

5.14 Waste Management

5.14.1 Introduction

This section evaluates the potential effects on human health and the environment from nonhazardous and hazardous waste generated at the Carlsbad Energy Center Project (CECP) during construction and operation. The handling and management of waste generated by CECP 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 nonhazardous (e.g., neutralization). Finally, offsite disposal will be used to dispose of residual wastes that cannot be reused, recycled, or treated.

Section 5.14.2 presents laws, ordinances, regulations, and standards (LORS) that apply to the CECP-generated waste. Section 5.14.3 describes the current condition of the CECP site and Section 5.14.4 describes the waste and waste streams that are expected to be generated by the project as well as potential waste disposal sites for nonhazardous and hazardous waste. Section 5.14.5 discusses cumulative effects, and Section 5.14.6 describes methods that will be employed to manage the generated waste and mitigate its impacts on the environment. Section 5.14.7 provides the proposed conditions of certification, and Section 5.14.8 describes agencies that have jurisdiction over the generated waste and persons to contact in those agencies. Section 5.14.9 describes permits required for waste generated and a schedule for obtaining those permits, and Section 5.14.10 provides the references used to prepare this section.

5.14.2 Laws, Ordinances, Regulations, and Standards

Nonhazardous and hazardous waste handling at CECP 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 at the CECP facility are summarized in Table 5.14-1.

TABLE 5.14-1
Laws, Ordinances, Regulations, and Standards Applicable to Waste Management

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
Federal			
Resource Conservation and Recovery Act (RCRA) Subtitle D	Regulates design and operation of solid waste landfills. CECP solid waste will be collected and disposed of by a collection company in conformance with Subtitle D	CIWMB	5.14.2.1, 5.14.4.3.1, and 5.14.6

TABLE 5.14-1
Laws, Ordinances, Regulations, and Standards Applicable to Waste Management

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
RCRA Subtitle C	Controls storage, treatment, and disposal of hazardous waste. CECP solid waste will be collected and disposed of by a collection company in conformance with Subtitle C	DTSC	5.14.2.1, 5.14.4.3.2, and 5.14.6
Clean Water Act (CWA)	Controls discharge of wastewater to the surface waters of the U.S. CECP will discharge plant and sanitary wastewater to the City of Carlsbad's sanitary sewer	RWQCB	5.14.2.1 and 5.15
State			
California Integrated Waste Management Act (CIWMA)	Controls solid waste collectors, recyclers, and depositors. CECP solid waste will be collected and disposed of by a collection company in conformance with the CIWMA	CIWMB	5.14.4.3.1, 5.14.5, and 5.14.8
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	DTSC	5.14.4, 5.14.4.3, 5.14.4.4, and 5.14.8
Porter-Cologne Water Quality Control Act	Controls discharge of wastewater to the surface and ground waters of California. CECP will discharge industrial and sanitary wastewater to the City of Carlsbad's sanitary sewer	RWQCB	5.14.4.3, 5.14.4.4, and 5.15
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 Carlsbad Fire Department	City of Carlsbad Fire Dept	5.14.2.3, 5.14.2.4, and 5.16
Local			
City of Carlsbad General Plan (2004) – Public Safety Section	Provides guidance for siting and management of facilities that store, collect, treat, dispose or transfer hazardous waste and hazardous materials. CECP will comply with the City's Hazardous Materials stipulations as put forth in the City of Carlsbad General Plan, Public Safety Section	San Diego County Department of Environmental Health, Hazardous Material Division and Carlsbad Fire Department	5.14.4, 5.14.4.3, 5.14.4.4, and 5.14.8

TABLE 5.14-1
Laws, Ordinances, Regulations, and Standards Applicable to Waste Management

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
San Diego County Code, Section 68.905	Incorporates by reference the CA HSC Division 20, Chapter 6.11 which requires the facility to operate as a unified program facility. CECP will operate as a unified program facility and will comply with San Diego County Environmental Health HMD requirements concerning storage and handling of hazardous materials and wastes and will also cooperate with HMD on resolution of environmental issues at the site.	San Diego County Department of Environmental Health, Hazardous Material Division	5.14.4, 5.14.4.3, 5.14.4.4, and 5.14.8
San Diego County Integrated Waste Management Plan	Provides guidance for local management of solid waste and household hazardous waste (incorporates the County's Source Reduction and Recycling Elements, which detail means of reducing commercial and industrial sources of solid waste). Waste will be recycled in a manner consistent with applicable LORS	San Diego County Solid Waste Management Program	5.14.4.3.1, 5.14.5, and 5.14.8
San Diego County Department of Environmental Health, Hazardous Material Division (HMD) various programs	HMD is the CUPA for San Diego County that regulates and conducts inspections of businesses that handle hazardous materials, hazardous wastes, and/or have underground storage tanks. HMD programs include assistance with oversight on property re-development (i.e., brownfields); and voluntary or private oversight cleanup assistance. CECP will comply with HMD requirements concerning storage and handling of hazardous materials and wastes and will also cooperate with HMD on resolution of environmental issues at the site.	San Diego County Department of Environmental Health, Hazardous Material Division	5.14.4, 5.14.4.3, 5.14.4.4, and 5.14.8

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

5.14.2.1 Federal LORS

Wastewater is regulated by the U.S. Environmental Protection Agency (USEPA) under the CWA. Plant industrial and sanitary wastewater will be discharged to the City of Carlsbad's sanitary sewer system (see Section 8.14).

The federal statute that controls both nonhazardous and hazardous waste is the RCRA, 42 USC 6901, et seq. RCRA's implementing regulations for hazardous waste are found at 40 CFR 260, et seq. and for nonhazardous waste at 40 CFR 239 et seq. Subtitle D of RCRA 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). CECP will comply 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.

5.14.2.2 State LORS

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 Diego County and the solid waste hauler and disposer that will collect CECP solid waste. It also affects CECP to the extent that hazardous wastes are not to be disposed of with solid waste.

Wastewater is regulated by the State Water Resources Control Board and Regional Water Quality Control Boards under the Porter-Cologne Water Quality Control Act. Sanitary and plant wastewater will be discharged to the City of Carlsbad's sanitary sewer (see Section 5.15, Water Resources). Storm water will be managed as described in Section 5.15, Water Resources.

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 CECP, since California has elected to develop its own program. However, the HWCL includes hazardous wastes that are not classified as hazardous waste under RCRA. Since hazardous wastes will be generated at the CECP facility during construction and operation, the HWCL will require the Applicant to adhere to storage, recordkeeping, reporting, and training requirements for these wastes.

5.14.2.3 Local LORS

The San Diego County Solid Waste Management Program is certified by the CIWMB as the Local Enforcement Agency for solid waste facilities in San Diego County and will be responsible for administering and enforcing the CIWMA for solid, nonhazardous waste for CECP.

For hazardous waste, local regulation consists primarily of the administration and enforcement of the HWCL. San Diego County Department of Environmental Health Hazardous Material Division (HMD) is the local entity responsible for inspecting hazardous waste generators and reviewing their procedures for storage, treatment, and disposal of hazardous wastes and for environmental contamination issues and site re-development (i.e., brownfields development)

The City of Carlsbad manages waste generation, recycling, and disposal programs through their Solid Waste Department. The services of trash collection, hazardous waste handling and recycling are covered through a partnership between the City of Carlsbad and two contractors - Waste Management and Clean Harbors. The City of Carlsbad General Plan (2004) also provides guidance for remediation of contaminated sites and for siting and management of facilities that store, collect, treat, dispose, or transfer hazardous waste. All other waste is managed through county, regional or state management plans.

For emergency spills, San Diego County Fire Department has a countywide Hazardous Materials (HazMat) Team consisting of firefighters who have completed formal training in Hazardous Materials Incident Response. The HazMat Team 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 Hazardous Incident Response Team (HIRT) is located at 1255 Imperial Ave, San Diego, and a first response Hazardous Materials unit is located at Station No. 44, located at 10011 Black Mountain Road, San Diego.

5.14.2.4 Codes

The CECP design, engineering, and construction of waste storage and handling systems will be in accordance with all applicable codes and standards detailed on the web site for the City of Carlsbad Building Department including:

- 2001 Edition of the California Building Code
- 2001 Edition of the California Plumbing Code
- 2004 Edition of the California Electrical Code
- 2001 Edition of the California Mechanical Code
- 2001 Edition of the California Fire Code
- 2005 Edition of the California Energy Code
- 2000 Edition of the Urban-Wildland Interface Code
- 1997 Edition of the Uniform Code for Abatement of Dangerous Buildings

5.14.3 Affected Environment

This section discusses the condition of the CECP site, in terms of the potential need to remove or otherwise treat contaminated soil or groundwater at the site.

5.14.3.1 Site Investigations

A Phase I Environmental Site Assessment has been performed to determine whether or not contamination is present that will require removal or remediation.

5.14.3.1.1 Phase I Environmental Site Assessment

A Phase I Environmental Site Assessment (ESA) was conducted by CH2M HILL in August 2007 in accordance with ASTM Standard E 1527-05, Standard Practice for Environmental Site Assessments. The ESA was prepared for the Encina Power Station which encompasses approximately 95 acres of land, including the proposed property for the CECP. The CECP area is referred to as Area 1: Tank Farms and Impoundment Basins, including Fuel Tank Laydown Area (Area 1). The remainder of the ESA addresses the Encina Power Station and the Aqua Hedionda Lagoon. For the purposes of this Application, only the conclusions for Area 1 are discussed below, additional information regarding the remainder of the Encina Power Station site is provided in the complete copy of the Environmental Site Assessment provided as Appendix 5.14A.

Based on records review, site reconnaissance, and interviews, the following historical information was provided for the Area 1 site in the Phase I ESA.

- Three offsite locations of environmental significance were identified within the ASTM search distance of 2 miles. These three sites were determined to have a low potential to impact the CECP site based on the relative distance from the CECP site.
- A Phase I ESA conducted at the Encina Power Station in 1998 identified known releases and identified potential environmental conditions based on the type of operations performed and chemicals of interest that could potentially occur. Further investigation was recommended at the Area 1: Tank Farms and Impoundment Basins, including Fuel Tank Laydown Area.
- Based on 1998 Phase II ESA sample results, two Recognized Environmental Conditions (RECs) were identified within Area 1, Fuel Oil Tank # 7 and Fuel Oil Tank #1.
- In 1999, a supplemental investigation was conducted. TEH exceeded 1,000 mg/Kg in one soil sample. One metal, antimony, exceeded the background levels for California soils in two soil samples near the Cutter Oil Tank. Three metals (cadmium, silver, and lead) were detected in groundwater samples collected in Area 1 at concentrations exceeding their respective MCLs. Lead and silver were also detected in the equipment blank sample.
- In 2003, remedial activities were conducted in the areas identified as RECs in 1998. Several thousand cubic yards of petroleum hydrocarbon-impacted soil was excavated and transferred offsite for treatment and disposal. Based on the confirmation sample results, the remediation goals were achieved for these areas. In March 2005, the County of San Diego DEH concurred that the cleanup goals established for these areas have been met.

Based on these findings, the August 2007 Phase I ESA concluded the following:

- The two RECs identified in Area 1 in 1998 were remediated in 2003, and are now Historical RECs.

- Areas such as tanks, piping, and buildings where samples could not be collected beneath existing structures remain as Potential Environmental Conditions that should be addressed at the time when such facilities are removed as part of normal operations and maintenance of the site.

5.14.4 Environmental Analysis

This section discusses the various nonhazardous and hazardous waste streams for CECF construction and operation. Wastewater, solid nonhazardous waste, and liquid and solid hazardous waste will be generated at the CECF site during site preparation prior to construction, facility construction and during operation. Solid nonhazardous waste will also be generated during the construction of the electric transmission line, the natural gas supply line, the potable water supply line, the reclaimed water line, and the sewer line.

5.14.4.1 Construction Phase

The nonhazardous and hazardous waste streams generated during construction are expected to be the same for both the Single Phase Construction schedule and the Phased Construction schedule (see Section 2.2.15). Therefore a separate analysis for the two optional construction schedules is not required for waste management.

During construction of CECF, 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 CECF site, but a small quantity of hazardous waste will be generated during construction of the electric transmission line, natural gas supply line, potable water line, reclaimed water line, and the sewer line. The types of waste and their estimated quantities are described below.

5.14.4.1.1 Nonhazardous Solid Waste

Listed below are nonhazardous waste streams that could potentially be generated from construction of the generating facility, the electric transmission line, and other supply/disposal lines.

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 80 tons of these wastes will be generated during 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

Metal will include steel from welding/cutting operations, packing materials, and empty nonhazardous chemical containers. Aluminum waste will be generated from packing materials and electrical wiring. Approximately 10 tons of waste metal will be generated during construction. Waste will be recycled where practical and nonrecyclable waste will be deposited in a Class III landfill.

Concrete

Approximately 60 tons of excess concrete will be generated during construction. Waste concrete will be disposed of in a Class III landfill or at clean fill sites, if available, or will be recycled and disposed of at a construction and debris (C&D) landfill.

5.14.4.1.2 Nonhazardous Wastewater

Nonhazardous wastewater will be generated, including sanitary wastewater, equipment washwater, storm water runoff, and wastewater from pressure testing the gas supply line. Sanitary waste will be collected in portable, self-contained toilets. Equipment washwater will be contained at specifically designated wash areas and disposed of offsite. Storm water runoff will be managed in accordance with the contractor-developed storm water pollution prevention plan (SWPPP) that will be approved by the appropriate agencies prior to the start of construction (See Appendix 5.15A for a draft construction SWPPP for the CECP, and Section 5.15, Water Resources, for storm water related analysis).

The gas supply pipeline hydrostatic test water will be filtered to collect any sediment and welding fragments. The water will be collected, tested, and disposed of by the pipeline contractor, as described in Section 4.0, Natural Gas Supply.

5.14.4.1.3 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.

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 and 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.

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 one of the site's construction laydown areas. 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. Table 5.14-2 lists wastes expected to be generated during the construction phase at the CECP facility.

TABLE 5.14-2
Wastes Generated during the Construction Phase at the CECF Facility

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Scrap wood, glass, plastic, paper, calcium silicate insulation, and mineral wool insulation	Construction	Normal refuse	8,000 lbs/mo (dumpster)	Nonhazardous	Recycle and/or dispose of in a Class II or III landfill
Scrap Metals	Construction	Parts, containers	1,000 lbs/mo	Nonhazardous	Recycle and/or dispose of in a Class III landfill
Concrete	Construction	Concrete	60 tons during construction	Nonhazardous	Recycle and/or dispose of in a Class III landfill
Empty liquid material containers	Construction	Drums, containers, totes	100 containers*	Nonhazardous solids	Containers <5 gallons will be disposed as normal refuse. Containers >5 gallons will be returned to vendors for recycling or reconditioning.
Spent welding materials, i.e. welding rods	Construction	Solid	100 lbs/mo	Nonhazardous	Recycle with vendors or Dispose at a Class I landfill if hazardous
Waste oil filters	Construction equipment and vehicles	Solids	100 lbs/mo	Nonhazardous	Recycle at a permitted TSDf
Used and waste lube oil	CT and ST lube oil flushes	Hydrocarbons	200 drums (life of project construction)	Hazardous	Recycle at a permitted TSDf
Oily rags, oil sorbent excluding lube oil flushes	Cleanup of small spills	Hydrocarbons	100 lb/mo	Hazardous	Recycle or dispose at a permitted TSDf
Solvents, paint, adhesives	Maintenance	Varies	180 lbs/mo	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 1-year) – 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	200 gallons before plant startup	Hazardous or nonhazardous liquid	Dispose at a permitted TSDf
Waste oil	Equipment, vehicles	Hydrocarbons	20 gal/mo	Non-RCRA Hazardous Liquid	Dispose at a permitted TSDf

TABLE 5.14-2
Wastes Generated during the Construction Phase at the CECF Facility

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Sanitary waste	Portable toilet holding tanks	Sewage	500 gal/day	Nonhazardous Liquid	Remove by contracted sanitary service
Storm water	Rainfall	Water	2 acre-feet (from 10-yr storm event)	Nonhazardous Liquid	Discharge to storm water drain
Fluorescent, mercury vapor lamps	Lighting	Metals and PCBs	100 lbs/yr	Universal Waste solids	Recycle or dispose offsite at an Universal Waste Destination Facility
Passivating and chemical cleaning fluid waste	Pipe cleaning and flushing	Varies	600,000 gal (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	300,000 gallons (life of project construction)	Hazardous or nonhazardous liquid	Sample and characterize – if clean, dispose of in storm drain; otherwise, manage appropriately offsite

Note: Containers include <5-gallon containers and 55-gallon drums or totes

5.14.4.2 Operation Phase

During CECF facility operation, the primary waste generated will be nonhazardous waste. However, 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.

5.14.4.2.1 Nonhazardous Solid Waste

The CECF facility will also produce maintenance and generating facility wastes typical of power generation operations. 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 solid wastes. The quantity generated is estimated to be about 65 tons per year. Large metal parts will be recycled.

5.14.4.2.2 Nonhazardous Wastewater

Water balance diagrams, provided in Figures 2.2-6a and 2.2-6b, illustrate the expected wastewater streams and flow rates for the CECF generating facility. As described in Section 5.15, Water Resources, the wastewater collection system will collect sanitary wastewater from sinks, toilets, and other sanitary facilities, and discharge the wastewater to the City's sanitary sewer, which will convey the wastewater to the Encina Wastewater Authority system. New sewer line connections will be installed to connect the CECF site to the Encina Wastewater Authority System. The City of Carlsbad has provided a "will serve"

letter to the project Applicant for the discharge of wastewater to the sewer system (see Appendix 5.15B).

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 discharged to a wastewater storage tank and then to the sanitary sewer. 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.

5.14.4.2.3 Hazardous Waste

Hazardous waste generated will include waste lubricating oil, used oil filters, spent 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 heat recovery steam generators (HRSGs) and associated piping. They will consist of alkaline and acidic cleaning solutions used during chemical cleaning of the HRSG boiler system turbine wash and HRSG fireside washwaters. 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 testing, water collected from the chemical storage areas will be directed to the oil/water separator if clean or, if not, it will be containerized and shipped offsite for disposal. The quantity of this effluent is expected to be minimal.

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

TABLE 5.14-3
Hazardous Wastes Generated at the CECP Facility During Operation

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Lubricating oil/oil sorbents	Small leaks and spills from the gas turbine lubricating oil system	Hydrocarbons	700 lb/yr	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	1,000 lb/yr	Hazardous	Recycled by certified oil recycler
Lubricating oil	Maintenance of turbine, equipment	Hydrocarbons	500 lb/yr	Hazardous	Recycled by certified oil recycler

TABLE 5.14-3
Hazardous Wastes Generated at the CECP Facility During Operation

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Solvents, paint, adhesives	Maintenance	Varies	200 lbs/mo	Hazardous	Recycle at a permitted TSDF
Laboratory analysis waste	Water treatment	Waste reagents/ laboratory chemicals	50 gals/yr	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	60 to 70 tons every 3 to 5 yrs	Hazardous	Recycled by SCR manufacturer or disposed of in Class I landfill
CO catalyst units	HRSG (Use tends to be 3 to 5 years)	Metal and heavy metals, including vanadium	6 to 7 tons every 3 to 5 yrs	Hazardous	Recycled by manufacturer
Spent lead acid batteries	Electrical room, equipment	Metals	5 batteries/year	Hazardous	Store no more than 10 batteries (up to 1-year) – recycle offsite.
Spent alkaline batteries	Equipment	Metals	50 lbs/year	Universal waste solids	Recycle or dispose offsite at an Universal Waste Destination Facility
Fluorescent tubes	Lighting of maintenance areas	Metals	50 lbs/year	Universal waste solids	Recycle or dispose offsite at an Universal Waste Destination Facility
Oily rags	Maintenance, wipe down of equipment, etc.	Hydrocarbons, cloth	300 lb/yr (~800 rags/yr)	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

5.14.4.3 Waste Disposal Sites

Nonhazardous solid waste (often referred to as solid waste, municipal solid waste 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 sections describe the waste disposal sites feasible for disposal of CECP wastes.

5.14.4.3.1 Nonhazardous Waste

Approximately 150 tons of solid waste will be generated during construction of CECP, and solid waste will continue to be generated during operation of the project. Other solid 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 of the excavated soil will not be reused onsite, classification of the soil for disposal would be made on the basis of sampling completed once the soil is excavated and stockpiled. Soil that is determined to be nonhazardous on the basis of the sampling conducted could be suitable for reuse at a construction site or disposal at a regional disposal facility, depending on the chemical quality.

The City of Carlsbad has contracts with both Waste Management and Clean Harbors to handle the services of trash collection and recycling. The primary disposal facility used by Waste Management is the Otay Landfill, located in Chula Vista, California. The primary disposal facility for Clean Harbors is the Buttonwillow Landfill, located in Buttonwillow, California.

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

Landfill/ MRF/ Transfer Station	Location	Class	Permitted Capacity (cubic yards) ^a	Remaining Capacity (cubic yards) ^a	Permitted Throughput (tons per day) ^a	Estimated Closure Date ^a	Enforcement Action Taken ^a
Otay Landfill	Chula Vista, CA	III	62,377,974	33,070,879	5,5,830	4/30/2021	Yes 2006 – Compliance ^b
Buttonwillow Landfill	Buttonwillow, CA	III	14,293,760	23,194,883	10,482	1/01/2040	Yes, 2003 – Closure Plans Resolved 11/17/03 ^c

^a Based on CIWMB Solid Waste Information System Database (CIWMB, 2007a).

^b Warning, not full Enforcement Action – Marciniak, 2007

^c Weber, 2007

According to the CIWMB, Otay Landfill has a total capacity of 62.38 million cubic yards of refuse and the estimated remaining capacity as of May 2005 was 33 million cubic yards. The CIWMB indicates that the active Solid Waste Facility Permit expires in 2021. According to the CIWMB, there are no open enforcement actions against Otay Landfill (CIWMB, 2007a). The Buttonwillow Landfill has a total capacity of 14.3 million cubic yards and an estimated remaining capacity of 23.2 million cubic yards as of June 2003. There are no open enforcement actions against the Buttonwillow Landfill (Weber, 2007).

Because adequate landfill capacity exists, disposal of solid nonhazardous waste will not be a constraint on CECP development.

5.14.4.3.2 Hazardous Waste

Hazardous waste generated at CECP will be stored at that facility for less than 90 days. The waste will then be transported by a licensed hazardous waste transporter to a permitting hazardous waste treatment, storage, or disposal (TSD) facility. These facilities vary considerably in what they are permitted to 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. (Note that incineration and deep-well injection are not permitted in California.)

According to DTSC, there are 61 facilities in California that can accept hazardous waste for treatment and recycling (DTSC, 2007b). For ultimate disposal, California has the three hazardous waste (Class I) landfills (described below). The closest commercial hazardous waste disposal facility is the Clean Harbors Buttonwillow Landfill in Kern County.

Clean Harbors' Buttonwillow Landfill in Kern County

This landfill is permitted at 14.3 million cubic yards (CIWMB, 2007a; Buoni, 2007) and has approximately 9.2 million cubic yards of remaining capacity as of February 2006 (Buoni, 2007). At the current deposit rate, the landfill is permitted to accept waste until 2040 (CIWMB, 2007a). Buttonwillow has been permitted to accept all hazardous wastes except flammables, PCBs with a concentration greater than 50 parts per million, medical waste, explosives, and radioactive waste with radioactivity greater than 1,800 picocuries (Buoni, 2007).

Clean Harbors Westmoreland Landfill

This facility is not currently open and 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), PCB, dioxins, air- and water-reactive wastes, and strong oxidizers.

Waste Management Kettleman Hills Facility

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 ordinance; this landfill has permitted capacity of 10 million cubic yards with a remaining capacity of approximately 2.6 million cubic yards as of June 2007 (Luibel, 2007). The life expectancy remaining for Landfill B-18 is about 3 years; however, expansion of the facility is anticipated (Luibel, 2007). Expansion of the facility would change the closure date to 2036 (Yarbrough, 2005).

Additional Commercial Hazardous Waste Treatment and Recycling Facilities

In addition to hazardous waste landfills, there are numerous offsite commercial liquid hazardous waste treatment and recycling facilities in California. Some of the closest facilities include US Filter Recovery Services and D/K Environmental in the city of Vernon; Safety Kleen Corp., Clean Harbors, Exide Inc. and Pacific Resource Recovery Services in Los Angeles; Rho-Chem Corp. in Inglewood; Phibro-Tech, Inc. in Santa Fe Springs; TPS in Adelanto; and Crosby and Overton in Long Beach (DTSC, 2007b).

5.14.4.4 Waste Management Methods and Mitigation

As stated at the beginning of this section, the handling and management of waste generated by CECP will follow the hierarchical approach of source reduction, recycling, treatment, and disposal. A Waste Management Plan (WMP) will be prepared for construction and operation which will address the specific methods that will be used to manage nonhazardous and hazardous waste generated by CECP.

The following sections present methods for managing both nonhazardous and hazardous waste generated by CECP.

5.14.4.4.1 Construction Phase

Nonhazardous solid waste generated during construction will be collected in onsite dumpsters and picked up periodically by one or more of the City of Carlsbad franchised disposal services. The waste will then be taken to the Otay 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 storm water 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. Storm water runoff will be managed in accordance with the state and federal NPDES requirements, as described in section 5.15, Water Resources. 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 one of the CECP's construction laydown areas. The waste will be delivered to an authorized hazardous waste management facility, prior to the expiration of the 90-day storage limit.

5.14.4.4.2 Operation Phase

The primary waste generated during the operation phase will be nonhazardous wastewater. Other nonhazardous solid waste will also be generated, as well as varying quantities of liquid and solid hazardous waste. Handling and mitigation of these wastes is described in the following sections.

5.14.4.4.3 Nonhazardous Wastes

Wastewater from facility sinks and toilets will be discharged to the sanitary sewer. Nonhazardous plant wastewater will also 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.

5.14.4.4.4 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 in accordance with applicable LORS to ensure proper labeling, storage, packaging, recordkeeping, and disposal of all hazardous wastes. The following general procedures will be employed:

- CECP will be classified as a hazardous waste generator. Prior to facility startup, application will be made to Cal-EPA 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 requirements.
- 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 permitted hazardous waste management facilities. Biannual hazardous waste generator reports will be prepared and submitted to 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 procedures to minimize the quantity of waste deposited to landfills.

- Waste lubricating oil will be recovered and recycled by a waste oil recycling contractor. 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 and acid cleaning solutions used during pre-operational chemical cleaning of the boiler system of the HRSGs, acid cleaning solutions used for chemical cleaning of the HRSG after the unit is put into service, and turbine wash and HRSG fireside washwaters. These wastes, which are subject to high metal concentrations, will be stored temporarily onsite in portable tanks and disposed of offsite, in accordance with applicable regulatory requirements. Disposal may consist of offsite treatment, recovery of metals, and/or landfilling.

5.14.4.5 Facility Closure

As discussed in Section 2.4 – Facility Closure, when CECP is closed at the end of its operating life cycle, 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, including overhaul or replacement of the combustion turbines. 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 operations 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.

5.14.4.4.6 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 CECP 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 Section 5.14.2.

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 Hazardous Materials Business Plan (HMBP) or Risk Management Plan (RMP). The HMBP and RMP are described in Section 5.5. 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.

5.14.4.4.7 Permanent Closure

The planned life of the generation facility is a minimum of at 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 facility closure plan that will attempt to maximize the recycling of all facility components (see Section 4.0). Unused chemicals will be sold back to the suppliers or other purchasers or users. Equipment will be drained of chemicals and shut down to protect public health and safety and the environment. Nonhazardous wastes will be collected and disposed of in appropriate landfills or waste collection facilities. Hazardous wastes will be disposed of according with applicable LORS in effect at the time. The site will be secured 24 hours per day during the CECP decommissioning activities.

5.14.5 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 (Pub. Resources Code § 21083; CCR tit. 14, §§ 15064(h), 15065(c), 15130, and 15355).

There are multiple projects within the City of Carlsbad and adjacent to the project site that may have a cumulative effect on CECP. These projects include the Carlsbad Seawater Desalination project at Encina Power Station, I-5 North Coast Corridor, multiple Capital Improvement projects, and the Flower Fields Area. The projects are on various different schedules of completion. Refer to Section 5.6, Land Use, for a more detailed discussion of cumulative projects.

The CECP facility will generate nonhazardous solid waste that will add to the total waste generated in San Diego County and in California. However, there is adequate recycling and

landfill capacity in California to recycle and dispose of the waste generated by CECP as well as any additional projects in the City of Carlsbad. It is estimated that CECP will generate approximately 153 tons of solid waste during construction (including approximately 3 tons of hazardous waste) and about 67 tons a year from operations (including approximately 2 tons of solid hazardous waste). Considering that 3,844,533 tons of solid waste were landfilled in San Diego County in the year 2006, CECP's contribution will likely represent less than one percent of the county's total waste generation (CIWMB, 2007b). Therefore, the impact of the project on solid waste recycling and disposal capacity will not be significant.

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

5.14.6 Mitigation

Because the environmental impacts caused by wastes generated during construction and operation of the CECP are expected to be insignificant, 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.

5.14.7 Proposed Conditions of Certification

While the potential impacts from waste generated by CECP construction and operations are less than significant, the following conditions of certification are proposed by the Applicant to ensure that such impacts remain below a level of significance.

WASTE-1: The Applicant and, if necessary, its construction contractor, shall each obtain a hazardous waste generator identification number from the Department of Toxic Substances Control prior to generating any hazardous waste.

Verification: The Applicant shall notify the CPM via the monthly compliance report of its receipt and keep a copy of the identification number on file at the project site.

WASTE-2: Upon becoming aware of any impending waste management-related enforcement action by any local, state, or federal authority, the Applicant shall notify the CPM of any such action taken or proposed to be taken against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts.

Verification: The Applicant shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required in the manner in which project-related wastes are managed.

WASTE-3: Prior to the start of both site mobilization for construction and project operation, the Applicant shall prepare and submit to the CPM for review and approval, and to local agencies, if applicable, for review and comment, a Waste Management Plan for all wastes generated during construction and operation of the facility, respectively. The plans shall contain, at a minimum, the following:

- A description of all waste streams, including projections of frequency, amounts generated and hazard classifications; and
- Methods of managing each waste, including storage, treatment methods and companies contracted with for treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/reduction plans.

Verification: No less than 30 days prior to the start of site mobilization for construction, the Applicant shall submit the construction Waste Management Plan to and to local agencies, if applicable, for review and comment, and the CPM. The operation Waste Management Plan shall be submitted no less than 30 days prior to the start of project operation. The Applicant shall submit any required revisions within 20 days of notification by the CPM (or mutually agreed upon date). In the Annual Compliance Reports, the project owner shall document the actual waste management methods used during the year compared to planned management methods.

WASTE-4: The Applicant shall have a Registered Professional Engineer or Geologist, with experience in remedial investigation and feasibility studies, available for consultation during soil excavation and grading activities. The Registered Professional Engineer or Geologist shall be given full authority to oversee any earth moving activities that have the potential to disturb contaminated soil.

Verification: At least 30 days prior to the start of site mobilization for construction, the Applicant shall submit the qualifications and experience of the Registered Professional Engineer or Geologist to the CPM for approval.

WASTE-5: If potentially contaminated soil is unearthed during excavation at either the CECP or linear facilities as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the Registered Professional Engineer or Geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the project owner and CPM stating the recommended course of action. Depending on the nature and extent of contamination, the Registered Professional Engineer or Geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If, in the opinion of the Registered Professional Engineer or Geologist, significant remediation may be required, the project applicant shall contact representatives of the applicable local agencies, if applicable, for guidance and possible oversight.

Verification: The Applicant shall submit any reports filed by the Registered Professional Engineer or Geologist to the CPM and the City of Carlsbad Fire Department within 5 days of their receipt. The Applicant shall notify the CPM within 24 hours of any orders issued to halt construction.

5.14.8 Involved Agencies and Agency Contacts

Several agencies, including USEPA at the federal level, and the DTSC 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 CECP project. The regulations, however, are administered and enforced primarily through the San Diego County Department of

Environmental Health, Hazardous Materials Division, which is the designated CUPA. The persons to contact for nonhazardous and hazardous waste management are listed in Table 5.14-5.

TABLE 5.14-5
Agency Contacts for Waste Management

Issue	Agency	Contact
Hazardous Materials Response	San Diego County, Department of Environmental Health, Hazardous Materials Division	Nick Vent Supervisor 1255 Imperial Ave. 3 rd Floor San Diego, CA 32101 (619) 338-2372 nick.vent@sdcounty.ca.gov
Fire Dept. Permits	City of Carlsbad Fire Department	Greg Ryan Faraday Center 1635 Faraday Center Carlsbad, CA 92008-7314 (760) 602-4665 gryan@ci.carlsbad.ca.us
Hazardous Waste Compliance and Inspections	San Diego County, Department of Environmental Health, Hazardous Materials Division	Brita Lum Hazardous Materials Duty Specialist P.O. Box 129261 San Diego, CA 92112-9261 (619) 338-2231 brita.lum@sdcounty.ca.gov

5.14.9 Permits Required and Permit Schedule

The temporary storage of hazardous wastes at the CECP will be included in the HMBP submitted to the San Diego County Department of Environmental Health, Hazardous Materials Division as described in Section 5.5, Hazardous Materials. In addition, the Department of Environmental Health requires the permits listed in Table 5.14-6.

TABLE 5.14-6
Permits Required and Permit Schedule for Waste Management

Permit	Agency Contact	Schedule
Unified Program Facility Permit	San Diego County, Department of Environmental Health, Hazardous Materials Division Brita Lum Hazardous Materials Duty Specialist P.O. Box 129261 San Diego, CA 92112-9261 (619) 338-2231 brita.lum@sdcounty.ca.gov	Before storing regulated hazardous materials or wastes at the site.

5.14.10 References

Buoni, Marianna. 2007. Clean Harbor's Buttonwillow Landfill. Personal communication with John Putrich/CH2M HILL. June 11.

Cammall, Dave. 2007. San Diego County HIRT. Personal Communication with John Putrich/CH2M HILL. August.

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City of San Diego. 2005. City of San Diego General Plan. July.

Department of Toxic Substance Control (DTSC). 2007a. DTSC's Hazardous Waste and Substances Site List (Cortese List), San Diego County, July 2. http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm

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Luibel, Helen. 2007. Waste Management Inc., Kettleman Hills Facility. Personal communication with John Putrich/CH2M HILL. June.

Marciniak, William. 2007. California Integrated Waste Management Board. Personal communication with John Putrich/CH2M HILL. August.

Yarbrough, T. 2005. Waste Management Kettleman Hills. Personal communication with Sarah Madams/CH2M HILL. March 8 and August 30.

Weber, Erica. 2007. California Integrated Waste Management Board. Personal communication with John Putrich/CH2M HILL. August.