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5.14 Waste Management

This section discusses the potential effects on human health and the environment from nonhazardous and hazardous waste generated at the Alamitos Energy Center (AEC) project. Section 5.14.1 describes the project, previous site investigations, and the waste and waste streams that would be generated by the project. Section 5.14.2 describes the project's environmental analysis in terms of waste and waste disposal sites. Section 5.14.3 discusses potential cumulative effects. Section 5.14.4 describes mitigation measures. Section 5.14.5 presents laws, ordinances, regulations, and standards (LORS) that apply to the generated waste. Section 5.14.6 describes agencies that have jurisdiction over the generated waste and specifies whom to contact in those agencies. Section 5.14.7 describes permits required for generated waste and a schedule for obtaining those permits, and Section 5.14.8 provides the references used to prepare this section.

5.14.1 Setting

AES Southland Development, LLC (AES-SLD) proposes to construct, own, and operate the AEC—a natural-gas-fired, air-cooled, combined-cycle, electrical generating facility in Long Beach, Los Angeles County, California. The proposed AEC will have a net generating capacity of 1,936 megawatts (MW) and gross generating capacity of 1,995 MW.[1] The AEC will replace and be constructed on the site of the existing Alamitos Generating Station.

The AEC will consist of four 3-on-1 combined-cycle gas turbine power blocks with twelve natural-gas-fired combustion turbine generators (CTG), twelve heat recovery steam generators (HRSG), four steam turbine generators (STG), four air-cooled condensers, and related ancillary equipment. The AEC will use air-cooled condensers for cooling, completely eliminating the existing ocean water once-through-cooling system. The AEC will use potable water provided by the City of Long Beach Water Department (LBWD) for construction, operational process, and sanitary uses but at substantially lower volumes than the existing Alamitos Generating Station has historically used. This water will be supplied through existing onsite potable water lines.

The AEC will interconnect to the existing Southern California Edison (SCE) 230-kilovolt switchyard adjacent to the north side of the property. Natural gas will be supplied to the AEC via the existing offsite 30-inch-diameter pipeline owned and operated by Southern California Gas Company that currently serves the Alamitos Generating Station. Existing water treatment facilities, emergency services, and administration and maintenance buildings will be reused for the AEC. The AEC will require relocation of the natural gas metering facilities and construction of a new natural gas compressor building within the existing Alamitos Generating Station site footprint. Stormwater will be discharged to two retention basins and then ultimately to the San Gabriel River via existing stormwater outfalls.

The AEC will include a new 1,000-foot process/sanitary wastewater pipeline to the first point of interconnection with the existing LBWD sewer system and will eliminate the current practice of treatment and discharge of process/sanitary wastewater to the San Gabriel River. The project may also require upgrading approximately 4,000 feet of the existing offsite LBWD sewer line downstream of the first point of interconnection, therefore, this possible offsite improvement to the LBWD system is also analyzed in this AFC. The total length of the new pipeline (1,000 feet) and the upgraded pipeline (4,000 feet) is approximately 5,000 feet.

To provide fast-starting and stopping, flexible generating resources, the AEC will be configured and deployed as a multi-stage generating (MSG) facility. The MSG configuration will allow the AEC to generate power across a wide and flexible operating range. The AEC can serve both peak and intermediate loads with the

[1] Referenced to site ambient average temperature conditions of 65.3 degrees Fahrenheit (°F) dry bulb and 62.7°F wet bulb temperature without evaporative cooler operation.

added capabilities of rapid startup, significant turndown capability (ability to turn down to a low load), and fast ramp rates (30 percent per minute when operating above minimum gas turbine turndown capacity). As California's intermittent renewable energy portfolio continues to grow, operating in either load following or partial shutdown mode will become necessary to maintain electrical grid reliability, thus placing an increased importance upon the rapid startup, high turndown, steep ramp rate, and superior heat rate of the MSG configuration employed at the AEC.

By using proven combined-cycle technology, the AEC can also run as a baseload facility, if needed, providing greater reliability to meet resource adequacy needs for the southern California electrical system. As an in-basin generating asset, the AEC will provide local generating capacity, voltage support, and reactive power that are essential for transmission system reliability. The AEC will be able to provide system stability by providing reactive power, voltage support, frequency stability, and rotating mass in the heart of the critical Western Los Angeles local reliability area. By being in the load center, the AEC also helps to avoid potential transmission line overloads and can provide reliable local energy supplies when electricity from more distant generating resources is unavailable.

The AEC's combustion turbines and associated equipment will include the use of best available control technology to limit emissions of criteria pollutants and hazardous air pollutants. By being able to deliver flexible operating characteristics across a wide range of generating capacity, at a relatively consistent and superior heat rate, the AEC will help lower the overall greenhouse gas emissions resulting from electrical generation in southern California and allow for smoother integration of intermittent renewable resources.

Existing Alamitos Generating Station Units 1–6 are currently in operation. All six operating units and retired Unit 7 will be demolished as part of the proposed project. Construction and demolition activities at the project site are anticipated to last 139 months, from first quarter 2016 until third quarter 2027. The project will commence with the demolition of retired Unit 7 and other ancillary structures to make room for the construction of AEC Blocks 1 and 2. The demolition of Unit 7 will commence in the first quarter of 2016. The construction of Block 1 is scheduled to commence in the third quarter of 2016 and construction of Block 2 is scheduled to commence in the fourth quarter of 2016. The demolition of existing Units 5 and 6 will make space for the construction of AEC Block 3. AEC Block 3 construction is scheduled to commence in the first quarter of 2020 and will be completed in the second quarter of 2022. The demolition of existing Units 3 and 4 will make space for the construction of AEC Block 4. AEC Block 4 construction is scheduled to commence in the second quarter of 2023 and will be completed in the fourth quarter of 2025. The demolition of remaining existing units is scheduled to commence in the third quarter of 2025.

Construction of the AEC will require the use of onsite laydown areas (approximately 8 acres dispersed throughout the existing site) and an approximately 10-acre laydown area located adjacent to the existing site. The adjacent 10-acre laydown area will be shared with another project being developed by the Applicant (Huntington Beach Energy Project [HBEP] 12-AFC-02). Due to the timing for commencement of construction for these two projects, the adjacent laydown area will already be in use for equipment storage before AEC construction begins.

Land use in the project vicinity (discussed in detail in Section 5.6, Land Use) is a mix of commercial, residential, and recreational development. The project site is bounded to the north by the SCE switchyard and State Route 22 (East 7th Street); to the east by the San Gabriel River and, beyond that, the Los Angeles Department of Water and Power Haynes Generating Station; to the south by the Plains West Coast Terminals petroleum storage facility and undeveloped property; and to the west by the Los Cerritos Channel, the former fuel oil tank farm for the Alamitos Generating Station (now owned by a third party), Alamitos Generating Station inlets, and residences.

The existing Alamitos Generating Station currently has six operating generating units (Units 1–6) that will be retired, decommissioned, and demolished as part of the project. Retired Unit 7 will also be demolished. The existing plant has various ancillary facilities that will be used to support the AEC, such as the administration, maintenance, and certain warehouse buildings; existing Southern California Gas Company natural gas

pipeline; City of Long Beach potable water connections; and the existing SCE switchyard. Other existing infrastructure at Alamitos Generating Station, such as the fire water distribution system, including two emergency electric driven fire water pumps, and the process water distribution and storage systems, will be re-used to the greatest extent possible.

Primary access to the project site will be provided via an existing entrance off of North Studebaker Road, just north of the intersection of Westminster Avenue and North Studebaker Road.

The nearest residence to the site is approximately 460 feet west, across Studebaker Road and Los Cerritos Channel in the University Park Estates. The residential Leisure World Retirement Community Seal Beach is located approximately 1 mile east-northeast of the site across the San Gabriel River. The nearest school to the project site is Rosie the Riveter Charter High, located on the Alamitos Generating Station property at 690 North Studebaker Road, Long Beach, California, 90803.

The nearest hospital is the Veterans Administration Long Beach Healthcare System at 5901 E 7th Street, Long Beach, California, 90822, located approximately 1 mile northwest of the project site. Saint Mary Medical Center, 1050 Linden Avenue, Long Beach, California, 90813, is the closest Level 1 Trauma Center and is approximately 5 miles west of the project site. The nearest long-term health care facility/senior facility is the Retirement Housing Foundation, approximately 1 mile north of the project site, at 911 North Studebaker Road, Long Beach, California, 90815.

5.14.1.1 Site Investigations

Investigations that have been undertaken at the project site include multiple Phase I Environmental Site Assessments (ESA).

The Alamitos Generating Station site currently consists of eight parcels of land totaling approximately 63 acres. The site comprises land identified by several parcel numbers; however, the northern portion of the site lies largely within parcel number 7237-018-808 and the southern portion of the site lies largely within parcel number 7237-019-808 (Environmental Management Strategies, Inc. [EMS], 2013).

5.14.1.1.1 Site History

The site is currently occupied by the existing and operating Alamitos Generating Station power plant. This power plant was formerly operated by SCE. The current Alamitos Generating Station is a natural-gas-fueled electrical power plant operated by the AES Corporation since 1998. SCE previously operated the plant using both natural gas and fuel oil until 1989 when fuel oil was permanently retired as a fuel source.

The site was previously vacant, undeveloped land possibly used for agricultural purposes prior to construction of the original electrical power generating station in the mid-1950s (EMS, 2013). The site includes underground fuel-oil pipelines and wastewater retention basins once operated by SCE. Subsurface investigations regarding former SCE operations are ongoing at the site (EMS, 2012).

The site partially surrounds a former aboveground storage tank (AST) farm referred to as the Tom Dean property in the Phase I ESAs. The Tom Dean property was also previously owned by Plains America. The Tom Dean and Plains America tank farms were once part of the power plant when SCE operated the plant using fuel oil (EMS, 2012).

5.14.1.1.2 Phase I Environmental Site Assessments

AES-SLD retained EMS to complete two Phase I ESAs in support of power development plans at the facility (EMS, 2012; 2013). AES-SLD retained EMS in October 2011 to perform a Phase I ESA for the site. Results of this investigation were presented in EMS's *Phase I Environmental Site Assessment, Alamitos Electrical Power Plant* (EMS, 2012). EMS was retained again in December 2012 to perform a second Phase I ESA in support of AES-SLD's application to the California Energy Commission (CEC) for upgrades to the current facility.

The purpose of the Phase I ESAs was to identify Recognized Environmental Conditions (REC) as defined by the U.S. Environmental Protection Agency's (EPA) Standards and Practices for All Appropriate Inquiries

(40 Code of Federal Regulations Part 312). The ESAs were conducted in accordance with methods prescribed by the American Society for Testing and Materials (ASTM) document entitled *Standard Practice for Environmental Site Assessments: Phase 1 Environmental Site Assessment Process* (Designation: E 1527-93, May 1993).

Previous Phase I ESA and portions of a Phase II ESA were conducted by CH2MHILL, Inc., during 1997. The results of these investigations are summarized in EMS' *Phase I Environmental Site Assessment, Alamitos Electrical Power Plant* (EMS, 2013).

The Phase I ESA reports concluded that a number of RECs, Historical Recognized Environmental Conditions, and De Minimis Conditions were present at the project site.

The following RECs were identified in the Phase I ESAs (EMS, 2012; 2013):

- Historical sources indicate the site may have been used for agriculture. Detectable levels of agricultural chemicals, such as fertilizers and pesticides, may be present in the subsurface. Generally, these chemicals would not be detected at concentrations that would present an environmental concern to the site unless a specific facility existed where these chemicals were used or handled in a manner that would result in the accumulation of higher concentrations. No such facility was identified on historical use sources with the following exceptions: Small structures that appear to be farm houses and associated outbuildings were observed in the general area of Units 3 and 4 prior to construction of the power plant in the 1960s. In the event soil becomes exposed in this area due to decommissioning of Units 3 and 4, EMS recommends sampling soils in this area for agricultural chemicals.
- The site was previously fueled by petroleum fuel oil. ASTs, previously associated with the site, are known to have impacted shallow soil with petroleum hydrocarbons. These ASTs are no longer part of the site; however, aboveground and underground fuel oil pipelines remain on the site.
- One large AST previously used to store jet fuel remains on the site. This was used to fuel jet engines formerly located in the Unit 7 peaker building; however, these jet engines were removed from the site. The tank is no longer used but may contain residual fuel and water. Jet fuel was transferred from the tank to the Unit 7 peaker building via underground pipelines.
- Groundwater underlying the site is known to be impacted by metals, volatile organic compounds (VOC) and 1,4-dioxane. Groundwater is monitored as part of ongoing subsurface investigations regarding previous SCE operations at the site including former operation of wastewater retention basins. These investigations are currently overseen by the California Department of Toxic Substance Control (DTSC).
- EMS did not observe any significant instances of the misuse or improper storage of chemicals or poor housekeeping during the site visits; therefore, the current use of nonhazardous and hazardous substances is not an environmental concern with the following exceptions: perchloroethene (PCE, also referred to as tetrachloroethene), trichloroethene (TCE) and 1,1,1-trichloroethane (TCA) were apparently used at the site. These halogenated solvents, and their breakdown products, have been detected in groundwater underlying the site.
- Several spills have been noted at the site. Most documented spills involved petroleum products and were immediately addressed and observed and/or reported to local agencies. Most of these spills appear to represent De Minimis Conditions in connection with the site. Oil spills were also reported in the pig launching area and a location where a pipeline crosses under the roadway near Units 5 and 6. These spills were reported to have been cleaned up; however, some contamination was noted to remain due to limited access. Staining was also previously noted in the power block areas and associated with fuel-oil handling equipment. Although the site is currently powered by natural gas, it is reasonable to assume that historical operations have resulted in spills of fuel oil in various areas of the site. Even if cleanup was performed at the time of the spill, it is reasonable to assume that residual contamination exists and may not be revealed until equipment is decommissioned and removed.

- Transformers are currently reported to use non-polychlorinated biphenyl (PCB) containing mineral oil; however, PCB-containing oil was used in the past.
- One underground storage tank (UST) is present at the site to store ammonia. The UST is a 20,000-gallon, double-walled UST and includes a monitoring system. Based on this information, this UST does not appear to pose an environmental concern to the site. Three other USTs, including a 550-gallon waste oil, 6,000-gallon diesel tank, and 6,000-gallon gasoline tank were reportedly installed in 1986 and removed in April 2003. A closure letter dated May 13, 2003, from the Long Beach/Signal Hill Joint Powers Agency confirmed the satisfactory removal of the three tanks and issued a "no further action" statement. Based on this information, these three former USTs represent a historical REC in connection with the site.
- Environmental Data Resources' (EDR) Historical UST (HIST UST) listing identified over 25 HIST UST records for the site. The installation dates range from 1956 to 1982 and the contents are reported as unleaded product, product, waste oil and waste. Some records may be duplicate records or refer to waste contained in below-grade oil/water separators and/or clarifiers; however, a total of eleven are identified as containing product and two contain waste oil.
- One inactive permit for a "Spray Booth, Paint and Solvent" was identified for the site and dated March 3, 1998. The location of the former spray booth is unknown.
- A trash dump that may include some asbestos waste is located in the southern portion of the South Retention Basin.
- There were no instances of offsite sources of groundwater contamination that are currently likely to have impacted the site based on available regulatory information and recent groundwater flow; however, the site is located in an area documented to have had commercial and industrial activities dating back several decades. The possibility exists that nearby historical activities and previous groundwater flow directions could have caused offsite migration onto the site in the past. Adjacent properties known or suspected of containing soil contamination include the adjacent ASTs formally associated with the site and now owned by Plains America and Tom Dean, the former hazardous waste site located at Loynes Drive and Studebaker Road to the northwest, and the Dredged Materials Area south of the site and east of the Plains America ASTs.
- Recent sampling performed in 2012 detected PCBs within wastewater contained in the North Retention Basin. The wastewater was removed and the solids were filtered, separated, and stored in bins for subsequent disposal as hazardous material. EMS was informed the PCBs were believed to have originated in contaminated oil from the Unit 7 peaker unit.
- Elevated levels of nickel were detected in monitoring well AW-33 near the Central Retention Basin. AES-SLD personnel were unsure of the source of the nickel, but indicated the source may be a corroded transfer line leading from the North Retention Basin that was found to be leaking. This pipeline was cut and replaced. EMS was previously informed that some nickel detected between the basins and the San Gabriel River channel may be from dredged materials. The elevated levels of nickel in monitoring well AW-33 may also be the result of these materials and a rising groundwater elevation.
- EMS was informed by SCE that the majority of additional soil and soil vapor investigation work, including soil matrix sampling along the fuel-oil pipelines, has been completed and that all work would be completed by the end of January 2013. EMS was also informed that formal reports would likely not be available for several months. SCE informed EMS that the soil vapor plume previously identified north of the Central Retention Basin appears limited in extent and significantly degraded, and that residual gasoline from the removed USTs was detected adjacent to the electrical building (former auto shop). The review of final investigation reports would be required for EMS to make a determination if these areas currently represent RECs, Historical Recognized Environmental Conditions, or De Minimis Conditions in connection with the site.

Although not considered RECs as defined by the EPA All Appropriate Inquiries rule and ASTM E 1527-05, EMS also noted the following potential environmental issues in its Phase I ESAs (EMS, 2012; 2013):

- The site buildings were constructed prior to 1980; therefore, asbestos-containing building materials and lead based paint may be present onsite.
- The presence of VOCs in soil and groundwater underlying the site represents a potential vapor intrusion issue in connection with the site.

The EMS Phase I ESA is provided as Appendix 5.14A.

5.14.1.2 Project Waste Generation

Wastewater, nonhazardous waste, and hazardous waste will be generated at the AEC site during construction and operation, as well as during demolition of the existing Alamitos Generating Station.

5.14.1.2.1 Demolition Phase

The following subsections describe the type and estimated amounts of wastes that will be generated from the demolition of the existing Alamitos Generating Station Units 1 through 7. Typical wastes generated during demolition are identified in Table 5.14-1. The overall strategy for demolition is to recycle/salvage as much of the existing generation units as is feasible and cost effective. Therefore, waste generation information presented in Table 5.14-1 represents a conservative estimate of the maximum expected values.

TABLE 5.14-1
Wastes Generated during Demolition

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Scrap wood, glass, plastic, paper, calcium silicate insulation, and mineral wool insulation	Demolition of Piping, Structure, tanks and equipment	General Construction waste	16,000 pounds per week (Dumpster)	Nonhazardous	Recycle and/or dispose of in a Class II or III landfill
Scrap Metals	Demolition of Piping and Structure	Metal	50,000 tons[a]	Nonhazardous	Recycle and/or dispose of in a Class III landfill
Concrete	Demolition	Concrete	3,750 tons	Nonhazardous	Recycle and/or dispose of in a Class III landfill
Asphalt	Demolition of roads and berms	Hydrocarbons	150 tons	Nonhazardous	Recycle and/or dispose of in a Class III landfill
Spent welding and cutting materials	Construction	Solid	100 pounds per month	Nonhazardous	Recycle with vendors or Dispose at a Class I landfill if hazardous
Waste oil filters	Construction equipment and vehicles	Solids	200 pounds per month	Nonhazardous	Recycle at a permitted TSDF
Used and waste lube oil	Turbine lube oil draining	Hydrocarbons	900 drums	Hazardous	Recycle at a permitted TSDF
Oily rags, oil sorbent excluding lube oil flushes	Cleanup of small spills	Hydrocarbons	100 pounds per month	Hazardous	Recycle or dispose at a permitted TSDF

TABLE 5.14-1
Wastes Generated during Demolition

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Residual fuel oil from decommissioned storage tanks and piping	Demolition	Hydrocarbons	1,500 gallons	Hazardous	Recycle at a permitted TSDF
Spent lead acid batteries	Construction equipment, trucks.	Heavy metals	5 batteries per year	Hazardous	Store no more than 10 batteries (up to one year) then recycle offsite
Spent alkaline batteries	Equipment	Metals	10 batteries per month	Universal Waste solids	Recycle or dispose offsite at an Universal Waste Destination Facility
Asbestos waste	Demolition of unabated areas in old plant	Asbestos	Minimum of 3,000 tons[b]	Hazardous	Disposal in licensed and permitted landfill
Waste oil	Equipment, vehicles	Hydrocarbons	40 gallons per month	Non-RCRA Hazardous Liquid	Dispose at a permitted TSDF
Sanitary waste	Portable toilet holding tanks	Sewage	1,000 gallons per day	Nonhazardous Liquid	Remove by contracted sanitary service
Storm water	Rainfall	Water	17.9 acre-feet (from 10-year storm event)[c]	Nonhazardous Liquid	Discharge to storm water drain
Fluorescent, mercury vapor lamps	Lighting	Metals and PCBs	100 pounds per year	Universal Waste solids	Recycle or dispose offsite at an Universal Waste Destination Facility

[a]85% is ferrous material and 15% is copper-based or alloy materials
[b]Includes water as part of the asbestos containing material weight
[c]Calculated from *Orange County Hydrology Manual* for 10-year storm event

RCRA = Resource Conservation and Recovery Act
TSDF = treatment, storage, and disposal facility

Nonhazardous Waste

The following nonhazardous waste is expected to be generated during demolition of the existing Alamitos Generating Station:

- Mixed nonhazardous wastes, including debris that has wood, metal, or other nonhazardous material attached to it in a manner that is not economical for separation for recycling purposes
- Plastics from cleaned piping, equipment, and utilities that have been classified as nonhazardous
- Electrical equipment that has been classified as nonhazardous and cannot be salvaged
- Duct work or other ventilation material that is determined to be non-recyclable and that has been classified as nonhazardous
- General waste that has been classified as nonhazardous

All nonhazardous material will be stockpiled in a location that is removed from other site activities and easily accessible. The waste will be stored in a manner that will not allow surface water to move through the

waste and into nearby areas. A Stormwater Pollution Prevention Plan (SWPPP) will be prepared for the management of stormwater during construction and demolition activities, as described in Section 5.15, Water Resources.

Hazardous Waste

The following hazardous waste is expected to be generated during the Alamitos Generating Station demolition activities:

- Asbestos waste, potentially friable, from demolition of unabated areas in old plant.
- Electrical equipment that has been classified as hazardous and cannot be salvaged.
- Used oils removed from equipment.
- Various universal wastes (for example, fluorescent light tubes).
- Lead-acid storage batteries.

The waste will be temporarily stored in containers (drums, roll-off boxes, etc.) pending characterization for waste profiling. The SWPPP will address the engineering controls that will be required for management of stormwater during demolition activities. A Construction Waste Management Plan will be prepared to describe procedures that will be used during demolition and construction activities.

Recyclable Material

It is estimated that 3,750 tons of recyclable concrete and 150 tons of asphalt will be generated from partial removal of roadways and existing foundations and that 50,000 tons of metal will also be recycled. The metal consists of fencing, tanks, support beams, piping, miscellaneous building materials, equipment, and components. Additionally, plastic, electrical components, and other miscellaneous materials will be recycled when practical. A waste minimization program will be established to recycle and reuse as much of the demolition materials as economically and practically possible.

5.14.1.2.2 Construction Phase

During construction, the primary waste generated will be nonhazardous waste. However, some hazardous waste will also be generated. All of the hazardous wastes will be generated at the plant site. The types of waste and their estimated quantities are described in the following discussion. Typical wastes generated during project construction are identified in Table 5.14-2.

TABLE 5.14-2
Wastes Generated during Construction

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Scrap wood, glass, plastic, paper, calcium silicate insulation, and mineral wool insulation	Construction	Normal refuse	8,000 pounds per month (Dumpster)	Nonhazardous	Recycle and/or dispose of in a Class II or III landfill
Scrap Metals	Construction	Parts, containers	1,000 pounds per month	Nonhazardous	Recycle and/or dispose of in a Class III landfill
Concrete	Construction	Concrete	200 tons[a] during construction	Nonhazardous	Recycle and/or dispose of in a Class III landfill
Empty liquid material containers	Construction	Drums, containers, totes	400 containers[b]	Nonhazardous solids	Containers <5 gallons will be disposed as normal refuse. Containers >5 gallons will be returned to vendors for recycling or reconditioning.

TABLE 5.14-2
Wastes Generated during Construction

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Spent welding materials, i.e. welding rods	Construction	Solid	150 pounds per month	Nonhazardous	Recycle with vendors or dispose at a Class I landfill if hazardous
Waste oil filters	Construction equipment and vehicles	Solids	150 pounds per month[c]	Nonhazardous	Recycle at a permitted TSDF
Used and waste lube oil	CTG and STG lube oil flushes	Hydrocarbons	730 drums[d] (life of project construction)	Hazardous	Recycle at a permitted TSDF
Oily rags, oil sorbent excluding lube oil flushes	Cleanup of small spills	Hydrocarbons	150 pounds per month	Hazardous	Recycle or dispose at a permitted TSDF
Solvents, paint, adhesives	Maintenance	Varies	180 pounds per month	Hazardous	Recycle at a permitted TSDF
Spent lead acid batteries	Construction equipment, trucks.	Heavy metals	5 batteries per year	Hazardous	Store no more than 10 batteries (up to one year) then recycle offsite
Spent alkaline batteries	Equipment	Metals	10 batteries per month	Universal Waste solids	Recycle or dispose offsite at an Universal Waste Destination Facility
Steam turbine cleaning waste	Pre-boiler piping	Corrosive cleaning chemicals	400 gallons before plant startup	Hazardous or nonhazardous liquid	Dispose at a permitted TSDF
Waste oil	Equipment, vehicles	Hydrocarbons	40 gallons per month	Non-RCRA Hazardous Liquid	Dispose at a permitted TSDF
Sanitary waste	Portable toilet holding tanks	Sewage	1,500 gallons per day	Nonhazardous Liquid	Remove by contracted sanitary service
Stormwater	Rainfall	Water	17.9 acre-feet[e] (from 10-year storm event)	Nonhazardous Liquid	Discharge to existing permitted outfalls
Fluorescent, mercury vapor lamps	Lighting	Metals and PCBs	100 pounds per year	Universal Waste solids	Recycle or dispose offsite at an Universal Waste Destination Facility
Passivating and chemical cleaning fluid waste	Pipe cleaning and flushing	Varies	1,200,000 gallons[f] (life of project construction)	Hazardous or nonhazardous liquid	Sample and characterize – if clean, dispose of in sanitary sewer; otherwise, manage appropriately offsite
Hydrotest water	Testing equipment and piping integrity	Water	600,000 gallons (life of project construction)	Hazardous or nonhazardous liquid	Sample and characterize – if clean, dispose of in storm drain; otherwise, manage appropriately offsite

[a]30 cubic yards
[b]Containers include <5-gallon containers and 55-gallon drums or totes
[c]Assumes one oil change
[d]Assumes 2,500 gallons for each generator times 16 units
[e]Calculated from *Orange County Hydrology Manual* for 10-year storm event
[f]Estimated quantity for clean, flush, and rinse of 12 HRSGs

Nonhazardous Solid Waste

The following nonhazardous waste streams potentially could be generated from construction of the generating facility and the electric transmission line:

- **Paper, wood, glass, and plastics.** Approximately 550 tons of paper, wood, glass, and plastics will be generated from packing materials, waste lumber, insulation, and empty nonhazardous chemical containers 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.
- **Metal.** Approximately 70 tons of metal including steel (from welding and cutting operations, packing materials, and empty nonhazardous chemical containers) and aluminum waste (from packing materials and electrical wiring) will be generated during construction. Waste will be recycled, where practical, and non-recyclable waste will be deposited in a Class III landfill.

Wastewater

Wastewater generated during construction will include sanitary waste, stormwater runoff, equipment washdown water, and water from excavation dewatering during construction (if dewatering is required). Depending on the chemical quality of these wastewaters, they could be classified as hazardous or nonhazardous. As discussed, wastewater would be sampled and if found hazardous would be disposed of consistent with applicable LORS. Methods for disposing of nonhazardous wastewaters are identified in Section 5.14.4.1.1.

Hazardous Waste

Most of the hazardous waste generated during construction will consist of water from excavation dewatering (if it contains contaminants), flushing and cleaning fluids, passivating fluid (to prepare pipes for use), and solvents. Other hazardous waste, such as welding materials and dried paint, also may be generated during construction; however, the quantity of welding, solvent, and paint waste is expected to be minimal.

When pipes are cleaned and flushed, waste will be generated. The volume of flushing and cleaning waste generated is estimated to be one to two times the internal volume of the pipes cleaned. Wastewaters generated during construction could also be considered hazardous, if demonstrated to be so by sampling. Methods for recycling and disposal of hazardous wastes during construction are described in Section 5.14.4.1.2.

5.14.1.2.3 Operation Phase

During AEC operation, the primary waste generated will be nonhazardous waste. However, varying quantities of hazardous waste also will be generated periodically. The types of wastes and their estimated quantities are discussed below.

Nonhazardous Waste

The AEC will produce wastes typical of power generation facility operations and maintenance activities. These 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 wastes. The quantity of all nonhazardous waste generated during operations is estimated to be about 50 cubic yards per year (approximately 35 tons per year). Large metal parts will be recycled.

Nonhazardous Wastewater

The water balance schematic diagrams, provided in Section 2.0, Figures 2.1-5a through 2.1-5c, illustrate the expected waste streams and Table 2.1-2 lists waste stream flow rates. The wastewater collection system will collect sanitary wastewater from sinks, toilets, and other sanitary facilities.

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 will be routed to the facility's concrete-lined wastewater sump. Water from this sump will be sampled and analyzed at an approved lab. If contamination is present, the water will be trucked offsite for disposal at an approved wastewater disposal facility. If sampling results show no contamination, the water will be discharged to the stormwater drainage system. The AEC will connect into the exiting onsite stormwater system that includes two re-contoured retention basins, with ultimate disposal to the San Gabriel River via existing permitted outfalls.

Process wastewater will be conveyed to the Sanitation Districts of Los Angeles County via a new proposed sewer line interconnection to the LBWD.

Hazardous Waste

Hazardous waste generated will include waste lubricating oil, used oil filters from turbine equipment, spent catalysts, and chemical cleaning wastes. The catalyst units will contain heavy metals that are considered hazardous. Chemical cleaning wastes, which consist of alkaline and acidic cleaning solutions, will be generated from periodic pipe cleaning. These wastes may 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. Water collected will be sampled and, if it is not contaminated, released. The quantity of this effluent is expected to be minimal.

Hazardous wastes that potentially will be generated during operations at the facility are summarized in Table 5.14-3.

TABLE 5.14-3
Hazardous Wastes Generated during Operations

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Lubricating oil/oil sorbents	Small leaks and spills from the gas turbine lubricating oil system	Hydrocarbons	1,400 pounds per 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	2,000 pounds per year	Hazardous	Recycled by certified oil recycler
Lubricating oil	Maintenance of CTG and STG equipment	Hydrocarbons	1,000 pounds per year	Hazardous	Recycled by certified oil recycler
Solvents, paint, adhesives	Maintenance	Varies	400 pounds per month	Hazardous	Recycle at a permitted TSDF
Laboratory analysis waste	Water treatment	Waste reagents/ laboratory chemicals	100 gallons per year	Hazardous	Recycled by certified recycler

TABLE 5.14-3
Hazardous Wastes Generated during Operations

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Selective catalytic reduction (SCR) catalyst units	SCR system (Warranty is 3 years; use tends to be 3 to 5 years)	Metal and heavy metals, including vanadium	120 to 140 tons every 3 to 5 years	Hazardous	Recycled by SCR manufacturer or disposed of in Class I landfill
Carbon monoxide catalyst units	HRSG (Use tends to be 3 to 5 years)	Metal and heavy metals, including vanadium	13 to 14 tons every 3 to 5 years	Hazardous	Recycled by manufacturer
Spent lead acid batteries	Electrical room, equipment	Metals	10 batteries per year	Hazardous	Store no more than 10 batteries (up to one year) then recycle offsite
Spent alkaline batteries	Equipment	Metals	100 pounds per year	Universal waste solids	Recycle or dispose offsite at an Universal Waste Destination Facility
Fluorescent tubes	Lighting of maintenance areas	Metals	100 pounds per year	Universal waste solids	Recycle or dispose offsite at an Universal Waste Destination Facility
Electronic Components	Distributed control system, plant computers, instruments	Metals	100 pounds per year	Universal Waste Solids	Recycle with an approved facility
Oily rags	Maintenance, wipe down of equipment, etc.	Hydrocarbons, cloth	600 pounds per year (~1,600 rags per year)	Hazardous	Recycled by certified oil recycler
Chemical feed area drainage	Spillage, tank overflow, area washdown water	Water with water treatment chemicals	Minimal	May be hazardous if corrosive	Discharged to sewer if nonhazardous; shipped offsite for disposal if hazardous

5.14.2 Environmental Analysis

5.14.2.1 Significance Criteria

Appendix G of the California Environmental Quality Act (CEQA) is a screening tool, not a method for setting thresholds of significance. Appendix G is typically used in the Initial Study phase of the CEQA process, asking a series of questions. The purpose of these questions is to make a determination as to whether a project requires an Environmental Impact Report, a Mitigated Negative Declaration, or a Negative Declaration. As the Governor's Office of Planning and Research stated, "Appendix G of the Guidelines lists a variety of potentially significant effects, but does not provide a means of judging whether they are indeed significant in a given set of circumstances." The answers to the Appendix G questions are not determinative of whether an impact is significant or less than significant. Nevertheless, the questions presented in CEQA Appendix G are instructive.

In terms of Waste Management, Appendix G, asks, in part, whether the project would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? (Appendix G, Section VIII(a).)[2]
- Be located on a site that is included on a list of hazardous materials sites (Cortese List) compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment. (Appendix G, Section VIII(d).)
- Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? (Appendix G, Section XVII(f).)
- Comply with federal, state, and local statutes and regulations related to solid waste? (Appendix G, Section XVII(g).)

5.14.2.2 Cortese List

An examination of the DTSC Hazardous Waste and Substances Site List (Cortese List) compiled pursuant to Government Code Section 65962.5 shows that 60 of the 1,441 sites currently listed for Los Angeles County are located within the city limits of Long Beach (DTSC, 2013a).

Of the 60 sites, the closest listing to the AEC is approximately 4 miles away. The Industrial Zinc Plating Company, located at 3200 East 29th Street, Long Beach, California, 90806, is listed as a tiered permit site undergoing corrective action (DTSC, 2013a).

The approximately 63-acre project site itself is located on a Cortese-listed site for the SCE Alamitos Generating Station and is listed in a corrective action status with voluntary cleanup ongoing (DTSC, 2013a). Numerous site investigations have been completed and corrective action and site cleanup are under way on the affected parcels related to the former SCE Alamitos Generating Station. Site history and site investigations related to the SCE Alamitos Generating Station are discussed in Section 5.14.1.1.

Although the site is currently undergoing an active site cleanup under jurisdiction of the DTSC, it is highly unlikely that any impacts will result from Cortese-listed properties, nor will the AEC present a significant hazard to the public or the environment after implementation of proposed mitigation.

5.14.2.3 Solid Waste Disposal

Nonhazardous waste (often referred to as municipal waste, or garbage) will be recycled or deposited in a Class III landfill. Hazardous wastes will be delivered to a permitted offsite TSDF for treatment or recycling, or will be deposited in a permitted Class I landfill. The following sections describe the waste disposal sites feasible for disposal of AEC wastes.

5.14.2.3.1 Nonhazardous Waste

Approximately 550 tons of nonhazardous waste will be generated during AEC construction, and nonhazardous waste will continue to be generated during its operation. Approximately 55,015 tons of nonhazardous waste will be generated during the demolition of the Alamitos Generating Station facilities and the majority of this material will be recycled. It is estimated that 3,750 tons of concrete, 150 tons of asphalt, and 50,000 tons of metal will be recycled during demolition of the existing Units 1–7. Other nonhazardous wastes will be recycled to the extent possible, and what cannot be recycled will be disposed of at a permitted landfill as discussed below.

It is anticipated that all excavated soil will be used onsite for grading and leveling purposes. In the event that some excavated soil is not reused onsite, it would be classified for disposal on the basis of sampling. Soil

[2] The risks or hazards posed by the transportation of hazardous materials, including hazardous wastes, are described and analyzed in Section 5.5, Hazardous Materials Handling.

determined to be nonhazardous could be suitable for reuse at a construction site or disposal at a regional disposal facility, depending on the chemical quality.

Universal Waste Systems, Inc., is contracted as the primary hauler for solid waste from the project site, providing residential and commercial waste and recycling services, including waste hauling for the AEC (City of Long Beach Department of Public Works, 2013), and is expected to be the hauler, although other similarly qualified vendors are available.

The primary disposal facility for the AEC is the Bel-Art Waste Transfer Station, located approximately 12 miles from the AEC site at 2501 East 68th Street, Long Beach, California, 90805. It is permitted as a large-volume transfer and processing facility, comprising 3.2 acres and accepting mixed municipal waste, construction and demolition waste, green materials, and inert wastes. The waste is processed and then transported to one of the area landfills for disposal (CalRecycle, 2013a). The Savage Canyon Landfill and Puente Hills Landfill are the nearest landfills that may be used to handle the AEC's solid waste and recycling (County of Los Angeles Department of Public Works, 2013). The Bel-Art Waste Transfer Station, Savage Canyon Landfill, and Puente Hills Landfill have adequate capacity to handle and process solid waste generated by the AEC, as shown in Table 5.14-4.

The Savage Canyon Landfill is located at 13919 East Penn Street, Whittier, California, 90602. As an active solid waste landfill, Savage Canyon accepts mixed municipal, construction and demolition debris, industrial waste, green materials, and inert wastes. The disposal area currently covers 132 acres (CalRecycle, 2013a). Savage Canyon Landfill had one violation related to operator compliance with terms and conditions in 2009, six violations for gas monitoring and control and operator compliance with terms and conditions in 2010, and eight violations in 2011 for operator compliance with terms and conditions (CalRecycle, 2013a).

The Puente Hills Landfill is located at 13130 Crossroads Parkway South, Industry, California, 91746. As an active solid waste landfill, Puente Hills accepts mixed municipal waste, construction and demolition debris, industrial waste, agriculture, ash, sludge (biosolids), and tires. The disposal area currently covers 433 acres, and the entire facility comprises 1,365 acres (CalRecycle, 2013a). No violations were reported for Puente Hills Landfill.

TABLE 5.14-4
Solid Waste Disposal Facilities in the Vicinity of the AEC

Landfill/ Transfer Station	Location	Class	Permitted Capacity[a] (cubic yards)	Remaining Capacity[a] (cubic yards)	Permitted Throughput[a] (tons per day)	Estimated Closure Date[a]	Violation of Minimum State Standards Noted[a]
Savage Canyon Landfill	Whittier, CA	III	14,947,962	9,519,240	350	12/31/2048	Yes[b]
Puente Hills Landfill	Industry, CA	III	74,000,000	35,200,000	13,200	10/31/2043	No
Bel-Art Waste Transfer Station	Long Beach, CA	NA	NA	NA	1,500	Not Listed	No

[a]As of December 2010, based on CalRecycle Solid Waste Information System Database (CalRecycle, 2013a). Violations checked for 2009–2012.

[b]One violation in 2009 for Operator Compliance with Terms and Conditions. Violations in 2010 for Gas Monitoring and Control and Operator Compliance with Terms and Conditions. Violations in 2011 for Operator Compliance with Terms and Conditions.

NA = not applicable

It is anticipated that any excavated soil will be used onsite for grading and leveling purposes. In the event that some excavated soil is not reused onsite, it would be classified for disposal on the basis of sampling. Soil determined to be nonhazardous could be suitable for reuse at a construction site or disposal at a regional disposal facility.

According to CalRecycle and as shown in Table 5.14-4, the combined capacity of the Savage Canyon and Puente Hills landfills is more than 89 million cubic yards of refuse and the estimated combined remaining capacity of approximately 44.5 million cubic yards of refuse. Adequate landfill capacity exists; therefore, disposal of nonhazardous waste will not be a constraint on development of the AEC. Impacts related to landfill capacity will be less than significant.

5.14.2.3.2 Hazardous Waste

Hazardous waste generated during AEC operation will be stored at the facility for less than 90 days. The waste will then be transported to a TSDF by a permitted hazardous waste transporter. According to DTSC, there are 56 facilities in California that can accept hazardous waste for treatment and recycling (DTSC, 2013b). For ultimate disposal, California has three hazardous waste (Class I) landfills. The closest commercial hazardous waste disposal facility to the AEC is Waste Management's Kettleman Hills Landfill.

Waste Management Kettleman Hills Landfill

This facility accepts Class I and II waste. The B-18 landfill is permitted for and will accept all hazardous wastes except radioactive, medical, and unexploded ordnance. Currently, B-18 landfill phase 1 and 2 are in operation with a permitted capacity of 10.7 million cubic yards. B-18 phase 1 and 2 are near capacity, but B-18 phase 3 will be opening with a permitted capacity of approximately 5 million cubic yards and a life expectancy of 8 years (Henry, 2012). After B-18 closes, a new B-20 landfill will be opened on currently undeveloped land on the site. B-20 has a permitted capacity of 15 million cubic yards and a life expectancy of 24 years (Henry, 2012). As a whole, Kettleman Hills Landfill will be accepting waste for the next 32 years, until 2044. However, they are continuously searching for more expansion opportunities (Henry, 2012).

Clean Harbors Buttonwillow Landfill

This landfill is permitted at 13.1 million cubic yards and can accept 4,050 tons per day (Linton, 2012). As of January 2012, it is approximately 2 percent full (Linton, 2012). The landfill is permitted to accept waste until 2040 (CalRecycle, 2013a). Buttonwillow has been permitted to manage a wide range of hazardous wastes, including RCRA hazardous wastes, California hazardous waste, and nonhazardous waste for stabilization treatment, solidification, and landfill. The landfill can handle waste in bulk (solids and liquids) and in containers. Typical waste streams include nonhazardous soil, California hazardous soil, hazardous soil for direct landfill, hazardous waste for treatment of metals, plating waste, hazardous and nonhazardous liquid, and debris for microencapsulation (Clean Harbors, 2013).

Clean Harbors Westmoreland Landfill

This facility is not currently open or accepting waste because the Buttonwillow facility can accommodate the current hazardous waste generation rate. The facility is, however, available in reserve and could be reopened if necessary. The landfill's conditional use permit prohibits the acceptance of some types of waste, including radioactive (except geothermal) waste, flammables, biological hazard waste (medical), PCBs, dioxins, air- and water-reactive wastes, and strong oxidizers.

Additional Facilities

In addition to hazardous waste landfills, there are numerous offsite commercial hazardous waste treatment and recycling facilities in California. Some of the facilities currently used by the Alamitos Generating Station include Crosby & Overton in Long Beach, Demenno/Kerdoone in Compton, Filter Recycling Services Inc. in Bloomington, Pacific Resource Recovery in Los Angeles, and Siemens Water Technologies in Vernon. All hazardous waste not treated or recycled by these facilities would then be transported to one of the permitted hazardous waste landfills previously discussed.

5.14.2.4 Waste Disposal Summary

The AEC will generate nonhazardous waste that will add to the total waste generated in Los Angeles County and in California. However, there is adequate recycling and landfill capacity in California to recycle and dispose of the waste generated by the AEC. It is estimated that demolition of the Alamitos Generating Station Units 1-7 will generate approximately 58,015 tons of solid waste (including approximately 3,000 tons of hazardous waste). During construction of the AEC approximately 620 tons of solid waste will be generated (including approximately 3 tons of hazardous waste) and the AEC operation will generate about 35 tons per year. Considering that the majority of the demolition waste will be recycled and that 6.4 million tons of solid waste were landfilled in Los Angeles County in the year 2012, the AEC's contribution will likely represent approximately 1 percent of the county's total waste generation (CalRecycle, 2013b). Therefore, the impact of the project on solid waste recycling and disposal capacity will not be significant.

Hazardous waste generated will consist of asbestos materials, waste oil, filters, oily rags, SCR and oxidation catalysts, and fluids used to clean piping. The waste oil and catalysts will be recycled. Hazardous waste treatment and disposal capacity in California is more than adequate. Therefore, the effect of the AEC on hazardous waste recycling, treatment, and disposal capability will not be significant.

5.14.3 Cumulative Effects

A cumulative impact refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project (Public Resources Code § 21083; California Code of Regulations, Title 14, §§15064(h), 15065(c), 15130, and 15355).

The quantities of nonhazardous and hazardous wastes that would be generated during AEC construction and operation would be relatively low: an estimated 58,015 tons of solid waste during demolition of Alamitos Generating Station Units 1–7, approximately 620 tons of solid waste during construction, and approximately 35 tons per year from AEC operations. Recycling efforts would be prioritized wherever practical, and capacity is available in a variety of treatment and disposal facilities. The majority of the demolition waste will be recycled. Sufficient landfill capacity is available in the project area. Therefore, the added waste quantities generated by the AEC would not result in significant cumulative waste management impacts.

5.14.4 Mitigation and Waste Management Methods

The handling and management of waste generated by the AEC 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 (for example, high-efficiency cleaning methods). The next level of waste management will involve reusing or recycling wastes (for example, used oil recycling). For wastes that cannot be recycled, treatment will be used, if possible, to make the waste nonhazardous (for example, neutralization). Finally, offsite disposal will be used for residual wastes that cannot be reused, recycled, or treated.

The following sections present methods for managing nonhazardous and hazardous waste generated by the AEC.

5.14.4.1 Construction and Demolition Phase

Handling requirements and mitigation measures for the handling of wastes during construction and demolition are described in the following sections.

5.14.4.1.1 Nonhazardous Wastes

Nonhazardous waste generated during construction and demolition will be collected in onsite dumpsters and picked up periodically by Universal Waste Systems, Inc., or other similarly qualified vendor. The waste then will be taken to the Bel-Art Waste Transfer Station, Savage Canyon Landfill, Puente Hills Landfill, or another local landfill. Recyclable materials can be segregated and transported by construction contractors or

other private haulers to an area recycling facility. Vendors like Universal Waste Systems, Inc., can provide drop boxes or debris boxes for large quantities of recyclables.

Wastewater generated during construction and demolition will include sanitary waste and could include excavation dewatering water, equipment washwater, and stormwater runoff. Sanitary waste will be collected in portable, self-contained toilets. Excavation dewatering water will be contained in portable tanks and sampled prior to offsite disposal. 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 before construction starts. Nonhazardous wastewater generation will be minimized by water conservation and reuse measures.

5.14.4.1.2 Hazardous Wastes

Most hazardous waste generated during construction and demolition will consist of excavation dewatering water, flushing and cleaning fluids, passivating fluids, and solvents. The exception will be a significant amount of asbestos waste from demolition of unabated areas during demolition activities. The total tonnage of asbestos waste generated by demolition of the Alamitos Generating Station Units 1–7 is expected to be approximately 3,000 tons. Some waste in the form of welding materials and dried paint also may be generated. Nonhazardous materials will be used whenever possible to minimize the quantity of hazardous waste generated. The construction and demolition contractor will be the generator of hazardous construction and demolition 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 before expiration of the 90-day storage limit.

5.14.4.2 Operation Phase

Handling requirements and mitigation measures for the handling of wastes during operation are described in the following sections.

5.14.4.2.1 Nonhazardous Wastes

Wastewater from sinks, toilets, and showers will be disposed of to the sanitary sewer.

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

5.14.4.2.2 Hazardous Wastes

To avoid the potential effects on human health and the environment from handling and disposing 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 Alamitos Generating Station is currently classified as a hazardous waste generator and will continue to use the site-specific EPA identification number that will be used to manifest hazardous waste from the AEC. Hazardous waste from the AEC will be stored onsite for less than 90 days before offsite disposal, treatment, or recycling.
- Hazardous wastes will be accumulated at the generating facility according to the California Code of Regulations Title 22 requirements for satellite accumulation.

- 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, will be sized for an additional 20 percent to allow for rainfall, for a 24-hour event. These areas will be inspected daily.
- Hazardous wastes will be collected by a licensed hazardous waste hauler using a hazardous waste manifest. Wastes will be shipped only to authorized hazardous waste management facilities. Biannual hazardous waste generator reports will be prepared and submitted to the DTSC. Copies of manifests, reports, waste analyses, and other documents will be kept onsite and will 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 practical, and wastes will be recycled whenever practical.

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 Evergreen Oil, Inc.
- 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 by the supplier in a Class I landfill.

5.14.4.3 Facility Closure

When the AEC is closed, both nonhazardous and hazardous wastes must be handled properly according to applicable LORS. Closure can be temporary or permanent. Temporary closure would be for a period greater than the time required for normal maintenance, including overhaul or replacement of the combustion turbines. Causes for temporary closure could be a disruption in the supply of natural gas, or damage to the plant from earthquake, fire, or other natural causes. Permanent closure would consist of a cessation in operations with no intent to restart operations and could result from factors such as the age of the plant, damage to the plant, or other currently unforeseeable reasons. Handling of wastes for these two types of closure are discussed below.

5.14.4.3.1 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 as described in the plant closure section. 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 Section 5.14.5.

If 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. 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.

5.14.4.3.2 Permanent Closure

The expected life of the generation facility is 30 years, although 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 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 AEC decommissioning activities.

5.14.4.3.3 Monitoring

Because the environmental impacts caused by demolition, 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 demolition, construction, and operation in accordance with the monitoring and reporting requirements mandated by the regulatory permits to be obtained for demolition, construction, and operation.

5.14.5 Laws, Ordinances, Regulations, and Standards

Nonhazardous and hazardous waste handling at the AEC will be governed by applicable federal, state, and local LORS. Applicable LORS address proper waste handling, storage, and disposal practices to protect the environment, facility workers, and the surrounding community. Table 5.14-5 presents a summary of the LORS applicable to waste handling at the AEC.

TABLE 5.14-5
Laws, Ordinances, Regulations, and Standards for Waste Management

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
Federal			
RCRA Subtitle D	Regulates design and operation of nonhazardous solid waste landfills. The AEC solid waste will be collected and disposed of by a collection company in conformance with Subtitle D.	Department of Resources Recycling and Recovery (CalRecycle)	Sections 5.14.5.1, 5.14.4.1, 5.14.4.2.1, 5.14.1.2.2
RCRA Subtitle C	Controls storage, treatment, and disposal of hazardous waste. Hazardous waste will be handled by contractors in conformance with Subtitle C.	DTSC	Sections 5.14.5.1, 5.14.4.1.2, 5.14.4.2.2, 5.14.1.2.2
Clean Water Act	Controls discharge of wastewater to the surface waters of the United States.	Regional Water Quality Control Board	Sections 5.14.5.1, 5.14.4.1.1, 5.14.4.2.1
State			
California Integrated Waste Management Act (CIWMA)	Controls solid waste collectors, recyclers, and depositors. The AEC solid waste will be collected and disposed of by a collection company in conformance with the CIWMA.	CalRecycle	Sections 5.14.5.2, 5.14.4.1, 5.14.4.2.1, 5.14.1.2.2
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.	DTSC	Sections 5.14.5.2, 5.14.4.1.2, 5.14.4.2.2, 5.14.1.2.2
Porter-Cologne Water Quality Control Act	Controls discharge of wastewater to surface waters and groundwaters of California.	Regional Water Quality Control Board	Sections 5.14.5.2, 5.14.4.1.1, 5.14.4.2.1

TABLE 5.14-5
Laws, Ordinances, Regulations, and Standards for Waste Management

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
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 City of Long Beach Fire Department.	City of Long Beach Fire Department	Section 5.14.7, 5.14.5.4, 5.14.4.2.2
Local			
City of Long Beach Municipal Code Chapter 18.97, Ordinance Number ORD-07-002	Construction and demolition recycling program and waste management plan for the City of Long Beach. The program requires that at least 60% of all material generated on a project must be diverted and a Waste Management Plan submitted.	City of Long Beach Development Services	Section 5.14.6.3
City of Long Beach Integrated Waste Management Plan	Provides guidance for local management of solid waste and household hazardous waste. Waste will be recycled in a manner consistent with applicable LORS.	City of Long Beach Department of Public Works Environmental Services Bureau	Section 5.14.6, 5.14.7, 5.14.5.3, 5.14.4.2.2
City of Long Beach Department of Health and Human Services, Environmental Health Bureau Hazardous Materials Programs, various programs	Long Beach Environmental Health Bureau (designated Certified Unified Program Agency (CUPA) and the City of Long Beach Fire Department (designated Participating Agency) for the City of Long Beach that regulate and conduct inspections of businesses that handle hazardous materials, hazardous wastes, and/or have aboveground or underground storage tanks. The AEC will comply with Long Beach Environmental Health Bureau (designated CUPA) and the City of Long Beach Fire Department (designated Participating Agency) requirements concerning storage and handling of hazardous materials and wastes and will also cooperate with the agencies on resolution of any environmental issues at the site.	Long Beach Environmental Health Bureau (designated CUPA) and the City of Long Beach Fire Department (designated Participating Agency)	Section 5.14.6, 5.14.7, 5.14.5.3, 5.14.4.2.2
City of Long Beach Municipal Code Chapter 18.48, Sections 18.48.240 and 18.18.580	Relates to storage, handling, transport, and generation of hazardous materials in the city	Long Beach Environmental Health Bureau (designated CUPA) and the City of Long Beach Fire Department (designated Participating Agency)	Section 5.14.6.3
Uniform Fire Code Articles 79 and 80	Require secondary containment, monitoring and treatment for accidental releases of toxic gases.	City of Long Beach Fire Department	Section 5.14.6.3

5.14.5.1 Federal LORS

EPA regulates wastewater under the Clean Water Act, though this authority is delegated to the appropriate Regional Water Quality Control Board (RWQCB). The federal statute that controls nonhazardous and hazardous waste is the RCRA 42 United States Code Section 6901, et seq. RCRA's implementing regulations are found in 40 Code of Federal Regulations Section 260, et seq. Subtitle D assigns responsibility for the regulation of nonhazardous waste to 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 hazardous waste generators (above certain levels of waste produced). The AEC will conform to this law in its generation, storage, transport, and disposal of any hazardous waste generated at the facility. EPA has delegated its authority for implementing these laws to the appropriate State of California agencies with subject matter expertise.

5.14.5.2 State LORS

Wastewater is regulated by the State Water Resources Control Board (SWRCB) and RWQCBs under the Porter-Cologne Water Quality Control Act. Nonhazardous waste is regulated by the California Integrated Waste Management Act of 1989, found in Public Resources Code 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 Los Angeles County, the City of Long Beach, and the solid waste hauler and disposer that will collect the AEC solid waste.

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 HWCL (Health and Safety Code Section 25100, et seq.). Because California has elected to develop its own program, the HWCL performs essentially the same regulatory functions as RCRA through the federal delegate agency and is thus the law that will regulate hazardous waste at the AEC. The California HWCL also includes hazardous wastes that are not classified as hazardous waste under RCRA. Because State-regulated hazardous wastes will be generated at the AEC during construction and operation, the HWCL will require the project owner to adhere to State storage, recordkeeping, reporting, and training requirements for these wastes.

5.14.5.3 Local LORS

For solid nonhazardous waste, the state laws that would normally be administered and enforced primarily by the City of Long Beach Department of Public Works Environmental Services Bureau, City of Long Beach Development Services, and the California RWQCB are administered through the CEC's certified regulatory program. These programs are described below.

The City of Long Beach Department of Health and Human Services, Environmental Health Bureau (Long Beach Environmental Health Bureau) has overall responsibility for CUPA programs (Kerr, 2013 and City of Long Beach Certified Unified Program Agency, 2013). They are responsible for administering Hazardous Materials Business Plans (HMBP), Hazardous Materials Management Plans, and Resource Management Plans filed by businesses located in the city. In addition, the Long Beach Environmental Health Bureau ensures that businesses and industry store and use hazardous materials safely and in conformance with various regulatory codes, including Long Beach Municipal Code Chapter 18.48, Sections 18.48.240 and 18.18.580 (DuRee, 2013). These sections of the municipal code relate to storage, handling, transport, and generation of hazardous materials in the city. The Long Beach Environmental Health Bureau also administers hazardous waste generator and the California Accidental Release Prevention programs.

The City of Long Beach Fire Department is the Participating Agency responsible for other CUPA programs, including AST and UST permits and administers the business emergency plan program (DuRee, 2013). The Long Beach Environmental Health Bureau and City of Long Beach Fire Department jointly administer Spill Prevention, Control, and Countermeasure Plans. The Long Beach Environmental Health Bureau and City of Long Beach Fire Department perform inspections at established facilities to verify that hazardous materials are properly stored and handled and that the types and quantities of materials reported in a firm's HMBP are accurate (City of Long Beach Fire Department, 2013).

The CEC, Long Beach Environmental Health Bureau, and the City of Long Beach Fire Department will be contacted in the event of a release of hazardous wastes or materials to the environment.

Local agency requirements and LORS associated with the project will be addressed before the construction and operation of the facility, and the facility will conform to all local requirements. These include the need

to prepare an HMBP, which will be reviewed and approved by the CEC in consultation with the Long Beach Environmental Health Bureau. Because the site has an existing HMBP, a revised HMBP will be filed with the Long Beach Environmental Health Bureau and will be updated annually in accordance with applicable regulations (Kerr, 2013).

The closest fire station to project site is the City of Long Beach Fire Department Station No. 22, located at 6340 East Atherton Street, Long Beach, California, 90815. The station is approximately 1 mile away from the project site and would provide the first response to a fire, with an approximate 5-minute response time on average (DuRee, 2013). The project owner has engaged the City of Long Beach Fire Department in discussions regarding the project's fire protection needs and the City of Long Beach Fire Department's ability to respond. In addition, the facility will have an onsite fire suppression system, which is described in detail in Section 2.0, Project Description. Two existing electric fire pumps, connected to two independent power feeds from the SCE distribution system, will be provided to pump water from the onsite fire/service water storage tank. Fire protection water from the potable connection and onsite fire/service water storage tank will be provided to a dedicated underground fire loop piping system.

If hazardous materials were involved in an incident, Fire Station No. 22 would be the first onsite responder, and able to request additional resources from the 22 other stations in the district (DuRee, 2013). If needed, City of Long Beach Fire Department has mutual aid and automatic aid agreements for additional response from the Los Angeles County Fire Department and the Orange County Fire Authority. The most likely scenario for use of mutual aid to the project site would come from Orange County Fire Authority resources at Orange County Stations 48, 17, and 42 (DuRee, 2013). All City of Long Beach Fire Department firefighters and stations are certified and capable of managing a hazardous materials-related incident. City of Long Beach Fire Department Station No. 24 and Station No. 19 house specialized equipment and personnel for hazardous materials response, and these resources can be deployed city-wide when requested (DuRee, 2013). The hazardous materials response team will identify the type and source of the hazardous material, oversee evacuation of people, and confine the spilled material, if possible. Material cleanup is the responsibility of the facility causing the spill. A Hazardous Material Spill Response contractor may also respond for containment, cleanup, and remediation.

The City of Long Beach Municipal Code Chapter 18.97, Ordinance Number ORD-07-002, details the construction and demolition (C&D) recycling program (City of Long Beach Planning, 2007). The program requires that at least 60 percent of all material generated on a project must be diverted. No more than 20 percent of the 60 percent diversion rate can be achieved through the recycling or reuse of inert materials, unless applicant can demonstrate to the satisfaction of the Waste Management Plan Compliance Official that sufficient structural materials do not exist for recycling or that 40 percent diversion of total waste through non-inert materials is not feasible (City of Long Beach Planning, 2013). C&D debris may be diverted to an approved mixed use recycling/recovery facility or to other disposal facilities based on the material type and handling method (i.e., recycled, reused, salvaged, disposed or transformed).

All wastes generated by the AEC will be managed in a manner consistent with applicable LORS.

5.14.5.4 Codes

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

- The Uniform Fire Code
- The Uniform Building Code
- The Uniform Plumbing Code
- California Building Code
- California Fire Code
- City of Long Beach Municipal Code

5.14.6 Agencies and Agency Contacts

Several agencies, including EPA at the federal level and DTSC and the California Environmental Protection Agency at the state level, regulate nonhazardous and hazardous waste. The regulations, however, are usually administered and enforced primarily through the City of Long Beach Department of Public Works Environmental Services Bureau, City of Long Beach Development Services, Long Beach Environmental Health Bureau, and the City of Long Beach Fire Department but for the CEC's exclusive jurisdiction. The persons to contact for nonhazardous and hazardous waste management are listed in Table 5.14-6.

TABLE 5.14-6
Agency Contacts for Waste Management

Issue	Agency	Contact
Nonhazardous Waste		
Solid Waste and Recycling	City of Long Beach Department of Public Works Environmental Services Bureau	Lisa Harris City of Long Beach Department of Public Works Environmental Services Bureau 2929 East Willow Street Long Beach, CA 90806 (562) 570-2876 lisa.harris@longbeach-recycles.org
Construction and Demolition Recycling Program	City of Long Beach Development Services, Office of Sustainability, Green Building	Theresa Woolheather City of Long Beach Development Services 333 West Ocean Boulevard Long Beach, CA 90802 (562) 570-6301 theresa.woolheather@longbeach.gov
Hazardous Waste		
Hazardous Waste Compliance and Inspections	Long Beach Environmental Health Bureau (CUPA)	Nelson Kerr, Manager City of Long Beach Department of Health and Human Services, Environmental Health Bureau 2525 Grand Avenue Long Beach, CA 90815 (562) 570-4131 nelson.kerr@longbeach.gov
Hazardous Waste Compliance and Inspections, and Hazardous Waste Emergency Response	City of Long Beach Fire Department (Participating Agency)	Mike DuRee, Fire Chief David Zinnen, Deputy Fire Marshal City of Long Beach Fire Department 3205 Lakewood Boulevard Long Beach, CA 90808 (562) 570-2579 michael.duree@longbeach.gov david.zinnen@longbeach.gov

5.14.7 Permits and Permit Schedule

As part of the CEC's certified regulatory program process, the temporary storage of hazardous wastes at the AEC will be included in the updates to the existing HMBP also submitted to the Long Beach Environmental Health Bureau as the designated CUPA, and the City of Long Beach Fire Department as the designated Participating Agency, as described in Section 5.5, Hazardous Materials Handling. No additional permits are required.

5.14.8 References

CalRecycle. 2013a. Solid Waste Information System (SWIS) Database, Los Angeles County. Available online at: http://www.calrecycle.ca.gov/SWFacilities/Directory/Default.htm. June.

CalRecycle. 2013b. *2012 Landfill Summary Tonnage* Report. Available online at: http://www.calrecycle.ca.gov/SWFacilities/Landfills/Tonnages/. June.

City of Long Beach Certified Unified Program Agency. 2013. City of Long Beach Department of Health and Human Services, Environmental Health Bureau, Long Beach Certified Unified Program Agency website. Available online at: http://www.longbeach.gov/health/eh/hazmat/cupa.asp. June.

City of Long Beach Department of Public Works. 2013. City of Long Beach Department of Public Works Environmental Services Bureau website. Available online at: http://www.longbeach-recycles.org/home/index.htm. June.

City of Long Beach Fire Department. 2013. City of Long Beach Fire Department Information. Available online at: http://www.longbeach.gov/fire/. June.

City of Long Beach Planning. 2007. City of Long Beach Municipal Code, Chapter 18.97, Construction and Demolition Recycling Program. Available online at: http://www.lbds.info/planning/advance_planning/green_building/default.asp#cd. May.

City of Long Beach Planning. 2013. City of Long Beach Development Services, Office of Sustainability, Green Building. Available online at: http://www.lbds.info/planning/advance_planning/green_building/default.asp#cd. June.

Clean Harbors. 2013. Buttonwillow Landfill Facility Fact Sheet. Available online at: http://www.cleanharbors.com/locations/index.asp?id=53. June.

Department of Toxic Substance Control (DTSC). 2013a. DTSC's Hazardous Waste and Substances Site List (Cortese List), Los Angeles County. Available online at: http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm. June.

Department of Toxic Substance Control (DTSC). 2013b. *California Commercial Offsite Hazardous Waste Management Facilities*. Available online at: http://www.envirostor.dtsc.ca.gov/public/commercial_offsite.asp. June.

DuRee, Mike/ City of Long Beach Fire Department, Fire Chief and David Zinnen/ City of Long Beach Fire Department, Deputy Fire Marshal. 2013. Personal communication with Beth Smoker/CH2M HILL. July.

Environmental Management Strategies (EMS). 2012. *Phase I Environmental Site Assessment, Alamitos Electrical Power Plant, 690 North Studebaker Road, Long Beach, CA*. February.

Environmental Management Strategies (EMS). 2013. *Phase I Environmental Site Assessment, Alamitos Electrical Power Plant, 690 North Studebaker Road, Long Beach, CA*. March.

Henry, Bob/Waste Management – Kettleman Hills Landfill. 2012. Personal communication with Beth Smoker/CH2M HILL. January.

Kerr, Nelson/City of Long Beach Department of Health and Human Services, Environmental Health Bureau, Manager. 2013. Personal communication with Beth Smoker/CH2M HILL. June.

Linton, Ken/Clean Harbors. 2012. Clean Harbor's Buttonwillow Landfill. Personal communication with Beth Smoker/CH2M HILL. January.