

8.14 WASTE MANAGEMENT

This section presents an evaluation of potential effects on human health and the environment from non-hazardous and hazardous waste generated by the Pico Power Project (PPP). Section 8.14.1 describes the current condition of the proposed plant and compressor station sites. 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

8.14.1.1 Power Plant Site

SCS Engineers performed a Phase I Environmental Site Assessment (ESA) in June 2002 (SCS Engineers) for the PPP site. The ESA was conducted in accordance with American Society for Testing and Materials (ASTM) Standard E 1527-00, 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-A and is incorporated here by reference.

The PPP site investigation was conducted at 850 Duane Avenue (approximately 2.86 acres). The property located at 850 Duane Avenue is currently vacant, with a small portion utilized by the City of Santa Clara for a driveway, parking area, and equipment storage area.

Historical Uses and Surrounding Areas

Review of historical aerial photography indicates that the project site was historically vacant. Aerial photos indicate that the site was used by the City of Santa Clara for access roads, parking and storage associated with the Kifer Receiving Station and other purposes, including the washing of street sweepers. The 1966 aerial showed buildings occupying the center of the property. The 1976 aerial showed the lot vacant. Photographs show a depression filled with water that is present on the eastern portion of the site between 1976 and 1984. The 1996 and 1999 photos show the property in its present condition.

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 (Appendix 8.14).

- Tractors, construction equipment, employee vehicles, four industrial storage bins, a trailer, a mobile home, an unlabeled 55-gallon drum, various concrete and metal structures, stockpiles of asphalt and dirt, trash, chopped wood, oil stained telephone poles, and small amounts of industrial chemical products were observed during the site reconnaissance.
- For over 20 years, the City of Santa Clara street sweepers have been washed at the southeast portion of the Site. Discharge from the wash station is eventually recharged into the ground. Discharged water may have contained various contaminants.

- Review of aerial photographs indicated the historic presence of a water-filled depression in the eastern portion of the site between 1976 and 1984. Water within the depression may have been associated with street sweeper operations and could have impacted soil in the area.
- Several nearby sites have recorded releases of contaminants to the groundwater. Groundwater concentrations of TCE have been identified at up to 12,000 parts per billion (ppb).

Based on the findings of the Phase I ESA, a limited Phase II investigation was performed by Foster Wheeler Environmental in September 2002. Proposed sampling included soil sampling for total petroleum hydrocarbons (TPH), metals, and polychlorinated biphenyls (PCBs); additionally one groundwater sample was proposed for TPH and volatile organic compound (VOC) analysis. Further details are presented in the Phase II work plan, which is included in Appendix 8.14-C.

8.14.1.2 Natural Gas Compressor Station Site

Foster Wheeler Environmental performed a Phase I ESA in August 2002 for the PPP natural gas compressor station site. The ESA was conducted in accordance with American Society for Testing and Materials (ASTM) Standard E 1527-00, 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-B and is incorporated here by reference.

The Site is approximately 0.26 acres and is bounded on the north and east by City of Santa Clara Maintenance Facility (2975 Lafayette Street), on the west by Lafayette Street and on the south by Comstock Street.

Historical Uses and Surrounding Areas

Historical usage of the property was reviewed from aerial photographs. The 1954 and 1960 aerial photographs show the site is vacant. By 1970, the City of Santa Clara Maintenance Facility, the City of Santa Clara Police Department Pistol Range, and the former substation had been developed. The southern portion of the site was still vacant. The 1983 photo shows the property in its present condition.

Investigation Results and Recommendations

Recognized environmental conditions that were identified are presented below; additional detail on these and other findings is included in the Phase I ESA.

- It is assumed that PCB-containing devices were present on the site at one time because the former electrical substation was built in 1965. No records of PCB spills or contamination were found. PCB soil contamination is frequently found at substation locations. Due to the immobile nature of PCBs in soil, PCB contamination may be present if PCB-containing oil was spilled in the past.
- Several small areas of soil were noted that might have been stained by small spills, based on soil color.
- A large TCE groundwater plume exists south of the site; local groundwater flows in a northeast direction. Based on impacts from this plume noted at the Owens Corning facility (approximately 500 feet south of the site), it is possible the groundwater at the site has been impacted.

Based on the findings of this Phase I ESA, a limited Phase II investigation will be performed to further assess potential site contamination from past uses. A Phase II work plan will be prepared that will include detailed sampling plan for the site investigation.

8.14.1.3 Natural Gas Pipeline and Metering Station Locations

Detailed site investigations have not been conducted for the natural gas pipeline and metering station. However, no contamination is expected to be present, due to the fact that most of the pipeline route lies along historic road right-of-way.

8.14.1.4 Waste Water Pipeline

Detailed site investigations have not been conducted for the waste water pipeline. However, no contamination is expected to be present, due to the fact that most of the pipeline route lies along historic road right-of-way.

8.14.2 Project Waste Generation

Waste will be generated at the PPP plant and compressor station sites 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 natural gas pipeline, and wastewater discharge pipeline.

8.14.2.1 Construction Phase

During construction, the primary waste generated by the PPP 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 PPP site. The types of waste and their estimated quantities are described below.

Non-Hazardous Solid Waste

Potential non-hazardous waste streams and their estimated quantities from removal of existing debris and stockpiles on the property as well as construction of the generating plant, compressor station, natural gas pipeline, backup water supply pipeline, and wastewater discharge pipeline 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 40 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 15 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 welding/cutting operations, packing materials, and empty non-hazardous chemical containers. Aluminum waste will be generated from packing materials and electrical wiring.

Approximately 5 tons of metal waste will be generated during construction. Waste will be recycled where practical, and non-recyclable waste will be deposited in a Class III landfill.

Non-Hazardous Waste Water

Power Plant Site

Wastewater generated will include sanitary waste and may include equipment wash water, storm water 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. Storm water runoff during construction will be managed in accordance with the General Permit For Storm Water Discharges Associated With Construction Activity (General Permit) and with the EPA Phase II Final Rule (see Section 8.15). Construction dewatering will be performed in accordance with RWQCB requirements and discharged into the existing 54-inch storm drain located in Pico Way. Results from the Phase II site investigation will be reviewed to determine whether enhanced storm water runoff control measures or alternate dewatering waste disposal measures will be required.

Natural Gas Compressor Station Site

Procedures for managing non-hazardous wastewater will be the same as described above for the power plant site.

Natural Gas Pipeline and Metering Station

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 Santa Clara sanitary sewer in accordance with applicable regulatory requirements. Contaminated water will be delivered to a permitted off-site treatment, storage, and disposal (TSD) facility.

Waste Water Discharge Pipeline

Procedures for managing non-hazardous waste water will be the same as described above for the natural gas pipeline.

Hazardous Waste

Power Plant 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 Phase II investigation results will be reviewed to assess whether environmental contaminants are currently present in site soil or underlying groundwater. Should contaminants be found, appropriate handling and disposal measures will be defined based on contaminant levels and regulatory requirements.

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.

Natural Gas Compressor Station Site

Hazardous waste streams generated during construction of the gas compressor station will consist of welding, solvent, and paint waste; quantities are 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.

Natural Gas Pipeline and Metering Station

Minimal quantities of welding, solvent, and paint waste will be generated during construction of the natural gas pipeline.

Waste Water Discharge Pipeline

Minimal quantities of welding, solvent, and paint waste will be generated during construction of the waste water discharge pipeline.

8.14.2.2 Operation Phase

During operation of the PPP, the primary waste generated will be non-hazardous wastewater. However, non-hazardous 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 on the following pages.

Non-Hazardous Solid Waste

Power Plant Site

The PPP 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 PPP will generate about 20 cubic yards per year of non-hazardous solid waste.

Natural Gas Compressor Station

Only small quantities of solid wastes will be generated during operation of the compressor station.

Natural Gas Pipeline and Metering Station

No solid wastes will be generated during operation of the natural gas pipeline.

Wastewater Discharge Pipeline

No solid wastes will be generated during operation of the wastewater discharge pipeline.

Non-Hazardous Wastewater

Power Plant Site

Waste water sources from the PPP are described in detail in Sections 7 and 8.15.

Natural Gas Compressor Station

No wastewater will be generated from the natural gas compressor station operations.

Natural Gas Pipeline and Metering Station

No wastewater will be generated from the natural gas pipeline and metering station operations.

Waste Water Discharge Pipeline

No waste water will be generated during operation of the wastewater discharge pipeline (although it will be conveying wastewater).

Hazardous Waste**Power Plant Site**

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

Natural Gas Compressor Station Site

Small quantities of heavy hydrocarbon residue waste will collect out of the natural gas in a separator drain tank (20-gallon tank). Collection rates are estimated at approximately one gallon every one to two weeks. This waste stream will be handled and disposed of as hazardous waste.

Natural Gas Pipeline and Metering Station

No hazardous wastes will be generated during operation of the natural gas pipeline and metering station.

Waste Water Discharge Pipeline

No hazardous wastes will be generated during operation of the waste water discharge pipeline.

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

Waste	Origin	Composition	Quantity	Classification	Disposal
Lubricating oil	Gas and steam turbine lubricating oil system	Hydrocarbons	1,000 gal per year	Hazardous	Disposed by certified oil recycler
Lubricating oil filters	Gas and steam turbine lubricating oil system	Paper, metal, and hydro-carbons	150 lbs per year	Hazardous	Recycled by certified oil recycler
Laboratory analysis waste	Water treatment	Sulfuric acid	Approximately 150 gal per year	Hazardous	Disposed of in a Class I landfill
SCR & CO catalyst units	SCR/CO catalyst systems	Metal and heavy metals, including vanadium	25,000 pounds per 3 to 5 years	Hazardous	Recycled by catalyst manufacturer or disposed in Class I landfill
Oily rags	Maintenance, wipe-down of equipment, etc.	Hydrocarbons, cloth	Approximately 350 rags per year	Hazardous	Recycled by certified oil recycler
Oil sorbents	Cleanup of small spills	Hydrocarbons	Approximately 80 pounds per year	Hazardous	Recycled or disposed of by certified oil recycler
Chemical cleaning wastes	HRSR cleaning	Alkaline and acidic solution, metals	50,000 gal initially and every 10 years	Hazardous	Offsite disposal by contractor
Washwater	Turbine and HRSR fireside washing	Water containing metals	3,500 gallons 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	30 to 60 pounds per year	May be hazardous, but usually not	Class II LF if non-hazardous Class I if hazardous
Spent Batteries	Station batteries	Lead-Acid batteries	Approx 40 pounds per year	Hazardous	Battery recycler

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 discharged to the City of Santa Clara's sanitary sewer system. 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 PPP.

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 PPP are shown in Table 8.14-2. The City of Santa Clara collection company, Missions Trail Waste Systems, will collect non-hazardous solid waste materials and transport them to a nearby landfill. Waste collected from the proposed area for the proposed PPP site is taken to

Newby Island landfill (Mission Trail 2002). Recyclables will be removed at the Newby Island Sanitary landfill and taken to the Newby Island Recyclery. The Newby Island Landfill and Recyclery have not been subject to any enforcement actions. 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 PPP waste.

Landfill/ Transfer Station	Location	Class	Permitted Capacity	Current Operating Capacity	Remaining Capacity	Estimated Closure Date	Comment
Newby Island Sanitary Landfill	Milpitas	III	3,260 tons/day	3,800 tons/day	N/A	N/A	No enforcement actions
Newby Island Recyclery	Milpitas	MRF	1,600 tons/day	6,000 tons/day	16.3 million cubic yards (7 years)	2007	No enforcement actions
Guadalupe Sanitary Landfill	San Jose	III	3,650 tons/day	1,241 tons/day	26 to 39 years	2025- 2038	No enforcement actions
Kirby Canyon Recycling and Disposal Facility	San Jose	III	260 tons/day	1,457 tons/day	40 years	2039	RWQCB 1996- leachate discharge City and AQMD- 1993-compost odor
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. A permitted hazardous waste transporter will transfer the waste 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) National Biennial Resource Conservation and Recovery Act [RCRA] Hazardous Waste Report (based on 1997 data), there are 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 facility is Safety-Kleen Corporation in San Jose, which is permitted to store and transfer all hazardous wastes except radioactive and medical wastes (Lindberg 2002). Another nearby 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 Buttonwillow Landfill in Kern County

This landfill is permitted at 13.25 million cubic yards and has a remaining capacity of 10 million cubic yards. The annual deposit rate is currently 120,000 to 150,000 cubic yards. This landfill has an estimated 30 years of operational life remaining or until 2032 (Nelson 2002). 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 (Beig 2002).

Laidlaw Environmental Westmoreland Landfill in Imperial County

This landfill has reached capacity and is not currently accepting waste for disposal. Waste is being treated at this facility, and then transferred to the Buttonwillow landfill in Kern County. Two future cells are in the process of, or will be permitted in the near future. The capacity of the first cell is 1.8 million cubic yards, and is expected to come online in early 2003. The second cell will be permitted at a later date. The proposed capacity of the second cell is 860,000 cubic yards (Smith 2002). 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 (Sankprasha 2002).

Chemical Waste Management Landfill in Kings County

The Class 1 portion of this landfill has approximately 5 million cubic yards of remaining capacity of a total permitted capacity of 10.7 million cubic yards. The Class II and III landfills, combined have approximately 3.2 million cubic yards of remaining capacity. The annual deposit rate is approximately 1 million cubic yards for the Class I and II landfills, combined. The remaining life of the Class I landfill, as currently constructed, is approximately 7 years or until 2009. With planned future construction, the life of this landfill is 50 years, or until 2052. The Class I landfill is permitted for and will accept all hazardous wastes except radioactive, medical, and UXO (Yarborough 2002). There have been no enforcement actions at this facility within the last year (Beig 2002).

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 37 off-site commercial hazardous waste treatment and recycling facilities (DTSC 2001). 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 PPP 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 BFI, will pick it up periodically. The waste will be taken to one of the material recovery facilities (MRF), such as BFI's Recyclery at Newby Island, where recyclables will be removed and the residue will be deposited in one of several nearby landfills, such as BFI's Newby Island Landfill. Wastewater generated will include sanitary waste and may include equipment wash water and storm water 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. Storm water runoff will be managed in accordance with a storm water 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.

8.14.4.2 Operation Phase

The primary waste generated during the operation phase of the PPP 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 cooling tower blowdown will be collected and returned to the City of Santa Clara sanitary sewer system.

Sanitary wastewater from the PPP 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.

Mission Trail Waste Systems will collect non-hazardous solid waste or refuse. Mission Trail will 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, the Applicant will develop procedures at the PPP that ensure proper labeling, storage, packaging, record keeping, and disposal of all hazardous wastes. The Applicant 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. Silicon Valley Power 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, SVP will implement the following procurements:

- 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 removal to an approved landfill.

8.14.4.3 Facility Closure

When the PPP is closed, both non-hazardous and hazardous wastes must be properly handled. Closure can be temporary or permanent. Temporary closure will 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 PPP were to be temporarily closed (with no release of hazardous materials) SVP would deploy security personnel on a 24-hour basis and notify the California Energy Commission (CEC). Depending on the length of shutdown necessary, SVP would implement a contingency plan for the temporary cessation of operations. This plan will be prepared prior to the PPP 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 PPP is 30 years, although operation could be longer. Whenever the PPP 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 PPP site will generate non-hazardous solid waste that will add to the total waste generated in Santa Clara County and in California. However, there is adequate recycling and landfill capacity in Santa Clara 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 PPP 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.

8.14.6 Monitoring

Since the environmental impacts caused by construction and operation of the PPP 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 PPP 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 PPP. These LORS are summarized in Table 8.14-3.

Table 8.14-3. LORS applicable to waste management.

LORS	Applicability	Conformance	AFC Reference
Federal:			
RCRA			
Subtitle D	Controls solid waste collectors, recyclers, and depositors.	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 Santa Clara sanitary sewer system.	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 City's NPDES permit.	Sections 8.14.2, 8.14.6, and 8.14
California:			
CIWMA	Controls solid waste collectors, recyclers, and depositors.	The PPP 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 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. Applies to waste water returned to the City of Santa Clara sanitary sewer system.	Discharge will be in accordance with pretreatment standards under the City's NPDES permit.	Sections 8.14.2, 8.14.6 and Section 8.14

8.14.7.1 Federal

Wastewater is regulated by the USEPA under the Clean Water Act (CWA). Cooling tower blowdown will be discharged to the City of Santa Clara sanitary sewer system, as will sanitary waste from the project operations building. Chemical cleaning wastewater will be managed by an industrial waste subcontractor.

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 PPP 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 Santa Clara County and the solid waste hauler and disposer that will collect solid waste from the PPP. It also affects the PPP to the extent that hazardous wastes are not to be disposed with solid waste.

Discharged wastewater is regulated by the State and Regional Water Quality Control Boards under the Porter-Cologne Water Quality Control Act. Cooling tower blowdown will be discharged to the City of Santa Clara sanitary sewer system, as will sanitary waste from the project operations building. Chemical cleaning process wastewater will be managed by an industrial waste subcontractor (see also 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 Hazardous Waste Control Law (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 PPP 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 Santa Clara County Department of Environmental Health will have the primary responsibility for administering and enforcing the CIWMA for solid, non-hazardous waste for the PPP (Pacheco, 2002).

For hazardous waste, local regulation consists primarily of the administration and enforcement of the HWCL. The City of Santa Clara Fire Department, Hazardous Materials Division, is the local agency that will regulate hazardous waste at the PPP. For emergency spills, the City of Santa Clara 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 PPP 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 PPP. 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 PPP, the local agency will be the City of Santa Clara Fire Department Hazardous Materials Division. 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 PPP. 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 submitted to the City of Santa Clara Fire Department Hazardous Materials Division as discussed in Section 8.5. The NPDES permit that will be required for the discharge of storm water is discussed in Section 8.15 (Water Resources).

Table 8.14-4. Agency contacts.

Type Waste	Agency	Contact	Title	Telephone
Non-hazardous				
Solid Waste	Santa Clara County Department of Environmental Health	Gordon McVail	Manager, Solid Waste Enforcement Program	(408) 299-6060
Solid Waste and Recycling	Santa Clara County	Margaret Rand	Program Manager, Integrated Waste Management Program	(408) 441-1198
Liquid	San Francisco Bay Regional Water Quality Control Board	John Wolfenden	Water Resources Control Engineer	(510) 622-2444
Hazardous				
All	City of Santa Clara, Fire Department Hazardous Materials Division	Dave Parker	Hazardous Materials Program Administrator	(408) 615-4961
All	Department of Toxic Substances Control	California EPA ID Number		(800) 618-6942
All	San Francisco Bay Regional Water Quality Control Board, Toxics Cleanup Division	Anders Lundgren	Senior Water Quality Control Engineer, Section Leader, Santa Clara County	(510) 622-2385
All—Hazardous Materials Emergency Response Team	City of Santa Clara Hazardous Materials Response Team	Dave Parker	Hazardous Materials Program Administrator	(408) 615-4961 In case of emergency, call 9-1-1

8.14.10 References

- Beig, A. 2002. Personal communication with Abdul Hamid Beig (CPSS, Hazardous Substances Scientist, Department of Toxic Substances Control, Statewide Compliance Division, Northern California Branch), June 10, 2002.
- Department of Toxic Substance Control (DTSC) Hazardous Waste Management Program. 2001. *California commercial offsite hazardous waste management facilities*. February 14, 2001.
- Lindberg, A. 2002. Personal communication with Art Lindberg (Sales Representative, Safety Kleen, San Jose), June 5, 2002.
- Mission Trail Waste Systems. 2002. Personal communication with Mission Trail Waste Systems customer service, June 5, 2002.
- Nelson, D. 2002. Personal communication with Dave Nelson (Operations Manager, Laidlaw Environmental's Buttonwillow Landfill, Kern County), June 6, 2002.
- Pacheco, T. 2002. Personal communication with Tony Pacheco (Santa Clara County Department of Environmental Health), June 12, 2002.

- Sankprasha, S. 2002. Personal communication between Jennifer Stiltz (Foster Wheeler Environmental Corporation) and Suwan Sankprasha (Department of Toxic Substances Control), June 7, 2002.
- SCS Engineers. 2002. *Phase 1 Environmental Assessment Report Duane Avenue at Lafayette Street Santa Clara, California 95050*. June 3, 2002.
- Smith, A. 2002. Personal communication with Allan Smith (Environmental Manager Laidlaw Environmental's Westmoreland Landfill, Imperial County), June 6, 2002.
- U.S. Environmental Protection Agency (USEPA). 1999. *Executive Summary—the National Biennial RCRA Hazardous Waste Report* (based on 1997 data). October 1999.
- Yarborough, T. 2002. Personal communication with Terry Yarborough (Executive Secretary, Chemical Waste Management's Kettleman Hill's Landfill), June 7, 2002.