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5.13 WASTE MANAGEMENT

Hydrogen Energy California LLC (HECA LLC) is proposing an Integrated Gasification Combined Cycle (IGCC) polygeneration project (HECA or Project). The Project will gasify a fuel blend of 75 percent coal and 25 percent petroleum coke (petcoke) to produce synthesis gas (syngas). Syngas produced via gasification will be purified to hydrogen-rich fuel, and used to generate a nominal 300 megawatts (MW) of low-carbon baseload electricity in a Combined Cycle Power Block, low-carbon nitrogen-based products in an integrated Manufacturing Complex, and carbon dioxide (CO₂) for use in enhanced oil recovery (EOR). CO₂ from HECA will be transported by pipeline for use in EOR in the adjacent Elk Hills Oil Field (EHOF), which is owned and operated by Occidental of Elk Hills, Inc. (OEHI). The EOR process results in sequestration (storage) of the CO₂.

Terms used throughout this section are defined as follows:

- **Project or HECA.** The HECA IGCC electrical generation facility, low-carbon nitrogen-based products Manufacturing Complex, and associated equipment and processes, including its linear facilities.
- **Project Site or HECA Project Site.** The 453-acre parcel of land on which the HECA IGCC electrical generation facility, low-carbon nitrogen-based products Manufacturing Complex, and associated equipment and processes (excluding off-site portions of linear facilities), will be located.
- **OEHI Project.** The use of CO₂ for EOR at the EHOF and resulting sequestration, including the CO₂ pipeline, EOR processing facility, and associated equipment.
- **OEHI Project Site.** The portion of land within the EHOF on which the OEHI Project will be located and where the CO₂ produced by HECA will be used for EOR and resulting sequestration.
- **Controlled Area.** The 653 acres of land adjacent to the Project Site over which HECA will control access and future land uses.

This introduction provides brief descriptions of both the Project and the OEHI Project. Additional HECA Project description details are provided in Section 2.0. Additional OEHI Project description details are provided in Appendix A-1 of this Application for Certification (AFC) Amendment.

HECA Project Linear Facilities

The HECA Project includes the following linear facilities, which extend off the Project Site (see Figure 2-7, Project Location Map):

- **Electrical transmission line.** An approximately 2-mile-long electrical transmission line will interconnect the Project to a future Pacific Gas and Electric Company (PG&E) switching station east of the Project Site.

- **Natural gas supply pipeline.** An approximately 13-mile-long natural gas interconnection will be made with PG&E natural gas pipelines located north of the Project Site.
- **Water supply pipelines and wells.** An approximately 15-mile-long process water supply line and up to five new groundwater wells will be installed by the Buena Vista Water Storage District (BVWSD) to supply brackish groundwater from northwest of the Project Site. An approximately 1-mile-long water supply line from the West Kern Water District (WKWD) east of the Project Site will provide potable water.
- **Coal transportation.** HECA is considering two alternatives for transporting coal to the Project Site:
 - **Alternative 1, rail transportation.** An approximately 5-mile-long new industrial railroad spur that will connect the Project Site to the existing San Joaquin Valley Railroad (SJVRR) Buttonwillow railroad line, north of the Project Site. This railroad spur will also be used to transport some HECA products to market.
 - **Alternative 2, truck transportation.** An approximately 27-mile-long truck transport route via existing roads from an existing coal transloading facility northeast of the Project Site. This alternative was presented in the 2009 Revised AFC.

OEHI Project

OEHI will be installing the CO₂ pipeline from the Project Site to the EHOFF, as well as installing the EOR Processing Facility, including any associated wells and pipelines needed in the EHOFF for CO₂ EOR and sequestration. The following is a brief description of the OEHI Project, which is described in more detail in Appendix A of this AFC Amendment:

- **CO₂ EOR Processing Facility.** The CO₂ EOR Processing Facility and 13 satellites are expected to occupy approximately 136 acres within the EHOFF. The facility will use 720 producing and injection wells: 570 existing wells and 150 new well installations. Approximately 652 miles of new pipeline will also be installed in the EHOFF.
- **CO₂ pipeline.** An approximately 3-mile-long CO₂ pipeline will transfer the CO₂ from the HECA Project Site south to the OEHI CO₂ EOR Processing Facility.

This section includes the waste management impact evaluation for the HECA Project, including the HECA linear facilities, and the CO₂ linear. The waste management impact evaluation for the OEHI CO₂ EOR Processing Facility is covered in Appendix A-1, Section 4.16, Utilities and Services.

5.13.1 Affected Environment

5.13.1.1 Project Site

An update of the Phase I Environmental Site Assessment (ESA) of the Project Site originally prepared in 2009 has been conducted in accordance with American Society for Testing and

Materials (ASTM) guidance document *ASTM Standards on Environmental Site Assessments for Commercial Real Estate*, Designation Practice E 1527 as required by the California Energy Commission for an AFC. The ESA report is included in this AFC Amendment as Appendix L. The objective of the Phase I ESA was to identify Recognized Environmental Conditions (RECs) that may exist on the Project Site. The ASTM guidance document defines RECs as “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.”

Based on information generated for the Phase I Environmental Site Assessment prepared by URS (2012), the following RECs were identified at the Project Site:

- The 2010 Phase II investigation conducted by AECOM identified elevated concentrations of petroleum hydrocarbons and other contaminants on the former equipment wash area immediately north of the Subject Property (same as Project Site) boundary. Because the vertical and horizontal extent of contamination was not defined by the Phase II ESA, and this wash area discharged into a ditch south of the Farm Operations Area boundary, the contamination is considered a potential off-site REC to the Subject Property.
- Stained soils were observed during the Subject Property visit, as detailed in Section 6.3.13. The soil staining is likely to derive from handling of fuels, lubricating oils, and/or pesticides. The AECOM 2010 Phase II ESA sampled in the vicinity of the stained soil and identified selected contaminants; however, the extent of any subsurface impacts is not defined.

In addition to these RECs, the following potential environmental issues were noted that in URS' opinion are not considered RECs:

- Surficial samples collected from the agricultural fields on the Subject Property identified concentrations of the pesticides dieldrin, endrin, and endosulfan that exceed the Regional Water Quality Control Board (RWQCB) Environmental Screening Levels, but did not exceed the state California Human Health Screening Levels or federal Regional Screening Levels (RSLs). These results are consistent with the historical agricultural use, and no consistent spatial pattern of pesticides above Environmental Screening Levels was observed.
- An agency database lists five former underground storage tanks (USTs) located at Palm Farms, Inc., on Adohr Road. Because the Subject Property is also located on Adohr Road, and the property was purchased from Palm Farms, Inc., the USTs may have historically been located on or adjacent to the Subject Property. The 2010 AECOM Phase II ESA investigated selected potential locations for these USTs and identified no USTs and no contamination associated with USTs.

URS recommended further investigation be conducted at the Subject Property to determine the presence and/or extent of potential environmental contamination associated with the RECs. The investigation should address potential contamination arising from each REC and environmental issues listed above, including the following issues:

- Performing step-out sampling to investigate the vertical and horizontal extent of contamination in the area adjacent to the former equipment wash area, including sampling surficial soil and sediment along the drainage ditch where washwater was discharged, to evaluate potential impact to the Subject Property.
- Performing step-out sampling to investigate the vertical and horizontal extent of contamination in the stained soil area adjacent to the drainage ditch, including sampling surficial soil.

The Phase I ESA report is included in this AFC Amendment as Appendix L.

Adjacent land uses consist of Adohr Road and agricultural uses to the north; Tupman Road and agricultural uses to the east; agricultural uses and an irrigation canal to the south; and a residence, agricultural uses, and Dairy Road right-of-way to the west. The Outlet Canal, the Kern River Flood Control Channel, and the California Aqueduct are located approximately 500, 700, and 1,900 feet, respectively, to the south of the Project Site. The land southwest of the California Aqueduct is used for mineral and petroleum purposes. The EHOFF is located approximately 1 mile south of the Project Site.

The land adjacent to the northwestern corner of the Project Site formerly contained the Port Organics Products, Ltd. (Port Organics), natural fertilizer manufacturing plant, farming operations, and a residence. Port Organics operations ceased at the beginning of 2009.

As described in more detail in Section 5.13.2, Environmental Consequences, the Project will generate hazardous and non-hazardous wastes during the construction and operational phases of the Project that are typical of an IGCC polygeneration facility.

Facility workers will receive hazardous materials training as required by the Occupational Safety and Health Administration, Hazard Communication Standard. Additionally, workers will be trained in hazardous waste procedures, spill contingencies, and waste minimization procedures in accordance with California Code of Regulations (CCR) Title 22.

5.13.1.2 Non-Hazardous Solid Waste Disposal

Existing non-hazardous solid waste disposal facilities in the general area of the Project Site are listed in Table 5.13-1, Waste Recycling/Disposal Facilities. Several available Class III landfills are listed in Table 5.13-1. These landfills accept non-hazardous wastes and inert solid wastes, including construction/demolition wastes. Industrial process solid wastes are accepted on a case-by-case basis. Based on the Project's low anticipated waste volumes, the remaining capacity, and estimated closure dates of the Class III landfills in California, non-hazardous waste generated during construction and operational phases at the Project is not expected to significantly impact available landfill capacity.

5.13.1.3 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

(TSDf) or Class I landfill. There are currently two Class I landfills accepting waste in California: Clean Harbors' Buttonwillow facility 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 5.13-1. Based on the Project's low anticipated waste volumes, the remaining capacity, and estimated closure dates of the Class I landfills in California, hazardous waste generated during construction and operational phases at the Project is not expected to significantly impact available landfill capacity.

5.13.2 Environmental Consequences

The wastes that would be generated during both the construction and the operation phases of the Project were identified to determine whether the Project would result in any potentially significant impacts. The significance criteria are based on the California Environmental Quality Act (CEQA) Guidelines, Appendix G, Environmental Checklist Form (approved January 1, 1999), and on performance standards or thresholds adopted by responsible agencies. An impact may be considered significant if:

- Construction activities result in waste materials being introduced into the environment in violation of federal, state, or local waste management and disposal regulations.
- Construction and/or operation activities generate waste materials that exceed the receiving capacity of appropriate disposal or recycling facilities.
- Operation of the facility results in waste materials being introduced into the environment in violation of federal, state, or local waste management and disposal regulations.
- Non-hazardous liquid wastes cause a publicly owned treatment system to violate any applicable waste discharge requirements.
- The Project breaches standards relating to solid waste or litter control.
- The Project creates a potential public health hazard or involves materials that pose a hazard.
- The Project 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.

5.13.1.4 Construction Phase

Project Site Construction

The Project will generate wastes typical for the construction of an IGCC polygeneration facility. Table 5.13-2, Summary of Construction Waste Streams and Management Methods, summarizes the anticipated waste streams generated during construction, along with appropriate management

methods for treatment, recycling, or disposal. A waste management plan that encompasses hazardous and non-hazardous wastes will be prepared prior to construction.

Non-Hazardous Waste

Solid waste generated from construction activities may include paper, wood, glass, plastics from packing material, waste lumber, insulation, scrap metal and concrete, and empty non-hazardous containers. These wastes will be segregated, where practical, for recycling. Non-recyclable wastes will be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal. Based on the remaining capacity and estimated closure dates of the Class III landfills in California, the non-hazardous wastes that cannot be recycled are not expected to significantly impact the capacity of the Class III landfills. With the implementation of Waste Mitigation Measure (WM)-2, described in Section 5.13.4, Mitigation Measures, impacts related to non-hazardous waste will be less than significant.

Hazardous Waste

Small quantities of hazardous wastes are likely to be generated over the course of construction. These wastes may include waste paint, spent solvents, waste cleaners, waste oil, oily rags, waste batteries, and spent welding materials. Hazardous wastes generated during Project construction will be handled and disposed of in accordance with applicable laws, ordinances, regulations, and standards (LORS) and in accordance with Mitigation Measures WM-3 through WM-7. Hazardous wastes will be either recycled or disposed of in a licensed hazardous waste disposal facility, as appropriate. Managed and disposed of properly, these wastes will not cause significant environmental or health and safety impacts. Most of the hazardous waste can be recycled, such as turbine-cleaning wastes and used oil generated during construction. Based on the remaining capacity and estimated closure dates of the Class I landfills in California, the hazardous wastes that cannot be recycled are not expected to significantly impact the capacity of the Class I landfills. With the implementation of Mitigation Measures WM-3 through WM-7, described in Section 5.13.4, impacts related to hazardous waste will be less than significant.

Wastewater

Wastewater generated during construction of the Project will include sanitary wastes, equipment washwater, hydrotest water, and storm water runoff. Non-hazardous equipment washwater will be routed to the appropriate process area storm water retention basin for reuse. Sanitary waste will be disposed of off site by a sanitary waste contractor.

Section 5.14, Water Resources, of this AFC Amendment provides additional detail regarding hydrotest water. In summary, the source of the water to be used for hydrostatic testing of the pipelines will be an on-site irrigation well, supplemented by potable water from West Kern Water District. The hydrostatic testing will be performed on new pipelines, and no chemicals will be added to the test water. As such, the expected quality of the test water will be similar to the quality of the source water (i.e., non-hazardous). After all hydrotesting has been completed, the hydrotest water will be sampled, tested, and disposed of in compliance with National Pollutant Discharge Elimination System permit(s). Clean water with suitable chemistry will be routed to the storm water retention basin. Water that is not suitable for routing to the retention

basin will be transported by truck to an appropriately licensed off-site treatment or disposal facility.

Section 5.14, Water Resources, of this AFC Amendment provides additional detail regarding storm water runoff. In summary, storm water runoff will be routed to retention basins during the initial grading operation to prevent the release of sediment from the Project Site. Best management practices as described in the Draft DESCP submitted in response to previous data requests will be used during construction to minimize the potential for erosion (see Responses to Data Request 95 and Data Request 202). A construction storm water pollution prevention plan will be prepared and implemented in accordance with the General Permit for Construction Activities. With implementation of Project design elements and mitigation measures proposed in Section 5.14, Water Resources, of this AFC Amendment, the impacts to surface water quality will be less than significant.

Off-Site Linear Facilities

Non-Hazardous and Hazardous Waste

During the installation of the railroad spur, the electrical transmission line, the natural gas pipeline, the CO₂ pipeline, and the process and potable water supply lines, non-hazardous soils and surface demolition debris (e.g., concrete, asphalt, and piping) are anticipated. These wastes will be transported and disposed at an appropriate disposal facility. Contaminated soil may be encountered during installation. Soil sampling is likely to be required to profile the waste for disposal classification purposes. Soil may be recycled, disposed as a non-hazardous waste at a Class III landfill or soil recycling facility, or disposed as hazardous waste at a Class I landfill. The disposal option will depend on the characterization of the waste per Resource Conservation and Recovery Act (RCRA) and CCR Title 22 criteria. Waste disposal facilities are listed in Table 5.13-1, Waste Recycling/Disposal Facilities.

Non-hazardous and hazardous wastes are not expected to be encountered at paved parking and equipment staging locations. If site grading is necessary to use unpaved parking and equipment staging locations, then non-hazardous soil and debris (trash, asphalt) may be generated. With the implementation of Mitigation Measures through WM-7, described in Section 5.13.4, impacts will be less than significant.

OEHI Project

According to the analysis contained in Appendix A-1, Section 4.16, construction of the OEHI Project would not result in significant adverse impacts related to the generation of waste.

5.13.1.5 Operation Phase

Project Operations

Operation of the plant will generate wastes resulting from processes, routine plant maintenance, and office activities typical of IGCC polygeneration facility. Table 5.13-3, Summary of Operating Waste Streams and Management Methods, describes them in more detail. Non-hazardous wastes generated

during operation of the Project will be recycled to the greatest extent practical, and the remainder will be removed on a regular basis by a certified waste-handling contractor. Operation of the electrical transmission line, the natural gas pipeline, the CO₂ pipeline, and the water supply pipelines will not generate any significant amounts of waste. The types of waste and their estimated quantities are shown in Table 5.13-3. A waste management plan that encompasses hazardous and non-hazardous wastes will be prepared prior to operations.

Non-Hazardous Solid Waste

The following types of non-hazardous solid waste may be generated: paper, wood, plastic, metal 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 material 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. Based on the remaining capacity and estimated closure dates of the Class III landfills in California, the non-hazardous wastes that cannot be recycled are not expected to significantly impact the capacity of the Class III landfills. With the implementation of the mitigation measures described in Section 5.13.4.2, impacts related to non-hazardous waste during operation will be less than significant.

Gasification Solids

The gasifier will produce a solid vitrified by-product called “gasification solids.” These solids are made of ash from the coal and petcoke that exit the gasifier.

Because the Project has not yet been constructed, the gasification solids have not yet been generated. Consequently, the composition can only be projected, based on feed materials. An extensive review was performed of publicly available documents pertaining to the gasification solids generated by other IGCCs. Other IGCC power plants with beneficial reuse of the gasification solids match within normal variances the Project design, operation, gasification equipment, process specifications, and feed material blends. HECA has studied the beneficial reuse of gasification solids in a variety of industrial applications. Areas currently being evaluated include reuse for the production cement, roofing granules and sandblast grit.

Gasification solids produced from the use of a feedstock that is at least 50 percent coal is excluded from hazardous waste regulations and requirements, per the exclusions in applicable federal and California regulations—i.e., Title 40 of the Code of Federal Regulations (40 CFR) § 261.4(b)(7)(ii)(F), and California regulation 22 CCR § 66261.4(b)(5)(A). The Project is designed to operate on feedstock of 75 percent coal.

Liquid Wastes

There will be no direct surface water discharge of industrial wastewater or storm water from process areas. The primary sources of wastewater at the Project will be from cooling tower blowdown, raw water treatment, process condensate wastewater from the gasifier, the sour water stripper, the Acid Gas Removal unit, and the Urea plant. Process wastewater will be treated on site and recycled to the cooling towers as make-up water. Cooling tower blowdown will also be treated on site to produce demineralized and utility water. The reject from the cooling tower blowdown treatment plant is sent to a zero liquid discharge (ZLD) system. The ZLD solids will be disposed of at an approved off-site facility. Solids from the ZLD system have the potential to be classified as hazardous pursuant to the hazardous waste regulations of CCR Title 22, and are listed as such in the summary table, Table 5.13-3. Additional information on the ZLD processes is provided in the Zero Liquid Discharge subsection below.

Sanitary wastewater from the Project restrooms, showers, and kitchens will be disposed to a private on-site sewage disposal system consisting of a conventional septic tank and leach field. No municipal system is available in the vicinity of the Project Site.

Zero Liquid Discharge

The ZLD system will be comprised of traditional thermal water-treatment technology. The pure distillate produced from the evaporators will be returned to the gasification or power blocks for reuse. The ZLD solids will be trucked to an approved off-site material disposal facility.

Storm Water Management

Storm water management for the Project will be designed to avoid direct discharge to off-site surface waters.

Retention basins and storm water collection/conveyance systems will be designed in accordance with the Kern County Development Standards. The retention basin locations are shown in Figure 2-36, Preliminary Storm Water Drainage Plan, in Section 2, Project Description, of this AFC Amendment.

Storm water generated at the Project will be managed as follows:

- Storm water from inside the process plant area will be routed to lined retention basins. After solids have settled and water is determined to be suitable for reuse, storm water will be pumped to the water treatment plant for further treatment and reuse. If this collected storm water is determined to be unsuitable for reuse, it will be transferred and processed in the ZLD system at the wastewater treatment plant.
- Storm water that may be contaminated with oil will be separately collected and routed to an oil/water separator. Recovered waste oil from the separator will be disposed of off site. The separated water will be transferred and processed at the wastewater treatment plant.

- Storm water in the Acid Gas Removal (AGR) Unit will be collected in a separate lined, dedicated AGR storm water retention basin. The AGR Unit collection system is isolated to contain any potentially contaminated water that could result in the unlikely event of a methanol spill.
- Storm water from chemical and oil storage areas will be held in the associated secondary containment. Storm water held in these areas will first be tested. If it is acceptable for cooling water makeup, it will be routed to the lined retention basin. Oily storm water will be routed through an oil/water separator of the wastewater treatment plant.
- Storm water within the process plant area where solids are present (e.g., coal, petcoke, or gasification solids) will be collected and conveyed to the solids handling water collection facility. The collection facility will be constructed of concrete and will provide for mobile equipment access to remove accumulated solids. Water that accumulates within the solids handling collection facility will be processed in the ZLD system at the wastewater treatment plant.
- Storm water from remote solids handling areas, such as feedstock unloading and the crusher station, will be collected in lined retention basins for settlement, testing, reuse, and/or treatment as appropriate.
- Storm water from outside the process plant area but within the Project Site will be separately collected in retention basins located throughout the Project Site.
- A Storm Water Pollution Prevention Plan will be developed prior to operations. The Project storm water will be managed in accordance with this plan, which will include the measures outlined above.

Hazardous Wastes

Various types of hazardous wastes will be generated during operational activities, which may include spent catalysts, filters and ZLD solids, water softener solids, spent caustics and solvents, used oils from equipment maintenance, and oil-contaminated materials such as spent oil filters, rags, or other cleanup materials. Spent catalysts will be returned to the manufacturer for metals reclamation or disposed of. Used oil generated will be recycled. Waste filters and ZLD solids, sludge, spent caustics and solvents, and all other hazardous wastes requiring disposal will be disposed of in a licensed hazardous waste disposal facility. Other occasional waste streams include alkaline- or acid-cleaning solutions used during chemical cleaning of equipment. Table 5.13-3, Summary of Operating Waste Streams and Management Methods, summarizes the hazardous waste to be generated from operation of the Project.

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, biennial reports, 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.

Based on the remaining capacity and estimated closure dates of the Class I landfills in California, the hazardous wastes that cannot be recycled are not expected to significantly impact the capacity of the Class I landfills. With the implementation of the mitigation measures described in Section 5.13.4.2, Operations, impacts related to hazardous waste during operations will be less than significant.

OEHI Project

According to the analysis contained in Appendix A-1, Section 4.16, operation of the OEHI Project would not result in significant adverse impacts related to the generation of waste.

5.13.1.6 Abandonment/Closure

Section 3.0, Facility Closure, of this AFC Amendment contains a detailed discussion of closure issues that are summarized in this subsection. If it becomes necessary to close the plant temporarily for any reason (due to a disruption in the natural gas supply or feedstocks, flooding, damage from an earthquake, fire, storm, etc.), facility security will be maintained on a 24-hour basis and the California Energy Commission will be notified. A contingency plan for temporary closure will be prepared prior to start-up of the facility to protect human health and the environment. Depending on the duration of any temporary shut-down, the plan will direct the safe shut-down of all equipment and the draining of all chemicals from the process. Any waste generated under these circumstances will be disposed of in accordance with all applicable LORS.

The planned life of the facility is a minimum of 25 years. A general closure plan identifying the handling and disposal requirements for non-hazardous and hazardous wastes will be prepared prior to closure. This plan will identify opportunities for recycling. All equipment containing liquids will be drained and decommissioned as part of closure procedures to protect public health, safety, and the environment. Unused chemicals will be sold back to the suppliers or other purchasers where practicable. All non-hazardous wastes will be disposed of in appropriate landfills or recycled. Hazardous wastes will be disposed of according to all applicable LORS. The Project Site will be secured 24 hours per day during the decommissioning activities.

5.13.2 Cumulative Impacts Analyses

Under certain circumstances, CEQA requires consideration of a project's cumulative impacts (CEQA Guidelines § 15130). A "cumulative impact" consists of an impact that is created as a result of the combination of the project under review together with other projects causing related impacts (CEQA Guidelines § 15355). CEQA requires a discussion of the cumulative impacts of a project when the project's incremental effect is cumulatively considerable (CEQA Guidelines § 15130[a]). "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (CEQA Guidelines § 15065 [a][3]).

When the combined cumulative impact associated with a project's incremental effect and the effects of other projects is not significant, further discussion of the cumulative impact is not necessary (CEQA Guidelines § 15130[a]). It is also possible that a project's contribution to a

significant cumulative impact is less than cumulatively considerable and thus not significant (CEQA Guidelines § 15130[a]).

The discussion of cumulative impacts should reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great a level of detail as is provided for the effects attributable to the project under consideration (CEQA Guidelines § 15130[b]). The discussion should be guided by standards of practicality and reasonableness (CEQA Guidelines § 15130[b]).

A cumulative impact analysis starts with a list of past, present, and probable future projects within a defined geographical scope with the potential to produce related or cumulative impacts (CEQA Guidelines § 15130[b]). Factors to consider when determining whether to include a related project include the nature of the environmental resource being examined, the location of the project, and its type (CEQA Guidelines § 15130[b]). For purposes of this AFC Amendment, Kern County was contacted to obtain a list of related projects, which is contained in Appendix I. Depending on its location and type, not every project on this list is necessarily relevant to the cumulative impact analysis for each environmental topic.

Past, current, and potential future projects, including the Project, would generate waste. There are, however, adequate recycling facilities and landfill capacities to dispose of the waste from the Project over the next 25 years. While waste generated by the Project would add to the total waste generated in Kern County and in California, recycling of wastes from the Project and other proposed developments listed above will play a significant role in reducing the amount of material that is sent to landfill. There are adequate recycling and waste disposal facilities to handle the wastes from the Project and other proposed developments; thus, the cumulative impacts from the Project would be considered less than significant.

According to the analysis contained in Appendix A-1, Section 4.16, construction and operation of the OEHI Project would not result in significant cumulative adverse impacts related to waste generation.

5.13.3 Mitigation Measures

5.13.3.1 Construction

Waste Mitigation Measure WM-1

Prior to the initiation of the Project construction phase, construction workers 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, 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:

- Waste classification procedures
- A description of each hazardous waste stream
- Waste container and label requirements
- Accumulation, handling, transport, treatment, and disposal procedures for each waste
- Waste minimization procedures
- Preparedness, prevention, contingency, and emergency procedures
- Personnel training

WM-3

Hazardous wastes will be accumulated on site for fewer than 90 days (or other accumulation periods as allowed by 22 CCR Section 66262.34 for hazardous waste generators) and will be managed in accordance with state and federal hazardous waste generator requirements.

Hazardous wastes, as well as 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. Hazardous waste containers and labels will be maintained according to applicable LORS. The hazardous waste storage areas will be inspected and maintained at least weekly, as required.

WM-4

Hazardous wastes will be collected by a licensed hazardous waste hauler and disposed of at a licensed hazardous waste facility in accordance with applicable LORS. Hazardous wastes are 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 for the Project prior to operation. The purpose of 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 5.12, Hazardous Materials Handling.

WM-6

Facility workers will receive hazardous materials training as required by the Occupational Safety and Health Administration (OSHA), Hazard Communication Standard. Additionally, workers will be trained in hazardous waste procedures, spill contingencies, and waste minimization

procedures in accordance with CCR Title 22. Hazardous waste training includes 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
- Waste minimization practices

WM-7

Procedures to minimize hazardous waste generation will be established. Workers will be trained in procedures to reduce the volume of hazardous wastes generated at 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 wastes will be recycled whenever possible.

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

5.13.3.2 Operations

Project Site

The Applicant will update the waste management procedures for construction of the Project Site and implement them for operations at the Project. In addition, the Applicant will develop and implement procedures and requirements as outlined in the Hazardous Materials Business Plan (HMBP). These procedures and programs will minimize potential site-operations-related impacts.

Off-Site Structures

Periodic inspection and maintenance of the railroad spur, the electrical transmission line, the natural gas pipeline, the CO₂ pipeline, and the process and potable water supply line in accordance with applicable LORS will mitigate potential operations-related impacts associated with the linear facilities.

5.13.3.3 Monitoring Program

Environmental impacts related to waste management issues caused by construction and operation of the Project are expected to be minimal. Therefore, extensive monitoring programs are not anticipated. 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.

5.13.4 Laws, Ordinances, Regulations, and Standards

5.13.4.1 Federal

RCRA, 42 United States Code (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, while Subtitle C controls the generation, transfer, storage, and disposal of hazardous waste through a comprehensive “cradle-to-grave” system of hazardous waste management techniques and requirements. The U.S. Environmental Protection Agency (USEPA) is responsible for implementing the law, and the implementing regulations are set forth in 40 Code of Federal Regulations (CFR) 260 *et seq.* The law allows USEPA to delegate the administration of the RCRA programs to the various states, provided that the state programs meet or are more stringent than the federal requirements. California’s program was authorized by USEPA on August 1, 1992, and the California Environmental Protection Agency (Cal/EPA) 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 waters of the U.S. The USEPA 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.

Under 49 CFR 172, 173, and 179, controls are provided on labeling, placarding, and packaging for hazardous waste shipments that will be shipped off site over the state highways and roads. The U.S. Department of Transportation and the California Highway Patrol are responsible for its administration and enforcement.

5.13.4.2 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. Kern County Environmental

Health Services Department (EHSD) has the authority to assure the proper storage and disposal of solid waste in Kern 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 State Water Resources Control Board (SWRCB) and the nine RWQCBs are the principal agencies responsible for control of water quality, and issuing permits under the NPDES program.

Accumulation of hazardous waste on site is regulated under 22 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 will 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 (HWCL), California Health and Safety Code § 25100 *et seq.* It should be noted that California's HWCL includes non-RCRA hazardous wastes. In addition, the law specifies two hazardous waste criteria (Soluble Threshold Limit Concentration and Total Threshold Limit Concentration) that are not required under RCRA. Primary authority for the statewide administration and enforcement of California's HWCL rests with the DTSC. However, the Kern County EHSD provides most regulatory functions covering those who generate hazardous waste.

5.13.4.3 Local

For hazardous waste, the designated Certified Unified Program Agency for the Project area is the Kern County EHSD. They have delegated authority to administer state and federal programs. In addition, the County EHSD regulates the storage of hazardous materials in USTs and cleanup of petroleum releases from USTs. The EHSD will be contacted in the event of a release of hazardous wastes or materials to the environment. The EHSD assumes enforcement responsibility for the implementation of Title 23 of the CCR and regulates the generation and storage of hazardous waste for the Project area through the requirement for a HMBP.

The following summarizes the applicable LORS that govern the handling of non-hazardous and hazardous wastes. The LORS applicable to the handling of waste at the Project Site are also summarized in Table 5.13-4, Summary of LORS—Waste Management.

5.13.5 Involved Agencies and Agency Contacts

Agencies with jurisdiction to issue applicable permits or enforce LORS related to waste management are shown in Table 5.13-5, Agency Contact List for LORS.

5.13.6 Permits Required and Permit Schedule

The Project will apply for a USEPA hazardous waste generator identification number from the USEPA and a hazardous waste generator permit from the Kern County EHSD.

The Project will be required to develop an HMBP for the Kern County EHSD.

A summary of applicable waste permits is presented in Table 5.13-6, Applicable Permits.

5.13.7 References

Cal/EPA (California Environmental Protection Agency), Central Valley RWQCB (Regional Water Quality Control Board), 2008. Information downloaded from: <http://www.waterboards.ca.gov/centralvalley>. March 2008.

Cal/EPA (California Environmental Protection Agency), DTSC (Department of Toxic Substances Control), 2008. Information downloaded from: <http://www.dtsc.ca.gov>. March 2008.

CIWMB (California Integrated Waste Management Board), 2008. Information downloaded from: <http://www.ciwmb.ca.gov/SWIS>. March 2008.

Kern County Building Department, 2008. Information downloaded from: <http://www.co.kern.ca.us/bid/>. March 2008.

Kern County Planning Department, 2008. Information downloaded from: <http://www.co.kern.ca.us/planning/>. March 2008.

Kern County Environmental Health Services Department. Information downloaded from: <http://www.co.kern.ca.us/eh>. March 2008.

URS (URS Corporation), 2012. Phase I Environmental Site Assessment.

**Table 5.13-1
Waste Recycling/Disposal Facilities**

Solid Recycling/Waste Disposal Site	Title 23 Class	Permitted Throughput	Permitted Capacity	Remaining Capacity	Estimated Closure Date	Enforcement Action Taken?
Taft Sanitary Landfill (Solid Waste Facility) 13351 Elk Hills Road Taft, CA 93626	Class III	90 tons per day	8.8 million cubic yards	6.0 million cubic yards	2070	No
Bakersfield Metropolitan (Bena) Sanitary Landfill Facility (SLF) (Solid Waste Facility) 2951 Neumarkel Road Caliente, CA 93518	Class III	1.3 thousand tons per day	53 million cubic yards	34.3 million cubic yards	2042	No
Shafter-Wasco Sanitary Landfill (Solid Waste Facility) 17621 Scofield Avenue Shafter, CA 93668	Class III	330 tons per day	21.9 million cubic yards	15 million cubic yards	2056	No
U.S. Borax Inc. Refuse Waste Pile (Solid Waste Facility) 14486 Borax Road Boron, CA 93516	Class III	443 tons per day	8.5 million cubic yards	1.4 million cubic yards	2023	No
McKittrick Waste Treatment Site (Solid Waste Facility) 56533 State Route 58 McKittrick, CA 93251	Class II	1.2 thousand tons per day	2.1 million cubic yards	84.1 thousand cubic yards	2029	No
Chemical Waste Management Kettleman Hills Landfill (Solids Waste Facility) 36251 Old Skyline Road Kettleman City, CA 93239	Class I	400 trucks per day	10.7 million cubic yards	<100 thousand cubic yards ¹	2022	No

**Table 5.13-1
Waste Recycling/Disposal Facilities (Continued)**

Solid Recycling/Waste Disposal Site	Title 23 Class	Permitted Throughput	Permitted Capacity	Remaining Capacity	Estimated Closure Date	Enforcement Action Taken?
Clean Harbors Buttonwillow Landfill (Solid and Liquid Waste Facility) Lokern Road Kern County, CA 93251	Class I	10.48 thousand tons per day	14.29 million cubic yards	Not available	2068	No
American Remedial Technologies (Solids Recycling) 2680 Seminole Avenue Lynwood, CA 90262	N/A	25 thousand tons per month	300 thousand tons per year	N/A	N/A	No
TPS Technologies, Inc. (Soil Recycling) 12328 Hibiscus Avenue Adelanto, CA 92301	N/A	N/A	350,000 tons per year	N/A	N/A	No
Thermal Remediation Solutions (Solids Recycling) 1211 West Gladstone Avenue Azusa, CA 91702	Class III	200,000 tons per year	2,000 tons per day	N/A	N/A	No

Source: California Integrated Waste Management Board, 2008.

Notes:

1. Currently, the remaining capacity at this facility is less than 110,000 cubic yards. A new cell is proposed to open to open in 2013/2014 but final approval has not been granted

N/A = not applicable

**Table 5.13-2
Summary of Construction Waste Streams and Management Methods¹**

Waste Stream	Waste Classification	Anticipated Maximum Amount	Units	Disposal Method	Estimated Density (lb/CF)	Estimated Density (short tons/CY)	Volume (CY/year)²
Used Lube Oils, Flushing Oils	Hazardous	7	55-gallon drums per month	Recycle	N/A	N/A	N/A
Hydrotest Water (One time per commissioning, reuse as practical, test for hazardous characteristics)	Hazardous or non-hazardous	2,800,000	gallons total	Characterize. Drain non-hazardous to the Retention Basin. Dispose of hazardous at a hazardous waste treatment and disposal facility	N/A	N/A	N/A
Chemical Cleaning Wastes (Chelates, Mild Acids, TSP, and/or EDTA – During Commissioning)	Hazardous or non-hazardous recyclable	525,000	gallons total	Hazardous or non-hazardous waste treatment and disposal facility	N/A	N/A	N/A
Solvents, Used Oils, Paint, Adhesives, Oily Rags	Cal-hazardous recyclable	160	gallons per month	Recycle or hazardous waste treatment and disposal facility	N/A	N/A	N/A
Spent Welding Materials	Hazardous	300	pounds per month	Dispose at a hazardous waste landfill	200	3.1	0.69
Used Oil Filters	Hazardous	100	pounds per month	Dispose at a hazardous waste landfill	50	0.68	0.9
Fluorescent/Mercury Vapor Lamps	Hazardous recyclable	50	units per year	Recycle	N/A	N/A	N/A
Misc. Oily Rags, Oil Absorbent	Non-hazardous or Hazardous Recyclable	1	55-gallon drum per month	Recycle or dispose at a hazardous waste landfill	N/A	N/A	3.3
Empty Hazardous Material Containers	Hazardous Recyclable	1	cubic yard per week	Recondition, recycle, or dispose at a hazardous waste landfill	N/A	N/A	52

**Table 5.13-2
Summary of Construction Waste Streams and Management Methods¹**

Waste Stream	Waste Classification	Anticipated Maximum Amount	Units	Disposal Method	Estimated Density (lb/CF)	Estimated Density (short tons/CY)	Volume (CY/year) ²
Used Lead/Acid and Alkaline Batteries	Hazardous Recyclable	1.2	ton per year	Recycle	N/A	N/A	N/A
Sanitary Waste from Workforce (Portable Chemical Toilets)	Non-hazardous	450	gallons per day	Pump and dispose by sanitary waste contractor	N/A	N/A	N/A
Site Clearing – Grubbing, Excavation of Non-Suitable Soils, Misc. Debris	Non-hazardous	Minimal	N/A	Reuse Soils or dispose at a non-hazardous waste landfill (see Section 2.6.1, Project Site Construction, of this AFC Amendment)	N/A	N/A	N/A
Scrap Materials, Debris, Trash (Wood, Metal, Plastic, Paper, Packing, Office Waste, etc.)	Non-hazardous	60	cubic yards per week	Recycle or dispose at a non-hazardous waste landfill	N/A	N/A	N/A
					Total Annual Cubic Yards:		3,177

Source: HECA, 2012.

Notes:

¹ All Numbers are estimates.

² Volumetric quantities shown for wastes expected to be disposed in non-hazardous or hazardous waste landfills. Volumetric quantities are not shown for wastes that are expected to be recycled or treated and disposed by means other than landfill.

AFC = Application for Certification

CF = cubic feet

CTG = combustion turbine generator

CY = cubic yards

EDTA = ethylene diamine tetra-acetic acid

lb = pounds

N/A = not applicable (due to waste not being landfilled)

STG = steam turbine generator

TSP = trisodium phosphate

**Table 5.13-3
Summary of Operating Waste Streams and Management Methods¹**

Waste Stream	Waste Classification	Anticipated Maximum Amount/year	Units	Disposal Method	Density (lb/CF)	Density (short tons/CY)	Volume (CY/year) ²
Spent Claus Sulfur Recovery Catalyst (Activated Alumina)	Nonhazardous	7	tons	Dispose at a nonhazardous waste landfill.	40	0.54	4
Claus Catalyst Support Balls (Activated Alumina)	Nonhazardous	1	ton	Recycle or Dispose at a nonhazardous waste landfill.	40	0.54	1
Spent Sour Shift Catalyst (Cobalt Molybdenum)	California Hazardous	30	tons	Send to reclaimer for metals recovery.	40.6	0.548	56
Spent Titania (TiO ₂)	Nonhazardous	10	tons	Dispose at a nonhazardous waste landfill.	57.0	.77	4
Spent Hydrogenation Catalyst (Cobalt Molybdenum)	California Hazardous	10	tons	Send to reclaimer for metals recovery.	41	0.55	3
Hydrogenation Catalyst Support Balls (Alumina Silicate)	Nonhazardous	1	ton	Recycle or Dispose at a nonhazardous waste landfill.	81.0	1.09	1
Spent SCR Catalyst (Titanium, vanadium, tungsten, combustion contaminants, and inert ceramics)	Hazardous	1,600	cu ft	Return to supplier to reclaim/dispose.	N/A	N/A	N/A
Spent CO/VOC oxidation catalyst (Noble metals, other inerts, and combustion contaminants)	Nonhazardous	600	cu ft	Send to reclaimer for noble metals recovery.	N/A	N/A	N/A
Spent Mercury Removal Carbon Beds (Impregnated activated carbon)	Hazardous	3	tons	Stabilize and dispose at a hazardous waste landfill.	35.6	0.481	6
Plant Wastewater ZLD Solids (Inorganic and organic salts)	Anticipated Nonhazardous	15,000	tons	Stabilize and Characterize for landfill disposal.	78.2	1.056	14,209

5.13 Waste Management

**Table 5.13-3
Summary of Operating Waste Streams and Management Methods¹**

Waste Stream	Waste Classification	Anticipated Maximum Amount/year	Units	Disposal Method	Density (lb/CF)	Density (short tons/CY)	Volume (CY/year) ²
CO ₂ Purification Catalyst for COS Removal (activated Alumina)	Hazardous	300	cu ft	Stabilize and dispose at a hazardous waste landfill.	46	0.62	11.1
CO ₂ Purification Catalyst for H ₂ S Removal (Zinc Oxide)	Hazardous	1200	cu ft	Stabilize and dispose at a hazardous waste landfill.	76.8	1.04	44.4
Ammonia Synthesis Catalyst iron-oxide based	Non-Hazardous	2500	cu ft	Dispose at a nonhazardous waste landfill.	170	23	92.6
Spent Urea Unit platinum-based catalyst for CO ₂ Dehydrogeneration	Non-Hazardous	10	cu ft	Send to reclaimer for metals recovery.	N/A	N/A	N/A
Spent Nitric Acid Plant platinum-based catalyst	Non-Hazardous	250	lbs	Send to reclaimer for metals recovery.	N/A	N/A	N/A
Spent N ₂ O and NO _x decomposition catalyst SCR-type	Hazardous	150	cu ft	Return to supplier to reclaim/dispose.	N/A	N/A	N/A
Spent PSA Adsorbent	Hazardous	50	tons	Stabilize and dispose at a hazardous waste landfill.	18.2	0.25	204
Sour Water System Solids	Hazardous	30	tons	Dispose at an incinerator or hazardous waste landfill.	125	1.7	17.8
Spent Caustic	Hazardous	400,000	gal	Offsite treatment to oxidize sulfides to sulfates. Adjust pH and dispose as nonhazardous.	N/A	N/A	N/A
Off-Line Combustion Turbine Wash Wastes (Detergents and residues)	Hazardous or Nonhazardous	15,000	gal	Characterize and dispose as nonhazardous or treat and dispose as hazardous waste.	N/A	N/A	N/A

SECTION FIVE

Environmental Information

**Table 5.13-3
Summary of Operating Waste Streams and Management Methods¹**

Waste Stream	Waste Classification	Anticipated Maximum Amount/year	Units	Disposal Method	Density (lb/CF)	Density (short tons/CY)	Volume (CY/year) ²
HRSW Wash Water (Infrequent) (Detergent, residues, neutralized acids)	Hazardous or Nonhazardous	100,000	gal	Characterize and dispose as nonhazardous or treat and dispose as hazardous waste	N/A	N/A	N/A
Water Softener Solids and Used Water Filter Media	Nonhazardous	90	ton	Characterize and dispose as nonhazardous or hazardous waste.	40.0	0.540	167
Used Oil	Hazardous	8,000	gal	Recycle.	N/A	N/A	N/A
Spent Grease	Hazardous	20	55-gallon drums	Characterize and dispose as hazardous waste.	N/A	N/A	N/A
Miscellaneous Filters and Cartridges	Hazardous or Nonhazardous	150	cu yd	Characterize and dispose as nonhazardous or hazardous waste.	N/A	N/A	150
Miscellaneous Solvents	Hazardous	2	55-gallon drums	Recycle or treatment and disposal as hazardous waste.	N/A	N/A	N/A
Flammable Lab Waste	Hazardous	2	55-gallon drums	Characterize and recycle or treat and dispose as hazardous waste.	N/A	N/A	N/A
Waste Paper and Cardboard	Nonhazardous	300	cu ft	Recycle	N/A	N/A	N/A
Combined Industrial Waste (Used PPE, materials, small amounts of refractory, slurry debris, etc.)	Nonhazardous	300	cu yd	Dispose at a nonhazardous waste landfill.	N/A	N/A	12

5.13 Waste Management

**Table 5.13-3
Summary of Operating Waste Streams and Management Methods¹**

Waste Stream	Waste Classification	Anticipated Maximum Amount/year	Units	Disposal Method	Density (lb/CF)	Density (short tons/CY)	Volume (CY/year) ²
Gasification solids (Vitrified Ash) Dry Basis	Anticipated to be Nonhazardous or covered by regulatory exclusion	277,000	tons	Reuse, reclaim sellable metals, or characterize for landfill disposal.	82.5	1.114	246,016
Total Cubic Yards w/o Gasifier Solids							14,983

Source: HECA, 2012.

Notes:

¹ All numbers are estimates.

² Volumetric quantities shown for wastes expected to be disposed in nonhazardous or hazardous waste landfills. Volumetric quantities are not shown for wastes that are expected to be recycled or treated and disposed by means other than landfill.

CF = cubic feet
 CO = carbon monoxide
 COS = carbonyl sulfide
 cu ft = cubic feet
 CY = cubic yards
 HRSG = heat recovery steam generator
 lb = pound
 LORS = laws, ordinances, regulations, and standards
 N/A = not applicable
 PPE = personal protective equipment
 PSA = Pressure Swing Adsorption
 SCR = selective catalytic reduction
 TiO₂ = Titania
 TGTU = tail gas treating unit
 VOC = volatile organic compounds
 ZLD = zero liquid discharge

**Table 5.13-4
Summary of LORS—Waste Management**

LORS	Requirements	Conformance Section	Administering Agency	Agency Contact
Federal Jurisdiction				
RCRA Subtitle C and D, 42 USC § 6901–6992k and § 6.12.2.1	Regulate non-hazardous and hazardous wastes. Laws implemented by the state.	Section 5.13.5.1	USEPA Region IX and DTSC	Tetra Tech EMI (Contractor for USEPA) (415) 495-8895 and DTSC Duty Officer Clovis Field Office (519) 297-3901
40 CFR § 260 <i>et seq.</i>	Implementing regulations for RCRA Subtitle C law. Implemented by USEPA by delegating to the state.	Section 5.13.5.1	DTSC	DTSC Duty Officer Clovis Field Office (519) 297-3901
49 CFR 172,173, and 179	Controls labeling, placards, and packaging for hazardous waste shipments.	5.13.1	California Highway Patrol and Department of Transportation	California Highway Patrol (Bakersfield Office) 4040 Buck Owens Blvd., Bakersfield (661) 864-4444
Federal Clean Water Act, 33 USC § 1251 <i>et seq.</i>	Regulates wastewater discharges to waters of the U.S. The NPDES program is administered at the state level.	Section 5.13.5.1	Central Valley RWQCB	Doug Patteson (519) 445-5156
State Jurisdiction				
California Integrated Waste Management Act, Public Resources Code § 40000 <i>et seq.</i>	Implements RCRA regulations for non-hazardous waste.	Section 5.13.5.2	Kern County EHSD	Matthew Constantine, Director (661) 862-8700
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 5.13.5.2	Central Valley RWQCB	Doug Patteson (519) 445-5156
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 5.13.5.2	DTSC	DTSC Duty Officer Clovis Field Office (519) 297-3901
California Hazardous Waste Control Law, California Health and Safety Code § 25100 <i>et seq.</i>	Regulates hazardous waste handling and storage.	Section 5.13.5.2	Kern County EHSD	Matthew Constantine, Director (661) 862-8700

**Table 5.13-4
Summary of LORS – Waste Management (Continued)**

LORS	Requirements	Conformance Section	Administering Agency	Agency Contact
Local Jurisdiction				
Kern County EHSD	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 5.13.5.3	Kern County EHSD	Matthew Constantine, Director (661) 862-8700
Kern County EHSD	Regulates hazardous waste generator permitting, and hazardous waste handling and storage.	Section 5.13.5.3	Kern County EHSD	Matthew Constantine, Director (661) 862-8700
Kern County General Plan Public Facilities Element	Will ensure all new development complies with applicable provisions of County Integrated Solid Waste Management Plan.	Section 5.13.5.3	Kern County Planning and Building Department	(661) 862-8600

Source: Cal/EPA DTSC, 2008; Cal/EPA, Central Valley RWQCB, 2008; Kern County, Planning Department, 2008; Kern County, Building Department, 2008; and Kern County Environmental Health Services Department, 2008.

Notes:

- CCR = California Code of Regulations
- CFR = Code of Federal Regulations
- DTSC = Department of Toxic Substances Control
- EHSD = Environmental Health Services Department
- LORS = laws, ordinances, regulations, and standards
- NPDES = National Pollutant Discharge Elimination System
- RCRA = Resource Conservation and Recovery Act of 1976
- RWQCB = Regional Water Quality Control Board
- SWRCB = State Water Resources Control Board
- U.S. = United States
- USC = United States Code
- USEPA = U.S. Environmental Protection Agency
- UST = underground storage tank

**Table 5.13-5
Agency Contact List for LORS**

	Agency	Contact	Address	Telephone
1	USEPA	Tetra Tech EMI (Contractor for USEPA) Attention: Notifications	135 Main Street Suite 1800 San Francisco, CA 94105	(415) 495-8895
2	DTSC	Noel Laverty, DTSC Duty Officer Clovis Field Office Charles Corcoran Office of Policy	1515 Tollhouse Road Clovis, CA 93611 P.O. Box 806 Sacramento, CA 95812	(916) 255-3618 (559) 297-3901 (916) 327-4499
3	Kern County EHSD	Matthew Constantine, Director	2700 M Street, Suite 300 Bakersfield, CA 93301	(661) 862-8700
4	RWQCB Central Valley Region	Doug Patteson, (NPDES) Surface Water Discharges	1685 E Street Fresno, CA 93706	(559) 455-6190

Source: Cal/EPA DTSC, 2008; Cal/EPA, Central Valley RWQCB, 2008; and Kern County Environmental Health Services Department, 2008.

Notes:

- DTSC = Department of Toxic Substances Control
- EHSD = Environmental Health Services Department
- LORS = laws, ordinances, regulations, and standards
- NPDES = National Pollutant Discharge Elimination System
- RWQCB = Regional Water Quality Control Board
- USEPA = U.S. Environmental Protection Agency

**Table 5.13-6
Applicable Permits**

Responsible Agency	Permit/Approval	Schedule
USEPA	USEPA Hazardous Waste Generator Identification Number	Prior to start of plant construction
Regional Water Quality Control Board	Central Valley Region NPDES Construction	Notice of Intent filed 30 days prior to construction
Kern County EHSD	Hazardous Waste Generator Program Permit	30 days prior to the generation of hazardous waste
Kern County EHSD	Hazardous Materials Business Plan	30 days prior to the storage and use of hazardous materials

Source: Cal/EPA DTSC, 2008; and Kern County Environmental Health Services Department, 2008.

Notes:

- DTSC = Department of Toxic Substances Control
- EHSD = Environmental Health Services Department
- NPDES = National Pollutant Discharge Elimination System
- USEPA = U.S. Environmental Protection Agency