

5.14 WASTE MANAGEMENT

This section presents a discussion of potential effects from the generation, storage, and disposal of hazardous and non-hazardous wastes from the SES Solar One (Solar One or Project) Project and its ancillary systems (Project). The discussion in this section covers the waste streams generated during Project construction and operation, the applicable waste disposal sites to be used by the Project, waste mitigation methods to minimize effects to the environment, and applicable laws, ordinances, regulations, and standards (LORS).

5.14.1 Affected Environment

5.14.1.1 Project Site

The Project includes the construction, operation, maintenance, and abandonment of up to 850 megawatts (MW) of capacity by a solar power generating facility and its ancillary systems in two phases (Phase I: 500MW [approximately 5,838 acres]/Phase II 350MW [approximately 2,392 acres]). The Project will consist of up to approximately 34,000 SunCatchers. Construction is anticipated to occur over an approximate four-year period beginning in 2010 and ending in 2014. It is estimated that approximately an average of 400 construction and 180 long-term labor jobs will be required.

The Project is located in an undeveloped area of San Bernardino County, California approximately 37 miles east of Barstow, California and north of Interstate 40 (I-40) between approximately 1,925 to 3,050 feet above mean sea level. The Project is located primarily on Bureau of Land Management (BLM) land within the Barstow Field Office. Approval of the Project Right-of-Way (ROW) Grant Application (Form 299, Applications CACA 49539 and 49537) will result in the issuance of a ROW Grant Permit for use of federal lands administered by the BLM. The Project would require a plan amendment to the 1980 California Desert Conservation Area (CDCA) Plan.

The area where the Project would be constructed is primarily open, undeveloped land within the Mojave Desert. The Cady Mountain Wilderness Study Area (WSA) is located north of the Solar One site. The Pisgah Crater, within the BLM-designated Pisgah Area of Critical Environmental Concern (ACEC), is located south and east of the Project (south of I-40 by several miles). Several underground and above ground utilities traverse the area.

An approved interconnection letter from California Independent Service Operator (CAISO) has been issued for the Project. The associated System Impact Study (SIS) is located in Appendix H. The SIS indicates that additional upgrades to the Southern California Edison (SCE) Lugo-Pisgah No. 2 Transmission Line and upgrades at the SCE Pisgah Substation will be required for the full build out of the 850MW Project. Supplemental studies performed by SCE and CAISO indicate that capacity is available on the existing transmission system to accommodate less than the 850MW Project.

An on-site substation (i.e., Solar One Substation [approximately 3 acres]) will be constructed to deliver the electrical power generated by the Project to the SCE Pisgah Substation. Approximately twelve to fifteen 220kV transmission line structures (90 to 110 feet tall) would be

required to make the interconnection from the Solar One Substation to the SCE Pisgah Substation. All of these structures would be constructed within the Project Site.

The Project will include a centrally located Main Services Complex (14.4 acres) that includes three SunCatcher assembly buildings, administrative offices, operations control room, maintenance facilities, and a water treatment complex including a water treatment structure, raw water storage tank, demineralized water storage tank, basins, and potable water tank.

Adjacent to the Main Services Complex, a 14-acre temporary construction laydown area will be developed and an approximately 6-acre construction laydown area will be provided adjacent to the Satellite Services Complex south of the Burlington Northern Santa Fe (BNSF) railroad. Two additional construction laydown areas (26 acres each) one will be located at the south entrance off Hector Road and the other at the east entrance just north of the SCE Pisgah Substation.

Temporary construction site access would be provided off of I-40 beginning east of the SCE Pisgah Substation and would traverse approximately 3.5 miles across the Pisgah ACEC requiring an approximate 30-foot ROW. Long-term permanent access would be provided by a bridge over the BSNF railroad along Hector Road north of I-40. Equipment may be transported during construction via trucks and/or rail car (through the construction of a siding), that would be located on the north side of BNSF railroad and east of Hector Road or as authorized by BNSF.

Water would be provided via a groundwater well located on a portion of the BLM ROW grant north of the Main Services Complex and transported through an underground pipeline. The expected average well water consumption for the Project during construction is approximately 50 acre-feet per year. Under normal operation (inclusive of mirror cleaning, dust control, and potable water usage), water required will be approximately 36.2 acre-feet per year. Emergency water may be trucked in from local municipalities.

5.14.1.2 Off-site Structures

No off-site structures will be required as part of the proposed project.

5.14.1.3 Non-Hazardous Solid Waste Disposal

Non-hazardous solid waste disposal facilities (Class III landfills) in the general area of the Project are listed in Table 5.14-1, Waste Recycling/Disposal Facilities. These facilities accept non-hazardous wastes and inert solid wastes, including construction/demolition wastes. Liquid wastes are not accepted by these landfills. Industrial process solid waste is accepted on a case-by-case basis.

There are several soil treatment and soil recycling facilities in California that accept hydrocarbon-impacted soil that is classified by the generator as a non-hazardous waste per the Resource Conservation and Recovery Act (RCRA) and Title 22 of the California Code of Regulations (CCR). Acceptable levels for treatment or recycling are established by the individual facilities. These facilities are described in Table 5.14-1, Waste Recycling/Disposal Facilities.

5.14.1.4 Hazardous Solid Waste Disposal

Hazardous waste generated at the Project Site will be taken off-site for recycling or disposal by a permitted hazardous waste transporter to a permitted treatment, storage, and disposal facility or Class I landfill. Two Class I landfills are located in California: Safety Kleen's Buttonwillow Landfill in Kern County and Chemical Waste Management's Kettleman Hills Landfill in Kings County. The permitted, operating, and remaining capacities of these landfills are described in Table 5.14-1, Waste Recycling/Disposal Facilities. Hazardous waste generated during construction and operation at the Project is not expected to significantly affect available landfill capacity.

5.14.1.5 Hazardous and Non-Hazardous Wastewater (Non-Effluent Waste Streams)

As listed in Table 5.14-1, Waste Recycling/Disposal Facilities, one California wastewater treatment and recycling facility may accept RCRA hazardous, non-RCRA hazardous, and non-hazardous wastewater. The DeMenno/Kerdoon facility is located in Compton, California.

5.14.2 Environmental Consequences

The analysis of effects related to waste management from the Project is based on significance criteria summarized in the bulleted items below.

- Non-hazardous solid wastes must not significantly alter available landfill, recycling, or treatment program capacities.
- Non-hazardous liquid wastes must not cause a publicly owned treatment system to violate any applicable waste discharge requirements.
- Hazardous solid wastes must not significantly alter available Class I landfill capacity.
- The facility must comply with all applicable laws regarding the handling of hazardous wastes.

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**Table 5.14-1
Waste Recycling/Disposal Facilities**

| Waste Disposal Site | Title 23 Class | Permitted Throughput | Permitted Capacity | Remaining Capacity | Estimated Closure Date | Enforcement Action Taken? |
|---|-----------------------|-----------------------------|---------------------------|---------------------------|-------------------------------|----------------------------------|
| Solid Recycling | | | | | | |
| Barstow Sanitary Landfill (Solid Waste Facility) 32552 Barstow Road Barstow, CA 92311 | Class III | 750 tons per day | 3,584,500 cubic yards | 924,401 cubic yards | 2012 | No |
| Victorville Sanitary Landfill (Solid Waste Facility) 18600 Stoddard Wells Road Victorville, CA 92307 | Class III | 3,000 tons per day | 83,200,000 cubic yards | 82,200,000 cubic yards | Not available | No |
| Newberry Springs Med. Vol. T/P Facility (Solid Waste Facility) Troy Road And Poniente Drive Newberry Springs, CA 92365 | Class III | 15 tons per day | 15 tons per day | Not available | Not available | No |
| USMC - 29 Palms Disposal Facility Landfill Road Twentynine Palms, CA 92278 | Class III | 100 tons per day | 10,945,000 cubic yards | 10,821,000 cubic yards | 2076 | No |
| American Remedial Technologies (Solids Recycling) 2680 Seminole Avenue Lynwood, CA 90262 | Not Applicable | 25,000 tons per month | 300,000 tons per year | Not applicable | Not applicable | No |
| TPS Technologies, Inc. (Soil Recycling) 12328 Hibiscus Avenue Adelanto, CA 92301 | Not Applicable | Not applicable | 350,000 tons per year | Not applicable | Not applicable | No |

**Table 5.14-1
Waste Recycling/Disposal Facilities**

| Waste Disposal Site | Title 23 Class | Permitted Throughput | Permitted Capacity | Remaining Capacity | Estimated Closure Date | Enforcement Action Taken? |
|---|-----------------------|---|---|---------------------------|-------------------------------|----------------------------------|
| Thermal Remediation Solutions (Solids Recycling) 1211 West Gladstone Avenue Azusa, CA 91702 | Class III | 200,000 tons per year | 2,000 tons per day | Not applicable | Not applicable | No |
| Chemical Waste Management Kettleman Hills Landfill (Solids Waste Facility) 36251 Old Skyline Road Kettleman City, CA 93239 | Class I | 8,000 tons per day | 10.7 million cubic yards | 6 million cubic yards | Not Available | No |
| Clean Harbors Buttonwillow Landfill (Solid Waste Facility) Lokern Road Kern County, CA | Class I | 10.48 thousand tons per day | 14.29 million cubic yards | Not available | 2040 | No |
| Liquid Recycling | | | | | | |
| DeMenno/Kerdoon 2000 North Alameda Street Compton, CA 90222 | Not applicable | 84.1 million gallons per year of oily water and 123 million gallons per year of waste oil | Approximately 30 million gallons per year | Not applicable | Not applicable | No |

Source: CIWMB Solid Waste Inventory System Database, 2008.

In addition to the significance criteria summarized above, according to the California Environmental Quality Act (CEQA) Appendix G guidelines, a Project has a significant effect when it:

- breaches standards relating to solid waste or litter control,
- creates a potential public health hazard or involves materials that pose a hazard, and
- results in a need for new systems or substantial alterations to waste disposal facilities.

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

5.14.2.1 Construction

Project Construction

The Project will generate wastes typical for the construction of a solar power facility. Table 5.14-2, Summary of Construction Waste Streams and Management Methods, summarizes the anticipated waste streams generated during construction, along with appropriate management methods for treatment or disposal. These total quantities are for phase I and II of the Project.

**Table 5.14-2
Summary of Construction Waste Streams
and Management Methods¹**

| Waste Stream and Classification | Origin and Composition | Estimated Amount | Estimated Frequency of Generation | On-site Treatment | Waste Management Method |
|--|--|-------------------------|--|--|---|
| Construction waste – non-hazardous, recyclable | Scrap wood, steel, glass, plastic, or paper | 40 cubic yards | Week | Segregation into composition type Store for less than 90 days | Dispose to landfill or recycling facility |
| Construction waste – hazardous | Empty hazardous material containers | 1 cubic yard | Week | Store for less than 90 days | Dispose to hazardous waste disposal facility |
| Construction waste – hazardous | Solvents, used oils, paint, oily rags, cleaners and adhesives | 100 gallons | Every 90 days | Store for less than 90 days | Dispose to hazardous waste disposal facility or recycle |
| Construction waste – hazardous | Waste oil including used motor oil, transmission fluid, hydraulic fluid and antifreeze | 100 gallons | Every 90 days | Store for less than 90 days | Dispose to hazardous waste disposal facility or recycle |

**Table 5.14-2
Summary of Construction Waste Streams
and Management Methods¹**

| Waste Stream and Classification | Origin and Composition | Estimated Amount | Estimated Frequency of Generation | On-site Treatment | Waste Management Method |
|---|---|-------------------------|--|-----------------------------|---|
| Spent batteries – hazardous | Lead acid, alkaline type | 20 per year | Intermittent | Store for less than 90 days | Dispose to recycling facility |
| dStorm water from construction area – non-hazardous | Surface runoff (water, inert material, dirt and concrete particles) | TBD | Intermittent – during rainfall events | None | TBD |
| Residual solids from retention pond and temporary perforated risers | Soils sediment and concrete particles | 50 cubic yards | Intermittent – during rainfall events | Spread over site | Excavate as needed per Storm Water Pollution Prevention Plan. |
| Sanitary waste – non-hazardous | Portable chemical toilets sanitary waste | 250 gallons | Daily | None | Pumped to tanker truck by licensed contractors ship to sanitary water treatment plant |
| Demolition waste - Non-hazardous | Concrete and re-bar | TBD | Generated during demolition of SunCatcher assembly buildings | None | Dispose to recycling facility or dispose to a non-hazardous waste landfill. |

Source: Stirling Energy Systems, Inc, 2008.

Note:

¹All numbers are estimates.

Non-Hazardous Waste

Inert solid wastes resulting from construction activities may include recyclable items such as paper, cardboard, solid concrete and block, metals, wire, glass, type 1 to 4 plastics, drywall, wood, and lubricating oils. Non-recyclable items include insulation, other plastics, food waste, roofing materials, vinyl flooring and base, carpeting, paint containers, packing materials, and other construction wastes. Management of these wastes will be the responsibility of the construction contractor(s). Typical management practices required for contractor waste include recycling when possible, proper storage of waste and debris to prevent wind dispersion, and weekly pickup of wastes with disposal at an approved Class III landfill.

It is expected that a 40-cubic yard container will need to be emptied on a weekly basis during the construction of the buildings, and once a month thereafter. Recyclable materials will be separated into labeled bins and removed from the Project Site as needed. This construction waste is not expected to have a significant effect on public health or cause adverse effects on local landfill capacity.

Hazardous Waste

Small quantities of hazardous wastes will likely be generated over the course of construction. These wastes may include waste paint, spent construction solvents, waste adhesives, waste cleaners, waste oil, oily rags, waste batteries, and spent welding materials. Hazardous wastes generated during Project construction and operation will be handled and disposed of in accordance with applicable LORS. Hazardous wastes will be either recycled or disposed of, as appropriate, in a licensed Class I disposal facility. When managed and disposed of properly, these wastes will not cause significant environmental or health and safety effects. Most of the hazardous waste generated during construction, such as used oil, can be recycled. The small quantities of hazardous waste that cannot be recycled are not expected to significantly affect the capacity of the Class I landfills in California.

Wastewater

Wastewater generated during construction of the Project will include sanitary wastes, equipment wash water, and storm water runoff. Construction-related wastewater will be managed according to appropriate LORS.

Erosion and sedimentation control will be implemented during construction to retain sediment on-site and to prevent violations of water quality standards. This implementation will be conducted in accordance with Best Management Practices (BMPs). A Storm Water Pollution Prevention Plan will be prepared in conformance with the State Water Resources Control Board (SWRCB) Order Number 99-08-DWQ, General Permit Number CAS000002.

Project development will slightly alter the land areas of the site. The general preparation of the overall site will be followed by earthmoving activities required for the construction of the roadways and buildings. Final grading may include application of earth-binding materials to disturbed areas not occupied by Project buildings or surfaced with concrete, asphalt, or crushed aggregate.

Site drainage during construction will follow predevelopment flow patterns with ultimate site discharge to a large natural drainage bisecting the Project Area. Low-flow culverts consisting of a small-diameter storm drain with a perforated stem pipe will be installed for sediment control and to provide for storm peak attenuation. These actions are based on BMPs for erosion and sediment control.

Temporary erosion and sedimentation control measures to be used during construction will be designed to prevent sediment from being displaced and carried off-site by storm water runoff. Before beginning excavation activities, a silt fence, straw bales, or other BMP measures will be installed along the perimeter of the Project where minor runoff to off-site areas could occur. The silt fence will filter sediment from construction runoff. Berms with perforated risers will be used at road crossings and other locations as needed to control sediment transportation. During construction, the extent of earth disturbances will be minimized as much as practical. A sediment trap will be constructed for the major site runoff discharge. The sediment trap will be located immediately upstream of the property boundary.

Diversion ditches and/or berms will be constructed as necessary to divert runoff from off-site areas around the construction site. Temporary BMP control measures will be maintained as necessary throughout the construction period.

5.14.2.2 Operations and Maintenance

Project Operations

Operation of the Project will generate wastes resulting from processes, routine maintenance, and office activities typical of solar electric generation operations. The operating waste streams and management methods are summarized in Table 5.14-3, Summary of Operation Waste Streams and Management Methods, and are described in more detail below. Non-hazardous wastes generated during operation of the Project will be recycled to the greatest extent practical and the remainder of the wastes will be removed on a regular basis by a certified waste-handling contractor. The types of waste and their estimated quantities are shown in Table 5.14-3, Summary of Operating Waste Streams and Management Methods. These total quantities are for phase I and II of the Project.

**Table 5.14-3
Summary of Operation Waste Streams and Management Methods¹**

| Waste Stream and Classification | Origin and Composition | Estimated Amount | Estimated Frequency of Generation | On-site Treatment | Waste Management Method |
|---|---------------------------------------|------------------------------|--|--|--|
| Office and packaging materials from supplies deliveries – non-hazardous | Paper, wood, plastic, cardboard | 10 cubic yards per week | Intermittent | Segregation into composition type, store for less than 30 days | Weekly collection for recycling and/or approved waste disposal |
| Sanitary wastewater solids – non-hazardous | Rest rooms and sanitary waste | 5,000 gallons per month | Intermittent | Store for less than 90 days | Dispose to sanitary waste disposal facility |
| Spent batteries – hazardous, recyclable | Lead acid, alkaline | 250 units per week | Intermittent | Store for less than 30 days | Dispose to authorized waste recycle facility |
| PCU oil and motor oil – hazardous, recyclable | PCU overhaul | 21 gallons per month | Intermittent | One 100 U.S.-gallon tank for filtering and re-use in PCU | Recycle |
| PCU coolant – ethylene glycol – hazardous | PCU overhaul | 21 gallons per month | Intermittent | Store for less than 90 days | Dispose to authorized waste disposal facility |
| PCU hydrogen gas – non-hazardous, recyclable | PCU overhaul | 100 k-bottles per month | 2 times per year per SunCatcher | Store for less than 90 days | Empty k-bottles returned through supplier |
| Oily absorbent and spent oil filters – hazardous, recyclable | PCU and hydraulic equipment overhauls | One 55-gallon drum per month | Intermittent | Store for less than 90 days | Dispose to authorized recycle facility |

**Table 5.14-3
Summary of Operation Waste Streams and Management Methods¹**

| Waste Stream and Classification | Origin and Composition | Estimated Amount | Estimated Frequency of Generation | On-site Treatment | Waste Management Method |
|---|---|--------------------------------|--|------------------------------|--|
| Oily rags – non-hazardous | PCU and hydraulic equipment overhauls | One 55-gallon drum per month | Intermittent | Store for less than 90 days | Launder at authorized recycle facility then re-use |
| Used hydraulic fluid, oils and grease – hazardous, recyclable | PCU and hydraulic equipment overhauls | Less than 11 gallons per month | Intermittent | Store for less than 90 days | Dispose to authorized recycle facility |
| De-mineralized water treatment wastewater salt cake – non-hazardous or designated waste | Zero discharge system; naturally occurring salt compounds | 90,200 pounds per year | Intermittent | Evaporative pond containment | Non-hazardous waste disposal facility |

Source: Stirling Energy Systems, Inc, 2008.

Notes:

¹ All numbers are estimates

PCU = Power Conversion Unit

U.S. = United States

Inert solid wastes generated at the Project Site during operation will be predominantly office wastes and routine maintenance wastes, such as scrap metal, wood, and plastic from surplus and deactivated equipment and parts. Scrap materials such as paper, packing materials, glass, metals, and plastics will be segregated and managed for recycling. Non-recyclable inert wastes will be stored in covered trash bins in accordance with local ordinances and picked up by an authorized local trash hauler on a regular basis for transport to and disposal in a suitable landfill.

Non-hazardous Solid Waste

The Project will produce operation and maintenance wastes typical of a solar power facility. The following types of non-hazardous solid waste may be generated: paper, wood, plastic, cardboard, deactivated equipment and parts, defective or broken electrical materials, empty non-hazardous containers, and other miscellaneous solid wastes, including the typical refuse generated by workers.

Office paper, newsprint, aluminum cans, wood, insulation, yard debris, concrete, gravel, scrap metal, cardboard, glass, plastic containers, and other non-hazardous waste materials will be segregated and recycled to the extent practical, and the remainder will be removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill.

Liquid Wastes

Non-hazardous liquid wastes produced by the Project will consist of wastes from the wastewater system. The wastewater generated by the RO unit contains relatively high concentrations of total dissolved solids (TDS). Wastewater or brine generated by the RO unit will be discharged to two

lined evaporation ponds, double-lined impoundment, or equivalent. Each pond will be sized to contain one year of discharge flow, approximately three million gallons. A minimum of one year is required for the waste to undergo the evaporation process. The second pond will be placed into operation while the first is undergoing evaporation. The two ponds will alternate their functions on an annual basis. See Section 3 for a more detailed description of these project features.

After the brine has gone through the evaporation process, the solids that settle at the bottom of the evaporation pond will be tested by the Project and disposed of in an appropriate landfill or recycled. Solids buildup in these ponds will be scheduled for removal during the summer months for maximum solids removal and disposed of in an appropriate manner.

The retention basin will be designed so that the retained flows will empty within 72 hours after the storm in order to provide mosquito abatement. This can be accomplished by draining, evaporation, infiltration, or a combination thereof.

The post-development flow rates released from the Project are expected to be less than the predevelopment flow rates, thus complying with the BMPs. The expected flow reduction is based on the following:

- Expect for the building sites, the majority of the site will remain 100-percent pervious, as only a negligible portion of the site will be impacted by pavement and SunCatcher foundations.
- The increased runoff expected from the building sites will be over-mitigated by capturing 100-percent of the runoff in a retention basin, where the storm runoff will be infiltrated and/or evaporated to the atmosphere.
- The proposed perforated riser to be constructed upstream of the roadway culverts will provide for additional detention.

The layout of the Project Site will be based on minimizing surface-disturbing activities. The site layout will maintain local predevelopment drainage patterns where feasible and discharge from the site will remain at the southwestern boundary. The paved roadways will have a low-flow unpaved swale or roadway dip, as needed, to convey nuisance runoff to existing drainage channels or swales and use low-flow culverts. It is expected that storm water runoff will flow over the crown of the paved roadways, which are typically less than 6 inches from swale flow line to crown at centerline of roadway, thus maintaining existing local drainage patterns during storms. Unpaved roads will utilize low-flow culverts.

Localized channel grading will take place on a limited basis to improve channel hydraulics, and to control flow direction where buildings and roadways are proposed. Also, a channel will be constructed along the northeastern portion of the site. The Main Services Complex will be protected from a 100-year flooding by berms or channels that will direct the flow around the perimeter of the building site, if required.

w will be used for major drainage patterns where the channel cross-section exceeds 8 feet in width and 3 feet in depth or exceeds 20 feet in width and 2 feet in depth. The roadway section at the channel flow line will be without a crown. Roadway protection will be provided by a concrete cut-off wall along the edges of the roadway with ungrouted (loose) riprap upstream and downstream of the concrete cut-off wall.

The proposed east-west on-site southern boundary roadway within the Project will be designed as a designated evacuation route. As such, culverts will be designed such that the roadway section shall have its driving surface constructed above the projected profile of a 100-year flood event.

It is anticipated that roadway maintenance will be required following rainfall events. For minor storm events, it is anticipated that the unpaved roadway sections may need to be bladed to remove soils deposition, along with sediment removal from stem pipe risers at the culvert locations. For major storm events, in addition to the aforementioned maintenance roadway repairs may be required due to possible damage to pavement where the roadways cross the channels and where the flows exceed the culvert capacity.

A local, site-specific, small wastewater treatment plant at the Main Services Complex or a standard septic system is proposed to process sanitary wastewater. Either of these treatment facilities will require permitting by the local Regional Water Quality Control Board (RWQCB), and will be designed to meet the operation and maintenance guidelines required by the State of California Department of Health Services.

Wastewater at the Main Services Complex will be discharged into a septic system with sanitary leach field, and will be designed to meet guidelines required by the RWQCB and the Department of Health Services.

Hazardous Waste

Hazardous waste generated will include used oils from equipment maintenance and oil-contaminated materials, such as spent oil filters, rags, or other cleanup materials. Used oil generated will be recycled, and oil or heavy metal contaminated materials (e.g., filters) requiring disposal will be disposed of in a Class I waste disposal facility. Table 5.14-3, Summary of Operation Waste Streams and Management Methods, summarizes the hazardous waste to be generated during Project operation.

Hazardous wastes will be collected by a licensed hazardous waste hauler and disposed of at a licensed hazardous waste facility. Hazardous wastes will be transported off-site using a hazardous waste manifest. Copies of manifest reports, waste analysis, exception reports, destruction certifications, etc., will be kept on-site and made accessible for inspection for 3 years. Land disposal restriction notices/certificates will be kept on-site and accessible for inspection for 5 years.

5.14.2.3 Abandonment/Closure

Premature closure or unexpected cessation of Project operations will be outlined in the Project closure plan. The plan will outline steps to secure hazardous and non-hazardous materials and wastes. Such steps will be consistent with BMPs and the Hazardous Materials Business Plan (HMBP) and will be undertaken according to applicable LORS. The plan will include the monitoring of vessels and receptacles of hazardous material and wastes, safe cessation of processes using hazardous materials or hazardous wastes, and inspection of secondary containment structures.

Planned permanent closure effects will be incorporated into the Project closure plan and evaluated at the end of the generating stations' economic operation. The Project closure plan will document non-hazardous and hazardous waste management practices, including the inventory, management, and disposal of hazardous materials and wastes, and permanent closure of permitted hazardous materials and waste storage units.

5.14.3 Cumulative Effects

The Class I and Class III landfills and soil and water recycling facilities in vicinity of the Project have adequate recycling and disposal capacities for the Project. Therefore, cumulative effects from the Project Site and other projects in the region are not expected to be significant.

5.14.4 Mitigation Measures

5.14.4.1 Construction

WM-1

Prior to the initiation of the Project construction phase, construction employees will receive waste-related training. Training will focus on the recognition and proper handling of subsurface soil contamination as well as contingency procedures to be followed to provide worker safety and protect the public.

WM-2

A detailed waste management plan for waste generated during construction will be prepared at least 60 days prior to rough grading to assure proper storage, labeling, packaging, recordkeeping, manifesting, waste minimization principles, and disposal of hazardous materials and waste. A waste management plan will also be prepared for operation of the Project. The waste management plan will include:

- a description of each hazardous waste stream,
- waste classification procedures,
- waste container and label requirements,
- accumulation, handling, transport, treatment, and disposal procedures for each waste,
- waste minimization procedures,
- preparedness, prevention, contingency, and emergency procedures, and
- personnel training.

WM-3

Hazardous wastes will be stored on-site for fewer than 90 days (or other accumulation periods, as allowed by 22 CCR 66262.34 for hazardous waste generators) and will be managed in accordance with state and federal hazardous waste generator requirements. Hazardous wastes, together with hazardous materials that are spilled or otherwise become unsuitable for use, will be stored in an appropriately segregated hazardous waste storage area surrounded by a containment structure to control leaks and spills. The containment area will be constructed according to local codes and requirements. The hazardous waste storage areas will be inspected and maintained weekly, as required.

WM-4

Hazardous wastes will be collected by a licensed hazardous waste hauler and disposed of at a hazardous waste facility. Hazardous wastes will be transported off-site using a hazardous waste manifest. Copies of manifest reports, waste analysis, exception reports, destruction certifications, etc., will be kept on-site and accessible for inspection for 3 years. Land disposal restriction notices/certificates will be kept on-site and accessible for inspection for 5 years.

WM-5

Spill control and management procedures will be included in the emergency response procedures developed before operation of 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 the containment, collection, and treatment systems. The spill response procedures are discussed further in Section 5.15, Hazardous Materials Handling.

WM-6

Solar One employees will receive hazardous materials training as required by the Occupational Safety and Health Administration, Hazard Communication Standard. Also, employees will be trained in hazardous waste procedures, spill contingencies, and waste minimization procedures in accordance with 22 CCR. Hazardous waste training will include the following subjects:

- hazardous waste characteristics,
- use and management of containers,
- waste packing,
- marking and labeling,
- accumulation/storage areas,
- inspections,
- emergency equipment preparedness and prevention,
- contingency plan,

- emergency response procedures,
- spill response and containment,
- hazardous waste manifesting and transportation requirements, and
- waste minimization practices.

WM-7

Procedures to minimize hazardous waste generation will be established. Employees will be trained in procedures to reduce the volume of hazardous wastes generated by the Project. The procurement of hazardous materials will be controlled to minimize surplus materials on-site and to prevent unused materials from becoming “off-spec.” Non-hazardous materials will be used in lieu of hazardous materials whenever possible. Hazardous materials will be reused whenever possible. Hazardous wastes will be recycled whenever possible.

Implementation of these waste management procedures for handling construction-related debris and hazardous wastes, where encountered, will mitigate construction-related effects to a less than significant level. No further mitigation is proposed.

5.14.4.2 Operations and Maintenance Mitigation**Project Site**

The Applicant will update the waste management procedures for construction (WM-1 through WM-7) of the site and implement them for Project operations. Also, the Applicant will develop and implement procedures and requirements as outlined in the HMBP. These procedures and programs will minimize potential Project operations-related effects.

Periodic inspection and maintenance of the electrical transmission line and the water supply line, in accordance with applicable LORS, will mitigate potential operations-related impacts associated with the linear facilities

5.14.4.3 Monitoring Program

Environmental effects related to the waste management issues caused by construction and operation of the Project are expected to be minimal. Therefore, extensive monitoring programs are not required. Monitoring of generated waste volumes and characteristics during construction and operation of the Project will be conducted in accordance with monitoring and reporting requirements in the appropriate permits that will be obtained for construction and operation.

5.14.5 Compliance with LORS**5.14.5.1 Federal**

RCRA (42 USC 6901 – 6992k) provides the basic framework for federal regulation of non-hazardous and hazardous waste. RCRA’s Subtitle D establishes state responsibility for

regulating non-hazardous wastes, and Subtitle C controls the generation, transportation, storage, and disposal of hazardous waste through a comprehensive “cradle to grave” system of hazardous waste management techniques and requirements. The Environmental Protection Agency (EPA) is responsible for implementing the law. The implementing regulations are set forth in 40 CFR 260, *et seq.* The law allows EPA to delegate the administration of the RCRA programs to the various states provided that the state programs meet the federal requirements. California’s program was authorized by EPA on 1 August 1992, and the California Department of Toxic Substances Control (DTSC) is responsible for administering the program.

The Clean Water Act (CWA) (33 USC 1251 *et seq.*) provides the regulatory framework for managing the discharge of wastewater to surface waters of the U.S. The EPA has nationwide authority to implement the CWA, but states may be authorized to administer various aspects of the National Pollutant Discharge Elimination System (NPDES) as well as pretreatment programs. California is authorized under the CWA to administer the NPDES program, implement publicly owned treatment works’ pretreatment programs, oversee federal facilities, and issue general permits.

5.14.5.2 State

Non-hazardous solid waste is regulated by the California Integrated Waste Management Act (Public Resources Code 40000 *et seq.*). The law 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. Local agencies are required to develop and establish recycling programs, reduce paper waste, purchase recycled products, and implement integrated waste management programs that conform to the state’s requirements. The County of San Bernardino Public Works Department has the authority to ensure the proper storage and disposal of solid waste in San Bernardino County.

Wastewater is regulated under California’s Porter-Cologne Water Quality Control Act, which established a statewide system for water pollution control (Water Code 13000 *et seq.*). The SWRCB and the nine RWQCBs are the principal agencies responsible for control of water quality and issuing permits under the NPDES program.

The on-site accumulation of hazardous waste is regulated under CCR 66262.34. Hazardous waste cannot be stored on-site for more than 90 days, so any hazardous waste stored on-site at the Project would have to be appropriately transferred within that time period.

As stated previously, RCRA allows states to develop their own programs to regulate hazardous waste. California has developed its own program by passage of the California Hazardous Waste Control Law (California Health and Safety Code 25100 *et seq.*). It should be noted that California’s Hazardous Waste Control Law includes non-RCRA hazardous wastes. Also, the law specifies two hazardous waste criteria (the Soluble Threshold Limit Concentration and the Total Threshold Limit Concentration) that are not required under RCRA. Primary authority for the statewide administration and enforcement of California’s Hazardous Waste Control Law rests with the DTSC. The San Bernardino County Fire Department, (SBCFD), provides regulatory functions covering those entities that generate hazardous waste in San Bernardino County.

5.14.5.3 Local

For hazardous waste, the designated Certified Unified Program Agency (CUPA) for the Project area is the SBCFD. This agency has delegated authority to administer state and federal programs. Also, the SBCFD regulates the storage of hazardous materials in underground storage tanks and cleanup of petroleum releases from underground storage tanks. The SBCFD will be contacted in the event of a release of hazardous wastes or materials to the environment. The SBCFD assumes enforcement responsibility for the implementation of 23 CCR and regulates the generation and storage of hazardous waste for the Project area.

The County of San Bernardino Public Works Department, Solid Waste Management Division has the authority to ensure the proper storage and disposal of solid waste in San Bernardino County. Several jurisdictions within San Bernardino County have passed a Construction and Demolition (C&D) Ordinance. Applicants of covered projects are required to divert a minimum of 50 percent of the waste generated by the project and may meet the diversion requirements. The Project is not located in an area where a C&D Ordinance has been passed, however, the San Bernardino County has established a C&D Waste Recycling Guide in order to encourage recycling of C&D wastes.

The LORS applicable to the handling of non-hazardous and hazardous waste at the Project Site are summarized in Table 5.14-4, Summary of LORS – Waste Management.

**Table 5.14-4
Summary of LORS – Waste Management**

| LORS | Requirements | Conformance Section | Administering Agency | Agency Contact |
|--|---|----------------------------|--|---|
| Federal Jurisdiction | | | | |
| RCRA Subtitle C and D, 42 USC §§ 6901 to 6992k, and Section 6.12.2.1. | Regulate non-hazardous and hazardous wastes. Laws implemented by the state. | Section 5.14.5.1 | SBCFD | San Bernardino County Fire Department CUPA Office 909-386-8401 |
| 40 CFR 260, <i>et seq.</i> | Implementing regulations for RCRA Subtitle C law. Implemented by EPA by delegating to the state. | Section 5.14.5.1 | SBCFD | San Bernardino County Fire Department CUPA Office 909-386-8401 |
| Federal Clean Water Act, 33 USC § 1251 <i>et seq.</i> | Regulates wastewater discharges to surface waters of the U.S. The NPDES program is administered at the state level. | Section 5.14.5.1 | Lahontan RWQCB | General Information 760-241-6583 |
| State Jurisdiction | | | | |
| California Integrated Waste Management Act, Public Resources Code § 40000 <i>et seq.</i> | Implements RCRA regulations for non-hazardous waste. | Section 5.14.5.2 | County of San Bernardino, Department of Public Works | Division Manager Solid Waste Management 909-386-8701 |

**Table 5.14-4
Summary of LORS – Waste Management**

| LORS | Requirements | Conformance Section | Administering Agency | Agency Contact |
|--|--|----------------------------|--|---|
| Porter-Cologne Water Quality Control Act of 1998, Water Code § 13000 <i>et seq.</i> | Regulates wastewater discharges to surface and groundwater of California. NPDES program implemented by SWRCB. | Section 5.14.5.2 | Lahontan RWQCB | General Information 760-241-6583 |
| 22 CCR § 66262.34 | Regulates accumulation periods for hazardous waste generators. Typically hazardous waste cannot be stored on-site for more than 90 days. | Section 5.14.5.2 | SBCFD | San Bernardino County Fire Department CUPA Office 909-386-8401 |
| California Hazardous Waste Control Law, California Health and Safety Code § 25100 <i>et seq.</i> | Regulates hazardous waste handling and storage. | Section 5.14.5.2 | SBCFD | San Bernardino County Fire Department CUPA Office 909-386-8401 |
| Local Jurisdiction | | | | |
| San Bernardino County Fire Department CUPA | Regulates enforcement responsibility for the implementation of Title 23, Division 3, Chapters 16 and 18 of the CCR, as it relates to hazardous material storage and petroleum UST cleanup. | Section 5.14.5.3 | SBCFD | San Bernardino County Fire Department CUPA Office 909-386-8401 |
| San Bernardino County Fire Department CUPA | Regulates hazardous waste generator permitting, and hazardous waste handling and storage. | Section 5.14.5.3 | SBCFD | San Bernardino County Fire Department CUPA Office 909-386-8401 |
| San Bernardino County General Plan | Will ensure all new development complies with applicable provisions of County Integrated Solid Waste Management Plan. | Section 5.14.5.3 | County of San Bernardino, Department of Public Works | Division Manager Solid Waste Management 909-386-8701 |

Source: Cal/EPA, 2008; Lahontan Regional WQCB, 2008; San Bernardino County Department of Public Works, 2008; San Bernardino County Fire Department, 2008.

Notes:

- CCR = California Code of Regulations
- CFR = Code of Federal Regulations
- CUPA = Certified Unified Program Agency
- DTSC = Department of Toxic Substances Control
- LORS = laws, ordinances, regulations, and standards
- NPDES = National Pollutant Discharge Elimination System
- RCRA = Resource Conservation and Recovery Act
- RWQCB = Regional Water Quality Control Board
- SWRCB = State Water Resources Control Board
- U.S. = United States
- USC = United States Code
- EPA = Environmental Protection Agency
- UST = underground storage tank

5.14.5.4 Agency Contacts

Agencies with jurisdiction to issue applicable permits or enforce LORS related to waste management are shown in Table 5.14-5, Agency Contact List for LORS.

**Table 5.14-5
Agency Contact List for LORS**

| Agency | Contact | Address | Telephone |
|---|---|---|------------------|
| San Bernardino County Fire Department CUPA Office | Doug Synder Deputy Fire Marshall | 620 South "E" Street San Bernardino, CA 92415 | 909-386-8401 |
| San Bernardino County Department of Public Works | Peter H. Wulfman Division Director- Solid Waste Management | 825 East Third Street San Bernardino, CA 92415 | 909-386-8701 |

Source: Cal/EPA, 2008; San Bernardino County Department of Public Works, 2008; San Bernardino County Fire Department, 2008.

Notes:

- CUPA = Certified Unified Program Agency
- DTSC = Department of Toxic Substances Control
- LORS = laws, ordinances, regulations, and standards

5.14.5.5 Applicable Permits

Solar One will apply for a EPA hazardous waste generator identification number and a hazardous waste generator permit from the SBCFD. Also, the Applicant will be required to develop a HMBP for the SBCFD. A summary of applicable permits is presented in Table 5.14-6, Applicable Permits.

**Table 5.14-6
Applicable Permits**

| Responsible Agency | Permit/Approval | Schedule |
|---|---|---|
| San Bernardino County Fire Department CUPA Office | EPA Hazardous Waste Generator Identification Number | 30 days before generation of hazardous waste. |
| San Bernardino County Fire Department CUPA Office | Hazardous Materials Business Plan | 30 days before the storage and use of hazardous materials |

Source: San Bernardino County Fire Department, 2008.

Notes:

- CUPA = Certified Unified Program Agency
- DTSC = Department of Toxic Substances Control
- EPA = Environmental Protection Agency

5.14.6 References

- Barclays Law Publishers. No date. Barclays Official California Code of Regulations.
- Cal/EPA (California Environmental Protection Agency), San Diego Regional Water Quality Control Board (WQCB). 2008. Information downloaded from: <http://www.waterboards.ca.gov/sandiego/>. March.
- California Department of Toxic Substances Control. 2008. Information downloaded from: <http://www.dtsc.ca.gov>. April.
- California Stormwater Quality Association. 2004. *Stormwater Best Management Practice Handbook, Industrial and Commercial*.
- CIWMB (California Integrated Waste Management Board). 2008. Information downloaded from: <http://www.ciwmb.ca.gov/SWIS>. April.
- County of San Bernardino, Department of Public Works. 2008. Information downloaded from: <http://www.sbcounty.gov/dpw/contactus/default.asp>. October.
- Office of the Federal Register. 1997. Code of Federal Regulations, Title 40, Parts 260 to 265, Revised July 1.
- San Bernardino County Fire Department CUPA. 2008. Information downloaded from: <http://sbcfire.org/hazmat/cupa>.
- SES Solar One, LLC. 2008. *Project Description and Plan of Development*.
- URS Corporation. 2008. Phase I Site Assessment for Solar One Project Site.
- WQCB (Lahontan Regional Water Quality Control Board). 2008. www.swrcb.ca.gov/rwqcb7.

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|---------------------------|---|------------|--|---------------|---------------------------|--|------|--|
| Adequacy Issue: | Adequate | Inadequate | DATA ADEQUACY WORKSHEET | | Revision No. | 0 | Date | |
| Technical Area: | Waste Management | | Project: | SES Solar One | | Technical Staff: | | |
| Project Manager: | | | Docket: | | | Technical Senior: | | |
| | | | | | | | | |
| SITING REGULATIONS | INFORMATION | | AFC SECTION NUMBER | | ADEQUATE YES OR NO | INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS | | |
| Appendix B (b) (1) (C) | A detailed description of the design, construction and operation of the Project, specifically including the power generation, cooling, water supply and treatment, waste handling and control, pollution control, fuel handling, and safety, emergency and auxiliary systems, and fuel types and fuel use scenarios; and | | Section 5.14.1.1 Section 5.14.1.2 | | | | | |
| Appendix B (e) (1) | A discussion of how Project closure will be accomplished in the event of premature or unexpected cessation of operations. | | Section 5.14.2.3 | | | | | |
| Appendix B (g) (1) | ...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation. | | Section 5.14.2 Section 5.14.3 Section 5.14.4 | | | | | |

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|---------------------------|--|------------|---|---------------------------|--|-------------------|------|--|
| Adequacy Issue: | Adequate | Inadequate | DATA ADEQUACY WORKSHEET | | Revision No. | 0 | Date | |
| Technical Area: | Waste Management | | Project: | SES Solar One | | Technical Staff: | | |
| Project Manager: | | | Docket: | | | Technical Senior: | | |
| | | | | | | | | |
| SITING REGULATIONS | INFORMATION | | AFC SECTION NUMBER | ADEQUATE YES OR NO | INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS | | | |
| Appendix B (g) (12) (A) | A Phase I Environmental Site Assessment (ESA) for the proposed Project Site using methods prescribed by the American Society for Testing and Materials (ASTM) document entitled "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" (Designation: E 1527-93, May 1993), which is incorporated by reference in its entirety; or an equivalent method agreed upon by the applicant and the CEC Staff that provides similar documentation of the potential level and extent of site contamination. The Phase I ESA shall have been completed no earlier than one year before the filing of the AFC. | | Section 5.14.1.1 Appendix T, Phase I Environmental Site Assessment | | | | | |
| Appendix B (g) (12) (B) | A description of each waste stream estimated to be generated during project construction and operation, including origin, hazardous or nonhazardous classification pursuant to Title 22, California Code of Regulations, § 66261.20 <i>et seq.</i> , chemical composition, estimated annual weight or volume generated, and estimated frequency of generation. | | Section 5.14.2.1 Section 5.14.2.2 Table 5.14-2 Table 5.14-3 | | | | | |

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|----------------------------|---|------------|--|---------------------------|--|-------------------|------|--|
| Adequacy Issue: | Adequate | Inadequate | DATA ADEQUACY WORKSHEET | | Revision No. | 0 | Date | |
| Technical Area: | Waste Management | | Project: | SES Solar One | | Technical Staff: | | |
| Project Manager: | | | Docket: | | | Technical Senior: | | |
| | | | | | | | | |
| SITING REGULATIONS | INFORMATION | | AFC SECTION NUMBER | ADEQUATE YES OR NO | INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS | | | |
| Appendix B (g) (12) (C) | A description of all waste disposal sites which may feasibly be used for disposal of project wastes. For each site, include the name, location, classification under Title 23, California Code of Regulations, § 2530 <i>et seq.</i> , the daily or annual permitted capacity, daily or annual amounts of waste currently being accepted, the estimated closure date and remaining capacity, and a description of any enforcement action taken by local or state agencies due to waste disposal activities at the site. | | Section 5.14.1.3 Section 5.14.1.4 Table 5.14-1 | | | | | |
| Appendix B (g) (12) (D) | A description of management methods for each waste stream, including methods used to minimize waste generation, length of on- and off-site waste storage, re-use and recycling opportunities, waste treatment methods used, and use of contractors for treatment. | | Section 5.14.2.1 Section 5.14.2.2 Table 5.14-2 Table 5.14-3 | | | | | |
| Appendix B (h) (1) (B) | A discussion of any measures proposed to improve adverse site conditions. | | Section 5.14.4 | | | | | |
| Appendix B (h) (1) (D) (v) | The waste disposal system and on-site disposal sites; | | Section 5.14.2.1 Section 5.14.2.2 | | | | | |
| Appendix B (i) (1) (A) | Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the Project is discussed; and | | Section 5.14.5 Table 5.14-4 | | | | | |

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|---------------------------|---|------------|----------------------------------|---------------|---------------------------|-------------------|--|--|
| Adequacy Issue: | Adequate | Inadequate | DATA ADEQUACY WORKSHEET | | Revision No. | 0 | Date | |
| Technical Area: | Waste Management | | Project: | SES Solar One | | Technical Staff: | | |
| Project Manager: | | | Docket: | | | Technical Senior: | | |
| | | | | | | | | |
| SITING REGULATIONS | INFORMATION | | AFC SECTION NUMBER | | ADEQUATE YES OR NO | | INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS | |
| Appendix B (i) (1) (B) | Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities. | | Section 5.14.5.4 Table 5.14-4 | | | | | |
| Appendix B (i) (2) | The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff. | | Table 5.14-5 | | | | | |
| Appendix B (i) (3) | A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits. | | Section 5.14.5.5 Table 5.14-6 | | | | | |