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## 8.14 WASTE MANAGEMENT

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This section presents an evaluation of potential effects on human health and the environment from non-hazardous and hazardous waste generated by the RCEC and the advanced water treatment (AWT) Plant. Section 8.14.1 describes the current condition of the proposed site. Section 8.14.2 describes the waste and waste streams that are expected to be generated by the project. Section 8.14.3 describes waste disposal sites for non-hazardous and hazardous waste. Section 8.14.4 describes Best Management Practices that will be employed to manage the generated waste and mitigate its potential impact on the environment. Section 8.14.5 discusses cumulative impacts and Section 8.14.6 describes waste monitoring. Section 8.14.7 presents laws, ordinances, regulations, and standards (LORS) that apply to the generated waste. Section 8.14.8 describes agencies that have jurisdiction over the generated waste and persons to contact in those agencies. Section 8.14.9 describes permits required for waste generated as well as a schedule for obtaining those permits. Section 8.14.10 provides the reference cited in this section.

### 8.14.1 Affected Environment

Calpine/Bechtel performed a Phase I Environmental Site Assessment (ESA) in March 2001 (FWENC 2001) for the RCEC and AWT plant site. The ESA was performed in accordance with American Society for Testing and Materials (ASTM) Standard E 1527-94, Standard Practice for Environmental Site Assessments. The purpose of the investigation was to identify recognized environmental conditions at the site resulting from present or past activities. The Phase I ESA is included in Appendix 8.14 and is incorporated here by reference.

The RCEC site investigation, conducted at 3590 Enterprise Avenue (3.6 acres) and 3636 Enterprise Avenue in Hayward (11.1 acres), consisted of a total of 14.7 acres. The property located at 3590 Enterprise Avenue is currently a metal painting and sand blasting company (Runnels Industries), while the property at 3636 Enterprise is owned by Salem Broadcasting Corporation, which has four radio broadcast towers on the property (See Chapter 1). These towers are associated with the operation of the existing KFAQ radio station.

#### 8.14.1.1 Historical Uses and Surrounding Areas

As part of the ESA, a historical ownership search of the past 50 years was conducted. The tenant report identified West Coast Painting as the owner of 3590 Enterprise Avenue in 1967. As part of an agency document review, it was determined that the property located at 3590 Enterprise Avenue was developed by the C.E. Freeman Company for a metal painting business in 1970. Freeman sold the property to Runnels Industries in 1976.

Review of historical aerial photography indicates that the project site was primarily used for agricultural purposes from before 1939 until at least 1965. Industrial uses on adjacent parcels are evident in the 1965 aerial photograph. The two parcels appear in the 1993 aerial photograph much as they do today.

#### 8.14.1.2 Investigation Results and Recommendations

Several issues of concern were identified as a result of the data review and site investigation. Contamination concerns are listed below. In-depth discussions on these issues are included in the ESA.

- A small plume of total petroleum hydrocarbons (TPH)-contaminated soil is located downgradient from the washing facility at Runnels Industries and has migrated in a westerly direction onto the

adjacent KFAX radio station property. This plume has stabilized (and is probably self-remediating). Its source was probably miscellaneous oils from the Runnels Industries metal washing facility. Runnels Industries has installed an oil-water separator to prevent further contamination.

- VOC-contaminated groundwater exists near the center of the Runnels Industries property and along its eastern boundary. The source of VOC contamination is undetermined. A groundwater monitoring report investigation conducted for Runnels Industries (H<sub>2</sub>OGEOL 2000) indicated that this plume may have originated off-site and further up the groundwater flow gradient to the east from an unknown source.
- Three underground storage tanks (USTs) were removed from the Runnels Industries property in 1993. The City of Hayward requested further testing, since the tank area had been backfilled with used blasting sand.
- Visible evidence of waste blasting sand dumping was observed along the property boundary between the Runnels and KFAX parcels. It appears this waste sand was dumped from the Runnels parcel to the KFAX parcel. Sources indicate that the sand was dumped at the request of Salem Broadcasting Corporation, as fill (cite).

Runnels Industries has requested closure on these contamination issues from the Alameda County Health Care Services Agency, Environmental Protection Division and Hayward Fire Department.

### **8.14.2 Project Waste Generation**

Waste will be generated at the RCEC and AWT plant site during both facility construction and operation. Types of waste will include wastewater, solid non-hazardous waste, and liquid and solid hazardous waste. The project will also generate solid non-hazardous waste during the construction of the electric transmission line, natural gas supply line, and water supply and discharge pipelines.

#### **8.14.2.1 Construction Phase**

During construction, the primary waste generated at the RCEC and AWT plant site will be solid non-hazardous waste. However, some non-hazardous liquid waste and both solid and liquid hazardous waste will also be generated at the RCEC and AWT plant site. The types of waste and their estimated quantities are described below.

#### ***Non-Hazardous Solid Waste***

##### **RCEC Site**

Potential non-hazardous waste streams and their estimated quantities from removal of existing structures and facilities on the property as well as construction of the generating plant, electric transmission line, natural gas supply line, and wastewater return line are as follows:

**Paper, Wood, Glass, and Plastics**—Paper, wood, glass, and plastics will be generated from packing materials, waste lumber, insulation, and empty non-hazardous chemical containers. Approximately 100 tons of these wastes will be generated during construction of the project. These wastes will be recycled where practical. Waste that cannot be recycled will be placed in on-site dumpsters and disposed of weekly in a Class III landfill.

**Concrete**—Approximately 70 tons of excess concrete will be generated during removal of existing foundations and structures as well as during construction. Waste concrete will be disposed of on a weekly basis in a Class III landfill or clean fill sites, if available.

**Metal**—Waste will include steel from removal of the existing radio towers and buildings/structures, welding/cutting operations, packing materials, and empty non-hazardous chemical containers. Aluminum waste will be generated from packing materials and electrical wiring. Waste copper wiring from the existing radio towers will be recycled. Approximately 25 tons of metal will be generated during removal of existing structures/facilities and during construction. Waste will be recycled where practical, and non-recyclable waste will be deposited in a Class III landfill.

#### **AWT Plant**

Potential non-hazardous waste streams and their estimated quantities from construction of the AWT plant are as follows:

**Paper, Wood, Glass, and Plastics**—Paper, wood, glass, and plastics will be generated from packing materials, waste lumber, insulation, and empty non-hazardous chemical containers. Approximately 50 tons of these wastes will be generated during construction of the project. These wastes will be recycled where practical. Waste that cannot be recycled will be placed in on-site dumpsters and disposed of weekly in a Class III landfill.

**Concrete**—Approximately 10 tons of excess concrete will be generated during construction. Waste concrete will be disposed of on a weekly basis in a Class III landfill or clean fill sites, if available.

**Metal**—Waste will include steel from welding/cutting operations, packing materials, and empty non-hazardous chemical containers. Approximately 10 tons of metal will be during construction. Waste will be recycled where practical, and non-recyclable waste will be deposited in a Class III landfill.

#### ***Non-Hazardous Wastewater***

##### **RCEC Site**

Wastewater generated will include sanitary waste and may include equipment wash water, stormwater runoff, wastewater from pressure testing the gas supply line after it is constructed, and water from excavation dewatering during construction. Sanitary waste will be collected in portable, self-contained toilets. Equipment wash water will be contained at specifically designated wash areas and disposed offsite. Stormwater runoff will be managed in accordance with a stormwater management plan that will be approved by the San Francisco Bay Regional Water Quality Control Board prior to the start of construction (see Section 8.15). Water resulting from construction dewatering will be filtered and delivered to the City of Hayward's Water Pollution Control Facility (WPCF).

**Electric Transmission Line and Eastshore Substation**—Sanitary waste will be generated during construction of the electric transmission line; this waste will be collected in portable, self-contained toilets.

**Natural Gas Pipeline**—Wastewater generated will include sanitary waste and wastewater from pressure testing the gas supply line after it is constructed. Sanitary waste will be collected in portable, self-contained toilets. The gas supply pipeline hydrostatic test water will be filtered to collect any sediment and welding fragments. The water will be tested and, if not contaminated, will be discharged to the City of Hayward's WPCF in accordance with applicable regulatory requirements. Contaminated water will be delivered to a permitted off-site treatment, storage, and disposal (TSD) facility.

**Wastewater Return Pipeline**—Sanitary waste will be generated during construction of the wastewater return pipeline; this waste will be collected in portable, self-contained toilets.

## **AWT Plant**

Wastewater generated during construction of the AWT plant will include sanitary waste and may include equipment wash water, stormwater runoff, wastewater from water line testing following construction, and water from excavation dewatering during construction. Sanitary waste will be collected in portable, self-contained toilets. Equipment wash water will be contained at specifically designated wash areas and disposed offsite. Stormwater runoff will be managed in accordance with a stormwater management plan that will be approved by the San Francisco Bay Regional Water Quality Control Board prior to the start of construction (see Section 8.15).

The water supply pipeline test water will be filtered to collect any sediment and welding fragments. The water will be tested and, if not contaminated, will be discharged to the City of Hayward's WPCF in accordance with applicable regulatory requirements. Contaminated water will be delivered to a permitted off-site treatment, storage, and disposal (TSD) facility. Water resulting from construction dewatering will be filtered and delivered to the City of Hayward's WPCF.

## **Hazardous Waste**

### **RCEC Site**

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 is generated when pipes and boilers are cleaned and flushed. Passivating fluid waste is generated when high temperature piping is 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 record keeping. The hazardous waste will be collected in hazardous waste accumulation containers near the points of generation and moved daily to the contractor's 90-day hazardous waste storage area. Prior to expiration of the regulatory 90-day storage period, the waste will be delivered to an authorized hazardous waste management facility.

**Electric Transmission Line and Eastshore Substation**—Minimal quantities of welding, solvent, and paint waste will be generated during construction of the electric transmission line.

**Natural Gas Pipeline**—Minimal quantities of welding, solvent, and paint waste will be generated during construction of the natural gas pipeline.

**Wastewater Return Pipeline**—Minimal quantities of welding, solvent, and paint waste will be generated during construction of the wastewater return pipeline.

### **AWT Plant**

Most of the hazardous waste generated during construction of the AWT plant will consist of liquid waste such as flushing and cleaning fluids, and solvents. Some hazardous solid waste such as welding materials and dried paint may also be generated.

Flushing and cleaning waste liquid is generated when pipes are cleaned and flushed. The volume of flushing and cleaning 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 record keeping. The hazardous waste will be collected in hazardous waste accumulation containers near the points of generation and moved daily to the contractor's 90-day hazardous waste storage area. Prior to expiration of the regulatory 90-day storage period, the waste will be delivered to an authorized hazardous waste management facility.

### **8.14.2.2 Operation Phase**

During operation of the RCEC plant and AWT plant, the primary waste generated will be non-hazardous wastewater and dewatered sludge resulting from water treatment. However, non-hazardous solid waste and small quantities of both solid and liquid hazardous waste will also be generated periodically. The electric transmission line, natural gas supply line, and water supply and discharge lines will not generate hazardous waste. The types of waste and their estimated quantities are discussed on the following pages.

### ***Non-Hazardous Solid Waste***

#### **RCEC Site**

The RCEC plant will produce wastes typical of power generation operations. These will include rags, broken and rusted metal and machine parts, defective or broken electrical materials, empty containers, and other miscellaneous solid wastes including the typical refuse that workers generate. The RCEC plant will generate about 70 cubic yards per year of non-hazardous solid waste.

**Electric Transmission Line and Eastshore Substation**—No solid wastes will be generated during operation of the electric transmission line.

**Natural Gas Pipeline**—No solid wastes will be generated during operation of the natural gas pipeline.

**Wastewater Return Pipeline**—No solid wastes will be generated during operation of the wastewater return pipeline.

#### **AWT Plant**

Dewatered sludge will be generated from the MF backwash treatment and copper removal process. The sludge from the clarifiers will be processed through gravity thickeners, conditioning, and plate and frame presses for dewatering to achieve 50 percent solids quality. After dewatering, the resulting sludge will be transported off-site for ultimate disposal. Approximately 9 tons/day (average) to 12 tons/day of sludge will be generated, requiring one to two truckloads per day.

The dominant species in the residual sludge will be calcium carbonate. Ferric hydroxide will be present to a much lesser extent. Other constituents of the sludge will result from incidental removal from the

concentrate stream. The most notable constituent of concern that is removed from the concentrate in the treatment scheme is copper. The projected concentration of copper in the waste sludge resulting from this treatment is less than 100 mg/kg. The Total Threshold Limit Concentration (TTL) for copper is 2,500 mg/kg (22 CCR 66261.24). The Soluble Threshold Limit Concentration (STLC) is 25 mg/L. Based on a sludge copper concentration of 100 mg/kg, the highest possible result from the Waste Extraction Test (WET) would be 10 mg/L, assuming 100 percent solubility. Therefore, it is unlikely that there will be any restrictions with respect to disposal of this sludge from a hazardous waste standpoint therefore, the dewatered sludge will be disposed of as non-hazardous waste.

The reverse osmosis treatment system includes a cartridge filter with wound polypropylene filter element. The filter media will be replaced approximately once every 9 months and disposed of as non-hazardous solid waste. The total weight of waste filter media per change-out is approximately 440 pounds.

In addition to the dewatered sludge and RO filter cartridges, the AWT plant will produce wastes typical of water treatment operations. These will include rags, defective or broken mechanical equipment parts, empty containers, and other miscellaneous solid wastes including the typical refuse that workers generate. The AWT plant will generate approximately 20 cubic yards per year of these types of non-hazardous solid waste.

### ***Non-Hazardous Wastewater***

#### **RCEC Site**

Wastewater sources from the RCEC Plant are described in detail in Sections 7.6 and 8.15.2.3.

**Electric Transmission Line and Eastshore Substation**—No wastewater will be generated from the electric transmission line operations.

**Natural Gas Pipeline**—No wastewater will be generated from the natural gas pipeline operations.

**Wastewater Return Pipeline**—The wastewater return pipeline will transport the RCEC plant industrial wastewater to the Hayward WPCF headworks.

#### **AWT Plant**

AWT plant wastewater sources are described in detail in Sections 7.6 and 8.15.2.3.

### ***Hazardous Waste***

#### **RCEC Site**

The RCEC project's hazardous waste includes waste lubricating oil and spent lubrication oil filters from the combustion turbines and selective catalytic reduction (SCR) catalyst units. The catalyst units must be replaced every 3 to 5 years. Because they contain heavy metals they are considered hazardous.

Calpine/Bechtel will train workers to handle any hazardous waste generated at the site. Table 8.14-1 summarizes the hazardous wastes and the appropriate disposal location.

Chemical cleaning wastes will consist of alkaline and acid cleaning solutions used during pre-operational chemical cleaning of the HRSGs and acid cleaning solutions used for chemical cleaning of the HRSGs after the units are put into service. These wastes, which are subject to high metal concentrations, will be temporarily stored onsite in portable tanks. They will be disposed of offsite by a chemical cleaning contractor in accordance with applicable regulatory requirements.

**Electric Transmission Line and Eastshore Substation**—No hazardous wastes will be generated during operation of the electric transmission linear substation.

**Natural Gas Pipeline**—No hazardous wastes will be generated during operation of the natural gas pipeline.

**Wastewater Return Pipeline**—No hazardous wastes will be generated during operation of the wastewater return pipeline.

**AWT Plant**

No hazardous wastes will be generated during operation of the AWT plant.

**8.14.3 Waste Disposal Sites**

The removal of non-hazardous solid waste (often referred to as solid waste, municipal solid waste [MSW], or garbage) is through recycling or, if not recyclable, through deposit in a Class III landfill. Non-hazardous liquid wastes will be returned to either the headworks or outfall of the City of Hayward’s WPCF for ultimate discharge under the East Bay Dischargers Authority (EBDA) National Pollutant Discharge Elimination System (NPDES) permit at the EBDA outfall (as discussed in Section 8.15.2.3). Hazardous wastes, both solid and liquid, will be delivered to a permitted off-site treatment, storage, and disposal (TSD) facility or deposited in a permitted Class I landfill. The following subsections describe the waste disposal sites that are feasible for disposal of wastes associated with the RCEC plant and its ancillary facilities.

**Table 8.14-1.** Hazardous wastes generated at the RCEC facility during operation.

<b>Waste</b>	<b>Origin</b>	<b>Composition</b>	<b>Quantity</b>	<b>Classification</b>	<b>Disposal</b>
Lubricating oil	Gas and stream turbine lubricating oil system	Hydrocarbons	2,575 gal per year	Hazardous	Disposed by certified oil recycler
Lubricating oil filters	Gas and stream turbine lubricating oil system	Paper, metal, and hydro-carbons	400 lbs per year	Hazardous	Recycled by certified oil recycler
Laboratory analysis waste	Water treatment	Sulfuric acid	Approximately 500 gal per year	Hazardous	Disposed of in a Class I landfill
SCR catalyst units	SCR system	Metal and heavy metals, including vanadium	70,000 lbs every 3 to 5 years	Hazardous	Recycled by SCR manufacturer or disposed in Class I landfill
Oily rags	Maintenance, wipe down of equipment, etc.	Hydrocarbons, cloth	Approximately 800 rags per year	Hazardous	Recycled by certified oil recycler
Oil sorbents	Cleanup of small spills	Hydrocarbons	Approximately 200 pounds per year	Hazardous	Recycled or disposed of by certified oil recycler

**Table 8.14-1. (continued)**

Waste	Origin	Composition	Quantity	Classification	Disposal
Chemical cleaning wastes	HRSO cleaning	Alkaline and acidic solution, metals	140,000 gal initially and every 10 years	Hazardous	Offsite disposal by contractor
Washwater	Turbine and HRSO fireside washing	Water containing metals	9,480 gal per year	May be hazardous, but usually not	Offsite disposal by contractor
Cooling tower sludge	Deposited in cooling tower basin by cooling water	Dirt from air, arsenic from water	100 to 200 pounds per year	May be hazardous, but usually not	Class II landfill if non-hazardous; Class I if hazardous
Spent Batteries	Station batteries	Lead-Acid batteries	Approx. 200 lbs per year	Hazardous	Battery recycler

### 8.14.3.1 Non-hazardous Waste Disposal Facilities

Solid waste facilities that could be used for recycling and disposal of solid waste generated during construction and operation of the RCEC and the AWT plant are shown in Table 8.14-2. Franchised waste collection companies, such as Waste Management, will collect non-hazardous solid waste materials and transport them to a transfer station. Recyclables will be removed at the transfer station (i.e., Davis Street Transfer Station in San Leandro), and the remaining residue will be placed in a nearby landfill such as Altamont Landfill. Neither the Davis Street Transfer Station nor the Altamont Landfill facilities have been subject to any enforcement actions within the last 5 years; compliance at these facilities has been very strong (Pantages, 2001).

Waste collection and disposal will be in accordance with applicable regulatory requirements to minimize environmental, health, and safety impacts.

**Table 8.14-2. Solid waste disposal facilities for the RCEC waste.**

Landfill/ Transfer Station	Location	Class	Permitted Capacity	Current Operating Capacity	Remaining Capacity	Estimated Closure Date	Comment
Davis Street Transfer Station	San Leandro	N/A	5000 tons/day	3800 tons/day	N/A	N/A	
Altamont Landfill	Livermore	III	11,150 tons/day	6,000 tons/day	16.3 million cubic yards (7 years)	2007	Unit 1
Altamont Landfill Expansion	Livermore	III	N/A	N/A	160 million tons (46 years)	N/A	Expansion Approved

### 8.14.3.2 Hazardous Waste Disposal Facilities

There is a 90-day limit on the storage of hazardous waste generated at the facility. The waste will be transferred by a permitted hazardous waste transporter to a transfer, storage, and disposal (TSD) facility. These facilities vary considerably in what they can do with the hazardous waste they receive. Some can

only store waste, others can treat the waste to recover usable products, while others can dispose of the waste through incineration, deep well injection or landfilling (although incineration and deep-well injection are not permitted in California).

According to U.S. Environmental Protection Agency (USEPA's) Preliminary Biennial Resource Conservation and Recovery Act [RCRA] Hazardous Waste Report (based on 1995 data), there are 137 RCRA TSD facilities in California (USEPA, 1997). 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 facility is Safety-Kleen Corporation in Oakland, which 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. For ultimate disposal, three hazardous waste (Class I) landfills are available:

#### ***Laidlaw Environmental's Buttonwillow Landfill in Kern County***

This landfill is permitted at 13.25 million cubic yards and has a remaining capacity of 10.9 million cubic yards (Hicks, 2000). The annual deposit rate is currently 130,000 to 150,000 cubic yards. This landfill has an estimated 50 years of operational life remaining or until 2050. Buttonwillow has been permitted to accept all hazardous wastes except flammables, PCB with a concentration greater than 50 ppm, medical waste, explosives, and radioactive waste with radioactivity greater than 20,000 picocuries. There have been no enforcement actions at this facility within the last year (Ramirez, 2001).

#### ***Laidlaw Environmental's Landfill in Imperial County***

This landfill is permitted at 4 million cubic yards and has an estimated remaining capacity of 2.4 million cubic yards. The annual deposit rate is approximately 110,000 cubic yards. The remaining life of this landfill is approximately 50 years or until 2050 (Yadvich, 2000). The landfill's conditional use permit prohibits the acceptance of some types of waste, including radioactive (except geothermal) waste, flammables, biological hazardous waste (medical), PCB, dioxins, air- and water-reactive wastes, and strong oxidizers. There have been no enforcement actions at this facility within the last year (Jius, 2001).

#### ***Chemical Waste Management's Landfill in Kings County***

The Class 1 portion of this landfill has approximately 6.7 million cubic yards of remaining capacity of a total permitted capacity of 10.7 million cubic yards. The annual deposit rate is approximately 200,000 cubic yards. The remaining life of this landfill is approximately 25 years or until 2025 (Vasquez, 2000). The Class I landfill is permitted for and will accept all hazardous wastes except radioactive, medical, and UXO (Yarbrough, 1998). There have been no enforcement actions at this facility within the last year (Fujitsubo, 2001).

There is no shortage of hazardous waste landfill capacity in California. The deposit rate has decreased by about 50 percent in the last several years due to source reduction by generators and transfer of waste out of state that is considered hazardous under California's Hazardous Waste Control Law (HWCL) but not under RCRA.

In addition to landfills, there are about 25 off-site commercial hazardous waste treatment and recycling facilities. These facilities have sufficient capacity to recycle and/or treat hazardous waste generated in

California that does not go to landfills. All hazardous waste will be removed and delivered to a TSD facility. Used oily rags and oil sorbent will be collected by a permitted oil recycler.

#### **8.14.4 Best Management Practices**

The handling and management of wastes generated from the RCEC and the AWT plant will follow the hierarchical approach of source reduction, recycling, treatment, and disposal. The first effort will therefore be to reduce the quantity of waste generated, if possible, then to recycle the waste generated for reuse, treatment so the waste is no longer hazardous and, finally, to properly dispose of residual waste that is not treatable or recyclable.

The following subsections present the method for managing both non-hazardous and hazardous waste generated.

##### **8.14.4.1 Construction Phase**

Non-hazardous solid waste generated during construction will be collected in on-site dumpsters and one of the franchised collection companies, such as Waste Management, will pick it up periodically. The waste will be taken to one of the nearby transfer stations, such as Davis Street Transfer Station, where recyclables will be removed and the residue will be deposited in one of several nearby landfills, such as Altamont Landfill in Livermore. Wastewater generated will include sanitary waste and may include equipment wash water and stormwater runoff. Sanitary waste will be collected in portable, self-contained toilets. Equipment wash water will be contained at designated wash areas and disposed off-site. Stormwater runoff will be managed in accordance with a stormwater management plan, which will be required prior to the start of construction. The generation of non-hazardous wastewater will be minimized through water conservation and water reuse measures.

Minimal hazardous waste will be generated during construction and will consist of liquid waste such as solvents and solid waste in the form of welding materials and dried paint. The construction contractor will be considered the generator of hazardous construction waste and will be responsible for the proper handling of hazardous waste in compliance with all applicable federal, state, and local laws and regulations, including licensing, training of personnel, accumulation limits and times, and reporting and record keeping. The hazardous waste will be collected in hazardous waste accumulation containers near the points of generation, moved daily to the contractor's 90-day hazardous waste storage area, and then, prior to the expiration of the regulatory 90-day storage period, delivered to an authorized hazardous waste management facility.

Calpine/Bechtel will seek closure of outstanding contamination issues involving the Runnel Industries and Salem Broadcasting (KFAX) properties before construction. These include: 1) possible metals contamination in the area where Runnels removed their USTs due to the use of blasting sand to back fill the tank area, 2) TPH contamination downgradient from the wash facility under the KFAX parcel, and 3) VOC groundwater contamination from an off-site source across Whitesell Street to the east. Any remaining contaminated soils at the UST site and from the wash facility will be capped as part of the process of filling the site to raise the grade. An alternative would be to remove any localized contamination (small TPH plume and UST area). This will prevent any release of contaminated soils to the surface. Calpine/Bechtel will consult with the Alameda County Health Care Services Agency and Hayward Fire Department to achieve final closure.

#### **8.14.4.2 Operation Phase**

The primary waste generated during the operation phase of the RCEC and AWT plant will be non-hazardous wastewater from plant operation. Non-hazardous solid waste will also be generated, as well as small quantities of liquid and solid hazardous waste. Handling and mitigation of these wastes is described in the following subsections.

##### ***Non-Hazardous Wastes***

The wastewater from power plant cooling will be collected and returned to the City of Hayward WPCF. The project will significantly reduce the quantity of treated wastewater that will be discharged to the San Francisco Bay by the City's Water Pollution Control Facility, because the RCEC plant will use recycled water for approximately 95 percent of the process demand. A large percentage of this water will be lost due to evaporation, thereby reducing the freshwater impact on the Bay.

Sanitary wastewater from the RCEC and AWT plant, will be collected from sinks and toilets and routed to the local sewer system. The waste produced will be typical in type and quantity of that generated by facility workers.

A collection company, such as Waste Management or BFI, will collect non-hazardous solid waste or refuse. Most of these collection companies remove recyclable material prior to depositing un-recyclable waste in a landfill. The residue will be deposited in a Class III (non-hazardous) landfill. Waste deposited in the landfill is reduced or mitigated by removal of the material that can be recycled.

##### ***Hazardous Wastes***

To avoid potential effects on human health and the environment from the handling and disposal of hazardous wastes, Calpine/Bechtel will develop procedures at the RCEC plant that ensure proper labeling, storage, packaging, record keeping, and disposal of all hazardous wastes. Calpine/Bechtel will:

- Apply to the California Environmental Protection Agency (CalEPA) for an USEPA hazardous waste generator identification number before facility startup.
- Accumulate hazardous wastes according to Title 22 of the California Code of Regulations (CCR) and will not store them on-site for more than 90 days.
- Store hazardous wastes in appropriately segregated storage areas surrounded by berms to contain leaks and spills. Size the bermed areas to hold the full contents of the largest single container and, if not roofed, size them for an additional 20 percent to allow for rainfall. Inspect these areas weekly.
- Authorize a licensed hazardous waste hauler to collect hazardous wastes using a hazardous waste manifest and manage these wastes only at an authorized hazardous waste management facility. Calpine Bechtel will prepare biannual hazardous waste generator reports and submit them to the California Department of Toxic Substances Control (DTSC) and will keep copies of manifests, reports, waste analyses, and other documents on-site and accessible for inspection for at least 3 years.
- Train employees in hazardous waste procedures, spill contingencies, and waste minimization.
- Develop procedures to reduce the quantity of hazardous waste generated. Use non-hazardous instead of hazardous materials whenever possible. Recycle wastes whenever possible.

As for more specific measures for hazardous waste handling, Calpine/Bechtel will implement the following procures:

- A waste oil recycling contractor will recover and recycle waste lubricating oil and dispose of spent lubrication oil filters in a Class I landfill. The supplier will recycle spent SCR capsules and catalysts, if possible, or dispose of them in a Class I landfill if recycling is not feasible.
- Chemical cleaning wastes will consist of alkaline and acid cleaning solutions used during pre-operational chemical cleaning of the boiler and pre-boiler systems 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 wash waters. These wastes, which are subject to high metal concentrations, will be temporarily stored on-site in portable tanks and disposed of off-site in accordance with applicable regulatory requirements. Disposal may consist of treatment, recovery of metals and/or landfilling.

The AWT plant is not expected to generate hazardous waste.

#### **8.14.4.3 Facility Closure**

When the RCEC is closed, both non-hazardous and hazardous wastes must be properly handled. 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 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.

##### ***Temporary Closure***

If the RCEC were to be temporarily closed (with no release of hazardous materials) Calpine/Bechtel would deploy security personnel on a 24-hour basis and notify the California Energy Commission (CEC). Depending on the length of shutdown necessary, Calpine/Bechtel would implement a contingency plan for the temporary cessation of operations. This plan will be prepared prior to the RCEC plant startup. The plan will be developed to ensure conformance with all applicable LORS and protection of public health and safety and the environment. The plan will include the draining of all chemicals from storage tanks and other equipment and the safe shutdown of all equipment, depending on the expected duration of the shutdown. All wastes will be disposed of according to applicable LORS as discussed in Section 8.14.7.

Where the temporary closure includes damage to the facility, or where there is a release or threatened release of hazardous waste (or materials) into the environment, procedures will be followed as will be set forth in a Risk Management Plan (RMP). The RMP is described in Section 8.12.5.4. Procedures include methods to control releases, notification of applicable authorities and the public, emergency response, and training for power plant 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.

## **Permanent Closure**

The planned life of the RCEC is 30 years, although operation could be longer. Whenever the RCEC facility is permanently closed, the handling of non-hazardous and hazardous waste and hazardous materials will be part of a general closure plan (see Section 4) that will attempt to maximize the recycling of all facility components. Unused chemicals will be sold back to the suppliers or other purchasers or users. All equipment containing chemicals will be drained and shut down to protect public health and safety and the environment. All non-hazardous wastes will be collected and disposed in appropriate landfills or waste collection facilities. All hazardous wastes will be disposed according to applicable LORS. The site will be secured 24 hours per day during decommissioning activities.

### **8.14.5 Cumulative Impacts**

The RCEC and the AWT plant site will generate non-hazardous solid waste that will add to the total waste generated in Alameda County and in California. However, there is adequate recycling and landfill capacity in Alameda County to recycle and dispose of the waste for the next 30 to 40 years. This capacity is described in Section 8.14.3.1. Therefore, the impact of the project on solid waste recycling and disposal capability is not significant.

Hazardous waste generated at the RCEC plant consists of waste turbine oil and oil filter elements, SCR catalysts, and fluids used to clean the HRSGs and piping. The waste turbine oil and SCR catalysts will be recycled. Cleaning and flushing fluids will be removed and either treated to a non-hazardous condition or disposed of in a Class I landfill. Cleaning and flushing will occur only periodically. Hazardous waste treatment and disposal capacity in California is more than adequate. The AWT plant are not expected to generate hazardous waste. Therefore, the effect of the project on hazardous waste recycling, treatment, and disposal capability is not significant.

### **8.14.6 Monitoring**

Since the environmental impacts caused by construction and operation of the RCEC and the AWT plant are expected to be minimal, extensive monitoring programs are not required. Generated waste, both non-hazardous 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 discharged from the plant will be monitored in accordance with pretreatment standards mandated by the City (see Section 8.15).

### **8.14.7 Laws, Ordinances, Regulations and Standards**

The handling of non-hazardous and hazardous waste at the RCEC and the AWT plant is governed by federal, state, and local laws. Applicable laws and regulations address the proper handling, storage and disposal of waste to protect the environment from contamination and facility workers and the surrounding community from exposure to non-hazardous and hazardous waste. The following LORS are applicable to the handling of waste at the RCEC and the AWT plant. These LORS are summarized in Table 8.14-3.

#### **8.14.7.1 Federal**

Wastewater is regulated by the USEPA under the Clean Water Act (CWA). Water will be returned to the City's WPCF (see Section 8.15) for discharge under the EBDA NPDES permit.

The federal statute that controls both non-hazardous and hazardous waste is RCRA, 42 United States Code (USC) Sections 6901 et seq. and its implementing regulations found at 40 Code of Federal Regulations (CFR) 260 et seq. Subtitle D makes the regulation of non-hazardous waste the responsibility of the states; federal involvement is limited to establishing minimum criteria that prescribe the best practicable controls and monitoring requirements for solid waste disposal facilities. Subtitle C controls the generation, transportation, treatment, storage and disposal of hazardous waste through a comprehensive “cradle to grave” system of hazardous waste management techniques and requirements. It applies to all states and to all generators of hazardous waste (above certain levels of waste produced). The RCEC will conform with this law in its generation, storage, transportation and disposal of any hazardous waste generated at the facility. The USEPA is responsible for implementing the law.

#### **8.14.7.2 State**

Non-hazardous solid waste is regulated by the California Integrated Waste Management Act (CIWMA) of 1989, found in Public Resources Code (PRC) Sections 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 Alameda County and the solid waste hauler and disposer that will collect solid waste from the RCEC and the AWT plant. It also affects the RCEC plant to the extent that hazardous wastes are not to be disposed with solid waste.

Wastewater is regulated by the State and Regional Water Quality Control Boards under the Porter-Cologne Water Quality Control Act. Water will be returned to the City of Hayward Water Pollution Control Facility for ultimate discharge, along with the City’s discharge at the EBDA outfall (see Sections 7 and 8.15).

RCRA allows the states to develop their own programs to regulate hazardous waste. The programs developed must be at least as stringent as RCRA. California has developed its own program by passage of the California HWCL. This statute is found in Health and Safety Code Sections 25100, et seq. Administration and enforcement of the HWCL was originally with the former Department of Health Services (DHS), which was transferred to the CalEPA and became the DTSC. Some of the elements of implementation of the HWCL were delegated to local health departments by DHS via a Memorandum of Understanding. The DTSC continues to recognize these local programs.

The HWCL performs essentially the same regulatory functions as RCRA and is the law that actually regulates hazardous waste, since California has elected to develop its own program. The HWCL, however, includes hazardous wastes that are not classified as hazardous waste under RCRA. Although the hazardous waste generated at the RCEC and AWT plant during both construction and operation will be removed (e.g., HRSG flushing chemicals, SCR catalysts, and used oil), the HWCL requires the applicant to adhere to storage, record keeping, reporting, and training requirements for these wastes.

#### **8.14.7.3 Local**

The Alameda County Department of Environmental Health will have the primary responsibility for administering and enforcing the CIWMA for solid, non-hazardous waste for the RCEC and the AWT plant.

For hazardous waste, local regulation consists primarily of the administration and enforcement of the HWCL. The City of Hayward Fire Department, Hazardous Materials Office, is the local agency that will

**Table 8.14-3. LORS applicable to waste management.**

<b>LORS</b>	<b>Applicability</b>	<b>Conformance</b>	<b>AFC Reference</b>
<b>Federal:</b>			
<b>RCRA</b>			
Subtitle D	Controls solid waste collectors, recyclers, and depositors.	The RCEC and AWT plant solid waste will be collected and disposed of by a collection company in conformance with Subtitle D.	Sections 8.14.3.1, 8.14.4, and 8.14.7.1
Subtitle C	Controls storage, treatment, disposal of hazardous waste.	Hazardous waste will be handled by contractors in conformance with Subtitle C.	Section 8.14.4
CWA	Controls discharge of waste water to the surface waters of the U.S. Applies to waste water returned to the City of Hayward WPCF.	Discharge will be in accordance with Publicly Owned Treatment Works (POTW) pretreatment standards, which conform to the CWA. Ultimate discharge will take place under the EBDA NPDES permit.	Sections 8.14.2, 8.14.6, and 8.14
<b>California:</b>			
CIWMA	Controls solid waste collectors, recyclers, and depositors.	The RCEC and the AWT plant solid waste will be collected and disposed of by a collection company in conformance with the CIWMA.	Sections 8.14.3.1, 8.14.4.1 and 8.14.4
HWCL	Controls storage, treatment, disposal of hazardous waste.	Hazardous waste will be handled by contractors in conformance with the HWCL.	Sections 8.14.4.1 and 8.14.4.2
Porter-Cologne Water Quality Control Act	Controls discharge of waste water to the surface and ground waters of the State of California. Applies to waste water returned to the City of Hayward WPCF.	Discharge will be in accordance with pretreatment standards under the EBDA NPDES permit.	Sections 8.14.2, 8.14.6 and Section 8.14

regulate hazardous waste at the RCEC plant. For emergency spills, the Alameda County Hazardous Materials Emergency Response Team is responsible for containment and cleanup.

#### **8.14.7.4 Codes**

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

- The Uniform Fire Code, 1997
- The Uniform Building Code, 1997
- The Uniform Plumbing Code, 1997

#### **8.14.8 Involved Agencies**

There are a number of agencies regulating non-hazardous and hazardous waste that will be involved in regulation of the waste generated at the RCEC and the AWT plant. At the federal level is the USEPA and at the state level is CalEPA. The administration and enforcement of the hazardous waste laws,

however, is primarily through a local agency or agencies. For the RCEC, the local agency will be the City of Hayward Fire Department. The Alameda County Health Care Services Agency, Environmental Protection Division is involved in closure of the contamination issues at the Runnels Industries parcel. The San Francisco Bay Regional Water Quality Control Board could also be involved in resolving any groundwater contamination issues. The agencies and persons to contact for each type of waste are shown in Table 8.14-4.

### 8.14.9 Permits Required and Permit Schedule

A Consolidated Permit will cover hazardous waste generation at the RCEC plant. A Hazardous Materials Business Plan must be submitted as part of the application for the permit. The permit will be obtained prior to storage of hazardous materials at the site. Specific permitting requirements are discussed in Section 8.5 (Hazardous Materials Handling).

In addition, the project must obtain an USEPA hazardous waste generator identification number. The number will be obtained before construction begins. The Hazardous Materials Business Plan will be

**Table 8.14-4.** Agency contacts.

Type Waste	Agency	Contact	Title	Telephone
<b>Non-hazardous</b>				
Solid	Alameda County Department of Environmental Health	Dick Pantages	Chief – Solid Waste Management	(510) 567-6700
Solid	Waste Management Authority of Alameda County	Roel Meregillano	Senior Regulated Environmental Health Specialist	(510) 567-6790
Liquid	San Francisco Bay Regional Water Quality Control Board	Keith Lichten	Water Resources Control Engineer	(510) 622-2380
<b>Hazardous</b>				
All	City of Hayward, Fire Department Hazardous Materials Office	Hugh Murphy	Hazardous Materials Program Coordinator	(510) 583-4924
All	Department of Toxic Substances Control	EPA ID Center		(916) 324-1781
All	San Francisco Bay Regional Water Quality Control Board, Toxics Cleanup Division	Roger Brewer	Primary Contact	(510) 688-2374
All	Alameda County Health Care Services Agency, Environmental Protection, Environmental Health Services	Eva Chu	Hazardous Materials Specialist	(510) 567-6700
All—Hazardous Materials Emergency Response Team	Alameda County Hazardous Materials Response Team	Deputy Chief Mark Blanchard	Hazmat Response Team Supervisor	(510) 618-3490

submitted to the City of Hayward Fire Department as discussed in Section 8.5. The NPDES permit that will be required for the discharge of stormwater is discussed in Section 8.15 (Water Resources).

#### **8.14.10 References**

- Fujitsubo, A.. 2001. Personal communication between Doug Urry (Foster Wheeler Environmental Corporation) and Albert Fujitsubo (Cal-EPA, Department of Toxic Substances Control, Region 1), March 13, 2001.
- Foster Wheeler Environmental Corporation (FWENC). 2000a. *Phase I environmental site assessment of 3590 & 3636 Enterprise Avenue, Hayward, California.*
- Hicks, M. 2000. Personal communication between Jennifer Amdursky (Foster Wheeler Environmental Corporation) and Melinda Hicks (Customer Service, Buttonwillow Landfill), October 3, 2000.
- H<sub>2</sub>OGEOL. 2000. Letter from Gary D. Lowe, Hydrologist to Ms. Eva Chu, Hazardous Materials Specialist, Alameda County Health Care Services Agency, Environmental Health Services, May 31, 2000.
- Jius, F. 2001. Personal communication between Doug Urry (Foster Wheeler Environmental Corporation) and Fred Jius (Department of Toxic Substances Control, Permitting Department), April 24, 2001.
- Pantages, D. 2001. Personal communication between Doug Urry (Foster Wheeler Environmental Corporation) and Dick Pantages (Alameda County Environmental Health Department), March 13, 2001.
- Ramirez, L. 2001. Personal communication between Doug Urry (Foster Wheeler Environmental Corporation) and Larry Ramirez (Department of Toxic Substances Control, Fresno Office), April 18, 2001.
- U.S. Environmental Protection Agency (USEPA). 1997. *Executive Summary—the preliminary biennial RCRA hazardous waste report* (based on 1995 data). August 1997.
- Vasquez, E. 2000. Personal communication between Jennifer Amdursky (Foster Wheeler Environmental Corporation) and Edward Vasquez (Customer Service, Chemical Waste Management), November 7, 2000.
- Yadvich, A. 2000. Personal communication between Jennifer Amdursky (Foster Wheeler Environmental Corporation) and Andy Yadvich (Customer Service, Safety Kleen), November 9, 2000.

*Russell City Energy Center AFC*

*May 2001*