5.14 Waste Management

5.14.1 Introduction

On August 16, 2001, GWF Energy LLC filed an Application for Certification (AFC) with the Energy Commission for the Tracy Peaker Project (TPP). The California Energy Commission (CEC) found the AFC data adequate on October 17, 2001. The CEC staff released a staff assessment on December 28, 2001, and a supplemental staff assessment on February 1, 2002. The CEC published its Presiding Member's Proposed Decision on May 31, 2002, with the project receiving its Final Decision on July 17, 2002. These documents are incorporated by reference into this AFC and are contained in electronic form in Appendix 1A.

This section evaluates the potential effects on human health and the environment from nonhazardous and hazardous waste generated at the GWF Tracy Combined Cycle Power Plant (GWF Tracy) during construction and operation. The handling and management of waste generated by GWF Tracy will follow the hierarchical approach of source reduction, recycling, treatment, and disposal. The first priority will be to reduce the quantity of waste generated through pollution prevention methods (e.g., high-efficiency cleaning methods). The next level of waste management will involve the reuse or recycle of wastes (e.g., used oil recycling). For wastes that cannot be recycled, treatment will be used, if possible, to make the waste nonhazardous (e.g., neutralization). Finally, offsite disposal will be used to dispose of residual wastes that cannot be reused, recycled, or treated.

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

5.14.2 Laws, Ordinances, Regulations, and Standards

The GWF Tracy site is located in an unincorporated portion of San Joaquin County; therefore, the project is subject to San Joaquin County LORS. Nonhazardous and hazardous waste handling at GWF Tracy would be governed by federal, state, and local laws. Applicable laws and regulations address proper waste handling, storage, and disposal practices to protect the environment from contamination, and protect facility workers and the surrounding community from exposure to nonhazardous and hazardous waste. The LORS applicable to waste handling at GWF Tracy are summarized in Table 5.14-1. As the project is in the San Joaquin County jurisdiction, presentation of any other local jurisdiction's LORS is for informational purposes only.

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

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
Federal			
Resource Conservation and Recovery Act (RCRA) Subtitle D	Regulates design and operation of solid waste landfills. GWF Tracy Project solid waste will be collected and disposed of by a collection company that will be required to conform to Subtitle D.	California Integrated Waste Management Board (CIWMB)	5.14.2.1, 5.14.4.3.1, and 5.14.6
RCRA Subtitle C	Controls storage, treatment, and disposal of hazardous waste. GWF Tracy solid waste will be collected and disposed of by a collection company that will be required to conform to Subtitle C.	Department of Toxic Substance Control (DTSC)	5.14.2.1, 5.14.4.3.2, and 5.14.6
Clean Water Act (CWA)	Controls discharge of wastewater to the surface waters of the U.S. GWF Tracy will discharge plant wastewater to an onsite tank for disposal offsite. Sanitary wastewater will be stored onsite and hauled off periodically.	Regional Water Quality Control Board (RWQCB)	5.14.2.1 and 5.15
State			
California Integrated Waste Management Act (CIWMA)	Controls solid waste collectors, recyclers, and depositors. GWF Tracy solid waste will be collected and disposed of by a collection company in conformance with the CIWMA.	CIWMB	5.14.4.3.1, 5.14.5, and 5.14.8
CA Hazardous Waste Control Law (HWCL)	Controls storage, treatment, and disposal of hazardous waste. Hazardous waste will be handled by contractors that will be required to conform to HWCL.	DTSC	5.14.4, 5.14.4.3, 5.14.4.4, and 5.14.8
Porter-Cologne Water Quality Control Act	Controls discharge of wastewater to the surface and ground waters of California. GWF Tracy will discharge industrial wastewater to an onsite tank for disposal offsite. Sanitary wastewater will be stored onsite and hauled off periodically.	RWQCB	5.14.4.3, 5.14.4.4, and 5.15
Local			
San Joaquin County General Plan (February 2005) – Public Health and Safety Section	Provides guidance for siting and management of facilities that store, collect, treat, dispose or transfer hazardous waste and hazardous materials. GWF Tracy would comply with the County's Hazardous Materials stipulations as put forth in the General Plan, Public Health and Safety Section.	San Joaquin County Environmental Health Department	5.14.4, 5.14.4.3, 5.14.4.4, and 5.14.8

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

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
San Joaquin County, Community Development Department, Code Enforcement	Incorporates by reference the CA HSC Division 20, Chapter 6.11 which requires the facility to operate as a unified program facility. GWF Tracy will operate as a unified program facility and will comply with San Joaquin County Environmental Health Department's Hazardous Materials Division (HMD) requirements concerning storage and handling of hazardous materials and wastes and will also cooperate on resolution of environmental issues at the site.	San Joaquin County Environmental Health Department	5.14.4, 5.14.4.3, 5.14.4.4, and 5.14.8
San Joaquin County Public Works, Solid Waste Division, various programs	Provides guidance for local management of solid waste and household hazardous waste (incorporates the County's Source Reduction and Recycling Elements, which detail means of reducing commercial and industrial sources of solid waste). Waste will be recycled in a manner consistent with applicable LORS.	San Joaquin County Public Works, Solid Waste Division	5.14.4.3.1, 5.14.5, and 5.14.8
San Joaquin County Environmental Health Department various programs	San Joaquin County HMD would serve as the Certified Unified Program Agency (CUPA) for GWF Tracy (Foley, 2008). The CUPA regulates and conducts inspections of businesses that handle hazardous materials, hazardous wastes, and/or have underground storage tanks. GWF Tracy would comply with HMD requirements concerning storage and handling of hazardous materials and wastes and will also cooperate on resolution of environmental issues at the site.	San Joaquin County Environmental Health Department	5.14.4, 5.14.4.3, 5.14.4.4, and 5.14.8
San Joaquin County Zoning Ordinance	San Joaquin Zoning Ordinance requires the proposed GWF Tracy to comply with the appropriate setbacks required by the San Joaquin Fire Department for fire safety.	San Joaquin Fire Department	5.14.2.4

5.14.2.1 Federal LORS

Wastewater is regulated by the U.S. Environmental Protection Agency (EPA) under the Clean Water Act (CWA). Plant industrial wastewater will be discharged to an onsite storage tank and disposed of appropriately offsite. Sanitary wastewater will be stored onsite and hauled off periodically (see Section 5.15).

The federal statute that controls both nonhazardous and hazardous waste is the Resource Conservation and Recovery Act (RCRA), 42 USC 6901, et seq. RCRA's implementing regulations for hazardous waste are found at 40 Code of Federal Regulations (CFR) 260, et

seq. and for nonhazardous waste at 40 CFR 239 et seq. Subtitle D of RCRA makes the regulation of nonhazardous waste the responsibility of the states; federal involvement is limited to establishing minimum criteria that prescribe the best practicable controls and monitoring requirements for solid waste disposal facilities. Subtitle C controls the generation, transportation, treatment, storage, and disposal of hazardous waste through a comprehensive "cradle-to-grave" system of hazardous waste management techniques and requirements. It applies to all states and to all generators of hazardous waste (above certain levels of waste produced). GWF Tracy would comply with this law in its generation, storage, transport, and disposal of any hazardous waste generated at the facility. The EPA has delegated its authority for implementing the law to the State of California.

5.14.2.2 State LORS

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

Wastewater is regulated by the State Water Resources Control Board and RWQCBs under the Porter-Cologne Water Quality Control Act. Plant industrial wastewater will be discharged to an onsite storage tank and disposed of appropriately offsite. Sanitary wastewater will be stored onsite and hauled off periodically. (see Section 5.15, Water Resources). Stormwater will be managed as described in Section 5.15, Water Resources.

RCRA allows states to develop their own programs to regulate hazardous waste. The programs must be at least as stringent as RCRA. California has developed its own program in the California Hazardous Waste Control Law (HWCL) (Health and Safety Code Section 25100, et seq.). The HWCL performs essentially the same regulatory functions as RCRA and is the law that will regulate hazardous waste at GWF Tracy, since California has elected to develop its own program. However, the HWCL includes hazardous wastes that are not classified as hazardous waste under RCRA. Since hazardous wastes will be generated at GWF Tracy during construction and operation, the HWCL will require the applicant to adhere to storage, recordkeeping, reporting, and training requirements for these wastes.

5.14.2.3 Local LORS

The San Joaquin County Solid Waste Division is the Local Enforcement Agency for solid waste facilities in San Joaquin County, and will be responsible for administering and enforcing the CIWMA for solid, nonhazardous waste for GWF Tracy.

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

The City of Tracy manages waste generation, recycling, and disposal programs through the Tracy Delta Solid Waste Management, Inc. (TDSWM) contract. The services of trash collection, hazardous waste handling, and recycling are covered through the City of Tracy and Tracy Delta Solid Waste Management, Inc. All other waste is managed through county, regional, or state management plans.

For emergency spills, The Tracy Fire Department has a Hazardous Materials Team headed by Fire Captain Mark Richardson at Station No. 96, located at 301 West Grant Line Road, Tracy, California, approximately 9 miles northeast of GWF Tracy. The Tracy Fire Department would be the initial responder to assess a hazardous materials accident. The HazMat Team will identify the type and source of the hazardous material, oversee evacuation of people, and confine the spilled material, if possible. Cleanup of the material is the responsibility of the facility causing the spill. Although the HazMat Team is headed by Fire Captain Mark Richardson at Station No. 96, emergency response will be from a collection of stations, including Station No. 94 and Station No. 97 located at 16502 W. Schulte Road, Tracy, California (approximately 1 mile west of GWF Tracy) and at 595 West Central Avenue, Tracy, California (approximately 5 miles east of GWF Tracy), respectively (Garcia, 2008).

5.14.2.4 Codes

The GWF Tracy design, engineering, and construction of waste storage and handling systems will be in accordance with all codes and standards applicable for the San Joaquin County Community Development Department, Building Inspection Division (County of San Joaquin, 2008); including:

- 2007 Edition of the California Building Code based on the 2006 International Building Code
- 2007 Edition of the California Plumbing Code based on the 2006 Uniform Plumbing Code
- 2007 Edition of the California Electrical Code based on the 2005 National Electric Code
- 2007 Edition of the California Mechanical Code based on the 2006 Uniform Mechanical Code
- 2007 Edition of the California Fire Code based on the 2006 International Fire Code

5.14.3 Affected Environment

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

5.14.3.1 Site Investigations

A Phase I Environmental Site Assessment (ESA) was performed at the site for the original TPP to determine if contamination was present that would require removal or remediation. The proposed GWF Tracy is located within the footprint of TPP with the exception of two termination structures and the relocated stormwater retention basin and equipment storage area. Both of these items, however, are located within an area that was previously disturbed

during construction of the TPP, and are also located within the 40-acre parcel identified as part of the ESA.

5.14.3.1.1 Phase I Environmental Site Assessment

A Phase I ESA was conducted by Harding Engineering and Environmental Services in July 2001 in accordance with American Society of Testing and Materials (ASTM) Standard E 1527-05, Standard Practice for ESAs. An updated ESA was prepared by MacTec in June 2008 for the proposed GWF Tracy project (Appendix 5.14A); five copies of the updated ESA will be provided to the CEC under separate cover.

Based on records review, site reconnaissance, and interviews, a determination was made by Harding Engineering and Environmental Services that the site appears to have been historically used for agricultural purposes since 1957. No recognized environmental conditions were identified at the site, and no offsite locations of environmental significance were identified within the ASTM search distance of 1 mile from the GWF Tracy site. Harding Engineering and Environmental Services determined that pesticides were likely in the soil due to past agricultural activities at the site. As a result of this determination, soil samples were taken and analyzed for pesticide residue. Results of this analysis determined that pesticides were not present in levels above regulatory limits.

5.14.4 Environmental Analysis

This section discusses the various nonhazardous and hazardous waste streams for GWF Tracy during construction and operation. Wastewater, solid nonhazardous waste, and liquid and solid hazardous waste will be generated at the GWF Tracy site during facility construction and operation.

5.14.4.1 Construction Phase

During construction of GWF Tracy, the primary waste generated will be solid nonhazardous waste. However, some nonhazardous liquid waste and hazardous waste (solid and liquid) will also be generated. All of the hazardous wastes will be generated at the GWF Tracy site as all utilities (electric transmission line, natural gas supply line, and reclaimed water line) are already on site for the TPP. The types of waste and their estimated quantities are described below.

5.14.4.1.1 Nonhazardous Solid Waste

Listed below are nonhazardous waste streams that could potentially be generated from construction of the generating facility. The types of nonhazardous wastes that would be generated during the construction phase of GWF Tracy primarily include debris and other materials requiring removal. All nonhazardous wastes generated during the construction phase would be handled, stored on site temporarily, and disposed of according to standard procedures and all applicable LORS.

Paper, Wood, Glass, and Plastics

Paper, wood, glass, and plastics will be generated from packing materials, waste lumber, insulation, and empty nonhazardous chemical containers. Approximately 80 tons of these wastes will be generated during construction. These wastes will be recycled where practical. Waste that cannot be recycled will be disposed of weekly in a Class III landfill by a local waste disposal company. On site, the waste will be placed in dumpsters.

Metal

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

Concrete

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

5.14.4.1.2 Nonhazardous Wastewater

Nonhazardous wastewater will be generated, including sanitary wastewater, equipment washwater, and stormwater runoff. Sanitary waste from construction activities will be collected in portable, self-contained toilets and disposed of off site on a regular basis.

Stormwater runoff will be managed in accordance with the contractor-developed stormwater pollution prevention plan (SWPPP) that must be approved by the appropriate agencies prior to the start of construction (See Appendix 5.11A for a draft construction SWPPP for GWF Tracy, and Section 5.15, Water Resources, for stormwater-related analysis).

5.14.4.1.3 Hazardous Waste

Hazardous waste that may be generated during the construction phase of the proposed project includes small amounts of contaminated soil or other solids and small volumes of waste oil, waste glycol, cleaning fluids, solvents, paints, batteries, lighting lamps, and welding materials. Many of these wastes would be recycled under the "excludable recyclable" provision of Title 22 of the California Health and Safety Code.

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

Flushing and cleaning waste liquid will be generated when pipes and boilers are cleaned and flushed. Passivating fluid waste is generated when high temperature pipes are treated with either a phosphate or nitrate solution. The volume of flushing, cleaning and passivating liquid waste generated is estimated to be one to two times the internal volume of the pipes cleaned. The quantity of welding, solvent, and paint waste is expected to be minimal.

The construction contractor will be considered the generator of hazardous construction waste, and will be responsible for proper handling of hazardous waste in compliance with all applicable federal, state, and local laws and regulations, including licensing, personnel training, accumulation limits and times, and reporting and recordkeeping.

The wastes that require disposal would be characterized based on generator knowledge or analytical testing to determine the appropriate management and handling procedures. Once properly characterized, the wastes would be temporarily stored at the site in appropriate containers, according to all applicable hazardous waste storage LORS. The waste will be removed from the site by a certified hazardous waste collection company and delivered to

an authorized hazardous waste management facility, prior to expiration of the 90-day storage limit. Table 5.14-2 lists wastes expected to be generated during the construction phase at GWF Tracy.

TABLE 5.14-2
Wastes Generated during the Construction Phase at GWF Tracy

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Scrap wood, glass, plastic, paper, calcium silicate, and mineral wool insulations	Construction	Normal refuse	8,000 lb/mo (dumpster)	Nonhazardous	Recycle and/or dispose at a standard municipal landfill
Scrap Metals	Construction	Parts, containers	1,000 lb/mo	Nonhazardous	Recycle and/or dispose at a standard municipal landfill
Concrete	Construction	Concrete	60 tons during construction	Nonhazardous	Recycle and/or dispose at a standard municipal landfill
Sanitary waste	Portable toilet holding tanks	Sewage	500 gal/day	Nonhazardous	Remove by contracted sanitary service
Empty material containers*	Construction	Metal or plastic drums, pails, totes	100 containers per year	Nonhazardous	Empty containers ≤5 gallons are disposed as normal refuse. Empty containers >5 gallons are recycled.
Spent welding materials, i.e. welding rods	Construction	Solid	100 lb/mo	Nonhazardous	Recycle and/or dispose at a standard municipal landfill
Drained Used Oil Filters	Construction equipment and vehicles	Filter media, metals, and hydrocarbons	100 lb/mo	Nonhazardous	Recycle at an approved metal reclamation facility or treatment, storage, and disposal facility (TSDF)
Used Oil	Equipment, vehicles	Hydrocarbons	20 gal/mo	Hazardous	Recycle at authorized used oil collection center or TSDF
Used Oil	CT and ST lube oil flushes	Hydrocarbons	200 drums (life of project construction) or 11,000 gallons	Hazardous	Recycle at authorized used oil collection center or TSDF
Oily rags, oil sorbent excluding lube oil flushes	Equipment & parts cleaning/ minor spills	Rags, soil, absorbents, hydrocarbons	800 lb/yr	Hazardous	Recycle or dispose at a permitted TSDF
Solvents, paint, adhesives	Maintenance	Varies	180 lb/yr	Hazardous	Recycle or dispose at a permitted TSDF

TABLE 5.14-2
Wastes Generated during the Construction Phase at GWF Tracy

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Spent lead acid batteries	Construction equipment and trucks	Heavy metals, corrosive acid	5 batteries per year	Hazardous	Recycle at a permitted TSDF
Spent alkaline batteries	Electronic Equipment	Metals, corrosives	10 batteries per month	Universal Waste	Recycle at an authorized recycling facility
Steam turbine cleaning waste	Pre-boiler piping	Chemical & detergent cleaning chemicals	200 gallons before plant startup	Hazardous or nonhazardous liquid	Dispose at a permitted TSDF or nonhazardous wastewater processing facility
Stormwater	Rainfall	Water	2 acre-feet (from 10-yr storm event)	Nonhazardous Liquid	Discharge to stormwater drain
Fluorescent and H.I.D. lamps	Lighting	Heavy Metals	100 lb/year	Universal Waste solids	Recycle at an authorized recycling facility
Passivating and chemical cleaning fluid waste	Pipe cleaning and flushing	Varies	600,000 gal (life of project construction)	Hazardous or nonhazardous liquid	Dispose at a permitted TSDF or nonhazardous wastewater processing facility
Hydrotest water	Testing equipment and piping integrity	Water	300,000 gallons (life of project construction)	Hazardous or nonhazardous liquid	Dispose at a permitted TSDF or nonhazardous wastewater processing facility

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

5.14.4.2 Operation Phase

During the operations of GWF Tracy, the primary waste generated would be nonhazardous solid waste. However, varying quantities of both solid and liquid hazardous waste will also be generated periodically. The types of waste and their estimated quantities are discussed in the following.

5.14.4.2.1 Nonhazardous Solid Waste

GWF Tracy would produce maintenance and generating facility wastes typical of power generation operations. These will include rags, turbine air filters, broken and rusted metal and machine parts, defective or broken electrical materials, empty containers, the typical refuse generated by workers and small office operations, and other miscellaneous solid wastes. The quantity generated is estimated to be about 5 tons per year. Large metal parts will be recycled.

5.14.4.2.2 Nonhazardous Wastewater

A water balance diagram (Figures 2.1-5a and b) illustrates the expected wastewater streams and flow rates for GWF Tracy. As described in Section 5.15, Water Resources, the wastewater collection system will collect sanitary wastewater from sinks, toilets, and other sanitary facilities, and will be managed by the existing septic tank and leach field system.

Plant Drains–Oil/Water Separator

General facility drainage will consist of area washdown, sample drains, equipment leakage, and drainage from facility equipment areas. Water from these areas will be collected in a system of floor drains, hub drains, sumps, and piping, and routed to the facility wastewater collection system. Drains that could contain oil or grease will first be routed through an oil/water separator. Water from the plant wastewater collection system will be discharged to a holding tank. Wastewater from combustion turbine water washes will also be collected in a holding tank. Wastewater will be trucked off site for disposal at an approved wastewater disposal facility. The amount of wastewater generated from this system is anticipated to be minimal.

5.14.4.2.3 Hazardous Waste

Hazardous waste generated during operation will include waste lubricating oil, used oil filters, spent selective catalytic reduction (SCR) and oxidation catalysts, and chemical cleaning wastes. The catalyst units will contain heavy metals that are considered hazardous.

The chemical feed area drains will collect spillage, tank overflows, effluent from maintenance operations, and liquid from area washdowns. After testing, water collected from the chemical storage areas will be directed to the oil/water separator and shipped off site for disposal. The quantity of this effluent is expected to be minimal.

Hazardous wastes that will be generated at the facility, and the disposal methods for the generated wastes, are summarized in Table 5.14-3.

TABLE 5.14-3
Hazardous Wastes Generated at GWF Tracy During Operation

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Oily debris	Parts and equipment maintenance, minor leaks and spills	Absorbents, rags, soil, hydrocarbons	1,300 lb/yr	Hazardous	Recycle or dispose at a permitted TSDF
Drained used oil filters	Gas turbine lubricating oil system	Filter media, metals, and hydrocarbons	1,000 lb/yr	Nonhazardous	Recycle at an approved metal reclamation facility or TSDF
Used oil	Lubrication systems	Hydrocarbons	500 lb/yr	Hazardous	Recycle at authorized used oil collection center or TSDF
Solvents, paints, adhesives	Maintenance	Varies	200 lb/yr	Hazardous	Recycle or dispose at a permitted TSDF

TABLE 5.14-3
Hazardous Wastes Generated at GWF Tracy During Operation

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Turbine wash	Water and Detergent solution turbine washes	Detergent solution	6,000 gal/yr	Hazardous or Nonhazardous	Dispose at a permitted TSDF or nonhazardous wastewater processing facility
Laboratory waste	Water treatment lab analyses	Spent reagents/ laboratory wastes	50 gals/yr	Hazardous	Recycle or dispose at a permitted TSDF
SCR catalyst units	SCR system (Warranty is 3 years-use tends to be 3 to 5 years)	Metal and heavy metals, including vanadium	60 to 70 tons every 3 to 5 yrs	Hazardous	Recycled by SCR manufacturer or disposed of in Class I landfill
Carbon monoxide (CO) catalyst units	Heat recovery steam generator (HRSG) (Use tends to be 3 to 5 years)	Metal and heavy metals, including vanadium	6 to 7 tons every 3 to 5 yrs	Hazardous	Recycled by manufacturer
Spent lead acid batteries	Electrical room, equipment	Heavy metals, corrosive acid	5 batteries/yr	Hazardous	Recycle at a permitted TSDF
Spent alkaline batteries	Electronic equipment	Metals, corrosives	50 lb/yr	Universal waste solids	Recycle at an authorized recycling facility
Fluorescent and H.I.D. lamps	Lighting	Heavy metals	50 lb/yr	Universal Waste	Recycle at an authorized recycling facility
Chemical feed area drainage	Spillage, tank overflow, area washdown water	Water with water treatment chemicals	Minimal	May be hazardous if corrosive	Discharge to sewer if nonhazardous; Dispose at a permitted TSDF if hazardous
Aerosol cans	Non-empty aerosol can waste	Varies; flammable gas	120 lb/yr	Universal Waste	Recycle at a permitted TSDF

5.14.4.3 Waste Disposal Sites

Nonhazardous solid waste (often referred to as solid waste, municipal solid waste, or garbage) will be recycled or deposited in a Class III landfill. Hazardous wastes, both solid and liquid, will be delivered to a permitted offsite treatment, storage, and disposal facility (TSDF) for treatment or recycling or deposited in a permitted Class I landfill. Solid waste disposal sites near GWF Tracy are listed in Table 5-14-4. The following sections describe the waste disposal sites feasible for disposal of GWF Tracy wastes.

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

Landfill/ MRF/ Transfer Station	Location	Class	Permitted Capacity (cubic yards)*	Remaining Capacity (cubic yards)*	Permitted Throughput (tons per day)*	Estimated Closure Date*	Enforcement Action Taken*
Tracy Material Recovery & Transfer Facility	Tracy, CA	Transfer Station	1,000 tons/day	NA	1,000	NA	Areas of concern noted during 12/2007 inspection. Violation in 11/2007 for Load Checking
Foothill Sanitary Landfill	Linden, CA	III	102,000,000	97,900,000	1,500	1/1/2054	Area of concern noted for Daily Cover in 1/2008 inspection. No violations since 8/2007
Vasco Road Landfill	Livermore, CA	II and III	31,942,205	9,870,704	2,250	1/1/2015	No violations or areas of concern noted since 7/2007
Altamont Landfill	Livermore, CA	II and III	62,000,000	12,4000,000	11,500	1/1/2029	No violations or areas of concern noted in 1/2008.

* Based on CIWMB Solid Waste Information System Database (CIWMB, 2008a).

5.14.4.3.1 Nonhazardous Waste

Approximately 152 tons of solid waste will be generated during construction of GWF Tracy, and solid waste will continue to be generated during operation of the project. Other solid wastes will be recycled to the extent possible, and what cannot be recycled will be disposed of at a permitted landfill as discussed below.

It is anticipated that all excavated soil will be used on site for grading and leveling purposes. In the event that some of the excavated soil will not be reused on site, classification of the soil for disposal would be made on the basis of sampling completed once the soil is excavated and stockpiled. Soil that is determined to be nonhazardous on the basis of the sampling conducted could be suitable for reuse at a construction site or disposal at a regional disposal facility, depending on the chemical quality.

The City of Tracy has contracts with the Tracy Delta Solid Waste Management, Inc. to handle the services of trash collection and recycling. Although GWF Tracy is outside of the Tracy city limits, solid waste disposal services will be provided by Tracy Delta Solid Waste Management, Inc. The waste will be taken to the Tracy Material Recovery and Transfer Facility at 30703 S. MacArthur Drive, Tracy, California, and then will be separated and sent to the Foothill Landfill located in Linden, California (TDSWM, 2008). The most likely alternatives to the Foothill Landfill are the Vasco Road Landfill and the Altamont Landfill in Livermore.

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

5.14.4.3.2 Hazardous Waste

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

According to DTSC, 61 facilities in California can accept hazardous waste for treatment and recycling (DTSC, 2007a). For ultimate disposal, California has the three hazardous waste (Class I) landfills (described below). The closest commercial hazardous waste disposal facility is the Waste Management Kettleman Hills Landfill in Kings County, California.

Clean Harbors' Buttonwillow Landfill in Kern County

This landfill is permitted at 14.3 million cubic yards and has approximately 9.2 million cubic yards of remaining capacity as of February 2006 (CIWMB, 2008a). At the current deposit rate, the landfill is permitted to accept waste until 2040 (CIWMB, 2008a). Buttonwillow has been permitted to accept all hazardous wastes except flammables, polychlorinated biphenyls (PCBs) with a concentration greater than 50 parts per million, medical waste, explosives, and radioactive waste with radioactivity greater than 1,800 picocuries (Buoni, 2007).

Clean Harbors Westmoreland Landfill

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

Waste Management Kettleman Hills Facility

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

Additional Commercial Hazardous Waste Treatment and Recycling Facilities

In addition to hazardous waste landfills, there are numerous offsite commercial liquid hazardous waste treatment and recycling facilities in California. Some of the closest facilities include Clean Harbors and Noranda Recycling in San Jose, ECS Refining and J&B Enterprises in Santa Clara, Evergreen Oil in Newark, and Onyx Environmental Services in Richmond (DTSC, 2007a).

5.14.4.4 Waste Management Methods and Mitigation

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

The following sections present methods for managing both nonhazardous and hazardous waste generated by the GWF Tracy project.

5.14.4.4.1 Construction Phase

Nonhazardous solid waste generated during construction will be collected in onsite dumpsters and picked up periodically by Tracy Delta Solid Waste Management, Inc. The waste will then be taken to the Tracy Material Recovery and Transfer Facility. Recyclable materials can be segregated and transported by construction contractors or other private haulers to an area recycling facility.

Wastewater generated during construction will include sanitary waste, and could include equipment washwater and stormwater runoff. Sanitary waste will be collected in portable, self-contained toilets and hauled off site periodically. Equipment washwater will be contained at designated wash areas and will be disposed of offsite. Stormwater runoff will be managed onsite in accordance with the state and federal National Pollutant Discharge Elimination System requirements, as described in Section 5.15, Water Resources. The generation of nonhazardous wastewater will be minimized through water conservation and reuse measures.

Most of the hazardous waste generated during construction will consist of liquid waste, such as flushing and cleaning fluids, passivating fluids, and solvents. Some solid waste in the form of welding materials and dried paint may also be generated. Nonhazardous materials will be used whenever possible to minimize the quantity of hazardous waste generated. The construction contractor will be the generator of hazardous construction waste, and will be responsible for proper handling in compliance with all applicable federal, state, and local laws and regulations, including licensing, training of personnel, accumulation limits and times, and reporting and recordkeeping. The hazardous waste will be collected in satellite accumulation containers near the points of generation. This waste will be moved daily to the contractor's 90-day hazardous waste storage area, located at GWF Tracy's construction laydown area. The waste will be delivered to an authorized hazardous waste management facility, prior to the expiration of the 90-day storage limit.

5.14.4.4.2 Operation Phase

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

Nonhazardous Wastes

The wastewater from facility sinks and toilets will be handled through an existing septic tank and leach field system. Nonhazardous plant wastewater will be discharged to an onsite storage tank and disposed of off site.

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

Hazardous Wastes

To avoid the potential effects on human health and the environment from the handling and disposal of hazardous wastes, procedures will be developed in accordance with applicable LORS to ensure proper labeling, storage, packaging, recordkeeping, and disposal of all hazardous wastes. The following general procedures will be employed:

- Hazardous wastes will not be stored on site for more than 90 days, and will be accumulated according to California Code of Regulations (CCR) Title 22 requirements.
- Hazardous wastes will be stored in appropriately segregated storage areas surrounded by berms to contain leaks and spills. The bermed areas will be sized to hold the full contents of the largest single container and, if not roofed, sized for an additional 20 percent to allow for rainfall. These areas will be inspected daily.
- Hazardous wastes will be collected by a licensed hazardous waste hauler using a hazardous waste manifest. Wastes will only be shipped to licensed hazardous waste management facilities. Biannual hazardous waste generator reports will be prepared and submitted to DTSC. Copies of manifests, reports, waste analyses, and other documents will be kept on site and remain accessible for inspection for at least 3 years.
- Employees will be trained in hazardous waste procedures, spill contingencies, and waste minimization.
- Procedures will be developed to reduce the quantity of hazardous waste generated. Nonhazardous materials will be used instead of hazardous materials whenever possible, and wastes will be recycled whenever possible.

Specifically, hazardous waste handling will include the following procedures to minimize the quantity of waste deposited to landfills.

- Waste lubricating oil will be recovered and recycled by a waste oil recycling contractor. Spent oil filters and oily rags will be recycled.
- Spent SCR and oxidation catalysts will be recycled by the supplier, if possible, or disposed of in a Class I landfill.
- Chemical cleaning wastes will consist of alkaline and acid cleaning solutions used during pre-operational chemical cleaning of the boiler system of the HRSGs, acid cleaning solutions used for chemical cleaning of the HRSG after the unit is put into service, and turbine wash and HRSG fireside washwaters. These wastes, which are subject to high metal concentrations, will be stored temporarily on site in portable tanks and disposed of off site in accordance with applicable regulatory requirements. Disposal may consist of offsite treatment, recovery of metals, and/or landfilling.

5.14.4.4.3 Facility Closure

As discussed in Section 2.4, Facility Closure, when GWF Tracy is closed at the end of its operating life cycle, both nonhazardous and hazardous wastes must be handled properly. Closure can be temporary or permanent. Temporary closure would be for a period of time greater than the time required for normal maintenance, including overhaul or replacement of the combustion turbines. Causes for temporary closure could be a disruption in the supply of natural gas; flooding of the site; or damage to the plant from earthquake, fire, storm, or other natural causes. Permanent closure would consist of a cessation in operations with no intent to restart operations and could be due to the age of the plant, damage to the plant beyond repair, economic conditions, or other unforeseen reasons. Prior to either a temporary or permanent closure, GWF Tracy will prepare a closure plant that addresses the handling of wastes generated from operation or closure. Handling of wastes for these two types of closure are discussed below.

Temporary Closure

For a temporary closure, where there is no release of hazardous materials, facility security will be deployed on a 24-hour basis, and the CEC will be notified. Depending on the length of shutdown necessary, a plan for the temporary cessation of operations will be prepared and implemented. The plan will be developed to ensure conformance with all applicable LORS and the protection of public health and safety and the environment. The plan, depending on the expected duration of the shutdown, could include draining all chemicals from storage tanks and other equipment and the safe shutdown of all equipment. All wastes will be disposed of according to applicable LORS, as discussed in Section 5.14.2, consistent with the closure plan.

Where the temporary closure is in response to facility damage, or where there is a release or threatened release of hazardous waste or materials into the environment, procedures will be followed as set forth in the existing Hazardous Materials Business Plan (HMBP) and Risk Management Plan (RMP). The HMBP and RMP are described in Section 5.5. Procedures include methods to control releases, notification of applicable authorities and the public, emergency response, and training for generating facility personnel in responding to and controlling releases of hazardous materials and hazardous waste. Once the immediate problem of hazardous waste and materials release is contained and cleaned up, temporary closure will proceed as described for a closure where there is no release of hazardous materials or waste.

Permanent Closure

The planned life of the generation facility is a minimum of at 30 years, though operation could be longer. When the facility is permanently closed, the handling of nonhazardous and hazardous waste and hazardous materials will be part of a general facility closure plan that will attempt to maximize the recycling of all facility components. Unused chemicals will be sold back to the suppliers or other purchasers or users. Equipment will be drained of chemicals and shut down to protect public health and safety and the environment. Nonhazardous wastes will be collected and disposed of in appropriate landfills or waste collection facilities. Hazardous wastes will be disposed of according with applicable LORS in effect at the time. The site will be secured 24 hours per day during the GWF Tracy decommissioning activities.

5.14.5 Cumulative Effects

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

GWF Tracy would generate nonhazardous solid waste that will add to the total waste generated in San Joaquin County and in California. However, there is adequate recycling and landfill capacity in California to recycle and dispose of the waste generated by GWF Tracy, as well as any additional projects in the City of Tracy. It is estimated that GWF Tracy will generate approximately 152 tons of solid waste during construction (including approximately 3 tons of hazardous waste) and about 5 tons a year from operations (including less than 1 ton of solid hazardous waste). Considering that 1,890,412 tons of solid waste were transported to landfills in San Joaquin County in the year 2006, GWF Tracy's contribution would likely represent less than one percent of the county's total waste generation (CIWMB, 2008b). Therefore, the impact of the project on solid waste recycling and disposal capacity will not be significant.

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

5.14.6 Mitigation Measures

Because the environmental impacts caused by wastes generated during construction and operation of GWF Tracy are expected to be insignificant, extensive monitoring programs will not be required. However, GWF Energy will prepare and implement construction and operational WMPs. These plans will ensure that waste generation is minimized and handled consistent with applicable LORS. In general, generated waste, both nonhazardous and hazardous, would be monitored during project construction and operation in accordance with the monitoring and reporting requirements mandated by the regulatory permits to be obtained for construction and operation.

5.14.7 Agencies and Agency Contacts

Several agencies, including EPA at the federal level, and DTSC and the California Environmental Protection Agency at the state level, regulate nonhazardous and hazardous waste, and will be involved in the regulation of the waste generated by GWF Tracy. The regulations, however, are administered and enforced primarily through the San Joaquin County Environmental Health Department, which is the designated CUPA. The persons to contact for nonhazardous and hazardous waste management are listed in Table 5.14-5.

TABLE 5.14-5
Agency Contacts for Waste Management

Issue	Agency	Contact
Hazardous Materials Response	San Joaquin County, Environmental Health Department	Casey Foley Supervisor 600 E. Main Street Stockton, CA 95202 (209) 468-3451
Fire Department Permits	City of Tracy Fire Department	Chris Bosch Fire Chief 835 Central Ave. Tracy, CA (209) 831-6700
Hazardous Waste Compliance and Inspections	San Joaquin County, Environmental Health Department	Casey Foley Supervisor 600 E. Main Street Stockton, CA 95202 (209) 468-3451

5.14.8 Permits and Permit Schedule

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

TABLE 5.14-6
Permits and Permit Schedule for Waste Management

Permit	Agency Contact	Schedule
Unified Program Facility Permit	San Joaquin County Environmental Health Department Michelle Henry 600 E. Main Street Stockton, CA 95202 (209) 953-7699	Before storing regulated hazardous materials or wastes at the site

5.14.9 References

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

California Integrated Waste Management Board (CIWMB). 2008a. Solid Waste Information System Facility/Site Search (SWIS) Database: http://www.ciwmb.ca.gov/SWIS/Search.asp. Accessed February 22, 2008.

California Integrated Waste Management Board (CIWMB). 2008b. *2006 Landfill Summary Tonnage Report*. http://www.ciwmb.ca.gov/Landfills/Tonnages/. Accessed February 22, 2008.

County of San Joaquin Community Development Department, Building Inspection Division. 2008. *2007 California Code Adoption Bulletin.* http://www.sjgov.org/commdev/cgi-bin/cdyn.exe?grp=building&htm=default. February 7.

Department of Toxic Substance Control (DTSC). 2007a. *California Commercial Offsite Hazardous Waste Management Facilities*. Accessed February 22, 2008.

Foley, C. 2008. Telephone conversation with Casey Foley, Supervisor, San Joaquin County Environmental Health Department and Andrew Redmond/CH2M HILL. February.

Garcia, S. 2008. Telephone conversation with Stephanie Garcia, Tracy Fire Department and Andrew Redmond/CH2M HILL. January.

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

Tracy Delta Solid Waste Management Inc. (TDSWM). 2008. Telephone conversation with TDSWM and Sarah Madams/CH2M HILL. February.

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