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8.13 Waste Management

8.13.1 Introduction

This section evaluates the potential effects on human health and the environment from nonhazardous and hazardous waste generated at CPP.

Section 8.13.2 presents LORS that apply to the generated waste. Section 8.13.3 describes the environmental condition of the proposed site, and Section 8.13.4 describes the waste and waste streams that are expected to be generated by the project. Section 8.13.5 describes waste disposal sites for nonhazardous and hazardous waste, and Section 8.13.6 describes methods that will be employed to manage the generated waste and mitigate its impacts on the environment. Section 8.13.7 discusses cumulative impacts, and Section 8.13.8 describes waste monitoring. Section 8.13.9 describes agencies that have jurisdiction over the generated waste and persons to contact in those agencies. Section 8.13.10 describes permits required for waste generated and a schedule for obtaining those permits. Section 8.13.11 provides the references used to prepare this section.

8.13.2 Laws, Ordinances, Regulations, and Standards

Nonhazardous and hazardous waste handling at CPP will be governed by federal, state, and local laws. Applicable laws and regulations address proper 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 CPP facility are summarized in Table 8.13-1.

8.13.2.1 Federal

Wastewater is regulated by the U.S. Environmental Protection Agency (USEPA) under the Clean Water Act (CWA). Process wastewater from CPP will be treated, neutralized, and discharged to Clay Creek under an NPDES (National Pollutant Discharge Elimination System) permit (see Section 8.14).

The federal statute that controls both nonhazardous and hazardous waste is RCRA, 42 USC 6901, et seq., and its implementing regulations found at 40 CFR 260, et seq. Subtitle D makes the regulation of nonhazardous waste the responsibility of the states; federal involvement is limited to establishing minimum criteria that prescribe the best practicable controls and monitoring requirements for solid waste disposal facilities. Subtitle C controls the generation, transport, 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). CPP will conform to 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 California Environmental Protection Agency (Cal/EPA).

TABLE 8.13-1
Applicable Laws, Ordinances, Regulations, and Standards

LORS	Applicability	AFC Conformance Section
Federal		
RCRA, Subtitle D	Regulates design and operation of solid waste landfills	CPP solid waste will be collected and disposed of by a collection company in conformance with Subtitle D. Sections 8.13.2.1, 8.13.5.1, and 8.13.6.
RCRA, Subtitle C	Controls storage, treatment, and disposal of hazardous waste	Hazardous waste will be handled by contractors in conformance with Subtitle C. Section 8.13.6.
CWA	Controls discharge of wastewater to the surface waters of the U.S. Applies to wastewater discharged from cooling tower basins.	Discharge will conform to NPDES permit described in Section 8.14.
State		
California Integrated Waste Management Act (CIWMA)	Controls solid waste collectors, recyclers, and depositors	CPP solid waste will be collected and disposed of by a collection company in conformance with the CIWMA. Sections 8.13.5.1, 8.13.6, and 8.13.6.1.
California 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. Sections 8.13.6.1 and 8.13.6.2.
Porter-Cologne Water Quality Control Act	Controls discharge of wastewater to the surface and ground waters of California. Applies to wastewater discharged from cooling tower basins.	Discharge will conform to NPDES permit described in Section 8.14.
Local		
Sacramento County 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, as needed, from Sacramento County. Section 8.13.10.

8.13.2.2 State

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

25100, et seq.), administered by Cal/EPA's Department of Toxic Substances Control (DTSC). The HWCL performs essentially the same regulatory functions as RCRA and is the law that will regulate hazardous waste at CPP, 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 CPP facility during construction and operation, the HWCL will require the applicant to adhere to storage, recordkeeping, reporting, and training requirements for these wastes.

Wastewater is regulated by the State and Regional Water Quality Control Boards (RWQCB) under the Porter-Cologne Water Quality Control Act. Domestic wastewater from the facility will be disposed to an onsite treatment system and leachfield, in accordance with County regulations. Process water will be treated, neutralized and discharged to Clay Creek under an NPDES permit (see Section 8.14).

8.13.2.3 Local

The Sacramento County Environmental Management Department, Environmental Health Division, will be responsible for administering and enforcing the CIWMA for solid nonhazardous waste for CPP.

For hazardous waste, local regulation consists primarily of the administration and enforcement of the HWCL. The Sacramento County Environmental Management Department, Hazardous Materials Division, is the local agency that will regulate hazardous waste at the CPP. For emergency spills, the City of Sacramento's Hazardous Materials Response Team will be primarily responsible for containment and cleanup, assisted by Sacramento County.

8.13.2.4 Codes

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

- The Sacramento County Fire Code
- The Uniform Fire Code
- The Uniform Building Code
- The Uniform Plumbing Code
- The Uniform Mechanical Code
- National Electric Code

8.13.3 Environmental Condition of Site

8.13.3.1 Historical Uses and Surrounding Areas

Sometime prior to the 1960s, there was an old mining operation approximately 0.25 mile east of the project site. Mine tailings, consisting of evident low mounds of gravel, have become heavily overgrown with vegetation. No tailings, refuse, or structures associated with the mining uses are evident on the project site.

Prior to approximately 1968, the site consisted of rolling annual grassland hills used primarily as pasture for cattle. There are no indications that structures or other developments were ever located on the proposed project site.

Since the 1970s, when the Rancho Seco Plant was beginning construction, the main access to the construction site was via Clay East Road. There is anecdotal information that the site may have been used occasionally to laydown or store equipment, but no refuse, stains, marks, or soil disturbances on the project site remain, if there were such uses.

Since construction of the Rancho Seco Plant, and the subsequent decommissioning of the facility, the site has been fenced and protected as a buffer area to the facility, with no public uses. The District has leased the property for cattle grazing to control vegetation growth.

As part of the geotechnical study completed for a dry fuel storage facility (approximately 0.5 mile north of the proposed project site), a test well was drilled to determine the soil stability and depth to groundwater. The well was drilled to 75 feet and detected no groundwater. The elevation of the dry fuel storage facility is approximately the same as that of the proposed power facility.

Of these known historical uses, only mining would be a potential source of contaminants. The mining activities are located on the west and north side of Clay Creek, and any offsite flow from that location would not flow onto the site, since the project site elevation is higher than the run-off area.

8.13.3.2 Environmental Site Assessment

A full Phase I Environmental Site Assessment (ESA) in accordance with the ASTM Standard E 1527, Standard Practice for Environmental Site Assessments, has not been completed because the proposed location for the power plant has been under SMUD's control since 1966. Instead, a database review was commissioned by SMUD for the purpose of determining whether any properties in the vicinity of the proposed CPP site or along the proposed linear facilities' corridors may have been impacted by previous uses of the properties. A copy of the VISTAInfo Site Assessment Report is contained in Appendix 8.13.

8.13.3.3 Database Search

As of July 31, 2001, the database search conducted by VISTAInfo did not identify any sites near the proposed CPP site or linear corridors that are listed on the Federal or State Superfund lists (i.e., the National Priorities List and the CalSites Database). In addition, there were no hazardous waste treatment, storage, or disposal facilities currently permitted under RCRA or undergoing RCRA corrective action (i.e., cleanup).

The former Rancho Seco Plant, located adjacent to the proposed CPP site, is listed on the state CERCLIS (Comprehensive Environmental Response, Compensation, and Liability Information System) list due to the presence of a closed landfill on site. According to the database search, the landfill's disposal trenches were covered around 1977, several lined evaporation ponds were excavated and refilled in 1981, and the facility was referred to the jurisdiction of the State Department of Health Services and the California Integrated Waste Management Board. Rancho Seco is also identified in the U.S. Environmental Protection Agency's RCRIS (Resource Conservation and Recovery Information System) and CERCLIS databases as a site of known hazardous waste activity (e.g., generation, treatment, storage, or disposal). In addition, the Rancho Seco Plant was identified as the site of a gasoline leak from an underground storage tank that impacted soil only. The case was closed by

Sacramento County in 1986. Rancho Seco is currently identified on the State's Underground Storage Tank list as the operator of eleven underground storage tanks.

Within 1/8-mile of the proposed project (site and pipeline), the search identified 10 drinking water sources (wells), two registered underground storage tanks, and one site listed on the State's "Cortese list" as a "property with hazardous waste." The site on the Cortese list is Valensin Ranch, located at 11653 Valensin Ranch Road in Galt. It is identified as a leaking tank site that affected soil only. The case was closed in 1996.

In addition to the Rancho Seco and Valensin Ranch sites, there are two other leaking underground storage tank sites within a quarter mile of the proposed project. The other sites are: Gil's Garage at 10413 Franklin Boulevard in Elk Grove and the Govan Property at 10464 Franklin Boulevard in Elk Grove. The investigation of the Govan Property is now closed. Within 1/4-mile of the proposed project, the search also identified six additional water wells, and four additional registered underground storage tanks.

There are two leaking underground tank sites located between 1/4 and 1/2-mile from the proposed project. One is located at Elk Grove Milling on Eschinger Road in Elk Grove and the other at the Sacramento Regional Wastewater Treatment Plant. Both leaks involved contamination of soil with gasoline. The Treatment Plant case is now closed. In addition, there are eleven water wells and a solid waste landfill site (identified as a sludge, ash, and grit disposal site at the Sacramento Regional Wastewater Treatment Plant).

8.13.3.4 Site Inspection

As described in Section 8.13.3.1, the proposed CPP site is located on land that has been owned and operated by SMUD for decades, so it is unlikely that unexpected contamination will be encountered during excavation or earthmoving at the site. In lieu of performing a detailed site inspection at this time for the purpose of identifying potentially contaminated areas to be encountered during construction, a general site inspection was used to determine patterns of land use in the vicinity of the site (i.e., agricultural, industrial).

The proposed linear corridors cover a distance of up to 26 miles over land not controlled by SMUD. The proposed corridors generally follow existing railroad tracks or roads. It is anticipated that contaminated soils are likely to be encountered occasionally in the UPRR right of way, and along and under roadways, due to the extensive use of fuels in these areas. Performance of a site inspection of these areas at this time will yield information that may no longer be reliable by the time construction activities commence. Field reconnaissance at the time of construction is a more effective way to identify areas that may be contaminated by hazardous materials. A proposed method of ensuring that any contamination encountered is managed appropriately is described below.

8.13.3.5 Construction Management

Prior to excavation at any of the sites identified by the VISTAInfo search as leaking underground tank sites, known spill sites, or waste disposal sites, the current status of any investigations or remedial activities will be ascertained by contacting the appropriate regulatory agencies. The majority of these sites lie outside of the areas currently proposed for construction, with the exception of the Valensin Ranch site, which appears to be in the proposed linear corridor.

A site map will be prepared to delineate known contaminated areas. This map will be compared to the proposed construction excavation plan that will be prepared when the project enters the detailed design phase. Any areas of excavation that overlap contaminated areas will be noted prior to construction work. During construction, any soil or groundwater encountered from these "overlap" areas will be segregated and held onsite for sampling and analysis. In addition, any soil suspected of being contaminated based on field observation during construction (e.g., color, odor) will be segregated and held onsite pending testing. All soil and groundwater requiring testing will be stored onsite until the laboratory analysis is complete. The final destination of the materials will define the degree and type of sampling and analysis needed.

If soil is determined to be contaminated, it will either be treated on-site to remove contamination in accordance with regulatory requirements or be transported off-site to an approved disposal facility.

Any groundwater generated during dewatering activities will be stored in "Baker tanks" and tested prior to being discharged. If water is to be discharged to the sewer, it will be tested to determine whether it meets allowable discharge concentrations and volume limits established by the wastewater treatment plant. If the groundwater does not meet the treatment plant's requirements, it will either be treated on-site to remove contamination in accordance with regulatory requirements or be transported off-site to an approved disposal/reuse facility.

8.13.4 Project Waste Generation

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

8.13.4.1 Construction Phase

During construction, the primary waste generated will be solid nonhazardous waste. However, some nonhazardous liquid waste and both solid and liquid hazardous waste will also be generated. Most of the hazardous wastes will be generated at the plant site, but a minimal amount of hazardous waste will be generated during construction of the electric transmission line, natural gas supply line, and water supply and wastewater discharge lines. The types of waste and their estimated quantities are described below.

8.13.4.1.1 Nonhazardous Solid Waste

Listed below are nonhazardous waste streams that could potentially be generated from construction of the generating plant, electric transmission line, natural gas supply line, and water supply and wastewater discharge 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 170 tons of these wastes will be generated during project construction. These wastes will be recycled where practical. Waste that cannot be recycled will be collected in dumpsters and disposed of weekly in a Class III landfill.

Concrete

Approximately 120 tons of excess concrete will be generated during construction. Waste concrete will be disposed of weekly in a Class III landfill or at clean fill sites, if available.

Metal

Metal will include steel from welding/cutting operations, packing materials, and empty nonhazardous chemical containers. Aluminum waste will be generated from packing materials and electrical wiring. Approximately 45 tons of metal will be generated during construction. Waste will be recycled where practical, and nonrecyclable waste will be deposited in a Class III landfill.

8.13.4.1.2 Nonhazardous Wastewater

Wastewater generated will include sanitary waste and may include equipment washwater and stormwater runoff, wastewater from pressure testing the gas supply pipeline after it is constructed, and water from excavation dewatering during construction. Sanitary waste will be collected in portable, self-contained toilets. Equipment washwater will be contained at specifically designated wash areas and disposed of offsite. Stormwater runoff will be managed in accordance with the contractor-developed stormwater pollution prevention plan that will be approved by the appropriate agencies prior to the start of construction.

The gas supply pipeline hydrostatic test water will be filtered to collect any sediment and welding fragments. The water will be tested and disposed of by the pipeline contractor. If not contaminated, the water will be discharged to an existing storm sewer along the pipeline corridor in accordance with applicable regulatory requirements. Contaminated water will be delivered by truck to the Sacramento Regional Wastewater Treatment Plant. Because the depth to groundwater is expected to be greater than 150 feet onsite, no groundwater is expected to result from construction dewatering.

8.13.4.1.3 Hazardous Waste

Most of the hazardous waste generated during construction will consist of liquid waste, such as flushing and cleaning fluids, passivating fluid (to prepare pipes for use), and solvents. Some hazardous solid waste, such as welding materials and dried paint, may also be generated.

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 the site construction laydown area. The waste will be removed from the site by a certified hazardous waste collection company and delivered to an authorized hazardous waste management facility, prior to expiration of the 90-day storage limit.

8.13.4.2 Operation Phase

During CPP facility operation, the primary waste generated will be nonhazardous wastewater. However, nonhazardous solid waste and small quantities of both solid and liquid hazardous waste will also be generated periodically. The types of waste and their estimated quantities are discussed subsequently.

8.13.4.2.1 Nonhazardous Solid Waste

The CPP facility will 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, and other miscellaneous solid wastes, including the typical refuse generated by workers and small office operations. The quantity generated is estimated at about 120 cubic yards a year. Large metal parts will be recycled.

8.13.4.2.2 Nonhazardous Wastewater

Water balance diagrams provided on Figures 2.2-6a through 2.2-6d illustrate the expected waste streams and flow rates for the CPP generating facility. The flow rates shown are based on annual average and hot day meteorological conditions and combined-cycle plant operation.

There will be two separate wastewater collection systems. The primary system, the Plant Wastewater System, will collect wastewater from all of the plant equipment, including the HRSGs and the cooling towers. The second system, the Sanitary Wastewater System, will collect sanitary wastewater from sinks, toilets, and other sanitary facilities. The plant wastewater system will collect all wastewater generated in the operation of the facility, treat the water in an onsite treatment plant, and discharge it to Clay Creek under NPDES permit. The main component of the plant wastewater system will be blowdown from the cooling tower. Wastewater from the Sanitary Wastewater System will be treated onsite in a packaged treatment system (i.e., tanks) and leachfield.

A description of the wastewater system sources follows.

Circulating Water System Blowdown

Circulating water system blowdown, the largest wastewater stream, will consist of water that has been recirculated 3 to 10 times in the cooling tower. The water will be supplied from Folsom-South Canal and is of high quality and unlikely to contain any contaminants. Cooling water will be circulated through the condenser and cooling tower, and some chemicals will be added to control scale formation, corrosion, and biofouling. Cooling tower blowdown will eventually be discharged to Clay Creek after treatment under NPDES permit.

Plant Drains-Oil/Water Separator

Miscellaneous general plant 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, sumps, and piping and routed to the plant wastewater collection system. Drains that could contain oil or grease will be routed through an oil/water separator. Wastewater from combustion turbine water washes will be collected in a holding tank. If cleaning chemicals were not used, the wastewater will be discharged to Clay Creek. Wastewater containing cleaning chemicals will either be trucked offsite for

disposal at an approved wastewater disposal facility or treated onsite in the package treatment system, depending on quantity.

Chemical Feed Area Drains

Effluent from the chemical feed area drains will be collected and treated onsite. The chemical feed area drains will collect spillage, tank overflows, effluent from maintenance operations, and liquid from area washdowns. The quantity of this effluent is difficult to predict, but it is expected to be minimal. If the spill or collected rainwater is minimal, the drains will be opened and the water allowed to flow into the plant equipment drain system feeding the oil/water separator.

Evaporative Cooler Blowdown

Evaporative cooler blowdown will consist of water circulated in the evaporative cooler system approximately 3 to 10 cycles, or as dictated by water supply quality, and then discharged to Clay Creek under an NPDES permit. Blowdown will be as required to maintain the level of dissolved solids within acceptable ranges.

Power Cycle Makeup Treatment Wastes

Wastewater from the power cycle makeup water treatment system will consist of the reject stream from the makeup reverse osmosis (RO) units and backwash water from the multimedia filters upstream of the RO units. The RO units will reduce the concentration of dissolved solids in the plant makeup water before it is treated in mixed-bed ion exchange vessels. The RO reject stream will contain the constituents of the plant raw water, concentrated approximately four times, and residues of the chemicals, such as aluminum sulfate, ferric chloride, and polymer, added to the raw water to coagulate suspended solids prior to filtration; sodium bisulfite or sodium sulfite added to the RO feedwater to eliminate free chlorine that would otherwise damage the RO membranes; and phosphate to prevent scaling of the membranes. The filter backwash water will contain the suspended solids removed from the raw water and the residues of the coagulants used to enhance filtration efficiency. These waste streams will be collected and recycled to the cooling tower basin.

HRSG and Auxiliary Boiler Blowdown

HRSG blowdown will consist of boiler water discharged from the HRSG steam drums to control the concentration of dissolved solids and silica within acceptable ranges.

Boiler blowdown will be discharged to flash tanks where the steam is vented to the atmosphere and the condensate is cooled by mixing it with a small amount of circulating water. The quenched condensate will be discharged to the cooling tower basin, thus reclaiming most of the boiler blowdown.

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

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

TABLE 8.13-2
Hazardous Wastes Generated at the CPP Facility

Waste	Origin	Composition	Quantity	Classification	Disposal
Lubricating oil	Small leaks and spills from the gas turbine lubricating oil system	Hydrocarbons	500 lb/yr	Hazardous	Cleaned up using sorbent and rags – disposed by certified oil recycler
Lubricating oil filters	Gas turbine lubricating oil system	Paper, metal, and hydro-carbons	1,000 lb/yr	Hazardous	Recycled by certified oil recycler
Laboratory analysis waste	Water treatment	Sulfuric acid	Approximately 840 gallons per year	Hazardous	Recycled by certified recycler
SCR catalyst units (CO catalyst no currently required)	SCR system	Metal and heavy metals, including vanadium	8,000 lb every 3 to 5 years (Warranty is 3 years-use tends to be 3 to 5 years)	Hazardous	Recycled by SCR manufacturer or disposed in Class I landfill
CO catalyst units (CO catalyst currently not required)	Auxiliary boiler	Metal and heavy metals, including vanadium	8,000 lb every 3 to 5 years	Hazardous	Recycled by manufacturer
Oily rags	Maintenance, wipe down of equipment, etc.	Hydrocarbons, cloth	525 lb/yr (Approximately 1,400 rags per year)	Hazardous	Recycled by certified oil recycler
Oil sorbents	Cleanup of small spills	Hydrocarbons	Approximately 340 lb/yr	Hazardous	Recycled or disposed of by certified oil recycler
Cooling tower sludge	Deposited in cooling tower basin by cooling water	Dirt from air	170 to 340 lb/yr	May be hazardous, but usually not	Class II landfill, if nonhazardous; Class I, if hazardous
Chemical feed area drainage	Spillage, tank overflow, area washdown water	Water with water treatment chemicals	Minimal	May be hazardous, if corrosive	Onsite neutralization, if required, then discharged to cooling tower basin

8.13.5 Waste Disposal Sites

Nonhazardous solid waste (often referred to as solid waste, municipal solid waste [MSW], or garbage) will be recycled or deposited in a Class III landfill. Nonhazardous liquid wastes

will be delivered to the onsite sanitary wastewater treatment facility for treatment or recycling via the return line. Hazardous wastes, both solid and liquid, will be delivered to a permitted offsite treatment, storage, or disposal (TSD) facility for treatment of recycling or deposited in a permitted Class I landfill. The following subsections describe the waste disposal sites feasible for disposal of CPP wastes.

8.13.5.1 Nonhazardous Waste

BFI presently removes nonhazardous waste from SMUD facilities and would most likely be the company responsible for the collection of solid waste and garbage at the site. BFI uses a transfer facility at 8642 Elder Creek Road in Sacramento and transports waste to the Forward Landfill in Manteca, California. Information about these facilities is shown in Table 8.13-3.

Forward Landfill has adequate capacity to handle and dispose of solid waste generated by the CPP facility. An alternative to the Forward Landfill is the Kiefer Road Landfill operated by Sacramento County. Neither the Forward nor the Kiefer Road Landfill have open enforcement actions pending at this time.

TABLE 8.13-3
Solid Waste Disposal Facilities for CPP Waste

Landfill/MRF/ Transfer Station	Location	Class	Permitted Throughout	Permitted Capacity	Remaining Capacity	Estimated Closure Date
Forward, Inc.	Manteca	I/II/III	6,680 tons/day	16 million yd^3	13 million yd^3	2006
Austin Road/Forward Landfill	Manteca	III	1,200 tons/day	18 million yd^3	NA	2053
Kiefer Landfill	Rancho Cordova	III	5,358 tons/day	1.26 billion yd^3	88 million yd^3	2035
Elder Creek Recovery Transfer Station	Sacramento	Transfer Station	2,000 tons/day	2,000 tons/day	NA	NA

Source: California Integrated Waste Management Board Solid Waste Information System (SWIS) database.
MRF Materials Recovery Facility
NA Not Available

Disposal of solid nonhazardous waste will not be a constraint on CPP development.

8.13.5.2 Hazardous Waste

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

According to the National Biennial RCRA Hazardous Waste Report (based on 1997 data), there were 250 RCRA TSD facilities in California (USEPA, 1999). Many of these facilities are companies, such as oil refineries or military facilities, that do not take hazardous waste from other generators. The closest commercial TSD facilities are a Safety-Kleen transfer station and Ramos Environmental in West Sacramento. The Safety-Kleen facility is permitted to store and transfer several hazardous wastes, including solvents, paint, and batteries. Safety-Kleen also recycles used oil. Wastes collected by the facility are shipped to other Safety-Kleen facilities for treatment or disposal. Safety-Kleen is now owned by Laidlaw, which has numerous TSD facilities, including two hazardous waste landfills in California (Beedle, 1998). Ramos Environmental recycles oily waste and spill waste.

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

Safety-Kleen's Buttonwillow Landfill in Kern County

This landfill is permitted at 13.25 million cubic yards and has approximately 10.9 million cubic yards of remaining space as of October 2000. The annual deposit rate is currently 130,000 to 150,000 cubic yards. At the current deposit rate, the landfill can accept hazardous waste until approximately 2068 to 2078. Buttonwillow is permitted to accept all hazardous wastes, except flammables, PCB (polychlorinated biphenyl) wastes with a concentration greater than 50 ppm PCBs, medical waste, explosives, and radioactive waste with radioactivity greater than 20,000 picocuries.

Safety-Kleen's Westmoreland Landfill in Imperial County

This landfill is permitted at 4 million cubic yards and, to date, has approximately 2.4 million cubic yards of remaining space. The annual deposit rate is about 110,000 cubic yards; at the current deposit rate, the estimated closure date for the landfill is 2021. The landfill's conditional use permit (CUP) prohibits the acceptance of some types of waste, including radioactive (except geothermal) waste, flammables, biological hazard waste (medical), PCBs, dioxins, air- and water-reactive wastes, and strong oxidizers (Smith, 1998).

Chemical Waste Management's Kettleman Hills Landfill in Kings County

This landfill has 6 to 7 million cubic yards of remaining permitted capacity for hazardous waste (Class I). They also accept Class II and Class III wastes. The current annual deposit rate is about 200,000 cubic yards a year. According to Chemical Waste, the landfill will be open for at least another 25 years, though they could permit additional capacity, if necessary. The Class I landfill is permitted for and will accept all hazardous wastes except radioactive, medical, and unexploded ordnance (UXO) (Yarborough, 1998).

In addition to landfills, there are numerous offsite commercial hazardous waste treatment and recycling facilities in California. These facilities have sufficient capacity to recycle and/or treat hazardous waste generated in California. Most hazardous waste generated at the CPP site will be generated from flushing and cleaning pipelines and the HRSG prior to facility startup. All hazardous waste will be removed and delivered to a TSD facility. Used oil will be collected by a permitted oil recycler.

8.13.6 Waste Management Methods and Mitigation

The handling and management of waste generated by CPP 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 waste that cannot be reused, recycled, or treated.

The following subsections present the method for managing both nonhazardous and hazardous waste generated by CPP.

8.13.6.1 Construction Phase

Nonhazardous solid waste generated during construction will be collected in onsite dumpsters and picked up periodically by a franchised collection company, such as BFI. The waste will be taken to a Materials Recovery Facility (MRF), where recyclables will be removed; the residue will be deposited in a landfill.

Wastewater generated during construction will include sanitary waste and may include equipment washwater and stormwater runoff. Sanitary waste generated during construction will be collected in portable, self-contained toilets. Equipment washwater will be contained at designated wash areas and disposed of offsite. Stormwater runoff will be managed in accordance with a stormwater management permit, which will be obtained prior to the start of construction. The generation of nonhazardous wastewater will be minimized through water conservation and water-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. The quantity of welding, solvent, and paint waste will be minimal. The construction contractor will be the generator of hazardous construction waste and will be responsible for the proper handling in compliance with all applicable federal, state, and local laws and regulations, including licensing, training 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 at the plant construction laydown area. The waste will be delivered to an authorized hazardous waste management facility, prior to the expiration of the 90-day storage period.

8.13.6.2 Operation Phase

Operation of the facility will generate nonhazardous wastewater, nonhazardous solid waste, and varying quantities of liquid and solid hazardous waste. Waste handling is described in the following subsections.

8.13.6.2.1 Nonhazardous Wastes

About 60 percent of the water used to operate the power plant will be lost through evaporation from the cooling tower. The remaining 40 percent will be discharged to Clay Creek under NPDES permit. Sanitary wastewater sinks and toilets will be discharged to the packaged water treatment and leach field system.

Nonhazardous solid waste or refuse will be collected by a franchised collection company, such as BFI. BFI will remove recyclable material prior to depositing non-recyclable waste in a landfill.

8.13.6.2.2 Hazardous Wastes

To avoid the potential effects on human health and the environment from the handling and disposal of hazardous wastes, the following general procedures will be employed.

- CPP will be classified as a hazardous waste generator. Prior to facility startup, application will be made to Cal/EPA for an identification number**.**
- Hazardous wastes will not be stored onsite for more than 90 days and will be accumulated according to California hazardous waste regulations.
- 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 covered, 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 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 remain accessible for inspection for at least 3 years.
- Employees will be trained in hazardous waste procedures, spill contingencies, and waste minimization.
- Procedures will be developed to reduce the quantity of hazardous waste generated. Nonhazardous materials will be used instead of hazardous materials whenever possible, and wastes will be recycled whenever possible.

Specifically, hazardous waste handling will include the following practices. Handling 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. 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 or buried tanks and disposed of offsite in accordance with applicable regulatory requirements. Disposal may consist of treatment, recovery of metals, and/or landfilling.

8.13.6.3 Facility Closure

Nonhazardous and hazardous wastes must be handled properly when CPP is closed. 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 is discussed below.

8.13.6.3.1 Temporary Closure

Prior to CPP startup, a contingency plan for temporary cessation of operations to ensure conformance with all applicable LORS and the protection of public health and safety and the environment will be prepared. 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, the contingency plan for temporary cessation would be implemented. The contingency plan, depending on the expected duration of the shutdown, may include draining all chemicals from storage tanks and other equipment and safe shutdown of all equipment. All wastes will be disposed according to applicable LORS, as discussed in Section 8.13.2.

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

8.13.6.3.2 Permanent Closure

The planned life of the generation facility is 30 years although operation could be longer. When the facility is permanently closed, the handling of nonhazardous and hazardous waste and hazardous materials handling will be part of a general closure plan that will attempt to maximize the recycling all facility components (see Section 4). 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 a day during the CPP decommissioning activities.

8.13.7 Cumulative Impacts

The CPP facility will generate nonhazardous solid waste that will add to the total waste generated in Sacramento County and California. However, in part due to the success of California's waste diversion programs which prevented 28 million tons of materials from being disposed of in landfills in the year 2000, there is adequate recycling and landfill capacity in California to recycle and dispose of the waste generated by CPP. (CIWMB 2001a). It is estimated that CPP will generate approximately 335 tons of solid waste during construction and about 85 tons a year from operations (including 5 tons of hazardous waste). Compared to the total amount of solid waste landfilled in Sacramento County in the

year 2000 of 703,660 tons, CPP's contribution will be insignificant (CIWMB, 2001b). Therefore, the impact of the project on solid waste recycling and disposal capacity is not significant.

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

8.13.8 Monitoring

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

Wastewater discharge monitoring will be implemented as required by NPDES permits.

8.13.9 Involved Agencies

Several agencies, including the USEPA at the federal level and Cal/EPA at the state level, regulate nonhazardous and hazardous waste and will be involved in the regulation of the waste generated by CPP. The hazardous waste laws, however, are administered and enforced primarily through local agencies. For CPP, the primary agency for hazardous waste issues will be the Sacramento County Environmental Management Department. The agencies and persons to contact for each type of waste are shown in Table 8.13-4.

TABLE 8.13-4
Name, Title, Phone Number, and Address of Contacts at Agencies With Jurisdiction for Waste Management

Waste Type	Agency	Address	Contact	Title	Telephone
Nonhazardous					
Solid Waste and Recycling	Sacramento County Environmental Management Department (Environmental Health Div.)	8475 Jackson Road Suite 230 Sacramento, CA 95826	Steve Kalvelage	Supervisor	(916) 875-8416

TABLE 8.13-4
Name, Title, Phone Number, and Address of Contacts at Agencies With Jurisdiction for Waste Management

Waste Type	Agency	Address	Contact	Title	Telephone
Hazardous					
Hazardous Waste	Sacramento County Environmental Management Department (Hazardous Materials Div.)	8475 Jackson Road Suite 230 Sacramento, CA 95826	Anthony Chu	Hazardous Materials Specialist	(916) 875-8550

8.13.10 Permits Required and Permit Schedule

Table 8.13-5 lists the permits required for waste management.

TABLE 8.13-5
Permits Required and Permit Schedule for CPP Waste Management

Permit	Applicability	Schedule for Permit
Hazardous Materials Storage Permit	Requires that businesses obtain permits for hazardous materials and waste storage from Sacramento County	Prior to storage of hazardous waste at the site
Waste Discharge Requirements/NPDES Permit	Issued by Regional Water Quality Control Board for discharge of wastewater to land, surface water, or groundwater	Prior to discharge to Clay Creek
Septic System Permit	Issued by Sacramento County for onsite industrial sanitary wastewater disposal	Prior to onsite wastewater disposal

8.13.11 References

Beedle, Lee (Branch Manager of Safety-Kleen, Oakland, California). 1998. Telephone conversation with CH2M HILL. August 10.

Chu, Anthony. 2001. Sacramento County Environmental Management Department. Personal communication with CH2M HILL. June 12, 2001.

CIWMB, 2001a. California Integrated Waste Management Board. Press Release: "California Waste Diversion Up 51 Percent In Last Two Years." January 24, 2001.

CIWMB, 2001b. California Integrated Waste Management Board. "Landfill Tipping Fees and Tonnage Data: 2000 County Summary Tonnage Report." May 29, 2001.

Smith, Alan (Environmental and Permitting Manager of Laidlaw Environmental Services Imperial County Landfill). 1998. Telephone conversation with CH2M HILL. August 10.

U.S. Environmental Protection Agency (USEPA). 1999. *The National Biennial RCRA Hazardous Waste Report* (Based on 1997 Data). September.

Yarborough, Terry (Executive Secretary of Chemical Waste Management's Kettleman Hills Landfill). 1998. Telephone conversation with CH2M HILL. August 26.