

## 5.16 Waste Management

This section addresses waste management issues related to the BSEP. In addition to describing Project waste streams and the impacts of their management/disposal, this section also describes existing site environmental conditions based on a Phase 1 Environmental Site Assessment (ESA).

### 5.16.1 LORS Compliance

Table 5.16-1 and the following subsections summarize the waste management LORS applicable to the BSEP. The Project will comply with the applicable LORS during construction and operation.

**Table 5.16-1 Summary of Applicable Waste Management LORS**

LORS	Applicability	Where Discussed in AFC
<b>Federal:</b>		
Solid Wastes: Title 40, Code of Federal Regulations (CFR), Subchapter I	Establishes the criteria for characterizing hazardous waste, hazardous waste generator requirements, and management of oil and universal waste.	Section 5.16.2
Hazardous Materials: Title 49, CFR , Subchapter C	Establishes standards for the transportation of hazardous wastes.	Section 5.16.3
Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act (RCRA) of 1976, et al) and subsequently amended in 1978, 1980 and 1984: Title 42, United States Code (U.S.C.), §§ 6901, et seq.	Provides the basic framework for Federal regulation of non-hazardous and hazardous waste.	Section 5.16.3
Comprehensive Environmental Response, Compensation and Liability Act: (Superfund) Title 42, U.S.C., §§ 9601, et seq.	Establishes mechanisms for the clean up of accidental spills or releases of pollutants into the environment.	Section 5.16.3
Clean Water Act of 1977 (including 1987 amendments) §§ 402, 33 U.S.C., §§ 1342, 40 CFR Subchapter D	Establishes requirements for discharges of wastewater and storm water along with spill prevention of petroleum products.	Section 5.16.3

LORS	Applicability	Where Discussed in AFC
<b>State:</b>		
Hazardous Waste Control Act of 1972, as amended. Title 22, California Health and Safety Code (HSC), Division 20, Chapter 6.5	Establishes the framework for managing hazardous waste in California.	Section 5.16.3
Environmental Health Standards for the Management of Hazardous Waste: Title 22, California Code of Regulations (CCR), Division 4.5.	Establishes the requirements for disposal and management of hazardous waste in California.	Section 5.16.3
Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program): HSC, Chapter 6.11 §§ 25404 – 25404.9	Establishes the framework for six environmental and emergency response programs and includes the mechanism for implementing the CUPA program.	Section 5.16.1
Unified Hazardous Waste and Hazardous Materials Management Regulatory Program: Title 27, CCR, Division 1, Subdivision 4, Chapter 1, §§ 15100, et seq.	Establishes specific Certified Unified Program Agency (CUPA) reporting requirements for businesses.	Section 5.16.1
California Integrated Waste Management Act of 1989: Public Resources Code, Division 30, §§ 40000, et seq.	Establishes mandates and standards for management of solid waste.	Section 5.16.3
California Integrated Waste Management Board: Title 14, CCR, Division 7	Establishes minimum standards for solid waste handling and disposal.	Section 5.16.1
Hazardous Waste Source Reduction and Management Review Act of 1989 (also known as SB 14): HSC, Division 20, Chapter 6.5, Article 11.9, §§ 25244.12, et seq.	Establishes the State's hazardous waste source reduction activities.	Section 5.16.1
Hazardous Waste Source Reduction and Management Review.: Title 22, CCR, §§ 67100.1 et seq.	Further clarification of the State's hazardous waste source reduction activities.	Section 5.16.1
<b>Local:</b>		
Health and Safety: Kern County Ordinance, Title 8	Establish requirements for the use, generation, storage, and disposal of hazardous materials and wastes within the County.	Section 5.16.3

### 5.16.1.1 Federal LORS

Federal waste management LORS are described below.

#### **Solid Wastes, Title 40 CFR, Subchapter I**

These regulations were established by the U.S. Environmental Protection Agency (EPA) to implement the provisions of the Solid Waste Disposal Act and RCRA (described above). Among other things, the regulations establish the criteria for classification of solid waste disposal facilities (landfills), hazardous waste characteristic criteria and regulatory thresholds, hazardous waste generator requirements, and requirements for management of used oil and universal wastes.

- Part 246 addresses source separation for materials recovery guidelines;
- Part 257 addresses the criteria for classification of solid waste disposal facilities and practices;
- Part 258 addresses the criteria for municipal solid waste landfills; and
- Parts 260 through 279 address management of hazardous wastes, used oil, and universal wastes (i.e., batteries, mercury containing equipment, and lamps).

The EPA implements the regulations at the Federal level. However, California is an authorized state so the regulations are implemented by State agencies and authorized local agencies in lieu of the EPA.

#### **Hazardous Materials Regulations, Title 49, CFR, Subchapter C**

The U.S. Department of Transportation has established standards for transport of hazardous materials and hazardous wastes. The standards include requirements for labeling, packaging, and shipping of hazardous materials and hazardous wastes, as well as training requirements for personnel completing shipping papers and manifests.

#### **The Resource Conservation and Recovery Act, 42 U.S.C., §§ 6901-6992**

The Solid Waste Disposal Act, as amended and revised by the RCRA, establishes requirements for the management of solid wastes (including hazardous wastes), landfills, underground storage tanks, and certain medical wastes. The statute also addresses program administration, implementation and delegation to states, enforcement provisions and responsibilities, as well as research, training, and grant funding provisions. Provisions are established for the generation, storage, treatment, and disposal of hazardous waste, including requirements addressing generator record keeping, labeling, shipping papers, placarding, emergency response information, training, and security plans.

#### **Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Title 42, U.S.C., §§ 9601, et seq.**

CERCLA (also known as Superfund), establishes authority and funding mechanisms for cleanup of uncontrolled or abandoned hazardous waste sites, as well as cleanup of accidents, spills, or emergency releases of pollutants and contaminants into the environment.

**Clean Water Act of 1977 (including 1987 amendments) Section 402, 33 USC Section 1342, 40 CFR, Subchapter D**

The Clean Water Act authorizes the EPA to regulate discharges of wastewater and storm water into surface waters by using permits. Specifically, 40 CFR Part 110 and 112 address discharge of oil and oil pollution prevention, Part 117 addresses reportable quantities for hazardous substances, and Parts 122, 125, and 129 addresses National Pollutant Discharge Elimination System (NPDES) permit program. Spill prevention control and countermeasure plans are required for facilities storing petroleum products at quantities above the regulatory threshold (40 CFR 112).

**5.16.1.2 State LORS**

Applicable State of California LORS are described below.

**Hazardous Waste Control Act of 1972, Title 22, California HSC, Division 20, Chapter 6.5**

This California law creates the framework under which hazardous wastes must be managed in California. The law provides for the development of a State hazardous waste program that administers and implements the provisions of the federal RCRA program. It also provides for the designation of California-only hazardous wastes and development of standards (regulations) that are equal to or, in some cases, more stringent than federal requirements. The California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control (DTSC) administers and implements the provisions of the law at the state level. Certified Unified Program Agencies (CUPAs) implement some elements of the law at the local level. The Kern County Environmental Health Services Department is the CUPA for this Project.

**Environmental Health Standards for the Management of Hazardous Waste, Title 22, CCR, Division 4.5**

These regulations establish requirements for the management and disposal of hazardous waste in accordance with the provisions of the California Hazardous Waste Control Act and federal RCRA. As with the federal requirements, waste generators must determine if their wastes are hazardous according to specified characteristics or lists of wastes. Hazardous waste generators must obtain identification numbers, prepare manifests before transporting the waste offsite, and use only permitted treatment, storage, and disposal facilities. Generator standards also include requirements for record keeping, reporting, packaging, and labeling. Additionally, while not a federal requirement, California requires that hazardous waste be transported by registered hazardous waste transporters.

The standards addressed by Title 22, CFR include:

- Identification and Listing of Hazardous Waste (Chapter 11, §§66261.1, et seq.);
- Standards Applicable to Generators of Hazardous Waste (Chapter 12, §§66262.10, et seq.);
- Standards Applicable to Transporters of Hazardous Waste (Chapter 13, §§66263.10, et seq.);
- Standards for Universal Waste Management (Chapter 23, §§66273.1, et seq.);
- Standards for the Management of Used Oil (Chapter 29, §§66279.1, et seq.); and

- Requirements for Units and Facilities Deemed to Have a Permit by Rule (Chapter 45, §§67450.1, et seq.).

The Title 22 regulations are established and enforced at the State level by DTSC. Some generator standards are also enforced at the local level by the applicable CUPA.

**Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program), HSC, Chapter 6.11 §§25404 – 25404.9**

The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the six environmental and emergency response programs listed below:

- Aboveground Storage Tank Program;
- Business Plan Program;
- California Accidental Release Prevention (CalARP) Program;
- Hazardous Material Management Plan / Hazardous Material Inventory Statement Program;
- Hazardous Waste Generator / Tiered Permitting Program; and
- Underground Storage Tank Program.

The State agencies responsible for these programs set the standards for their programs while local governments implement the standards. Kern County Environmental Health Services is the CUPA and has jurisdiction over the Project.

The Waste Management analysis provided in this section only considers application of the Hazardous Waste Generator/Tiered Permitting element of the Unified Program. Other elements of the Unified Program may be addressed in AFC Section 5.6, Hazardous Materials Handling and/or Section 5.18, Worker Safety.

**Unified Hazardous Waste and Hazardous Materials Management Regulatory Program, Title 27, CCR, Division 1, Subdivision 4, Chapter 1, §15100, et seq.**

While these regulations primarily address certification and implementation of the program by the local CUPAs, the regulations do contain specific reporting requirements for businesses:

- Article 9 – Unified Program Standardized Forms and Formats (§§ 15400-15410).
- Article 10 – Business Reporting to CUPAs (§§15600 – 15620).

**California Integrated Waste Management Act of 1989, Public Resources Code, Division 30, §40000, et seq.**

The California Integrated Waste Management Act of 1989 (as amended) establishes mandates and standards for management of solid waste. This law regulates non-hazardous solid waste and provides a solid waste management system to reduce, recycle, and reuse solid waste generated in the State to the maximum extent feasible in an efficient and cost-effective manner to conserve natural resources, to protect

the environment, and to improve landfill safety. Among other things, the law includes provisions addressing solid waste source reduction and recycling, standards for design and construction of municipal landfills, and programs for county waste management plans and local implementation of solid waste requirements. The Kern County Environmental Health Services Department has developed and implemented an integrated waste management program.

**California Integrated Waste Management Board, Title 14, CCR, Division 7**

These regulations further implement the provisions of the California Integrated Waste Management Act and set forth minimum standards for solid waste handling and disposal. The regulations include standards for solid waste management, as well as enforcement and program administration provisions:"

- Chapter 3 – Minimum Standards for Solid Waste Handling and Disposal;
- Chapter 7 – Special Waste Standards;
- Chapter 8 – Used Oil Recycling Program; and
- Chapter 8.2 – Electronic Waste Recovery and Recycling.

**Hazardous Waste Source Reduction and Management Review Act of 1989 (also known as SB 14), HSC, Division 20, Chapter 6.5, Article 11.9, §25244.12, et seq.**

This law was enacted to expand the State’s hazardous waste source reduction activities. Among other things, it establishes hazardous waste source reduction review, planning, and reporting requirements for businesses that routinely generate more than 12,000 kilograms (approximately 26,400 pounds) of hazardous waste in a designated reporting year. The review and planning elements are required to be done on a four-year cycle, with a summary progress report due to DTSC every fourth year.

**Hazardous Waste Source Reduction and Management Review, Title 22, CCR, § 67100.1, et seq.**

These regulations further clarify and implement the provisions of the Hazardous Waste Source Reduction and Management Review Act of 1989 (noted above). The regulations establish the specific review elements and reporting requirements to be completed by generators subject to the Act.

**5.16.1.2 Local LORS**

**Kern County Ordinances, Title 8 Health and Safety**

These regulations govern the use, generation, storage, and disposal of hazardous materials and wastes within the County. The Kern County Environmental Health Services Department serves as the local CUPA authorized to implement the provisions of the six California Unified Program elements (noted above in the State LORS section). Kern County Environmental Health Services has developed a solid waste program to oversee the handling, processing, and disposal of non-hazardous solid wastes to safeguard public health. Solid waste facilities include sanitary landfills, transfer stations, composting facilities, and non-hazardous contaminated soil facilities. Septic (pumping) businesses, toilet rental agencies, and refuse haulers are also regulated by Kern County Environmental Health Services.

### 5.16.1.3 Involved Agencies and Local Contacts

Agencies with jurisdiction over waste management issues are shown in Table 5.16-2.

**Table 5.16-2 Agencies and Agency Contacts**

<b>Agency Contact</b>	<b>Phone/E-mail</b>	<b>Permit/Issue</b>
Andre Amy Staff Duty Officer Department of Toxic Substances Control 9211 Oakdale Avenue Chatsworth, CA 91311-6505	(818) 717-6581 AAmy@dtsc.ca.gov	Hazardous waste management
Mike Plaziak Senior Water Resources Control Engineer So. Lahontan Watersheds Division Lahontan LRWQCB 14440 Civic Drive, Suite 200 Victorville, CA 92392	(760) 241-6583 MPlaziak@waterboards.ca.gov	Waste Discharge Requirements, Storm Water Pollution Prevention Plans
Matthew Constantine, Director Kern County Environmental Health Services 2700 M Street, Suite 300 Bakersfield, CA 93301-2370	(661) 862-8700 eh@co.kern.ca.us	Hazardous waste management and non-hazardous waste management

### 5.16.1.4 Required Permits and Permit Schedule

As a generator of hazardous waste, the Project will be required to obtain an EPA identification number from the DTSC. As an operator of a bioremediation unit for handling and using contaminated soil on site, the Project will require a waste discharge requirements (WDR) permit from the Lahontan RWQCB. In addition, a Hazardous Materials Handler and Hazardous Waste Generator permit will be required from the Kern County Environmental Health Services, Hazardous Materials Division. Kern County Environmental Health Services also requires permits for the installation and operation of underground storage tanks (USTs) and above ground storage tanks (ASTs). Table 5.16-3 identifies the waste management permits required for the Project.

**Table 5.16-3 Permits Required and Permit Schedule**

<b>Permit/Approval</b>	<b>Schedule</b>
EPA ID No. and register as a Hazardous Waste Generator with DTSC	Takes 7-10 businesses days once the application form has been received.
Hazardous Waste Generator Permit from Kern County Environmental Health Services, Hazardous Materials (CUPA) Program	Takes approximately 30 days for approval once needed information submittal (e.g., Business Plan) is complete.
Waste Discharge Requirements (WDR) Permit from the Lahontan RWQCB	Takes approximately six months for approval once the application has been received.

### 5.16.2 Affected Environment

The Project involves the construction and operation of a 250 MW concentrated solar electric generating facility on a former agricultural site in an unincorporated area of Kern County approximately four miles north of the northern boundary of California City. Waste management-related baseline conditions of the site are described in a number of Phase I ESAs which are summarized below in Section 5.16.2.3 and included in AFC Appendix I.

Facility construction and operations will generate wastes that require proper management and in some cases offsite disposal. There are six permitted Class III landfills and one Class II landfill located in Kern County within approximately 75 miles of the Project site. There are two major permitted Class I hazardous waste landfills located in California. The locations and the permitted, operating, and remaining capacities of the hazardous and non-hazardous waste landfills are summarized below and in Table 5.16.4.

**Table 5.16-4 Solid and Hazardous Waste Disposal Facilities**

Waste Disposal Site	Title 23 Class	Maximum Permitted Capacity	Current Operating Capacity <sup>1</sup>	Remaining Capacity	Estimated Closure Date	Enforcement Action Taken?
Bakersfield Metropolitan (Bena) SLF 2951 Neumarkel Road Caliente, CA	Class III	53,000,000 cubic yards	4,500 tons/day	44,800,000 cubic yards	2038	No
Boron Sanitary Landfill 11400 Boron Avenue Boron, CA	Class III	1,003,000 cubic yards	200 tons/day	208,000 cubic yards	2013	No
Shafter-Wasco Sanitary Landfill 17621 Scofield Avenue Shafter, CA	Class III	11,635,000 cubic yards	888 tons/day	7,900,000 cubic yards	2027	No
Ridgecrest-Inyokern Sanitary Landfill 3301 Bowman Road Ridgecrest, CA	Class III	5,993,000 cubic yards	701 tons/day	5,000,000 cubic yards	2012	No
Taft Sanitary Landfill 13351 Elk Hills Road Taft, CA 93268	Class III	8,787,000 cubic yards	419 tons/day	6,679,000 cubic yards	2123	No
Tehachapi Sanitary Landfill 12001 Tehachapi Blvd. Tehachapi, CA 93561	Class III	2,594,000 cubic yards	370 tons/day	625,846 cubic yards	2014	No
McKittrick Waste Treatment Site 56533 Highway 58 McKittrick, CA	Class II	2,092,000 cubic yards	1,180 tons/day	841,498 cubic yards	2029	No

Waste Disposal Site	Title 23 Class	Maximum Permitted Capacity	Current Operating Capacity <sup>1</sup>	Remaining Capacity	Estimated Closure Date	Enforcement Action Taken?
Waste Management Kettleman Hills Landfill 36251 Old Skyline Road Kettleman City, CA	Class I	10,700,000 cubic yards	8,000 tons/day	6,000,000 cubic yards	2037-2038	No
Clean Harbors Buttonwillow Landfill 2500 West Lokern Road Buttonwillow, CA	Class I	14,300,000 cubic yards	10,500 tons/day	9,500,000 cubic yards	2040	No

Source: CIWMB/SWIS, December 2007  
<sup>1</sup> Maximum Permitted Throughput

### 5.16.2.1 Non-Hazardous Solid Waste Disposal Sites

Non-hazardous solid waste generated at the Project site during both construction and operation phases will be taken offsite for recycling or disposal to a permitted Class III landfill. As noted above, there are six Class III landfills located in Kern County within approximately 75 miles of the Project site: the Bakersfield Metropolitan, Boron, Shafter-Wasco, Ridgecrest-Inyokern, Taft and Tehachapi landfills. The maximum landfill capacity, daily operating capacity, and remaining capacity of each landfill are listed in Table 5.16-4.

### 5.16.2.2 Hazardous Waste Disposal Sites

Hazardous waste generated at the facility will be taken offsite for recycling or disposal by a licensed and permitted hazardous waste transporter to a permitted treatment, storage, and disposal facility (i.e., Class I landfill).

There are two major operating hazardous waste (Class I) landfills in California:

- Clean Harbors Buttonwillow Landfill (Kern County) located on Lokern Road between State Highways 33 and 58 is a treatment, storage and disposal facility that accepts Class I solid wastes and Class II solid and liquid wastes. The permitted capacity of this landfill is 14.3 million cubic yards with an estimated 34 years of operational life remaining (Bouie, 2006). The EPA Identification Number for this facility is CAD980675276.
- Chemical Waste Management Landfill located in Kettleman Hills (Kings County) on State Highway 41 approximately two miles west of Interstate 5. The Class I portion of this landfill has approximately 6.0 million cubic yards remaining capacity of a total permitted capacity of 10.7 million cubic yards. The remaining life of this landfill is approximately 30 years (Yarborough 2006). The EPA Identification Number for this facility is CAD000646117.

The permitted, operating, and remaining capacities of these landfills are described in Table 5.16-4. It is expected that hazardous wastes generated during the construction and operational phases of the Project will be disposed at the Buttonwillow landfill.

For select liquid wastes, DeMenno/Kerdoon, located in Compton at 2000 North Alameda Street, is a permitted Part B Treatment Storage and Disposal Facility (TSDF). The facility recycles used oil, wastewater, and antifreeze. The EPA Identification Number for this facility is CAT080013352.

### **5.16.2.3 Phase I Environmental Site Assessment**

A Phase I ESA was prepared by qualified professional staff in June 2007 and supplemented in February 2008 in order to identify, to the extent feasible, recognized environmental conditions (RECs) relevant to development of the Project. These Phase I ESAs were performed in conformance with the general scope and limitations of ASTM Standard Practice E 1527-05. A total of three Phase I ESAs were completed for the Project (referred to as "the subject property"). The first property was assessed in June 2007 and has been known in the past as the Fremont Valley Ranch. Note that while the June 2007 Phase I ESA was done for the entire Fremont Valley Ranch property, only those parcels within the fenced plant site boundary are considered part of the Project. Therefore, the Phase I ESA contained in Appendix I includes recommendations that will be implemented outside the plant site boundary, but that do not pertain to the BSEP. Two additional properties were assessed in February 2008 and consisted of: 1) 14 acres of undeveloped land and 2) 80 acres of undeveloped land, both in the northern part of the BSEP plant site.

#### **Site History**

Historical research indicates that railroad tracks have been running through the western portion of the subject property since at least 1915. The majority of the site was vacant undeveloped desert until the Fremont Valley Ranch was developed in 1977 as an alfalfa farm. Agricultural activities ceased in the mid-1980s and from that time on, the property was occupied by a series of caretakers, but was otherwise inactive (i.e., no farming or ranching operations conducted).

#### **Incidents and Notifications**

The subject property was not listed in the environmental database report (EDR), which summarizes databases with environmental and historical land use information on the subject property and surrounding properties. None of the surrounding properties were identified in the EDR. No additional offsite sources of concern were identified in the EDR, or during a visit to the site and vicinity during ESA preparation.

#### **Summary of Findings and Conclusions**

Based on a site visit; the review of governmental environmental databases, files, and historical documents; and interviews conducted during the Phase I ESA process with selected individuals, no recognized environmental conditions were identified on the property evaluated and within the Project boundaries.

### **5.16.3 Environmental Impacts**

The analysis of BSEP environmental impacts related to waste management is based on the following significance criteria:

- Offsite treatment or disposal of non-hazardous solid wastes must not significantly impact available landfill, recycling or treatment program capacities;
- Offsite disposal of hazardous wastes must not significantly impact available Class I landfill capacity; and

- The facility must comply with all applicable LORS regarding management of non-hazardous and hazardous wastes.

Additionally, according to CEQA Guidelines, a project has a significant impact if it:

- Breaches standards relating to solid waste or litter control;
- Creates a potential public health hazard or involves materials which pose a hazard; or
- Results in a need for new systems or substantial alterations to existing waste disposal facilities.

The following sections describe the types of waste that are expected to be generated during the construction and operation of the Project and how non-hazardous solid waste and hazardous wastes will be managed and disposed.

To ensure that public health and safety and the environment are protected, a facility closure plan will be prepared prior to Project closure. The closure plan will ensure that the management, recycling, and/or disposal of non-hazardous and hazardous wastes associated with facility closure activities are performed in accordance with applicable LORS. See AFC Section 3.0 for additional information on facility closure.

### **5.16.3.1 Construction**

Table 5.16-5 summarizes the anticipated waste streams generated during Project construction, along with appropriate management methods for treatment or disposal.

#### **Hazardous Waste Disposal**

Most of the hazardous waste generated during Project construction, such as unused or off-specification paint and primer, paint thinner, solvents, and vehicle and equipment maintenance-related materials, can be recycled. Empty containers (i.e., drums and totes) will be returned to the vendor, if possible. The small quantities of hazardous waste that cannot be recycled are not expected to significantly impact the capacity of the Class I landfills located in California.

In the unlikely event that contaminated soil is encountered during excavation activities, the soil will be segregated, sampled, and tested to determine appropriate disposal/treatment options. If the soil is classified as hazardous, Kern County Environmental Health Services will be notified and the soil will be hauled to a Class I landfill or other appropriate soil treatment and recycling facility, if required. Kern County Environmental Health Services also will be notified if previously unknown wells, tanks, or other underground storage facilities are discovered during construction. Subsequent removal of such equipment, including potential remediation activities (if required), will be conducted in accordance with CCR Title 22 and the California Health and Safety Code.

#### **Universal Waste Disposal**

Information on universal wastes anticipated to be generated during Project operations is provided in Table 5.16-6. Universal wastes and unusable materials will be handled, stored, and managed per California Universal Waste requirements.

**Table 5.16-5 Summary of Construction Waste Streams and Management Methods**

<b>Waste Stream and Classification<sup>1</sup></b>	<b>Origin and Composition</b>	<b>Estimated Amount</b>	<b>Estimated Frequency of Generation</b>	<b>Onsite Treatment</b>	<b>Waste Management Method/ Off-site Treatment</b>
Construction waste - Hazardous	Empty hazardous material containers	1 cubic yard per week (cy/wk)	Intermittent	None. Accumulate onsite for <90 days	Return to vendor or dispose at permitted hazardous waste disposal facility
Construction waste - Hazardous	Solvents, used oil, paint, oily rags	175 gallons	Every 90 days	None. Accumulate onsite for <90 days	Recycle or use for energy recovery
Heat Exchanger cleaning waste - Hazardous	Chelant type solution	1,000 gallons	One time event during commissioning	None	Dispose to permitted hazardous waste disposal facility
Spent batteries - Universal Waste	Lead acid, alkaline type	20 in 2 years	Intermittent	None. Accumulate onsite for <90 days	Recycle
Construction waste - Nonhazardous	Scrap wood, concrete, steel, glass, plastic, paper	40 cy/wk	Intermittent	None	Recycle wherever possible, otherwise dispose to Class III landfill
Sanitary waste - Nonhazardous	Portable Chemical Toilets - Sanitary Waste	200 gallons/day	Periodically pumped to tanker truck by licensed contractors	None	Ship to sanitary wastewater treatment plant
Office waste - Nonhazardous	Paper, aluminum, food	1 cy/wk	Intermittent	None	Recycle or dispose to Class III landfill

<sup>1</sup> Classification under Title 22, CCR § 66261.20 et seq.

**Non-Hazardous Solid Waste Disposal**

Solid waste generated from Project construction activities may include scrap lumber, plastic, metal, glass, excess concrete, and empty non-hazardous containers. Management and disposal of these wastes will be the responsibility of the construction contractor(s). Typical management practices for this material include recycling when possible, proper storage of waste to prevent wind dispersion, and routine pick-up and disposal of waste to approved local Class III landfills. Solid wastes from Project construction are not expected to significantly impact the capacity of the Class III landfills in Kern County.

Wastewater generated at the construction site will include sanitary wastes, dust suppression drainage, and equipment wash water. Construction-related sanitary wastes, collected in portable self-contained chemical toilets, will be pumped periodically. Potentially contaminated equipment wash water will be contained at designated wash areas and transported to a wastewater treatment facility via a licensed hauler.

### 5.16.3.2 Operation

The operation of the BSEP is expected to generate sanitary wastewater, non-hazardous wastes, and small quantities of hazardous wastes. Operation of Project linear facilities (gas pipeline, transmission line) will generate minimal quantities of waste. The types of waste and their estimated volumes are summarized in Table 5.16-6 and described below the table.

**Table 5.16-6 Summary of Operation Waste Streams and Management Methods**

Waste Stream and Classification <sup>1</sup>	Origin and Composition	Estimated Amount	Estimated Frequency of Generation	Waste Management Method	
				Onsite	Offsite
Used Hydraulic Fluid, Oils and Grease – Non-RCRA Hazardous	HTF system, turbine, and other hydraulic equipment	50,000 gallons/year	Intermittent	Accumulated for <90 days	Recycle
Effluent from oily water separation system – Non-RCRA Hazardous	Plant washdown area/oily water separation system	3,000 gallons/year	Intermittent	None	Recycle
Oily rags, oil absorbent, and oil filters – Non-RCRA Hazardous	Various	Five 55-gallon drums per month	Intermittent	Accumulated for <90 days	Sent offsite for recovery or disposed at Class I landfill
Spent Carbon – RCRA Hazardous	Spent activated carbon from air pollution control of HTF vent	340,000 lbs/yr	Intermittent	Contained in engineered process vessel, no accumulation outside of process	Sent offsite for regeneration at a permitted management facility
Soil contaminated with HTF (> 10,000 mg/kg – Non-RCRA Hazardous)	Solar array equipment leaks	10 cubic yards per year (cy/yr)	Intermittent	Accumulated of < 90 days	Sent offsite for disposal at a Class I landfill
Soil contaminated with HTF (< 10,000 mg/kg – Nonhazardous)	Solar array	750 cy/yr	Intermittent	Bioremediation unit	Dispose to waste management facility
Spent batteries – Universal Waste	Rechargeable and household	<10/month	Continuous	Accumulate for <1 year	Recycle
Spent batteries – Hazardous	Lead acid	20 every 2 years	Intermittent	Accumulated for <90 days	Recycle
Spent fluorescent bulbs – Universal Waste	Facility lighting	< 50 per year	Intermittent	Accumulate for <1 year	Recycle
Spent Demineralizer resin – Nonhazardous	Demineralizer	250 cubic feet (ft <sup>3</sup> )	Once every 3 years	None	Recycle

Waste Stream and Classification <sup>1</sup>	Origin and Composition	Estimated Amount	Estimated Frequency of Generation	Waste Management Method	
				Onsite	Offsite
Cooling Tower Blowdown – Designated Liquid Waste	Cooling tower	195,000 gallons/day	Continuous when plant is operating	Evaporation Ponds	None
Cooling Tower Basin Sludge - Nonhazardous	Cooling tower	10 tons/year	Annually	None	Dispose to waste management facility
Spent softener resin - Nonhazardous	Softener	500 ft <sup>3</sup>	Once every 3 years	None	Recycle
Water Treatment Solids (Including cooling tower waste water treatment solids) – Nonhazardous	Filter press solids, dewatered sludge cake	2,500 pounds per hour	Continuous when plant is operating	None	Dispose to waste management facility
Sanitary wastewater - Nonhazardous	Toilets, washrooms	2,500 gallons/day	Continuous	Septic leach field	None

<sup>1</sup> Classification under Title 22, CCR § 66261.20 et seq.

### **Hazardous Waste Disposal**

Information on hazardous wastes anticipated to be generated during Project operation is provided in Table 5.16-6. A summary of that information is provided below:

- Used hydraulic fluids, oils, greases, oily filters and oily rags, and associated wastes: Used oils, greases, and oily effluent from the water separation systems will be accumulated and maintained onsite in secure hazardous waste accumulation areas within secondary containment. These wastes will be recycled whenever possible. Used oil and recovered oil from the oil/water separator will be recycled by a licensed oil recycler. Oily rags and oil absorbent (used to contain small spills) will be generated as a normal part of maintenance activities. These wastes will be recycled or shipped offsite for energy recovery or disposal in a Class I landfill. Soil contaminated with HTF in concentrations exceeding 10,000 milligrams per kilogram (mg/kg) will be shipped offsite for disposal in a Class I landfill.
- Cleaning solutions: Waste cleaning solutions, such as solvents and other chemical cleaning solutions will be generated during routine equipment maintenance and repair. These waste cleaning solutions will be collected and recycled by a licensed contractor on a regular basis.
- Spent batteries: Lead-acid batteries will be returned to the vendor. Other spent batteries will be accumulated onsite in labeled containers and recycled at least annually per California Universal Waste requirements.

Hazardous wastes and unusable hazardous materials will be stored in a hazardous waste accumulation area. Hazardous waste areas will include secondary containment with a capacity to hold the volume of the largest container plus ten percent. Hazardous waste accumulation area regulations will be followed (e.g.,

weekly inspections). Wastes will be transported for recycling or disposal in accordance with all Federal, State, and local hazardous waste generator requirements.

Hazardous wastes will be transported by a licensed hazardous waste hauler using a Uniform Hazardous Waste Manifest and disposed or recycled at an appropriately-permitted facility. Copies of manifests, reports, waste analysis, exception reports, land disposal restrictions and other related documents will be maintained onsite for as required.

### **Spent Carbon**

The HTF expansion tank will be vented through a two-stage activated carbon system for the control of air emissions from the tank. While in use, the activated carbon will adsorb volatile organic compounds (VOC) and toxic air contaminants (TAC) including benzene, phenol and diphenyl. The process vent will be monitored periodically (with a frequency specified in the air operating permit) to determine the saturation level of the carbon. When saturated with TAC, activated carbon is a hazardous waste. Once the activated carbon is saturated with VOC and TAC (and thus no longer effective), the carbon is removed from the vessels and shipped offsite by a licensed waste transporter to a licensed management facility for regeneration. The vessels are refilled with fresh carbon and returned to service. Based on projected air emission levels, approximately 340,000 pounds of spent carbon will be generated annually from emissions control.

### **Liquid Designated Waste**

The cooling system for heat rejection from the steam cycle consists of a surface condenser, circulating water system, and a wet cooling tower. The surface condenser receives exhaust steam from the low pressure section of the steam turbine generator and condenses it to liquid for return to the solar steam generator. Wastewater from the solar steam generator and demineralization system is sent to the cooling tower basin. The cooling tower blowdown (i.e., discharge) will be piped to onsite evaporation ponds for dewatering and the ponds are being designed so that the residual solids will not require removal for the duration of the Project's operating life. If solids removal is necessary for pond maintenance reasons, the removed solids will be shipped to an appropriate offsite disposal facility.

As discussed in Section 2.0, Project Description, the BSEP will have three evaporation ponds with a nominal surface area of 8.3 acres each for a total of 25 acres. Multiple ponds are planned to allow plant operations to continue in event that a pond needs to be taken out of service for some reason, e.g., needed maintenance. Each pond will have enough surface area so that the evaporation rate exceeds the cooling tower blowdown rate at maximum design conditions and at annual average conditions. As noted above, the planned pond depth (capacity) is intended to avoid the need for residual solids removal during the life of the Project.

### **Universal Waste Disposal**

Information on universal wastes anticipated to be generated during Project operation is provided in Table 5.16-6. Universal wastes and unusable materials will be handled, stored, and managed per California Universal Waste requirements.

### **Non-Hazardous Waste: HTF-Contaminated Soil**

Non-hazardous solid waste generated during operation of the power plant is likely to include soil contaminated with HTF from spills and leaks in the HTF system. Management of HTF-contaminated soil is based on the HTF concentrations in the soil. As discussed in Section 2.0, Project Description, two types of onsite soil treatment are planned: bioremediation for soils with concentrations under 10,000 mg/kg and land farming for soils with concentrations under 1,000 mg/kg. Soils with concentrations above 10,000 mg/kg would be shipped off site for disposal at a permitted Class I landfill. A facility-specific Waste Discharge Requirements (WDR) permit from the Lahontan RWQCB is required to operate a bioremediation unit and land farm unit. A DTSC letter dated April 4, 1995 (Appendix K) and issued to the Kramer Junction SEGS facility states that soil contaminated with HTF “poses an insignificant hazard and classifies the waste as non-hazardous pursuant to 22 CCR Section 66260.200(f).” The BSEP is similar facility to the Kramer Junction SEGS in that both involve parabolic trough solar technology that uses the same type of HTF; thus, the determination in the 1995 DTSC letter is considered relevant to the BSEP. Soils with less than 100 mg/kg would be stockpiled in the onsite land farm unit and used as fill material on the Project site as needed.

### **Non-Hazardous Waste Disposal**

Non hazardous solid wastes generated during operation of the Project will include solid waste from routine maintenance (including used air filters, spent demineralizer resins, sand and filter media, cooling tower basin sludge, spent softener resins, clarifier blow down sludge), and office and domestic wastes. Maintenance-derived wastes will be recycled to the extent practical. Those maintenance-derived wastes that cannot be recycled will be transported for disposal at a Class III landfill. Domestic wastes, including office paper, newsprint, aluminum cans, plastic, and glass containers and other non hazardous solid waste material, will be recycled to the extent practical. The remaining solid wastes will be removed on a regular basis by a permitted waste hauler for disposal at a Class III landfill.

It is anticipated that disposal of non-hazardous solid waste from the Project will represent only a minimal increase (a small fraction of one percent) relative to the capacities of the local Class III landfills (see Table 5.16-5). Therefore, the quantities of non-hazardous solid waste from the Project will not adversely impact available landfill capacity and can be considered insignificant.

Sanitary waste generated at the BSEP will be sent to an onsite septic system and leach field; there will be no offsite liquid discharges from the Project.

#### **5.16.3.3 Cumulative Impacts**

The Class I and Class III landfills that serve the Project area have substantial remaining disposal capacities and Project waste generation volumes will be modest. Therefore, the Project’s contribution to potential significant adverse cumulative impacts on waste disposal facilities would be less than significant.

#### **5.16.4 Mitigation Measures**

Although the Project will not result in significant impacts related to the management of non-hazardous and hazardous wastes, a number of mitigation measures will be implemented, as shown below.

- WM-1** A detailed Construction Waste Management Plan for all wastes generated during project construction will be prepared 60 days prior to the start of onsite activities. The plan will be comprehensive to ensure that compliance is maintained with local, State, and Federal regulations. The plan will include:
- A description of all construction waste streams, including projections of frequency, amounts generated and hazard classifications; and
  - Management methods to be used for each waste stream, including temporary onsite storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans.
  - Spill control and management procedures will be included covering spill containment, collection, and treatment.

**WM-2** A detailed Operation Waste Management Plan for all wastes generated during project operations will be prepared 60 days prior to the start up of the facility. The plan will be comprehensive to ensure that compliance is maintained with local, State, and Federal regulations. The plan shall include:

- A detailed description of all operation and maintenance waste streams, including projections of amounts to be generated, frequency of generation, and waste hazard classifications;
- Management methods to be used for each waste stream, including temporary onsite storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans.
- Information and summary records of conversations with the local CUPA (Kern County Environmental Health Services) and DTSC regarding any waste management requirements necessary for project activities. Copies of all required waste management permits, notices, and/or authorizations shall be included in the plan and updated as necessary;
- A detailed description of how facility wastes will be managed, and any contingency plans to be employed, in the event of an unplanned closure or planned temporary facility closure; and
- A detailed description of how facility wastes will be managed and disposed upon closure of the facility.

Spill control and management procedures will be included in the detailed Hazardous Waste Management Plan to be developed for the project. The purpose of the spill control and management procedures is to avoid accidental mixing of incompatible chemicals and spills during

transfer of chemicals. The design of spill control and management procedures will include containment, collection, and treatment systems.

- WM-3** A comprehensive reporting plan will be developed and implemented to ensure spills and releases of hazardous substances, hazardous materials, or hazardous waste are reported, cleaned-up, and remediated, as necessary, in accordance with all applicable federal, state, and local requirements. The reporting plan will be incorporated within the Construction Waste Management Plan and the Operation Waste Management Plan.
- WM-4** Prior to onsite construction activities, construction employees will receive waste training, specifically on the Construction Waste Management Plan to ensure compliance with Federal, State, and local requirements emphasizing the protection of workers, the public, and the environment. As the project transitions from construction to operations, facility personnel will receive waste training prior to generating, handling, storing, or shipping hazardous waste. Facility employees will be trained on the Operations Waste Management Plan, including waste minimization.
- WM-5** The project owner will obtain a hazardous waste generator identification number from the DTSC prior to generating any hazardous waste during construction and operations.

### 5.16.5 References

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