards	750 tons/day	218,492 cubic yards (2001)	2012 <sup>b</sup>	Operated by County of San Bernardino Solid Waste Management Division. In the process of extending permitted operating life. <sup>b</sup> No record of enforcement actions <sup>a</sup>

**TABLE 8.13-3**  
Solid Waste Disposal Facilities for AES Highgrove Waste

Landfill/MRF/ Transfer Station	Location	Class <sup>a</sup>	Permitted Capacity <sup>a</sup>	Permitted Throughput <sup>a</sup>	Remaining Capacity <sup>a</sup>	Estimated Closure Date <sup>a</sup>	Comments
Landers Sanitary Landfill	Landers	III	3.1 million cubic yards	1,200 tons/day	463,785 cubic yards (2001)	2008 <sup>b</sup>	Operated by County of San Bernardino Solid Waste Management Division. In the process of extending permitted operating life. <sup>b</sup> No record of enforcement actions <sup>a</sup>
Badlands Landfill	Moreno Valley	III	30.4 million cubic yards	4,000 tons/day	21.9 million cubic yards	2016	Operated by County of Riverside Waste Management Dept. No records of enforcement actions. <sup>a</sup>
El Sobrante Landfill	Corona	III	185 million tons	10,000 tons/day	173 million tons	2030	Operated by USA Waste Services of California, Inc. No record of enforcement actions <sup>a</sup>
Blythe Sanitary Landfill	Blythe	III	4.6 million cubic yards	400 tons/day	2.3 million cubic yards	2034	Operated by County of Riverside Waste Management Dept. No records of enforcement actions <sup>a</sup>
Lamb Canyon Sanitary Landfill	Beaumont	III	34.3 million cubic yards	3,000 tons/day	20.9 million cubic yards	2023	Operated by County of Riverside Waste Management Dept. No record of enforcement actions <sup>a</sup>

<sup>a</sup> CIWMB, 2006a. California Integrated Waste Management Board Solid Waste Information System (SWIS) database.

<sup>b</sup> The county is in the process of extending the permitted life of this landfill (Hurse, 2005).

Other landfills in the area include the Mid Valley Sanitary Landfill in Rialto and the California Street Landfill in Redlands, California. Regional landfills and transfer stations are shown in Table 8.13-3. Disposal of solid nonhazardous waste will not be a constraint on the Highgrove Project development.

### 8.13.5.2 Hazardous Waste

Hazardous waste generated at the Highgrove Project will be stored at that facility for less than 90 days. The waste will then be transported by a permitted hazardous waste transporter to a TSD facility. These facilities vary considerably in what they can do with the hazardous waste they receive. Some can only store waste, some can treat the waste to recover usable products, and others can dispose of the waste by incineration, deep-well injection, or landfilling. (Incineration and deep-well injection are not permitted in California.)

According to the California Environmental Protection Agency's (Cal/EPA) Department of Toxic Substance Control (DTSC), there are 64 facilities in California that can accept

hazardous waste for treatment or disposal (DTSC, 2005). The closest commercial hazardous waste treatment facility is Filter Recycling Service, Inc. in Rialto, California. Other TSD facilities in the regional area include a Clean Harbors (Safety Kleen) facility in Highland, California, and Advanced Environmental Inc. in Fontana, California.

For ultimate disposal, California has three hazardous waste (Class I) landfills, as described in the following subsections.

#### **8.13.5.2.1 Clean Harbors' Buttonwillow Landfill in Kern County**

This landfill is permitted at 13.25 million cubic yards and, as of March 2005, has approximately 10.15 million cubic yards of remaining space. The annual deposit rate is currently 130,000 to 350,000 cubic yards. At the current deposit rate, the landfill can accept hazardous waste until approximately 2068 to 2078. Buttonwillow has been permitted to accept all hazardous wastes except flammables, PCB with a concentration greater than 50 ppm, medical waste, explosives, and radioactive waste with radioactivity greater than 20,000 picocuries (Buoni, 2005).

#### **8.13.5.2.2 Clean Harbors' Westmorland Landfill in Imperial County**

This facility is not currently accepting waste since the Buttonwillow facility is accommodating the current hazardous waste generation rate. The facility is, however, available in reserve (Buoni, 2005). The landfill's conditional use permit (CUP) prohibits the acceptance of some types of waste, including radioactive (except geothermal) waste, flammables, biological hazard waste (medical), PCB, dioxins, air- and water-reactive wastes, and strong oxidizers.

#### **8.13.5.2.3 Chemical Waste Management's Kettleman Hills Landfill in Kings County**

This landfill has 6 million cubic yards of remaining permitted capacity for hazardous waste (Class I). They also accept Class II and Class III wastes. The current annual deposit rate is about 1.0 million cubic yards per year (for Class I wastes). According to Chemical Waste, the landfill will be open for at least another 20 years, though they could permit additional capacity, if necessary. The Class I landfill is permitted for and will accept all hazardous wastes except radioactive, medical, and unexploded ordnance (UXO) (Yarbrough, 2005).

In addition to landfills, there are numerous offsite commercial hazardous waste treatment and recycling facilities in California. These facilities have sufficient capacity to recycle and/or treat hazardous waste generated in California. All hazardous waste will be removed and delivered to a TSD facility. Used oil will be collected by a permitted oil recycler.

### **8.13.6 Waste Management Methods and Mitigation**

The handling and management of waste generated by the Highgrove Project will follow the hierarchical approach of source reduction, recycling, treatment, and disposal. The first priority will be to reduce the quantity of waste generated through pollution prevention methods (e.g., high-efficiency cleaning methods). The next level of waste management will involve the reuse or recycle of wastes (e.g., used oil recycling). For wastes that cannot be recycled, treatment will be used, if possible, to make the waste non-hazardous (e.g., neutralization). Finally, offsite disposal will be used to dispose of residual wastes that cannot be reused, recycled, or treated.

The following subsections present methods for managing both nonhazardous and hazardous waste generated by the Highgrove Project.

### **8.13.6.1 Construction Phase**

Nonhazardous solid waste generated during construction will be collected in onsite dumpsters and picked up periodically by Waste Management of the Inland Empire. The waste will then be taken to the San Timoteo Landfill or another local landfill. Recyclable materials can be segregated and transported by construction contractors or other private haulers to an area recycling facility.

Wastewater generated during construction will include sanitary waste and could include equipment washwater and stormwater runoff. Sanitary waste will be collected in portable, self-contained toilets. Equipment washwater will be contained at designated wash areas and will be disposed of offsite. Stormwater runoff will be managed in accordance with a stormwater management permit, which will be obtained prior to the start of construction. The generation of nonhazardous wastewater will be minimized through water conservation and reuse measures.

Most of the hazardous waste generated during construction will consist of liquid waste, such as flushing and cleaning fluids, passivating fluids, and solvents. Some solid waste in the form of welding materials and dried paint may also be generated. Nonhazardous materials will be used whenever possible to minimize the quantity of hazardous waste generated. The construction contractor will be the generator of hazardous construction waste and will be responsible for proper handling in compliance with all applicable federal, state, and local laws and regulations, including licensing, training of personnel, accumulation limits and times, and reporting and recordkeeping. The hazardous waste will be collected in satellite accumulation containers near the points of generation. This waste will be moved daily to the contractor's 90-day hazardous waste storage area, located at the plant construction laydown area. The waste will be delivered to an authorized hazardous waste management facility, prior to the expiration of the 90-day storage limit.

Any soil or liquid wastes generated during construction or remediation activities will be characterized to determine whether they require management and disposal as non-hazardous or hazardous wastes. Best management practices (BMPs) including stockpile liners, stockpile covering, secondary containment, and truck load covering will be employed as appropriate based on regulatory requirements and approved management plans. Onsite management and offsite transportation and disposal of soil will be performed in accordance with all applicable regulatory requirements.

### **8.13.6.2 Operation Phase**

Nonhazardous solid waste will be generated from plant operations, as well as varying quantities of liquid and solid hazardous waste. Handling and mitigation of these wastes is described in the following subsections.

#### **8.13.6.2.1 Nonhazardous Wastes**

Wastewater from facility sinks and toilets will be discharged to the sanitary sewer.

Nonhazardous solid waste or refuse will be collected and deposited in a local landfill. Whenever possible, recycling will be implemented throughout the facility to minimize the quantity of nonhazardous waste that must be disposed of in a landfill.

#### **8.13.6.2.2 Hazardous Wastes**

To avoid the potential effects on human health and the environment from the handling and disposal of hazardous wastes, procedures will be developed to ensure proper labeling, storage, packaging, recordkeeping, and disposal of all hazardous wastes. The following general procedures will be employed:

- The Highgrove Project will be classified as a hazardous waste generator. Prior to facility startup, application will be made to CalEPA for a USEPA identification number.
- Hazardous wastes will not be stored onsite for more than 90 days and will be accumulated according to CCR Title 22.
- Hazardous wastes will be stored in appropriately segregated storage areas surrounded by berms to contain leaks and spills. The bermed areas will be sized to hold the full contents of the largest single container and, if not roofed, sized for an additional 20 percent to allow for rainfall. These areas will be inspected daily.
- Hazardous wastes will be collected by a licensed hazardous waste hauler, using a hazardous waste manifest. Wastes will only be shipped to authorized hazardous waste management facilities. Biannual hazardous waste generator reports will be prepared and submitted to the Department of Toxic Substances Control (DTSC). Copies of manifests, reports, waste analyses, and other documents will be kept onsite and remain accessible for inspection for at least 3 years.
- Employees will be trained in hazardous waste procedures, spill contingencies, and waste minimization.
- Procedures will be developed to reduce the quantity of hazardous waste generated. Nonhazardous materials will be used instead of hazardous materials whenever possible, and wastes will be recycled whenever possible.

Specifically, hazardous waste handling will include the following practices. Handling of hazardous wastes in this way will minimize the quantity of waste deposited to landfills:

- Waste lubricating oil will be recovered and recycled by a waste oil recycling contractor, such as Mark Alarcon's Waste Oil Service. Spent oil filters and oily rags will be recycled.
- Spent SCR and oxidation catalysts will be recycled by the supplier, if possible, or disposed of in a Class I landfill.
- Chemical cleaning wastes will consist of alkaline cleaning solutions used during turbine wash. These wastes, which are subject to high metal concentrations, will be stored temporarily onsite in portable containers and disposed of offsite, in accordance with applicable regulatory requirements. Disposal may consist of offsite treatment, recovery of metals, and/or landfilling.

### **8.13.6.3 Facility Closure**

When the Highgrove Project is closed, both nonhazardous and hazardous wastes must be handled properly. Closure can be temporary or permanent. Temporary closure would be for a period of time greater than the time required for normal maintenance. Causes for temporary closure could be a disruption in the supply of natural gas, flooding of the site, or damage to the plant from earthquake, fire, storm, or other natural causes. Permanent closure would consist of a cessation in operations with no intent to restart and could be due to the age of the plant, damage to the plant beyond repair, economic conditions, or other unforeseen reasons. Handling of wastes for these two types of closure are discussed below.

#### **8.13.6.3.1 Temporary Closure**

For a temporary closure, where there is no release of hazardous materials, facility security will be deployed on a 24-hour basis, and the CEC will be notified. Depending on the length of shutdown necessary, a contingency plan for the temporary cessation of operations will be implemented. This plan will be prepared prior to the Highgrove Project startup. The plan will be developed to ensure conformance with all applicable LORS and the protection of public health and safety and the environment. The plan, depending on the expected duration of the shutdown, could include draining all chemicals from storage tanks and other equipment and the safe shutdown of all equipment. All wastes will be disposed of according to applicable LORS, as discussed in Subsection 8.13.2.

Where the temporary closure is in response to facility damage, or where there is a release or threatened release of hazardous waste or materials into the environment, procedures will be followed as set forth in a Risk Management Plan (RMP). The RMP is described in Subsection 8.12.8.4. Procedures include methods to control releases, notification of applicable authorities and the public, emergency response, and training for generating facility personnel in responding to and controlling releases of hazardous materials and hazardous waste. Once the immediate problem of hazardous waste and materials release is contained and cleaned up, temporary closure will proceed as described for a closure where there is no release of hazardous materials or waste.

#### **8.13.6.3.2 Permanent Closure**

The planned life of the generation facility is 30 years, though operation could be longer. When the facility is permanently closed, the handling of nonhazardous and hazardous waste and hazardous materials will be part of a general closure plan that will attempt to maximize the recycling of all facility components. Unused chemicals will be sold back to the suppliers or other purchasers or users. All equipment containing chemicals will be drained and shut down to protect public health and safety and the environment. All nonhazardous wastes will be collected and disposed of in appropriate landfills or waste collection facilities. All hazardous wastes will be disposed of according to applicable LORS. The site will be secured 24 hours per day during the decommissioning activities.

### **8.13.7 Cumulative Impacts**

The Highgrove Project facility will generate nonhazardous solid waste that will add to the total waste generated in San Bernardino County and in California. However, there is adequate recycling and landfill capacity in California to recycle and dispose of the waste generated by the Highgrove Project. It is estimated that the plant will generate

approximately 534 tons of solid waste during construction, 569 tons during demolition and about 8,400 tons a year from operations (including approximately 2 tons of hazardous waste). Compared to the total amount of solid waste landfilled in San Bernardino County in the year 2004 of 1,791,864 tons, the Highgrove Project's contribution will represent less than 1 percent of total county waste disposal (CIWMB, 2006b). Therefore, the impact of the project on solid waste recycling and disposal capacity is not significant.

Hazardous waste generated will consist of waste oil, filters, SCR and oxidation catalysts, and fluids used to clean the piping. The waste oil and catalysts will be recycled. Cleaning and flushing fluids will be removed and disposed of offsite. Cleaning and flushing will occur only periodically. Hazardous waste treatment and disposal capacity in California is more than adequate. Therefore, the effect of the Highgrove Project on hazardous waste recycling, treatment, and disposal capability is not significant.

### 8.13.8 Monitoring

Because the environmental impacts caused by construction and operation of the facility are expected to be minimal, extensive monitoring programs will not be required. Generated waste, both nonhazardous and hazardous, will be monitored during project construction and operation in accordance with the monitoring and reporting requirements mandated by the regulatory permits to be obtained for construction and operation.

### 8.13.9 Involved Agencies

Several agencies, including USEPA at the federal level and Cal/EPA at the state level, regulate nonhazardous and hazardous waste and will be involved in the regulation of the waste generated by the Highgrove Project. The hazardous waste laws, however, are administered and enforced primarily through local agencies. For the Highgrove Project, the primary agency for hazardous waste issues will be the San Bernardino County Fire Department Hazardous Materials Division, which is the designated CUPA for the area. The agencies and persons to contact for each type of waste are shown in Table 8.13-4.

The DTSC is responsible for overseeing implementation of corrective action to investigate and remediate releases of hazardous constituents from operation of the former SCE facility. DTSC is also responsible for approving closure certification of the former SCE hazardous waste management units some of which are located within the Project Site.

**TABLE 8.13-4**  
Agency Contacts for AES Highgrove Waste Management

Topic	Agency	Address	Contact	Title	Telephone
<b>Nonhazardous Waste</b>					
Solid Waste	County of San Bernardino Department of Public Works—Solid Waste Management Division	222 W. Hospitality Lane Second Floor San Bernardino, CA. 92415-0017	Peter Wulfman	Division Manager	(909) 386-8701

**TABLE 8.13-4**  
Agency Contacts for AES Highgrove Waste Management

Topic	Agency	Address	Contact	Title	Telephone
<b>Hazardous Waste</b>					
Hazardous	San Bernardino County Fire Department—Hazardous Materials Division—Certified Unified Program Agency (CUPA) Program	620 South "E" Street San Bernardino, CA 92415-0153	Doug Snyder	Supervisor	(909) 386-8401
RCRA Closure and Corrective Action	DTSC, Permitting and Corrective Action Branch	1011 N. Grandview Glendale, CA 91201	Chia-Rin Yen	Hazardous Substances Scientist	(818) 551-2182

### 8.13.10 Permits Required and Permit Schedule

Table 8.13-5 lists the permits required by San Bernardino County and DTSC.

**TABLE 8.13-5**  
Permits Required and Permit Schedule for AES Highgrove Waste Management

Permit	Applicability	Schedule for Permit
Flammable or Combustible Liquids Storage Permit	San Bernardino County Fire Code requires that businesses obtain permits for the use and storage of flammable and combustible liquid wastes.	Prior to storage of flammable or combustible liquid wastes at the site.
Closure certification of former hazardous waste management units operated by SCE.	DTSC requires the former hazardous waste management units to close in accordance with state and federal regulations.	A Closure Demonstration Report certifying clean closure of several hazardous waste management units is currently under preparation by SCE. Closure certification acceptance from DTSC is anticipated prior to commencement of AES construction.
Corrective Action of former SCE hazardous constituent releases from solid waste management units and other areas of concern located upon the Project Site.	The DTSC is responsible for overseeing corrective action for hazardous substance releases at hazardous waste management facilities.	Solid waste management units requiring additional investigation or remediation are unlikely within the construction area for the Project Site.

In addition to the permits required for operation, the former generating plant operation requires closure of hazardous waste management units under RCRA and California regulations. Hazardous waste management units operated by SCE included a hazardous waste container storage area, a container crushing area, the East and West Basins, and several associated units including the oil/water separator, the demineralizer sump, the neutralizer sump, and ancillary piping and floor and yard drains associated with the wastewater treatment system. SCE is currently in the process of closing these units located

within the Project Site. SCE has conducted iterative investigations of these areas under DTSC's oversight and is in the process of completing a Closure Demonstration Report certifying clean closure of these units. Once accepted by DTSC, the report will undergo public comment and is expected to be formally approved by DTSC within the next few months. AES anticipates that these units within the Project Site will be closed prior to commencement of construction of the Highgrove Project.

The former SCE operations also trigger RCRA and California corrective action requirements pursuant to RCRA 3008(h) and California Health & Safety Code Sections 25187 and 25200.10. These provisions require assessment of other areas within the former SCE facility that may have released hazardous constituents to the environment. Areas determined to be impacted with hazardous contaminants above health-based levels may require mitigation to levels protective of future site uses. Based on a draft RCRA Facility Assessment (RFA) completed in 2001, the only solid waste management units or areas of concern (other than the units currently undergoing closure as discussed above) identified within the proposed Project Site area include the former 12,000-gallon acid and 2,500-gallon caustic tanks. The 12,000-gallon acid tank was removed from service in 1988 and the 2,500-gallon caustic tank was removed from the facility in 1996. Based on the existing site investigation data, it is unlikely additional investigation will be required in the area of the former acid and caustic tanks. The area of the former RCRA-exempt oil storage tanks located within the Project Site has been investigated thoroughly by SCE. It is expected that no further action will be required to investigate potential releases from this area.

### **8.13.11 References**

ARCADIS Geraghty & Miller, Inc. 2000. Phase I Environmental Site Assessment for EPTC Property at Former Highgrove Generating Station, March 3.

Berry, S. 2005. City Hall, City of Grand Terrace. Personal communication. March 1.

Bingham, K. 2005. County of San Bernardino Solid Waste Management Division. Personal communication. February 28.

Buoni, M. 2005. Clean Harbors Buttonwillow, California RCRA Hazardous Waste Disposal Site General Manager. Personal communication. March 4.

CIWMB. 2006a. "Solid Waste Information System (SWIS) Database."  
<http://www.ciwmb.ca.gov/SWIS/>. March 3.

CIWMB, 2006b. "2004 Landfill Summary Tonnage Report."  
<http://www.ciwmb.ca.gov/Landfills/Tonnages/>. March 3.

California Environmental Protection Agency, Department of Toxic Substance Control (DTSC). 2005. "California Commercial Offsite Hazardous Waste Management Facilities."  
<http://www.dtsc.ca.gov/HazardousWaste/index.html>. November 8.

County of San Bernardino Department of Public Works – Solid Waste Management Division. 2006. <http://www.sbcounty.gov/wsd/>.

DTSC. 1995. Stipulation and Order. February 1.

EPE&C Geotechnical Group. 1996. Baseline Tank Study Report, Above Ground Oil Storage Tanks 1, 2, 3 and Day Tanks 1 and 2, Highgrove Generating Station. February 19.

Geraghty & Miller, Inc. 1997. Highgrove Generating Station Phase II Environmental Site Assessment. June 6.

Golder Associates. 2001. RCRA Facility Assessment for Riverside Canal Power Company, September.

Golder Associates, Inc. 1999a. Soil Gas Sampling, West Retention Basin, Riverside Canal Power Company, Grand Terrace, California, November.

Golder Associates, Inc. 1999b. Phase II Environmental Site Assessment, Retention Basins. Riverside Canal Power Company, Grand Terrace, California. March.

Golder Associates, Inc. 1999c. Groundwater Assessment, Riverside Canal Power Company, Grand Terrace, California. January.

Golder Associates, Inc. 1998. Phase II Environmental Site Assessment Highgrove Generating Station. March.

Hamilton, P. 2004. Annual Groundwater Monitoring Report, Groundwater Detection Monitoring Program, Highgrove Generating Station, February 16.

Hamilton, P. 1997a. Leak Detection Investigation, Highgrove Generating Station. May 5.

Hamilton, P. 1997b. Sump Integrity Report. February 28.

Hurse, E. 2005. County of San Bernardino Solid Waste Management Division. Personal communication. March 1.

Palkiewicz, J. 2005. County of San Bernardino Fire Department, Station No. 23, Grand Terrace. Personal communication. April 12.

Sisto, L. 2005. Waste Management of the Inland Empire. Personal communication. February 22.

Southern California Edison Company (SEC). 2001. Final Remediation Report, Station Fuel Oil Facilities, Highgrove Tank Farm Decommissioning. April.

Valenzuela, C. 2005. County of San Bernardino Solid Waste Management Division. Personal communication. February 22.