

5.16 Waste Management

This section discusses waste management issues related to the Ridgecrest Solar Power Project (RSPP or Project). Issues addressed include identification of the hazardous and non-hazardous wastes that will be generated by construction and operation and the potential impacts from those activities, as well as identification of proposed mitigation measures for any potentially significant impacts. This section begins with identification of applicable laws, ordinances, regulations, and standards (LORS). It also includes a summary of the Phase I Environmental Site Assessment (Phase I ESA) prepared for the Project site; the full Phase I ESA is provided as Appendix I.

The waste management discussion presented in the following pages is intended to support compliance by the California Energy Commission with the requirements of the California Environmental Quality Act (CEQA), and by the Bureau of Land Management (BLM) with the requirements of the National Environmental Policy Act (NEPA). The two agencies are conducting a joint review of the Project and a combined CEQA/NEPA document will be prepared.

Summary

Project waste management impacts would be less than significant. Construction and operation will generate relatively modest quantities of non-hazardous solid waste (e.g., heat transfer fluid- [HTF-] contaminated soils), liquid waste e.g., residual solids from treatment of small quantities of makeup feed water), and small quantities of hazardous waste (e.g., used hydraulic fluids). Where practicable, waste materials will be recycled or reused. Project procedures and personnel training will ensure that waste generation is minimized, and that wastes generated are managed appropriately. Disposal of Project wastes will not significantly affect the capacity of available waste disposal facilities. HTF-contaminated soil will be managed in an onsite Land Treatment Unit (LTU) permitted by the Lahontan Regional Water Quality Control Board (RWQCB). A Phase I Environmental Site Assessment (ESA) did not identify any recognized environmental conditions on the Project site.

5.16.1 LORS Compliance

Table 5.16-1 and the following subsections summarize the applicable LORS that govern the management of non-hazardous and hazardous waste and that are applicable to the Project. Non-applicable Federal and State LORS are also discussed, and justification for eliminating these LORS from further evaluation is provided. The Project will comply with applicable LORS during construction and operation.

Table 5.16-1 Summary of Applicable Waste Management LORS

LORS	Applicability	Where Discussed in AFC
Federal:		
Resource Conservation and Recovery Act of 1976 (RCRA): 42 United States Code (USC) Section 6901 et seq.	Provides the basic framework for Federal regulation of non-hazardous and hazardous waste, including control of storage, treatment, and disposal.	Section 5.16.2
Clean Water Act Section 402: 33 USC Section 1342	Establishes requirements for discharges of wastewater and stormwater, as well as for spill prevention of petroleum products.	Section 5.16.3
Solid Wastes: Title 40 Code of Federal Regulations (CFR) Parts 243, 246, and 257	Establishes the guidelines for storage of non-hazardous solid waste and establishes solid waste landfill classification and operating standards.	Section 5.16.2
Hazardous Wastes: Title 40 CFR Parts 260-268, 273, and 279	Establishes the criteria for characterizing hazardous waste, hazardous waste generator requirements, and the management of universal waste and oil.	Section 5.16.2
Hazardous Materials: Title 49 CFR Parts 171-180	Establishes standards for the transportation of hazardous wastes.	Section 5.16.3
State:		
Hazardous Waste Control Act of 1972: California Health and Safety Code (HSC) Section 25100 et seq. (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 Section 25404 – 25404.9	Establishes the framework for six environmental and emergency response programs and includes the mechanism for implementing the Certified Unified Program Agency (CUPA) program.	Section 5.16.1
Unified Hazardous Waste and Hazardous Materials Management Regulatory Program: Title 27 CCR Section 15100 – 15620	Establishes specific CUPA reporting requirements for businesses.	Section 5.16.3
California Integrated Waste Management Act of 1989: Public Resources Code Section 40000 et seq.	Establishes mandates and standards for management of solid waste.	Section 5.16.3
California Integrated Waste Management Board (CIWMB) Regulations for Solid Waste Handling and Disposal: Title 14 CCR Division 7 Chapters 3 and 8	Establishes minimum standards for solid waste handling and disposal, and regulations for the used oil program.	Section 5.16.3

Table 5.16-1 Summary of Applicable Waste Management LORS

LORS	Applicability	Where Discussed in AFC
Hazardous Waste Source Reduction and Management Review Act of 1989 (also known as Senate Bill [SB] 14): HSC Section 25244.12 et seq.	Establishes the State's hazardous waste source reduction activities.	Section 5.16.3
Hazardous Waste Source Reduction and Management Review: Title 22 CCR Section 67100.1 et seq.	Further clarifies the State's hazardous waste source reduction activities.	Section 5.16.3
Porter-Cologne Water Quality Control Act: California Water Code Section 13000 et seq.	Controls discharge of any waste material that could affect the quality of the surface waters or groundwaters of California.	Section 5.16.1
California Fire Code: Title 24 CCR Part 9	Provides requirements for the safe storage, dispensing, use, and handling of hazardous materials.	Section 5.16.1
Local:		
Health and Safety: Kern County Code, Chapters 8.04 and 8.28	Establishes permits and fee requirements, as well as requirements for the generation, storage, transportation, and disposal of solid wastes within the County.	Section 5.16.3
Kern County Fire Code, Kern County Code, Chapter 17.32	Adoption, with additions and exceptions, of the California Fire Code which is based on the 2006 International Fire Code.	Section 5.16.1

5.16.1.1 Federal LORS

Federal waste management LORS are described below.

Resource Conservation and Recovery Act, 42 USC Section 6901 et seq.

RCRA establishes requirements for the management of solid wastes (including hazardous wastes). The statute also addresses program administration, implementation and delegation to states, and enforcement provisions and responsibilities. Provisions are established for the generation, storage, treatment, and disposal of hazardous waste, including requirements addressing generator record keeping, labeling, manifests, emergency response information, training, and contingency plans. However, the United States Environmental Protection Agency (EPA) has delegated implementation authority for this program to the State of California, which provides additional requirements that are discussed later.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 USC Section 9601 et seq.

CERCLA (also known as Superfund) establishes the 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. Based on the Phase I ESA for the Project site, it does not appear that the Project area contains contamination that would trigger site cleanup under CERCLA.

Clean Water Act Section 402, 33 USC Section 1342

The Clean Water Act authorizes the EPA to issue permits for the discharge of wastewater and stormwater to surface waters. Implementing regulations are found in Title 40 CFR. Parts 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 the 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.

Solid Wastes, Title 40 CFR Parts 240 - 257

These regulations were established by the EPA to implement the provisions of the Solid Waste Disposal Act. The regulations establish the criteria for classification of solid waste disposal facilities (landfills), provide operating standards for landfills, and provide storage requirements of solid wastes.

- Part 243 addresses general storage standards and recommended practices for solid wastes;
- Part 246 addresses source separation for materials recovery guidelines; and
- Part 257 addresses the criteria for classification of solid waste disposal facilities and practices.

Hazardous Wastes, Title 40 CFR Parts 260-268, 273, and 279

These regulations were established by the EPA to implement the provisions of RCRA. The regulations establish the criteria for classification of materials as hazardous wastes, define hazardous waste generator requirements, and specify requirements for management of used oil and universal wastes.

- Parts 260 through 268 provide the basic framework for characterizing, transporting and manifesting hazardous waste, as well as the storage requirements and requirements for disposing of hazardous wastes to land;
- Part 273 addresses management of hazardous universal wastes (i.e., batteries, mercury-containing equipment, and lamps); and
- Part 279 addresses management of 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 Parts 171-180

The United States Department of Transportation has established standards for the transportation 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, vehicle placards, and security plans.

5.16.1.2 State LORS

Applicable State of California LORS are described below.

Hazardous Waste Control Act of 1972, California HSC Section 25100 et seq. (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. Chapter 6.5 includes allowable exemptions and

requirements for materials that are recycled and other materials such as launderable rags. The California EPA, Department of Toxic Substances Control (DTSC) administers and implements the provisions of the law at the state level pursuant to authorization from the EPA. 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, manage wastes properly while on site, prepare manifests before transporting the waste off site, 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 CCR Division 4.5 include:

- Identification and Listing of Hazardous Waste (Chapter 11 Section 66261.1 et seq.);
- Standards Applicable to Generators of Hazardous Waste (Chapter 12 Section 66262.10 et seq.);
- Standards Applicable to Transporters of Hazardous Waste (Chapter 13 Section 66263.10 et seq.);
- Listing of Recyclable Materials (Recyclable Hazardous Wastes) (Chapter 16 Section 66266.1 et seq.);
- Standards for Universal Waste Management (Chapter 23 Section 66273.1 et seq.);
- Standards for the Management of Used Oil (Chapter 29 Section 66279.1 et seq.); and
- Waste Minimization requirements for generators of hazardous waste (Chapter 31 Section 67100.1 et seq.).

The Title 22 CCR regulations are established and enforced by the DTSC. Some generator standards are also enforced at the local level by the CUPA. The CUPA for the Project is the Kern County Environmental Health Services Department.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program), HSC Sections 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;
- Hazardous Material Business Plan Program;
- California Accidental Release Prevention Program;
- Hazardous Material Management Plan/Hazardous Material Inventory Statement Program;
- Hazardous Waste Generator/Tiered Permitting Program; and
- Underground Storage Tank Program.

The State agency responsible for each of these programs sets the standards for that program's implementation; local governments, specifically the CUPAs, implement the standards. The Kern County Environmental Health Services Department is the CUPA and has jurisdiction over the Project for any of these six programs that are applicable. The Project will not be subject to the California Accidental Release Prevention Program (see Section 5.6, Hazardous Materials Handling) and the Underground Storage Tank Program.

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 Section 5.6, Hazardous Materials Handling, and/or Section 5.18, Worker Safety. Note that hazardous wastes identified in this section are also by definition hazardous materials and may be required to be reported on hazardous material inventory statements.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program, Title 27 CCR Section 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 (Section 15400-15410), and
- Article 10 – Business Reporting to CUPAs (Section 15600-15620).

California Integrated Waste Management Act of 1989, Public Resources Code Section 40000 et seq.

The California Integrated Waste Management Act of 1989 (as amended) establishes mandates and standards for the 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.

As a result of these statutes, many counties or cities in the State have implemented diversion programs for construction and demolition waste. However, there are no such programs in Kern County or Ridgecrest where the Project site is located.

State law requires every local jurisdiction to designate a solid waste Local Enforcement Agency (LEA), which is certified by the CIWMB to enforce Federal and State laws and regulations for the safe and proper handling of solid waste. The Kern County Environmental Health Services Department is the LEA for this Project.

CIWMB Regulations for Solid Waste Handling and Disposal, 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; and
- Chapter 8 – Used Oil Recycling Program Article 6.1.

Hazardous Waste Source Reduction and Management Review Act of 1989 (also known as SB 14), HSC Section 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 (e.g., 2010 and 2014). The review and planning elements are required to be completed on a four-year cycle, with a summary progress report due to DTSC by September 1 every fourth year (e.g., September 1, 2011 and September 1, 2015). The Project is expected to generate hazardous waste in excess of the SB 14 threshold (e.g., spent carbon from air pollution control equipment) and thus would be subject to these requirements.

Hazardous Waste Source Reduction and Management Review Regulations, Title 22 CCR Section 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. The Project is expected to generate hazardous waste in excess of the SB 14 threshold (e.g., spent carbon from air pollution control equipment) and thus would be subject to these requirements.

Porter-Cologne Water Quality Control Act, California Water Code Section 13000 et seq.

The Porter-Cologne Act is the principal law governing water quality in California. Unlike the Clean Water Act, Porter-Cologne applies to both surface water and groundwater. Under this Act, the State Water Resources Control Board (SWRCB) has the ultimate authority over State water rights and water quality policy. Porter-Cologne also establishes nine RWQCBs to oversee water quality at the local/regional level. The RWQCBs engage in a number of water quality functions in their respective regions. One of the most important functions is preparing and periodically updating Basin Plans (water quality control plans). Under the act, water quality policy is established, water quality standards are enforced for both surface and groundwater, and the discharges of pollutants from point and non-point sources that may affect either surface water or groundwater are regulated by the RWQCBs.

Permits issued by RWQCBs to control pollution (i.e. Waste Discharge Requirements [WDR] and NPDES permits) must implement Basin Plan requirements (i.e. water quality standards), taking into consideration beneficial uses to be protected. The WDR permits apply to the discharge of liquids or solids to land or surface waters, including point and non-point source discharges. Under the auspices of the EPA, the SWRCB and nine RWQCBs also have the responsibility of granting Clean Water Act NPDES permits for certain point-source discharges to surface waters including those emanating from stormwater discharges. The Lahontan RWQCB administers State water programs locally.

California Fire Code, Title 24 CCR Part 9

The California Fire Code describes additional requirements for the storage, use, dispensing, and handling of hazardous materials generally (Chapter 27) and for specific types of hazardous materials in Chapters 28 through 44, such as corrosives (Chapter 31), flammable and combustible liquids (Chapter 34) and highly toxic and toxic materials (Chapter 37). These requirements are applicable to the wastes generated at the Project since hazardous wastes are also hazardous materials. Non-hazardous wastes may or may not be hazardous materials. The California Fire Code will typically specify allowable maximum limits of hazardous materials in uncontrolled areas and discuss requirements such as secondary containment, separation from other materials, and design of areas for the storage, handling, and use of hazardous materials.

5.16.1.3 Local LORS

Health and Safety: Kern County Code, Chapters 8.04 and 8.28

Chapter 8.04 requires a person or a business that uses or generates hazardous materials and wastes to obtain an environmental health permit and pay the applicable fees. Chapter 8.28 governs the use, generation, storage, and disposal of solid waste within Kern County. Kern County Environmental Health Services Department has developed a solid waste program to oversee the handling, processing, transportation, 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. The Kern County Environmental Health Services Department serves as the CUPA authorized to implement the provisions of the six California Unified Program elements (listed above in the State LORS section). Currently, Kern County does not operate a Construction and Demolition Waste Diversion Program.

Kern County Fire Code, Kern County Code, Chapter 17.32

Kern County has adopted the 2006 edition of the International Fire Code and portions of California Building Standards Code, except as modified or amended by code. This ordinance provides standards within Kern County for safeguarding life, property and public welfare from the hazards of fire, hazardous materials release and explosion arising from the storage, use and handling of dangerous and hazardous materials, substances and devices, and providing for the issuance of permits.

5.16.1.4 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

Agency Contact	Phone/E-mail	Permit/Issue
Mary Misemer Duty Officer (Regulatory Assistance Officer) DTSC 8800 Cal Center Drive Sacramento, CA 95826-3200	(916) 255-3617 mmisemer@dtsc.ca.gov	Hazardous waste management
Richard Booth, Senior Engineering Geologist Lahontan RWQCB 2501 Lake Tahoe Blvd. South Lake Tahoe, CA 96150	(530) 542-5574 rbooth@waterboards.ca.gov	WDRs, Storm Water Pollution Prevention Plans, NPDES
Matthew Constantine, Director Kern County Environmental Health Services 2700 M Street, Suite 300 Bakersfield, CA 93301-2370	(661) 862-8702 mattc@co.kern.ca.us	Hazardous waste management and non-hazardous waste management

5.16.1.5 Required Permits and Permit Schedule

As a generator of hazardous waste or universal wastes, the Project will be required to obtain an EPA identification number from the DTSC. As an operator of an onsite LTU to bioremediate or land farm soils contaminated with releases of HTF, the Project will require a 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 Department. Kern County Environmental Health Services Department requires submittal of a tank facility statement for aboveground storage tanks holding 10,000 gallons or more of a material, which is at least five percent oil, for example HTF. Table 5.16-3 identifies the waste management permits required for the Project.

Table 5.16-3 Permits Required and Permit Schedule

Permit/Approval	Schedule
EPA identification number and register as a Hazardous Waste Generator with DTSC	Takes seven to ten businesses days once the application form has been received.
Hazardous Waste Generator Permit from Kern County Environmental Health Services Department (CUPA)	Takes approximately 30 days for approval once needed information submittal (e.g., Business Plan) is complete.
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 concentrating solar electric generating facility on undisturbed desert land, approximately five miles southwest of Ridgecrest, California. The Project will be developed on public land within a BLM right-of-way (ROW) in Kern County within the Mojave Desert of California. Waste management-related baseline conditions at the site are described in the Phase I ESA, which is summarized below in Section 5.16.2.3 and included as Application for Certification Appendix I.

Facility construction and operations will generate wastes that require proper management and in some cases offsite disposal. There are four permitted Class III landfills for non-hazardous wastes located in Kern County within approximately 75 miles of the Project site. There is one Class II landfill, approximately 150 miles from the Project site in Kern County, for non-hazardous wastes, that meets more stringent design requirements than Class III landfills. There are two major permitted Class I hazardous waste landfills located in California. The locations and the permitted, operating, and remaining capacities of the relevant hazardous and non-hazardous waste landfills are summarized in Table 5.16.4 and the following text.

Table 5.16-4 Solid and Hazardous Waste Disposal Facilities

Waste Disposal Site	Title 23 Class	Maximum Permitted Capacity	Current Operating Capacity	Remaining Capacity	Estimated Closure Date	Enforcement Action Taken?
Bakersfield Metropolitan (Bena) SLF 2951 Neumarkel Road Caliente, CA, 93518	Class III	53,000,000 cubic yards	4,500 tons/day	44,818,958 cubic yards	2038	No
Boron Sanitary Landfill 11400 Boron Avenue Boron, CA, 93516	Class III	1,002,819 cubic yards	200 tons/day	208,632 cubic yards	2013	No
Shafter-Wasco Sanitary Landfill 17621 Scofield Avenue Shafter, CA, 93263	Class III	11,635,500 cubic yards	888 tons/day	7,901,399 cubic yards	2027	No
Ridgecrest-Inyokern Sanitary Landfill 3301 Bowman Road Ridgecrest, CA, 93555	Class III	5,992,700 cubic yards	701 tons/day	5,000,898 cubic yards	2014	No
Taft Sanitary Landfill 13351 Elk Hills Road Taft, CA 93268	Class III	8,787,547 cubic yards	419 tons/day	6,679,433 cubic yards	2123	No
Tehachapi Sanitary Landfill 12001 Tehachapi Blvd. Tehachapi, CA 93561	Class III	2,593,900 cubic yards	370 tons/day	625,846 cubic yards	2014	No

Table 5.16-4 Solid and Hazardous Waste Disposal Facilities

Waste Disposal Site	Title 23 Class	Maximum Permitted Capacity	Current Operating Capacity ¹	Remaining Capacity	Estimated Closure Date	Enforcement Action Taken?
U.S. Borax Inc-Gangue/Refuse Waste Pile 4486 Borax Road Boron, CA 93516	Class III	8,500,000 cubic yards	443 tons/day	1,400,000 cubic yards	2023	No
McKittrick Waste Treatment Site 56533 Highway 58 McKittrick, CA, 93251	Class II	2,091,800 cubic yards	1,180 tons/day	841,498 cubic yards	2029	No
Waste Management Kettleman Hills Landfill 35251 Old Skyline Road Kettleman City, CA, 93239	Class I	10,700,000 cubic yards	8,000 tons/day	1,100,000 cubic yards	2037	No
Clean Harbors Buttonwillow Landfill 2500 West Lokern Road Buttonwillow, CA, 93206	Class I	14,300,000 cubic yards	10,500 tons/day	8,884,000 cubic yards	2043	No
Source: CIWMB/Solid Waste Information System, May 2009						
¹ 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 transported for recycling or disposal to a permitted Class III landfill. As noted above, there are four Class III landfills located in Kern County within approximately 75 miles of the Project site: the Boron, Ridgecrest-Inyokern, Tehachapi, and U.S. Borax landfills. The maximum landfill capacity, daily operating capacity, and remaining capacity of each landfill are listed in Table 5.16-4. The Ridgecrest-Inyokern landfill is the closest at less than 10 miles from the Project site; however, this site has an estimated closure date of 2014 and would, therefore, be limited to handling only wastes generated during RSPP construction. Alternative locations for solid waste disposal would be the U.S. Borax Inc. facility (about 60 miles away) with a capacity of 443 tons per day or the Bakersfield Metropolitan (Bena) SLF (about 90 miles away) with a capacity of 4,500 tons per day.

5.16.2.2 Hazardous Waste Disposal Sites

Hazardous waste generated at the facility will be stored at the facility for less than 90 days or as otherwise allowed by hazardous waste regulations and then transported off site for recycling or disposal by a registered hazardous waste transporter to a permitted treatment, storage, and disposal facility (e.g., Class I landfill).

There are two major operating hazardous waste (Class I) landfills in California, both included in Table 5.16-4:

- The 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 Class I portion of this landfill has approximately 8.8 million cubic yards remaining capacity of a total permitted capacity of 14.3 million cubic yards. The remaining life of this landfill is approximately 33 years. The EPA identification number for this facility is CAD980675276.

- The Waste Management Kettleman Hills Landfill is 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 1.1 million cubic yards remaining capacity of a total permitted capacity of 10.7 million cubic yards. The remaining life of this landfill is approximately 28 years. The EPA identification number for this facility is CAD000646117.

It is expected that hazardous wastes generated during the construction and operational phases of the Project will be disposed of at the Clean Harbors Buttonwillow Landfill.

In addition to hazardous waste landfills, there are numerous offsite commercial liquid hazardous waste treatment, recycling, transfer, storage and disposal facilities in California. Some of the closest facilities include: Clean Harbors Buttonwillow LLC and Crane's Waste Oil, Inc. in Kern County; and Filter Recycling Services, Inc. and Advanced Environmental, Inc. in San Bernardino County. These facilities recycle used oil, wastewater, and antifreeze. DeMenno/Kerdoon, located at 2000 North Alameda Street in Compton, is a permitted Part B Treatment Storage and Disposal Facility that recycles used oil, wastewater, and antifreeze.

5.16.2.3 Phase I Environmental Site Assessment

The Phase I ESA of the Project site (referred to in the Phase I ESA as "the subject property"), was conducted from February to June 2009 by qualified professional staff. The following paragraphs summarize the Phase I ESA, a full copy of which is included as Appendix I.

The subject property is comprised of twelve contiguous parcels of land approximately five miles southwest of the City of Ridgecrest and is accessible via Brown Road, which bisects the central portion of the subject property. The subject property is unimproved desert land covered mostly by desert scrub. Dry desert washes traverse the subject property generally from the southeast to the northwest. Miscellaneous trash and debris (e.g., household dumping) were observed at various locations throughout the subject property and surrounding area.

Historical onsite use has included railroad and power transmission ROWs, unimproved roadways, mining prospects, and public recreation/access. A former Southern Pacific Railroad ROW is located in the western portion of the subject property. The railroad ties and tracks have been removed, but the ROW remains, and includes raised berms, bridges, and stormwater conveyances. An overhead power transmission ROW traverses the western portion of the subject property. During the site visit, no discolored soil, water, unusual vegetative conditions, staining or visual evidence of hazardous materials release was observed.

The subject property is bordered to the north by undeveloped desert land and U.S. Highway 395 passes through its northern portions. The subject property is bordered to the south and west by portions of the railroad ROW, beyond which is undeveloped desert land (higher elevation areas/hills). The southeastern portion of the subject property is surrounded by a residential property that occupies all of Section 36 within Township 27S Range 39E. The far western portion of the property is situated near the intersection of Brown Road and Wiknich Street, beyond which is the Ridgecrest Gun Club. The northwestern portion of the subject property is bordered to the west by Calvert Boulevard, beyond which are residential properties; the property is bordered to the northeast by residential properties. The intersection of U.S. Highway 395 and Brown Road is located along the property's eastern boundary, beyond which is the Rademacher Mining District area.

A Phase I ESA of the subject property was performed in conformance with the scope and limitations of American Standard for Testing and Materials (ASTM) Practice E 1527-05, which meets the requirements of Title 40 CFR Part 312 and is intended to constitute all appropriate inquiry for purposes of the landowner liability protections. No physical environmental sampling was performed.

Per the ASTM standard, potential findings can include recognized environmental conditions (RECs), including historical RECs (HRECs) and de minimis conditions. A REC means the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. HRECs are generally conditions that in the past have been remediated to the satisfaction of the responsible regulatory agency. De minimis conditions are those situations that do not present a material risk of harm to public health or the environment and generally would not be subject to enforcement action if brought to the attention of the regulating authority.

One listing was identified in the environmental database report in association with the subject property. The environmental database report summarizes databases with environmental and historical land use information. The listing is a California Hazardous Material Incident Report System listing reported by the California Office of Emergency Services as a hazardous materials incident (e.g., accidental releases or spills). Details of the listing are provided in the Phase I ESA in Appendix I. However, no evidence of a hazardous materials release was observed during the site reconnaissance performed for the ESA. Because the incident occurred 20 years ago, and because the listing is not associated with another contamination-related listing (open case and/or cleanup investigation), this listing does not represent a REC at the subject property.

One adjacent site was identified in the environmental database report as a solid waste facility/landfill site reported as part of the CIWMB's Solid Waste Information System database. Details of the listing are provided in the Phase I ESA in Appendix I. Based on the site reconnaissance, the site appears to contain burned debris including pieces of glass, plaster, brick, ceramic, and metal, and some tires. However, based on the ESA research and the fact that soil was the only media potentially impacted by the facility, it is concluded that the adjacent site is not an environmental concern to the subject property.

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 RECs and HRECs were identified on the property evaluated and within the Project boundaries. De minimis conditions identified include miscellaneous trash and debris (e.g., household dumping) at various locations throughout the subject property and surrounding area. However, no hazardous waste was observed on the subject property.

5.16.3 Environmental Impacts

The analysis of 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.

When the Project is closed at the end of its operating lifecycle, both non-hazardous and hazardous wastes must be handled properly. To ensure that public health and safety and the environment are protected, a facility Closure Plan will be prepared prior to closure of the Project, as described in Section 3.0, Closure. This Closure Plan will be submitted for regulatory agency review and approval. All waste materials associated with facility closure activities will be recycled or reused to the extent practicable. The remaining wastes (hazardous and non-hazardous) will be managed and disposed in accordance with the Closure Plan and with applicable LORS.

Temporary or partial closure of either the full Project or portions of the facility may occur due to damage by earthquake, adverse weather phenomena, or other conditions such as drop in power demand. Temporary closure would not be expected to generate much waste; however, partial closure of damaged equipment would generate closure wastes to be managed as described above.

5.16.3.1 Construction

Table 5.16-5 summarizes the anticipated waste streams generated during construction, along with appropriate management methods for treatment or disposal. The primary waste generated during construction will be solid non-hazardous waste and universal wastes.

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

Waste Stream and Classification ¹	Origin and Composition	Estimated Amount	Estimated Frequency of Generation	Onsite Treatment	Waste Management Method/ Offsite Treatment
Construction waste – Hazardous	Empty hazardous material containers	One cubic yard per week (cy/wk)	Intermittent	None. Accumulate on site 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 on site for <90 days.	Dispose at permitted hazardous waste disposal facility, recycle, or use for energy recovery.
Heat exchanger cleaning waste – Hazardous	Chelant-type solution	1,000 gallons per power plant unit	One time event during commissioning	None	Dispose at permitted hazardous waste disposal facility.
Spent batteries – Universal Waste	Batteries containing heavy metals such as alkaline dry cell, nickel-cadmium, or lithium ion	30 in 2 1/2 years	Intermittent	None. Accumulate on site for <one year.	Recycle

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

Waste Stream and Classification ¹	Origin and Composition	Estimated Amount	Estimated Frequency of Generation	Onsite Treatment	Waste Management Method/ Offsite Treatment
Aerosol cans – Universal Waste	Aerosol cans that have not been verified as empty	8 drums per year	Routine	None. Accumulate on site for <1 year	Recycle
Construction waste – Non-hazardous	Scrap wood, concrete, steel, glass, plastic, paper, and insulating materials	40 cy/wk	Intermittent	None	Use segregation to allow recycling wherever possible, otherwise dispose to Class III landfill.
Sanitary waste – Non-hazardous	Portable chemical toilets – Sanitary Waste	200 gallons/day	Routine	None	Periodically pump to tanker truck by licensed contractors and ship to sanitary wastewater treatment plant.
Office waste – Non-hazardous	Paper, aluminum, food	30 cy/wk	Intermittent	None	Recycle or dispose at Class III landfill.
Construction waste – Hazardous	Contaminated soil	None expected	None	None	If contaminated soil is generated, e.g., from spills of construction materials, dispose at permitted hazardous waste disposal or treatment facility or Class II landfill.
Construction waste – Hazardous	Flushing and cleaning wash water	Variable amounts	None	None	Recycle or use for energy recovery or for treatment or disposal depending on specific waste stream characteristics.

¹ Classification under Title 22 CCR Division 4.5, Chapters 11, 12, and 23.

Hazardous Waste

Most of the hazardous waste generated during construction, such as unused or off-specification paint and primer, paint thinner, solvents, and vehicle and equipment maintenance-related materials (such as waste oil, fuel and lubricants) can be recycled. Containers (i.e., drums and totes) of materials that formerly held hazardous materials will be emptied in accordance with regulatory standards and returned to the vendor(s), if possible, or otherwise recycled. The small quantities of solid hazardous waste that cannot be recycled are not expected to significantly impact the capacity of the Class I landfills located in California. The liquid hazardous waste stream from heat exchanger cleaning can be sent off site for treatment and discharge. Information on hazardous wastes anticipated to be generated during Project construction, including type of waste and estimated amount, is provided in Table 5.16-5.

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, the Kern County Environmental Health Services Department 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 Department 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 Title 22 CCR and the California HSC. With the implementation of these procedures, impacts related to hazardous waste during construction will be less than significant.

Universal Waste

Information on universal wastes anticipated to be generated during Project construction, including type of waste and estimated amount, is provided in Table 5.16-5. Universal wastes generated during construction may include spent batteries (e.g., alkaline dry cell, nickel-cadmium, and lithium ion), empty or non-empty aerosol cans, and lamps (fluorescent or high-intensity discharge). These waste materials can be managed in accordance with the universal waste standards under Title 22 CCR Division 4.5, Chapter 23 instead of being managed as hazardous wastes. The universal waste standards require that the universal wastes be handled as prescribed and sent off site to licensed universal waste handlers who will appropriately manage the materials.

Non-hazardous Solid Waste

Solid waste generated from Project construction activities may include scrap lumber, plastic, metal, glass, excess concrete, and empty non-hazardous material 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. Non-hazardous solid wastes from Project construction are not expected to significantly impact the capacity of the Class III landfills in Kern County. The landfills identified have sufficient daily capacity and estimated remaining capacity to easily accommodate Project solid wastes.

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. Given the availability of non-hazardous solid waste disposal sites described in Table 5.16-4, impacts related to non-hazardous solid waste disposal will be less than significant.

Information on non-hazardous solid waste anticipated to be generated during Project construction, including type of waste and estimated amount, is provided in Table 5.16-5.

5.16.3.2 Operation

The operation of the Project is expected to generate sanitary wastewater, non-hazardous wastes, universal wastes, and small quantities of hazardous wastes. Operation of Project linear facilities (transmission line and water supply pipeline) will generate minimal quantities of waste. Information on wastes anticipated to be generated during operation of the Project, including type of waste and estimated amount, is summarized in Table 5.16-6 and described in the following text.

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

Waste stream and Classification ¹	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	Accumulate for <90 days.	Recycle
Effluent from oily water separation system – Non-RCRA hazardous	Plant wash down area/oily water separation system	3,000 gallons/year	Intermittent	None	Recycle
Oil absorbent, and oil filters – Non-RCRA hazardous	Various	Five 55-gallon drums per month	Intermittent	Accumulate for <90 days.	Sent off site for recovery or disposal at Class I landfill.
Dirty shop rags – recyclable material	Maintenance cleaning operations	50 pounds per month	Routine	None	Send to commercial laundry for cleaning and recycling.
Spent carbon – RCRA hazardous	Spent activated carbon from air pollution control of HTF vent	60,000 pounds/year	Intermittent	Contained in engineered process vessel, no accumulation outside of process.	Sent off site for regeneration at a permitted management facility.
Soil contaminated with HTF (> 10,000 milligrams per kilogram [mg/kg]) – Non-RCRA hazardous	Solar array equipment leaks	10 cy/year	Intermittent	Accumulate for < 90 days.	Sent off site for disposal at a Class I landfill or to soil thermal treatment facility.
Soil contaminated with HTF (< 10,000 mg/kg) – Non-hazardous	Solar array	750 cy/year	Intermittent	Bioremediation or land farming at LTU.	Disposal at permitted waste management facility.
Spent batteries – Universal waste	Batteries containing heavy metals such as alkaline dry cell, nickel-cadmium, or lithium ion.	<10/month	Continuous	Accumulate for <one year.	Recycle
Spent batteries – Hazardous (exempt if managed as prescribed by Title 22 CCR Chapter 16).	Lead acid	20 every 2 years	Intermittent	Accumulate for <180 days.	Recycle
Spent fluorescent bulbs or high-intensity discharge lamps – Universal waste	Facility lighting	< 50 per year	Intermittent	Accumulate for <one year.	Recycle
Spent demineralizer resin – Non-hazardous	Demineralizer	250 cubic feet (ft ³)	Once every three years	None	Recycle

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

Waste stream and Classification ¹	Origin and Composition	Estimated Amount	Estimated Frequency of Generation	Waste Management Method	
				Onsite	Offsite
Reverse Osmosis (RO) Membrane Cleaning Waste – Non-hazardous	Acidic and/or caustic chemicals	3,000 to 6,000 gallons per cleaning	Up to four times per year	Adjust pH and use as dust suppressant.	Disposal at permitted waste management facility.
RO system concentrate – Inert or liquid-designated waste	Auxiliary cooling tower and boiler blowdown	TBD	Routine	Used for dust control (if inert waste).	Disposal at permitted waste management facility if designated waste.
Auxiliary cooling tower basin sludge – Non-hazardous	Auxiliary cooling tower	1,000 pounds/year	Annually	None	Disposal at permitted waste management facility.
Spent softener resin – Non-hazardous	Softener	500 ft ³	Once every three years	None	Recycle
Damaged parabolic mirrors – Non-hazardous	Metals and other materials	TBD	Rare	None	Recycle for metal content and/or other materials or send for landfill disposal.
Sanitary wastewater – Non-hazardous	Toilets, washrooms	2,800 gallons/day	Continuous	Septic leach field	None

¹ Classification under Title 22 CCR Division 4.5, Chapters 11, 12, and 23.

Hazardous Waste

Information on hazardous wastes anticipated to be generated during Project operation is provided in Table 5.16-6. In accordance with California hazardous waste regulations, waste streams must be characterized to determine if they are hazardous and if they are subject to standards restricting their disposal to land. 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 on site 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 collected by a licensed hazardous waste transporter and sent to a permitted facility for oil recycling. 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 off site for energy recovery or disposal in a Class I landfill. Oily rags may also be sent for recycling as unregulated waste to be laundered by a facility pursuant to HSC Section 25144.6.
- *HTF-contaminated soil:* Soil contaminated with HTF in concentrations greater than 10,000 mg/kg may be generated during equipment failure or maintenance activities in the solar array. The contaminated soil (i.e., greater than 10,000 mg/kg of HTF) will be collected and will be transported and disposed at Class I landfill or licensed recycling facility.
- *Cleaning solutions:* Waste cleaning solutions, such as solvents and other chemical cleaning solutions (such as RO unit cleaning) will be generated during routine equipment maintenance and repair. These waste cleaning solutions will be collected and recycled or managed by a licensed contractor on a regular basis.

- *Spent batteries:* Intact lead-acid batteries will be returned to the vendor as required by Title 22 CCR Division 4.5, Chapter 16. Other spent batteries (such as consumer-type alkaline, nickel-cadmium and other types) will be accumulated on site in labeled containers as Universal Waste and recycled to an appropriately licensed facility.

Hazardous wastes, as well as hazardous materials that are spilled or otherwise become unsuitable for use will be stored in satellite accumulation area(s) or an appropriately contained hazardous waste accumulation area in accordance with Federal, State, and local regulations. Hazardous waste areas will include secondary containment with a capacity to hold the volume of the largest container or 10 percent of the aggregate volume of containers within the area, whichever is greater, plus either 20 minutes of sprinkler system water flow if indoors or the water from a 25-year, 24-hour storm event if outside. 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 described previously in Table 5.16-4. Copies of manifests, reports, waste analysis, exception reports, land disposal restrictions, and other related documents will be maintained on site for as long as required. Facility employees will receive hazardous waste management training as outlined in Section 5.16.4, Mitigation Measures.

Given the planned hazardous waste management procedures described above and the availability of disposal facilities shown in Table 5.16-4, impacts related to the disposal of hazardous waste during operation will be less than significant.

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 assumed to be an RCRA hazardous waste until proven to be only a non-RCRA hazardous waste or a non-hazardous waste. Once the activated carbon is saturated with VOC and TAC (and thus no longer effective), the carbon will be removed from the vessels and shipped off site by a licensed waste transporter to a licensed management facility for regeneration. The vessels will be refilled with fresh carbon and returned to service.

Based on projected air emission levels, approximately 60,000 pounds of spent carbon will be generated annually from emissions control at the Project. The annual waste generation for spent carbon alone exceeds the SB-14 threshold of 26,880 pounds per year. SB-14 applicability is based on the total hazardous waste generation from the Project exceeding 26,880 pounds, including all hazardous wastes unless they are specifically exempt (e.g., used automotive fluids). SB-14 operates on a four-year cycle and the applicability would be determined based on the annual hazardous waste generation for calendar years 2010, 2014, etc. When applicable, Project must prepare a waste minimization plan document describing waste minimization approaches considered and the basis for selecting or not selecting any methodologies to reduce, reuse, or recycle each hazardous waste stream that exceeds five percent of the annual total. A report document summarizing waste management activities must also be prepared and maintained on site. All documents must be prepared by September 1 of the following year (e.g., 2011, 2015, etc.). A Summary Progress Report must also be filed with DTSC by September 1.

Liquid Designated Waste

The ancillary equipment heat rejection system will consist of a wet cooling tower. The blowdown from the ancillary cooling tower and the boiler will be recycled as feedwater to the RO system. The concentrate

from the RO system will be a liquid waste stream. Provided the concentrate is classified as an inert waste in accordance with the Lahontan RWQCB, it may be combined with dust control water and spread on roads. If and when the concentrate cannot be used for dust control (i.e., it is a designated waste), it will be transported off site for appropriate disposal.

Similarly, cleaning of the RO System will be performed about once per quarter and will involve the use of 0.5 percent citric acid solution with a pH greater than two. Sodium hydroxide and a surfactant may also be used to remove bacterial fouling. With rinse water, these will total up to 6,000 gallons per cleaning. If these are verified as non-hazardous waste in accordance with Title 22 CCR 66262.11, the cleaning wastes will be mixed with other dust control water, assuming the resultant mixture remains an inert waste stream in accordance with guidelines from the Lahontan RWQCB.

Universal Waste

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.

HTF-Contaminated Soil

Solid waste generated during operation of the Project is likely to include soil contaminated with HTF from spills and leaks in the HTF system. While solar collector design has advanced to an excellent level of performance and reliability, occasional small spills of HTF do occur, primarily as a result of equipment failures. The existing solar thermal plants in Southern California that utilize the same parabolic trough technology as proposed for the Project have reduced HTF spills to very low levels. If a spill or release is identified, the system operators in the power block will be notified promptly and the affected collector loop shut down. An appropriately equipped crew will make any necessary equipment repairs and any HTF-impacted soil will be cleaned up immediately and will be managed as described below. It is estimated that the Project will generate about 750 cubic yards of HTF-contaminated soil per year.

Management of HTF-contaminated soil is based on the HTF concentrations in the soil. A DTSC letter dated April 4, 1995 (Appendix K) and issued to the Kramer Junction Solar Electric Generating System (SEGS) facility states that soil contaminated with HTF "poses an insignificant hazard and classifies the waste as non-hazardous pursuant to Title 22 CCR Section 66260.200(f)." The Project is a similar facility to the Kramer Junction SEGS in that both involve parabolic trough solar technology that uses the same type of HTF. Therefore, the determination in the 1995 DTSC letter is relevant to the Project for purposes of preliminary waste classification. However, the DTSC has further indicated that site-specific data will be required to provide a classification of the waste. Initially, in addition to sampling for HTF, samples would be analyzed for ignitability and toxicity using appropriate State and Federal methods to verify generator knowledge and characterize the waste as hazardous or non-hazardous. These data will be obtained to provide site specific information and verify this classification. This non-hazardous designation will be verified for waste soils in accordance with the hazardous waste characterization methodology in Title 22 CCR Section 66262.11 when initially generated. Soils with concentrations above 10,000 mg/kg or at any other level at which the soils are determined to be hazardous waste would be shipped off site for disposal at a permitted Class I landfill.

As discussed in Section 2.0, Project Description, the solar fields to be installed at the Project would share the same LTU to bioremediate or land farm soil contaminated from releases of HTF. Non-hazardous waste soils will be treated on site in the LTU, using bioremediation and/or land farming treatment techniques. Bioremediation will be used for soils contaminated with HTF levels of between 1,000 and 10,000 mg/kg, while land farming will be used for soils with HTF concentration between 100 and 1,000 mg/kg. The land farming area will be located next to the bioremediation area within the LTU. Soils with initial HTF concentrations less than 10,000 mg/kg will be brought to the LTU and treated there until concentrations are reduced to less than an average concentration of 100 mg/kg.

The bioremediation unit will be designed in accordance with Lahontan RWQCB requirements. The bioremediation facility would utilize indigenous bacteria to metabolize hydrocarbons contained in non-hazardous HTF contaminated soil. A combination of nutrients, water, and aeration facilitates the bacterial activity where microbes restore contaminated soil within two to four months. Soil contaminated with HTF levels of between 100 and 1,000 mg/kg will be land farmed at the LTU, meaning that the soil will be aerated but no nutrients will be added. Soils with less than 100 mg/kg of HTF would be stockpiled on site and used as fill material on the Project site as needed.

A facility-specific WDR permit from the Lahontan RWQCB is required to operate the LTU. The LTU will be constructed with a clay liner at least five feet in thickness as per Title 27 requirements. Unsaturated zone monitoring and/or groundwater monitor will be used to evaluate liner integrity.

Other Non-Hazardous Waste

Other than the wastes described above, non-hazardous solid wastes generated during operation of the Project will include solid waste from routine maintenance (including used air filters, spent demineralizer resins, cooling tower basin sludge, spent softener resins, 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.

Sanitary waste generated at the Project 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 Project will generate non-hazardous and hazardous waste that will add to the total waste generated in Kern County. However, the Class I and Class III landfills that serve the Project area have substantial remaining disposal capacities and waste generation volumes will be modest. Potential large volume waste streams such as used oil, wastewater, activated carbon and others will be recycled or treated, so there will be little impact on disposal facilities.

Each of the cumulative projects identified in Section 5.1.2 will be subject to a separate environmental review process, and thus will be subject to applicable LORS related to waste management (and minimization). Compared to other kinds of developments (residential or commercial land uses, industrial facilities, and other energy generating facilities), solar power plants are not major waste generators of any sort. Thus, the Project's contribution to potential significant adverse cumulative impacts on waste disposal facilities would not be cumulatively considerable.

5.16.4 Mitigation Measures

Although the Project will not result in significant impacts related to the management of non-hazardous and hazardous wastes, the following mitigation measures will be implemented to ensure any potential impacts related to waste management are reduced to the maximum extent feasible. In addition, the Project will reduce generation and recycle or reuse wastes (both hazardous and non-hazardous) as practicable during both construction and operation.

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. Contract specifications for construction of the onsite facilities (e.g., power generating facilities and onsite auxiliary facilities) and linear facilities (transmission lines, a natural gas supply pipeline, reclaimed water supply, and sanitary wastewater pipeline), or any other facilities associated with the Project will include provisions that require the contractor to manage construction-generated hazardous materials and solid waste in accordance with established good housekeeping practices. In addition, the Project will require each contractor to provide a written summary of how they will appropriately handle and dispose of construction-generated hazardous materials during and following construction. The plan will include:

- A description of all construction waste streams, including projections of frequency, amounts generated and 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, reuse, 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 and procedures to minimize hazardous and non-hazardous waste generation will be prepared 60 days prior to startup of the facility to assure proper storage, labeling, packaging, record keeping, manifesting, minimization, and disposal of wastes. The plan will be comprehensive to ensure that compliance is maintained with local, State, and Federal regulations. Employees will be trained in procedures to reduce the volume of hazardous waste generated at the proposed facility. The procurement of hazardous materials will be controlled to minimize surplus materials on site and to prevent unused materials from becoming "off specification." Non-hazardous materials will be used in lieu of hazardous materials whenever possible. Hazardous materials will be reused or recycled whenever possible. The waste management plan will 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.
- Discussion of appropriate frequency for characterizing HTF-contaminated soils to determine what level of HTF in soil would be hazardous waste.
- 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 Department) 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 that will be employed, in the event of an unplanned closure or planned temporary facility closure.

- 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. Facility employees will receive hazardous waste management training, which will include, but not be limited to, the following subjects:

- Hazardous waste characteristics,
- Use and management of containers,
- Waste packing,
- Marking and labeling,
- Accumulation/storage areas,
- Inspections,
- Emergency response procedures,
- Hazardous waste manifesting, and
- 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. Hazardous wastes will be collected by a licensed hazardous waste hauler using hazardous waste manifests. Hazardous waste generator reports will be submitted biannually to DTSC. Copies of manifests, reports, waste analyses, exception reports, etc. will be kept on site and available for inspection for at least three years.

WM-6 Wastes identified as hazardous will be stored on site for no more than 90 days (or other accumulation period as allowed by Title 22 CCR for hazardous waste generators) and will be managed in accordance with Federal and State hazardous waste generator requirements. Hazardous wastes will be stored within secondary containment in an appropriately segregated hazardous waste accumulation area. The containment area will be sized to hold a volume equal to the largest container or 10 percent of the aggregate volume of containers within the area, whichever is greater, plus either 20 minutes of sprinkler system water flow if indoors or the water from a 25-year, 24-hour storm event if outside. The hazardous waste accumulation area will be visually inspected and maintained weekly.

WM-7 The project owner shall maintain records of waste characterizations for HTF-contaminated soil and other wastes for a minimum of three years. Analytical testing shall be performed by a laboratory certified under the California Environmental Laboratory Accreditation Program.

5.16.5 References

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California Integrated Waste Management Board (CIWMB), 2009. Solid Waste Information System Internet Website. May.

DTSC, 1995. Letter to Mr. David Rib, KJC Operating Company, re: Request for Reclassification of Thermanol Contaminated Soil as Non-hazardous Pursuant to Section 66260.200(f), Title 22, California Code of Regulations (22 CCR) – Waste Evaluation Unit File # F143 (WEU File # F143). April 4.

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