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Description:	5.5-1 5.5 Hazardous Materials Handling This section discusses the use and storage of hazardous materials associated with the Gem Energy Storage Center (Gem or GESC) and the potential effects on human health and the environment. Section 5.5.1 describes the existing environment that may be affected, and Section 5.5.2 identifies potential impacts to the environment and on human health during construction and operations. Section 5.5.3 discusses potential cumulative effects; Section 5.5.4 identifies proposed mitigation measures; Section 5.5.5 presents laws, ordinances, and standards (LORS) applicable to hazardous materials. Section 5.5.6 identifies agencies involved and provides agency contacts. Section 5.5.7 describes permits and Section 5.5.8 provides all references used to develop this section
Filer:	Kari Miller
Organization:	Golder Associates USA Inc.
Submitter Role:	Applicant Representative
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5.5 Hazardous Materials Handling

This section discusses the use and storage of hazardous materials associated with the Gem Energy Storage Center (Gem or GESC) and the potential effects on human health and the environment. Section 5.5.1 describes the existing environment that may be affected, and Section 5.5.2 identifies potential impacts to the environment and on human health during construction and operations. Section 5.5.3 discusses potential cumulative effects; Section 5.5.4 identifies proposed mitigation measures; Section 5.5.5 presents laws, ordinances, and standards (LORS) applicable to hazardous materials. Section 5.5.6 identifies agencies involved and provides agency contacts. Section 5.5.7 describes permits and Section 5.5.8 provides all references used to develop this section.

5.5.1 Affected Environment

5.5.1.1 Land Use

According to Kern County maps the proposed property location, the GESC facility is located one mile north of Willow Springs, CA (Kern County 2021a). As discussed in Chapter 5.6, Land Use, the immediate vicinity is dominated by what appear to be undeveloped or empty lots of land, followed by small residences and agricultural farms. The nearest residence is approximately 100 feet south, southwest of the subject property boundary. No schools or medical facilities are within a 3-mile radius of the GESC site. A small landing airport is located 1.36 miles northwest of the GESC site and a few businesses reside southwest of the GESC site and further from Willow Springs Butte. Further details on the land use are included in Section 5.6 Land Use.

5.5.1.2 Hazardous Materials Use

Hazardous materials will be used during GESC construction and operation; the facility will comply with all applicable laws and regulations. Proper use and storage of hazardous materials will minimize potential for accidental release. Additionally, GESC will conduct an emergency response planning session to address public health concerns regarding hazardous-materials storage and use. The following sections describe use, followed by general characteristics of hazardous materials.

5.5.1.2.1 Construction and Commissioning Phase

General construction will require the use of hazardous materials such as sealants, adhesives, spent welding materials, paint and paint thinner, solvents, detergents, glycols, and refrigerants. Passivating and chemical cleaners and lube oil will be used on various mechanical equipment during construction. Hydraulic fluid, motor oil, diesel fuel, and gasoline will also be used on Site for motorized equipment. There are no feasible alternatives to vehicle fuels and oils for operating construction equipment. To power small equipment, lead acid batteries, alkaline batteries, and electrical fuses will be used on site. The types of paint required are dictated by the equipment and structures that must be coated, and by the service conditions and environment. As discussed in discussed in 5.16 Worker Health and Safety, construction of the cavern will require blast hole drilling and charging them with explosives. Should regulated substances used during construction of GESC, they will be stored and handled in compliance with all applicable regulations.

5.5.1.2.2 Operations Phase

Most of the hazardous substances that will be stored and used at GESC are required for water treatment. Some hazardous materials, such as lubricating oil and insulating oil, will also be stored for equipment maintenance. An electro-motor driven pump, that is connected to an emergency back-up generator as well as a diesel-powered pump, will be used for the fire protection system on site. Therefore, a 600-gallon capacity above ground, dual-walled integral tank, will store diesel onsite to provide temporary operation in the event of an emergency. Regulated substances used during GESC operations will be minimized, stored, and handled per regulations.

Hazardous water treatment chemicals' use, and storage locations are described in **Table 5.5-1**. Trade names, chemical names, Chemical Abstract Service (CAS) numbers, maximum quantities onsite, RQs, California Accidental Release Program (CalARP) threshold planning quantities (TPQs), and status as Proposition 65 chemicals (chemicals known to the State of California be carcinogenic or cause reproductive problems in humans) are summarized in **Table 5.5-2**. **Table 5.5-3** summarizes the health hazards, flammability data and incompatible chemicals; **Table 5.5-4** summarizes the toxic effects and exposure levels of sulfuric acid, which is a regulated substance.

Table5.5-1: Use and Location of Hazardous Materials

Chemical	Use	Quantity	Storage Location	State	Type of Storage
ChemTreat BL 1280	Boiler Water Treatment	15 gallons	On Site	Liquid	Continuously onsite
ChemTreat BL 1559	Steam Line Treatment	10 gallons	On Site, tight, closed container, cool and locked	Liquid	Continuously onsite
ChemTreat CL 2900	Cooling Water Treatment	1,500 gallons	On Site	Liquid	Continuously onsite
ChemTreat CL 2150	Slimicide	3,000 gallons	On Site, store locked	Liquid	Continuously onsite
Sodium Hydroxide (50%)	Alkali Wash	275 gallons	On Site	Liquid	Continuously onsite
Sodium Hydroxide (12%)	Alkali Wash, pH adjustment	1,375 gallons	On Site	Liquid	Continuously onsite
Sulfuric Acid	Wash/pH adjustment	825 gallons	On Site, tight, closed container, cool and locked	Liquid	Continuously onsite
FLOCON 260	RO Antiscalant	825 gallons	On Site, corrosive storage	Liquid	Continuously onsite
Sodium Hypochlorite	Oxidant Wash, Chlorination, Pre-chlorination	1,375 gallons	On Site,	Liquid	Continuously onsite
Sodium Metabisulfite	Dichlorination	825 gallons	On Site,	Liquid	Continuously onsite
Hydrochloric Acid	Hydrogen Chloride	275 gallons	On Site,	Liquid	Continuously onsite

Table 5.5-2: Chemical Inventory, Description of Hazardous Materials Store Onsite, and Reportable Limits

Storage on GESC				Regulatory constraints					
Trade Name	Chemical Name	CAS Number	Maximum Quantity Onsite (gallons, lbs, cu ft)	CERCLA SARA RQ[a]	RQ of Material as Used On site[b]	EHS TPQ[c]	Federal Regulated Substance TQ[d]	State Regulated Substance TQ[d]	Prop 65[g]
ChemTreat BL 1280	Diemethyl-hydroxidylamine and hydroquinone	3710-84-7, 123-31-9	15 gallons	100 lbs	157 gallons	500 or 10,000	e	500 or 10,000[h] lbs	No
ChemTreat BL 1559	Cyclohexylamine. Methoxypropylamine,	108-91-8, 5332-73-0	10 gallons	e	e	10,000 lbs	15,000 lbs	10,000 lbs	No
ChemTreat CL 2900	Sodium Molybdate	7631-95-0	1,500 gallons	e	e	e	e	e	No
ChemTreat CL 2150	5-chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one	26172-55-4, 2682-20-4	3,000 gallons	e	e	e	e	e	No
Sodium Hydroxide (12%)	Sodium Hydroxide	1310-73-2	1,375 gallons	1,000 lbs	8,333 lbs	e	e	e	No
Sodium Hydroxide (50%)	Sodium Hydroxide	1310-73-2	275 gallons	1,000 lbs	2,000 lbs	e	e	e	No
Sulfuric Acid	Sulfuric Acid	7664-93-9	825 gallons	1,000 lbs	1,000 lbs	1,000	e	1,000 lbs	No
FLOCON 260	Mixture of Organic Acids	e	825 gallons	e	e	e	e	e	No
Sodium Hypochlorite	Hypochlorous Acid	7681-52-9	1,375 gallons	100 lbs	e	e	e	e	No
Sodium Metabisulfite	Disodium Disulphite	7681-57-4	825 gallons	e	e	e	e	e	No
Hydrochloric Acid	Hydrogen Chloride	7647-01-0	275 gallons	5000 lbs	e	e	e	e	No

a) RQs for a pure chemical, per the CERCLA SARA (Ref. 40 CFR 302, Table 302.4). Release equal to or greater than RQ must be reported. Under

California law, any amount that has a realistic potential to adversely affect the environment or human health or safety must be reported.

b) Applicated calculated RQ for materials as used onsite. Because some of the hazardous materials are mixtures that contain only a percentage of an RQ, the RQ of the mixture can be different than for a pure chemical. For example, if a material only contains 10 percent of a reportable chemical and the RQ is 100 lbs., the RQ for that material would be (100 lbs.)/(10 percent) = 1,000 lb.

c) EHS TPQ (Ref. 40 CFR Part 355, Appendix A). If quantities of extremely hazardous materials equal to or greater than the TPQ are handled or stored, they must be registered with the local Administering Agency.

d) Source of TQ is from 19 CCR 2770.5 (state) or 40 CFR 68.130 (federal).

e) No reporting requirement. Chemical has no listed threshold under this requirement.

f) Sulfuric acid fails the evaluation pursuant to Section 25532(g)(2) of the HSC but remains listed as a Regulated Substance only under the following conditions:

f1) If concentrated with greater than 100 pounds of sulfur trioxide or the acid meets the definition of oleum. (State threshold for sulfur trioxide is 100 pounds.) (Federal threshold for oleum is 10,000 pounds.)

f2) If in a container with flammable hydrocarbons (flash point < 73°F).

g) Source from California Office of Environmental Health Hazard Assessment (OEHHA), The Proposition 65 List

h) These extremely hazardous substances are solids. The lesser quantity listed applies only if in powdered form and with a particle size of less than 100 microns; or if handled in solution or in molten form; or the substance has an NFPA rating for reactivity of 2, 3, or 4. Otherwise, a 10,000-pound threshold applies. The exemption in Section 2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.

CCR = California Code of Regulations; CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; CFR = Code of Federal Regulations; EHS = Extremely Hazardous Substance; SARA = Superfund Amendments and Reauthorization Act; TQ = threshold quantity; RQ = reportable quantity; TPQ = threshold planning quantity

Source: (Hydrostor and TWD 2021)

Table 5.5-3: Toxicity, Reactivity, and Flammability of Hazardous Substances Stored Onsite

Hazardous Materials	Physical Description	Health Hazard	Reactive and Incompatibles	Flammability*
ChemTreat BL 1280	Liquid, Straw, Clear	Acute Health Hazard: eye and skin irritation. Acute toxicity if inhaled or ingested	None	Not Flammable
ChemTreat BL 1559	Liquid, Clear, Colorless	Corrosive, acute toxicity, health hazard	Acids, strong oxidizing agents, aluminum	Flammable
ChemTreat CL 2900	Liquid, Clear, Colorless	Remove to fresh air and keep at rest in a position comfortable for breathing. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing	None	Not Flammable
ChemTreat CL 2150	Liquid, Green, Clear	Remove to fresh air and keep at rest in a position comfortable for breathing. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	Strong oxidizers, strong bases	Not Flammable
Sodium Hydroxide (12%)	Liquid, Clear, Colorless	Corrosive, cause severe skin burns and eye damage. May cause respiratory irritation	Acids, organic materials, metals, aluminum, copper, zinc	Not Flammable
Sodium Hydroxide (50%)	Liquid, Clear, Colorless	Corrosive, cause severe skin burns and eye damage. May cause respiratory irritation	Acids, organic materials, metals, aluminum, copper, zinc	Not Flammable

Hazardous Materials	Physical Description	Health Hazard	Reactive and Incompatibles	Flammability*
Sulfuric Acid	Liquid, Clear, Colorless to brown	Corrosive, causes burns by all exposure routes	Reacts violently with water. Incompatible with organic materials, strong acids, strong bases, metals, alcohols, cyanides, sulfides	Not Flammable
FLOCON 260	Liquid, pale yellow	Irritating to eyes, may irritate respiratory irritation. May cause discomfort if swallowed	Strong alkalis	Not Flammable
Sodium Hypochlorite	Liquid, clear/pale greenish-yellow	Causes severe burns to the mouth and throat (mist). May release toxic and irritating chlorine gas. Causes burns to the mouth and throat. Causes severe skin burns. Causes serious eye damage.	May be corrosive to metals. Reacts violently with acids. Oxidizing agents, such as oxygen, hydrogen peroxide, sulfuric and nitric acids, and permanganates. Reducing agents, such as hydrogen, sodium borohydride, sulfur dioxide, thiosulphates, hydrazine, phosphites, carbon, and oxalic, formic, and ascorbic acid. Organic material, such as wood, paper, gasoline, diesel, solvents, and some glycol-based heat transfer fluids. Metals, such as aluminum, steel, and brass.	Not Flammable
Sodium Metabisulfite	Liquid, clear/pale yellow	This product may provoke a response in those who are sensitive to sulfites. Causes serious eye damage. May cause discomfort or nausea. This	Reacts with acids to form toxic and corrosive sulfur dioxide. Reacts with acids to form toxic and corrosive sulfur dioxide. Acids, such as sulfuric, nitric, hydrochloric,	Not Flammable

Hazardous Materials	Physical Description	Health Hazard	Reactive and Incompatibles	Flammability*
		product may provoke a response in those who are sensitive to sulfites. May cause respiratory irritation. Contact with acids, heat, or sunlight releases sulfur dioxide, which causes serious respiratory irritation and is toxic if inhaled.	phosphoric, flurosilicic (HFSA), sulphonic, acetic, citric, oxalic, and formic.	
Hydrochloric Acid	Liquid, Straw, Clear	Causes severe burns to the mouth and throat (mist). May cause respiratory irritation. Causes burns to the mouth and throat. Harmful if swallowed. Causes severe skin burns. Causes serious eye damage	May be corrosive to metals. Reacts with many metals to liberate hydrogen gas that can form explosive mixtures. Reacts with water to generate heat. Reacts violently with bases. Bases, such as potassium hydroxide, sodium hydroxide, calcium hydroxide (slaked lime), ammonia, carbonates. Metals, such as aluminum, steel, and brass.	Not Flammable

* Per Caltrans regulations, under 49 CFR 173 “Flammable” liquids have a flash point less than or equal to 141 degrees Fahrenheit; “Combustible” liquids have a flash point greater than 141 degrees Fahrenheit.

Source: (Hydrostor and TWD 2021)

Table 5.5-4: Toxic Effects and Exposure Levels of Regulated Substances

Name	Toxic Effects[a]	Exposure Levels	Source
Sulfuric Acid (CAS No. 7664-93-9)	Contact can cause severe burns by all exposure routes. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, sever damage to the delicate tissue and danger or perforation. The specific target organ toxicity (STOT) single exposure is through the respiratory system. STOT for repeated exposure is not known. No information was available for sensitization, mutagenic effects, reproductive effects, developmental effects, or teratogenicity. Product is a corrosive material. No information of endocrine disruptor or other adverse effects is available. The International Agency for Research on Cancer and National Toxicity Program, American Conference of Governmental Industrial Hygienists suspect sulfuric acid is a human carcinogen.	OSHA PEL: 1 mg/m^3	OSHA[b]
		CAL/OSHA PEL: 0.1 mg/m^3	OSHA[b]
		TWA: 1 mg/m^3	OSHA[b]
		CAL/OSHA STEL: 3 mg/m^3	OSHA[b]
		TLV:	
		1 mg/m^3	CDC[c]
		0.2 mg/m^3	OSHA[b]
		IDLH: 15 mg/m^3	CDC[c]
		LD50: 2,140 mg/kg or 14,980 mg/m^3– oral dose of rat	CDC[c]
		ERPG-1: 2 mg/m^3	OSHA[b]
		ERPG-2: 10 mg/m^3	OSHA[b]
		ERPG-3: 129 mg/m^3	OSHA[b]

ERPG = Emergency Response Planning Guideline; ERPG-1 = maximum airborne concentration below which nearly all individuals could be exposed for up to 1 hour without experiencing other than mild transient adverse health effects; ERPG-2 = maximum airborne concentration below which nearly all individuals could be exposed for up to 1 hour without developing irreversible or serious health effects; ERPG-3 = maximum airborne concentration below which nearly all individuals could be exposed for up to 1 hour without experiencing life-threatening health effects; IDLH = Immediately dangerous to life and health; LD50 = Dose lethal to 50 percent of those tested; mg/kg = milligram(s) per kilogram; mg/m3 = milligram(s) per cubic meter; mL = milliliter(s); PEL = OSHA-permissible exposure limit for 8-hour workday; ppm = part(s) per million; STEL = short-term exposure limit, 15-minute exposure; TLV = American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value for 8-hour workday; TWA = NIOSH time-weighted average for 8-hour workday

Sources:

a) ThermoFisher Scientific. 2018. Safety Data Sheet – Sulfuric Acid.

b) Occupational Health and Safety Administration (OSHA). 2021. OSHA Occupational Chemical Database – Sulfuric Acid. Available at: https://www.osha.gov/chemicaldata/624. Accessed September 17, 2021.

c) Centers for Disease Control and Prevention (CDC). 2014. National Institute for Occupational Safety and Health (NIOSH) – Table of IDLH Values – Sulfuric Acid. Available at: https://www.cdc.gov/niosh/idlh/7664939.html. Accessed September 17, 2021.

5.5.2 Environmental Analysis

GESC construction and operation will involve the use of various hazardous materials and one regulated substance. The use of hazardous materials and their potential to cause adverse environmental and human health effects are discussed in the sections below.

5.5.2.1 Significance Criteria

The hazardous materials used at the proposed GESC project would significantly affect the environment if it met the criteria outlined in the California Environmental Quality Act Guidelines Section 15002, Appendix G:

- Creating significant hazard to the public or environment through routine transport or use of hazardous materials.
- Creating significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emissions of handle materials, substances, or waste within 0.25 mile of an existing or proposed school.
- If the site is included on a list of hazardous materials sites compiled pursuant to Cortese List outlined in Government Code Section 65962.5 and results in a significant hazard to the public or environment.
- Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency plan.

Discussion of each criteria in association with the proposed GESC project are in the sections below.

5.5.2.2 Transportation of Hazardous Materials

Transportation of hazardous materials will be required once GESC is operating. All transportation of hazardous materials will comply with:

- U.S. Environmental Protection Agency (EPA)
- California Department of Transportation (Caltrans)
- California Department of Toxic Substance Control (DTSC)
- California Highway Patrol (CHP)
- California State Fire Marshal Regulations

To manage and prevent potential impacts caused by transporting hazardous materials, GESC and contractors will adhere to EPA Caltrans, DTSC, CHP, and California State Fire Marshal regulations. Transportation of explosives and detonators will be in accordance with California Code of Regulations (CCR) Title 8, §5262 through §5270 (Division 1, Chapter 4, Subchapter 7, group 18, article 115). Additionally, sulfuric acid will only be mobilized along approved transportation routes, thereby avoiding schools to the extent practicable. Compliance with applicable regulations will ensure that impacts from the transportation of hazardous materials will be less than significant. Refer to Section 5.12, Traffic and Transportation, for details on the proposed transportation routes.

5.5.2.3 Hazardous Materials Use

5.5.2.3.1 Construction Phase

As discussed in 5.5.1.2.1, construction will involve storage and use of hazardous materials; there are minor risks associated with the use of those materials.

Oil for mechanized equipment is expected to be used during construction. Small oil spills during refueling activities or lubrication of equipment may occur. There are no adjacent or nearby surface water bodies within 100 feet of water of the GESC site. However, as discussed in Section 5.2 Biological Resources, ephemeral drainages are located throughout the subject property. A vehicle accident involving a service or refueling truck is the largest chemical release incident that could occur on site and is considered to be the worst-case scenario for a hypothetical spill. To prevent environmental impacts during fueling, refueling activities the project will be graded to prevent stormwater runoff from contaminants. There are no adjacent or nearby surface water bodies within 100 feet of water of the GESC site. If practical, oil refueling activities will occur within a limited area of the site to prevent large or multiple areas of contamination, if an accidental release should occur.

Best management practices (BMPs), and mitigation procedures for spill response described in Section 5.5.4.1 will be adopted to reduce risk of potential release of hazardous materials and explosives handled during construction. All BMPs will be implemented by contractors who are also responsible for training affected personnel; therefore, the potential for environmental effects will be less than significant.

Environmental analysis on the use of explosives and detonators for cavern construction can be found in Section 5.5.2.4.1.

5.5.2.3.2 Project Operation

As discussed in 5.5.1.2.2, operation will involve use and storage of hazardous materials. Most of the hazardous materials stored on site will consist of water treatment chemicals and a 600-gallon diesel storage for back-up generators. Uncontrolled release of liquid chemicals could run off and drain into the stormwater system and potentially have harmful effects. However, the use and storage hazardous materials will pose minor risks for release if best management practices are adopted, as discussed in 5.5.4.2.

The use and storage of hazardous materials will be contained in designated areas onsite that will be outlined in the Hazardous Materials Business Plan (HMBP) mandated by the Kern County Public Health Services Department (KCPHSD) Hazardous Materials Program (2021a). The risk of public exposure, with appropriate BMPs, is low and would not be significant.

Regulated Substances. The GESC facility will store three substances listed in the federal and/or state regulated substance list: ChemTreat BL1280, ChemTreat BL1559, and sulfuric acid (**Table 5.5-2**). The quantities stored on site for ChemTreat BL 1280 (15 gallons) and ChemTreat BL 1559 (10 gallons) are significantly smaller than the federal and state regulated threshold quantity listed and are therefore exempt of being classified as a regulated substance. However, the quantities of sulfuric acid stored on site (825 gallons) may surpass the state regulated substance threshold quantity therefore classifying it as a regulated substance. Sulfuric acid will be used in the water treatment cycle and will be delivered to the site as needed for continuous operation.

Because of its hazardous properties, sulfuric acid is classified as a regulated substance, and an accidental release of the sulfuric acid could present a human health hazard. Sulfuric acid is a solution consisting of hydrogen sulfide and water and is characterized as being colorless or brown. High concentrations of sulfuric acid react violently with small amounts of water and is incompatible with organic materials, strong acids, strong bases,

metals, alcohols, cyanides, and sulfides as specified in **Table 5.5-3**. Potential toxic effects of sulfuric acid and acceptable exposure levels are summarized in **Table 5.5-4**.

Storage and use of sulfuric acid will be subject to the requirements of the California Fire Code, Article 80, as well as CalARP. Article 80 of the California Fire Code contains specific requirements for control of liquid and gaseous releases of hazardous materials. The appropriate storage container, for example, high density polyethylene (HDPE), will be used and will include a secondary containment. The sulfuric acid storage containers will be equipped with engineering controls (i.e., monitors, automated leak detection system and alarm, pressure indication and and/or emergency block valve) to prevent leaks or spills.

In addition, the facility will be required to prepare a risk management plan (RMP) in accordance with CalARP, further specifying the safe handling procedures for the sulfuric acid as well as emergency response procedures in the event of an accidental release. The contents of the RMP, which is discussed in Section 5.5.4.2.2, will be prepared for the GESC site using updated modeling guidance prior to operation GESC.

With implementation of these measures, impacts related to the storage and handling of sulfuric acid will be less than significant.

5.5.2.4 Accidental Release Hazards

Without proper engineering controls, the public could be at risk of exposure to harmful vapors in the event of an accidental release, as incompatible chemicals have the potential to mix, causing vapors that could also have harmful effects. However, GESC will implement California Fire Code (Articles 79 and 80) requirements for safe storage and handling of hazardous materials. The proposed GESC project and the affiliated staff will use engineering controls to reduce the potential for release of hazardous materials and mixing of incompatible materials.

In the unlikely event that a release occurs, no schools or other sensitive receptors, as defined in Section 5.09 Public Health, are within a 0.5-mile radius of GESC; therefore, the effects of potential emissions from an accidental release are less than significant. All transportation of hazardous substances will be with Department of Transportation (DOT)-approved personnel and trucking/transport equipment. The project operations will not involve the handling of any other acutely hazardous materials that would have the potential to generate significant offsite consequences. Consequently, no protocol for modeling of hazardous materials releases is included in the AFC and no modeling is proposed.

5.5.2.4.1 Fire and Explosion Hazards

5.5.2.4.1.1 Construction

The Applicant estimates that cavern construction will require just over 63 months to complete and will involve the use explosives. Layout holes for cavern construction will occur only after the 2000 ft shafts have been bored. As required by the California Code of Regulations Title 8 (344.20), lead construction personnel will have a valid California Blaster's License and will be physically present when performing, directing, and supervising blasting operations. The BMPs described in Section 5.5.4.1 and Section 5.15, Worker Health and Safety will be implemented by the contractor personnel. All use of explosives will occur underground, and comply with all applicable state and federal regulations, and will not impact surface resources.

5.5.2.4.1.2 Operations

Flammability of hazardous materials onsite during operation are described in **Table 5.5-3**. All hazardous material storage areas will be equipped with a fire extinguishing system and ventilation for enclosed substances per the

requirement of Article 80 of the California Fire Code. Aside from any listed below, hazardous materials stored on site are not flammable and do not pose a significant explosion hazard.

Diesel. Diesel will be handled and stored in approved, dual-walled steel, integrated fuel tanks that are part of the emergency generation systems under the jurisdiction of the County of Kern County Public Health Services Department, Aboveground Petroleum Storage Act (ASPA) Program (KCPHSD 2021b). By adhering to the HMBP, the potential for fire and explosion hazards would be less than significant.

Lubrication Oil. Machinery at the GESC site would require flammable lubrication oil. Storage of lubrication oil will be in accordance with Article 80 of the California Fire Code. A fire extinguishing system will be nearby the storage and lube oil pumping areas. Lubrication oil would be handled by Kern County standards. With proper storage and handling, the risk of fire and explosion at GESC would be less than significant.

Natural Gas. The facility will not use natural gas or propane for station service utilities.

Chemical Treatment. ChemTreat 1599 is the only chemical listed in **Table 5.5-3** as flammable. ChemTreat 1599 is a clear colorless liquid that is characterized as being a strong oxidizing agent. Use and storage of ChemTreat 1599 would be in accordance with the Kern County Public Health Services Department requirements.

For emergency spills or fire related incidents, the closest fire station is Kern County Fire Station No. 15 located at 3219 35th St W in Rosamond, CA. The Fire Station is 8.1 miles southwest of site and would provide first response to fire at the GESC site. If a fire involves hazardous materials, the Kern County Public Health Services Department, Hazardous Materials Emergency hotline can be used to direct fire stations registered within the hazardous materials response team (HMRT), identified in the Kern County Hazardous Materials Area Plan, to the incident.

5.5.2.5 Schools and Sensitive Receptors

No sensitive receptors, including schools, hospitals, day-care facilities, emergency response facilities and long-term health care facilities are within a 0.5-mile radius. Two residences are within close proximity of the proposed project site, with undeveloped parcels dominating the remaining surrounding area. Butte Mountain is located adjacently southeast of the subject property that can also act as a physical barrier. A site receptors survey mapping sensitive receptors within 0.5 miles is included as **Figure 5.5-1**. A figure mapping sensitive receptors beyond 0.5 miles is included in Section 5.09 Public Health.

The nearest school to GESC is Tropico Middle School located at 3180 Mojave-Tropico Road, Rosamond, California approximately 3.5 miles southeast of the proposed GESC site. The proposed transportation route for delivery of hazardous materials and regulated materials, such as sulfuric acid, will arrive at GESC via approved routes avoiding the school, if possible. Transportation permits will be obtained for all heavy and oversize loads, as required by jurisdictional agencies. Proposed transportation routes for hazardous material deliveries are discussed in Section 5.12 Traffic and Transportation.

Due to the selected routes for hazardous material delivery and the distance relative to sensitive receptors during operation, effects on sensitive receptors will be less than significant.

Figure 5.5-1: Sensitive Receptor Survey

5.5.2.6 Cortese List

An examination of the California Environmental Protection Agency Cortese List Data Resources (Cortese List) compiled pursuant to Government Code Section 65962.5 was conducted in Section 5.14 Waste Management. There are no Cortese List sites within a 2.5-mile radius of the proposed project. (CalEPA 2021a). Thus, it is highly unlikely that any impacts will result from Cortese-listed properties, nor will the GESC site present a significant hazard to the public or the environment.

5.5.2.7 Effects on Emergency Response Plan

Kern County is currently reviewing the 2019-2020 update to the Hazard Mitigation Plan. Approximately 62 other participating jurisdictions are participating in the Kern Multi-Jurisdiction Hazard Mitigation Plan to reduce losses resulting from natural disasters (Kern County, 2021b). The plan will include identifying actions for risk reduction, identifying resources as risk, building partnerships with citizens, organizations, businesses, and stakeholders, increase education and awareness of threats, hazards, communicating priorities to state and local officials, and aligning risk reduction with other community objectives. Once released, GESC will adhere to all safety practices addressed in the Hazard Mitigation Plan, therefore there are no anticipated effects on the Kern County Hazard Mitigation Plan.

5.5.2.8 Summary of Significant Criteria

The proposed GESC project will use and store hazardous materials during construction and operation. Adhering to BMPs, HMBP, and Kern County local ordinances and codes would significantly reduce risk of public health and environmental effects of handling and storing hazardous materials. In the unlikely event that a release would occur, a 0.5-mile radius would be at risk of exposure to hazardous materials. No sensitive receptors, including schools, hospitals, day-care facilities, emergency response facilities and long-term health care facilities are within a 0.5-mile radius. Due to the distance relative to sensitive receptors during operation (Section 5.5.2.5), proposed mitigation measures for use and storage of hazardous materials (Sections 5.5.2.3 and 5.5.4) use of engineering controls for storage of sulfuric acid as a regulated substance (Section 5.5.2.3 and 5.5.4) and approved hazardous material delivery routes (Section 5.14 Traffic and Transportation), effects on the environment will be less than significant.

5.5.3 Cumulative Effects

As defined by Public Resources Code Section 21083; Title 14 CCR, Sections 15064 [h], 15605 [c], 15130 and 15355, a cumulative effect refers to a proposed project's incremental effect paired with closely related past, present, and reasonably foreseeable future projects whose impacts compound or increase the incremental effect of the proposed project.

Historically, there is no evidence of industrial hazardous material use within the general vicinity of the proposed GESC site. Regions surrounding GESC are dominated by what appear to be agricultural farms, small residences, and undeveloped natural landscapes. It is likely residential quantities of gasoline products, pesticides and fertilizers are used in the general vicinity. Historical spills of gasoline or diesel products were researched using the California Water Board GeoTracker tool. There are no records of historic petroleum hydrocarbon releases or environmental (soil and/or groundwater) remediation cases on nearby parcels within a one-mile radius of the proposed GESC facility. Future projects proposed are subject to, and likely to follow, federal, state, and local laws and ordinances for safe use and storage of hazardous materials; thus, cumulative effects are unlikely.

5.5.4 Mitigation Measures

The following sections present mitigation measures for handling and storing hazardous materials during construction and operation to mitigate potential public health and environmental effects.

5.5.4.1 Construction Phase

5.5.4.1.1 Hazardous Material Use

Hazard material use, identified in Section 5.5.1.2.1, would present relatively low public health risk, but could contaminate subsurface soils, ground water if a release or incident occurred. The use of BMPs would reduce the likelihood of potential incidents involving hazardous materials. A discussion on BMPs to reduce construction-related contaminants and hazardous materials released into stormwater can be found in Chapter 5.15, Water Resources. Additionally, for BMPs to mitigate risks from transportation of hazardous materials and hazardous waste, refer to Chapters 5.12 Traffic and Transportation and 5.15 Waste Management, respectively. A review of fire and explosion hazards and mitigation measures are discussed in Section 5.5.2.4.1.1

General industry health, safety and environmental BMPs will be implemented by construction personnel. The following BMPs are designed to reduce incidents involving hazardous materials:

- Equipment and vehicles requiring refueling and maintenance will generally occur in designated areas that are designed to control potential spills. Designated areas will be bermed or covered by an impervious surface (asphalt or concrete) to control potential spills. Employees will be present during refueling activities. When mobile refueling is required, the refueling vehicle will be equipped with fire extinguishers and spill containment equipment, such as absorbents. The facility and surface drainage systems are designed to manage stormwater runoff within the property bounds.
- Only authorized personnel will conduct vehicle and equipment service maintenance
- Only approved pumps, hoses and nozzles will be used to refuel equipment and vehicles
- During servicing, catch-pans will be placed under equipment to catch potential spills or leaks
- After servicing, disconnected hoses will be placed in containers to collect any residual fuel from the hoses
- During refueling, vehicle engines will be shut off
- Smoking, open flames or welding will not be permitted in refueling and service areas, or hazardous waste storage areas
- Refueling will be performed away from surface water or storm water drains
- Following refueling activities, service trucks will immediately leave GESC construction zone
- All service trucks used to refuel equipment and vehicles on site will be provided with fire extinguishers and spill containment equipment, such as absorbents
- All maintenance and refueling areas will be inspected monthly. Results of inspections will be recorded in a logbook that will be maintained onsite.

In the unlikely event that a spill or leak were to occur and contaminate soil, Kern County Public Health Services Department, CUPA Program would be notified. All remedial activities, soil storage and disposal will comply with federal, state, and local ordinances; generated waste will be disposed within 90 days of generation. With

competent and trained personnel, small spills can be contained and cleaned up immediately. Large spills will require reporting to local emergency contacts. A designated onsite health and safety person will be responsible for implementing health and safety guidelines. For petroleum products, if the spill is over 42 gallons, all federal, state, and local reporting requirements will be followed. Onsite personnel will call local fire and emergency services in the event of a fire or injury.

5.5.4.1.2 Explosive Use

The BMPs identified in this Section as well as in Section 5.15, Worker Health and Safety will be implemented by the contractor personnel. As required by the California Code of Regulations Title 8 (344.20), lead construction personnel will have valid California Blaster's License and will be physically present when performing, directing, and supervising blasting operations. A third-party contractor will be responsible for acquiring necessary permits and establishing safety plans or best management practices used during construction.

GESC construction personnel will store explosives in the proper magazine type as outlined in Cal/OSHA Title 8; California Division of Industrial Safety, subchapter 7, General Industry Safety Orders, Group 18; Explosives and Pyrotechnic, Article 114, Storage of Explosives. Specifically, caps and detonators will be stored in separate magazines away from other explosives to prevent accidents. All use of explosives will occur underground, comply with all applicable state regulations (cited above) and federal regulations (27 CFR Part 555 and Mine Safety and Health Administration CFR Title 30 Chapter I), and will not impact surface resources.

Best management practices will be implemented during the cavern construction phase to reduce risk of accidental fire and explosion and include the following:

- No smoking or open flames permitted within 50 feet of explosive handling
- No source of ignition, except during firing, is permitted in the areas containing loaded holes
- Only non-sparking tools are used for opening containers and explosives
- Explosives will be kept clear of electrical circuits by 25 ft
- Unused explosives will be returned promptly to the magazine
- A tally sheet at each magazine stored on site will record all movement of explosives
- All loaded holes and explosives at the blast site will be attended

5.5.4.2 Operation Phase

The following sections discuss mitigation measures for substance handling during GESC operations. Hazard material use is identified in Section 5.5.1.2.2.

5.5.4.2.1 Hazardous Materials

Hazardous materials storage will all occur on Site and will be in accordance with applicable codes and regulations specified in Section 5.5.6. The California Fire Code outlines the provisions to reduce the risk of fire or potential release of hazardous materials that could affect public health or the environment and include the following:

- For any indoor hazardous material storage areas, an automatic fire-suppression (such as sprinklers and/or foam application system) and exhaust system will be incorporated.
- Incompatible materials will be isolated from one another by noncombustible partitions

- Spill control measures and spill cleaning kits will be staged, readily accessible (with appropriate signage), in chemical storage, handling, and dispensing areas.

- Chemicals that require secondary containment storage systems will be present. In the event of a catastrophic spill, the secondary containment will have the sufficient capacity to adhere to the California Fire and California Health and Safety Code.

Additionally, to comply with federal and state regulations a Hazardous Materials Business Plan (HMBP) will be prepared and submitted to KCPHSD. The HMBP will include a hazardous materials inventory, including those that are handled or stored in excess of threshold quantities. The HMBP will also include the following:

- Business activities
- Business owner/operator information
- Facility site map
- Emergency Response Plan (ERP) to implement in the event of a spill
- Employee training documents
- Safety Data Sheets
- Best management practices and appropriate safety procedures

The HMBP will be filed with the KCPHSD—Hazardous Materials Program, the designated CUPA for the Site and will be updated as required (KCPHSD 2021a). Storage and use of hazardous materials will also comply with regulations outlined in Kern County Fire Code.

The first responders to a facility fire would be from Kern County Fire Station No. 15, located at 3219 35th St. W in Rosamond, CA, 8.1 miles southwest of the proposed GESC site. In the event of a chemical emergency, personnel within the KCPHSD Hazardous Materials Response Team (HMRT), notified through the HMRT hotline, are the first responders.

5.5.4.2.1.1 Sulfuric Acid

Sulfuric acid is a regulated substance under Title 19 California Code of Regulations, Chapter 4.5 California Accidental Release Prevention (CalARP) Program.

In accordance with CalARP regulations, a risk management plan (RMP) will be prepared for the sulfuric acid containment system. The RMP will be filed with the Kern County Public Health Services Department, the designated CUPA for the GESC site. To protect human health and environment, the RMP will include a hazard assessment to evaluate the potential effects and include programs for preventing and responding to an accidental release. According to the US EPA, the RMP will at minimum include (EPA 2021):

- *Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases;*
- *Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and*

- *Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.*

A Process Safety Management (PSM) plan will not be required under the Occupational Safety and Health Act because the regulations apply only to Oleum with the CAS number 8014-95-7, which does not apply to chemicals associated with GESC operation (19 CFR Part 1910, subpart 119).

5.5.4.2.2 Petroleum Products

Federal and California regulations requires a Spill Prevention Control and Countermeasure (SPCC) Plan if stored quantities are equal to or greater than 660 gallons for a single container, or equal to or greater than 1,320 gallons total. The GESC will store sufficient diesel to supply local backup power for fire pumps required to meet fire department and insurance requirements. Should this exceed 1,320 gallons total on site, measures consistent with the Kern County Public Health Services Department, ASPA Program guidance will be followed in preparation of the SPCC, which will be included in the HMBP (KCPHSD 2021b). Additionally, prior to operations, GESC will obtain a permit to install the dual-walled integrated tanks used to store diesel on site and will not be accessible to the public as discussed in Section 5.5.4.2.4. Storage of diesel will also comply with Kern County Fire Code.

5.5.4.2.3 Transportation/Delivery of Hazardous Materials and Regulated Substances

Periodically, hazardous materials mostly involving water treatment chemicals will be delivered to the facility. As discussed in Section 5.12 Traffic and Transportation, transportation of hazardous materials will comply with Caltrans, EPA, California Department of Toxic Substances Control, CHP, and California State Fire Marshal regulations. The GESC facility will also follow the Kern County General Plan, 2.4.5 Transportation of Hazardous Materials policies and implementation measures in order to comply with Kern County's goals of reducing risks to public health from transportation of hazardous materials (KCPD 2009a). GESC will adhere to approved CalTrans routes for hazardous material transportation.

5.5.4.2.4 Security Plan

GESC will be preparing a secure plan, as required by 49 CFR 172.800, Subpart I, in addition to the standard business security measures. Site fencing with a security gate will surround the perimeter. GESC will establish a protocol and evacuation procedures to be followed by employees for contacting law enforcement in the event of an incident. A fire alarm monitoring system will be installed. Consistent with federal and state laws regarding security and privacy, personnel background checks will be conducted for GESC employees and routine onsite contractors. GESC will establish a site access protocol for vendors, including those of which who are transporting hazardous materials. The plan will also ensure that all perimeter security measures are adequate and will include security alarms for critical structures, perimeter breach detectors, onsite monitoring detectors, and video or still camera monitoring systems. No hazardous materials will be accessible to the public at any time during construction or operation.

5.5.4.3 Monitoring

GESC personnel would regularly inspect all hazardous material storage areas for compliance with applicable federal, state, and local regulations and would ensure that deficiencies would be promptly resolved. GESC could also be subjected to inspections conducted by the Kern County Hazardous Materials Program or the Kern County Fire Prevention Office.

5.5.4.4 Facility Closure

Facility closure includes temporary or permanent closure that could be caused by various reasons. Temporary closure is considered periods of closure longer than the time required for normal maintenance, including overhaul or replacement of small system equipment. Causes for temporary closure can include, disruption of off-peak power lines, flooding of site, damage to the site from natural disasters, such as earthquakes, floods, or storms, labor disruptions, and other traditional force majeure events. Permanent closure will consist of complete cessation of operations with no intentions of restarting operations. Permanent closure could be caused by damage of the plant beyond repair, economic conditions, or other unforeseen reasons.

5.5.5 Laws, Ordinances, Regulations, and Standards

Storage and use of hazardous materials at GESC are governed by laws, ordinances, regulations, and standards (LORS) established and enforced at the federal, state, and local levels. Applicable laws are addressed and described below and summarized in **Table 5.5-5**.

Table 5.5-5: Laws, Ordinances, Regulations, and Standards (LORS) for Hazardous Materials

LORS	Requirements/Applicability	Administering Agency	Application for Certification Section Explaining Conformance
Federal			
Section 302 EPCRA (Public Law 99-499, 42 USC 11022) Hazardous Chemical Reporting: Community Right-To-Know (40 USC 11002)	Requires one-time notification if environmental hazardous substances are stored in excess of threshold planning quantities	Kern County Public Health Department – Hazardous Materials Program	A HMBP will be prepared for submittal to the Kern County Public Health Services Department, Hazardous Materials Program (5.5.4.2.1)
Section 304, EPCRA (Public Law 99 – 499, 42 USC 11002) Emergency Planning Notification	Requires notification when there is a release of hazardous material in excess of its RQ	Kern County Public Health Services Department – Hazardous Materials Program	The HMBP prepared will include notification and reporting procedures (Section 5.5.4.2.1)
Section 311, EPCRA (Public Law 99-499, 41 USC 11-21) Hazardous Chemical Reporting: Community Right-To-Know (40 CFR 370)	Requires that SDSs for all hazardous materials or a list of all hazardous materials be submitted to the State Emergency Response Commission, Local Emergency Planning Committee (LEPC), and Kern County Public Health Services Department	Kern County Public Health Services Department – Hazardous Materials Program	The HMBP prepared will include a list of hazardous materials for submission (Section 5.5.4.2.1)
Section 313 EPCRA (Public Law 99 – 499, 42 USC 11023) Toxic Chemical Release Reporting: Community-To-Know (40 CFR 372)	Requires annual reporting of releases of hazardous materials	Kern County Public Health Services Department – Hazardous Materials Program	The HMBP prepared will describe reporting procedures (Section 5.5.4.2.1)
Section 112, CAA Amendments (Public Law 101 – 549, 42 USC 7412) Chemical Accident Prevention Provisions (40 CFR 68)	Requires facilities that store a regulated hazardous material at quantity greater than the TQ to develop an RMP	Kern County Public Health Services Department – Hazardous Materials Program	An RMP will be generated for Sulfuric Acid. (5.5.1.2.2)
Section 311, CWA (Public Law 92 – 500, 33 USC 1251 et seq.) Oil Pollution Prevention (40 CFR 112)	Requires the preparation of a SPCC plan if 660 gallons oil/petroleum products are stored in a single container or collectively the site stores 1,320 gallons or more.	RWQCB	GESC will prepare a SPCC plan. (5.5.4.2.2)

LORS	Requirements/Applicability	Administering Agency	Application for Certification Section Explaining Conformance
Commerce of Explosives (27 CFR Part 555)	This regulation explains requirements for manufacturing, importing, buying, selling, transporting, and storing explosive materials.	Federal Bureau of Alcohol, Tobacco, Fires and Explosives (ATF)	Explosive purchase, transport, use and storage will be followed per regulation. (5.5.4.1.2)
Mineral Resources (30 CFR Mineral Resources, Chapter I)	The standards and regulations established by the MSHA	MSHA	Explosive purchase, transport, use and storage will be followed per regulations (5.5.4.1.2)
State			
Health and Safety Code, Section 25500 et seq. (HMBP)	Requires preparation of a Hazardous Materials Business Plan if hazardous materials are handled or stored in excess of threshold quantities	Cal/OSHA, but submitted to Kern County Public Health Services Department – Hazardous Materials Program	A HMBP will be prepared for submittal to the Kern County Public Health Services Department, Hazardous Materials Program (5.5.4.2.1)
Health and Safety Code, Section 25531 through 25543.4 (CalARP)	Requires registration with local CUPA or lead agency and preparation of RMP if regulated substances are handled or stored in excess of TPQs	Kern County Public Health Services Department – Hazardous Materials Program	An RMP will be generated for Sulfuric Acid. (5.5.1.2.2)
Occupational Safety and Health Act (19 CFR 1910.119)	For chemicals listed above thresholds listed in Appendix A, requires a process safety management (PSM) plan for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals. These releases may result in toxic, fire or explosion hazards.	Kern County Public Health Services Department – Hazardous Materials Program	PSM plan will not be required because the regulations apply only to Oleum with the CAS number 8014-95-7, which does not match the chemical and/or CAS number that GESC will be using (5.5.4.2.1)
Health and Safety Code, Section 25270 through 25270.13 (Aboveground Petroleum Storage Act)	Requires the preparation of a SPCC plan if 660 gallons oil/petroleum products are stored in a single container or collectively the site stores 1,320 gallons or more.	RWQCB	GESC will prepare a SPCC Plan. (5.5.4.2.2)
Cal/OSHA Title 8, Section 344.20	Requires lead construction personnel to have a valid	Cal/OSHA	GESC will have a third part contractor with

LORS	Requirements/Applicability	Administering Agency	Application for Certification Section Explaining Conformance
	California Blaster's License and will be physically present when performing, directing, and supervising blasting operations.		California Blaster License, leading the cavern construction. (5.5.2.4.1.1 and 5.5.4.1.2)
Cal/OSHA Title 8, California Division of Industrial Safety, subchapter 7, General Industry Safety Orders, Group 18; Explosives and Pyrotechnic, Article 114, Storage of Explosives	Outlines requirements for explosive storage used for construction operations	Cal/OSHA	GESC will abide by all storage requirements and install BMPs to prevent fire and explosion risks (5.5.2.4.1.1 and 5.5.4.1.2)
Local			
Establishments of limits of Districts in which Storage of Liquefied Petroleum Gases is Restricted (Kern County Municipal Code 17.32.004)	Storage liquefied petroleum gas in excess of an aggregate of 2,000 gallons is restricted only in Kern County zones M-2 or M-3 provided that the following criteria is met: 1. The storage vessels are located at least one-half (½) mile from property zoned or designated for residential use and at least one-half (½) mile from existing residential development with a density greater than one (1) dwelling unit per acre and at least one-half (½) mile from any hotel or motel. 2. A Conditional Use Permit issued by the Planning and Natural Resources Department.	Kern County Fire Prevention Office	GESC will prepare a SPCC Plan. (5.5.4.2.2)
Required Construction Permits for Flammable or Combustible Liquid	A construction permit is required to install an aboveground storage tank	Kern County Fire Prevention Office	Prior to construction and operations, GESC will obtain a construction

LORS	Requirements/Applicability	Administering Agency	Application for Certification Section Explaining Conformance
Tanks Kern County Municipal Code 17.32.020 Section 105.7.7)	with a capacity of 125 gallons or more which hold flammable or combustible liquids		permit to install dual-walled steel, integrated tanks (5.5.4.2.2)
Aboveground Tanks Located Outside, Above Grade (Kern County Municipal Code 17.32.074 Section 2306.2.3)	ASTs that store Class I, II or III motor liquid fuels stored outside shall 1) not be in areas accessible to the public 2) If in areas accessible to the public, shall be provided with separation requirements to buildings, property lines, dispensing areas and parking areas 3) tanks containing fuels shall not exceed 12,000 gallons in individual capacity or 48,000 gallons in aggregate capacity 4) tanks located on farms, construction projects or rural areas shall comply with Section 5706.2	Kern County Fire Prevention Office	Dual-walled streel, integrated tanks installed at GESC will not be accessible to the public and will have tank capacity of 12,000 gallons or more (5.5.4.2.2)
Transportation of Hazardous Materials (Kern County General Plan, 2.5.4)	To reduce risk to public health, hazardous materials transportation will conform with the adopted Kern County and Incorporated Cities Hazardous Waste Management Plan.	Kern County Public Health Services Department	GESC will confirm to local transportation regulations (5.5.4.2.3)
Safety – Hazardous Materials (Kern County General Plan 4.9)	Facilities that use, manufacture, and store hazardous materials shall comply with the Uniform Fire Code, with requirements for siting or design to prevent on-site hazards from affecting surrounding communities in the event of inundation.	Kern County Public Health Services Department and the Kern County Fire Prevention Office	GESC will comply with Kern County fire code. (5.5.4.2.1)

5.5.5.1 Federal LORS

5.5.5.1.1 29 CFR 1910 et seq. and 1926 et seq.

These sections contain requirements for equipment used to store and handle hazardous materials for the purpose of protecting worker health and safety. This regulation also addresses requirements for equipment necessary to protect workers in emergencies. It is designed primarily to protect worker health, but also contains requirements that affect general facility safety. The California regulations contained in Title 8 (California equivalent of 29 CFR) are generally more stringent than those contained in Title 29. The administering agencies for the above authority are Federal and State Occupational Health and Safety Administration (OSHA) and Cal/OSHA, respectively.

5.5.5.1.2 49 CFR Parts 172, 173, and 179

These regulations provide standards for labels, placards, and markings on hazardous materials shipments by truck (Part 172), for packaging hazardous materials (Parts 173), and for transporting hazardous materials in tank cars (Part 179). The administering agencies for the above authority are CHP and the U.S. DOT.

5.5.5.1.3 CERCLA

The Superfund Amendments and Reauthorization Act (SARA) amends the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and governs hazardous substances. The applicable part of SARA for the proposed project is Title III, otherwise known as the Emergency Planning and Community Right-to-Know Act (EPCRA), which requires states to establish a process for developing local chemical emergency preparedness programs and to receive and disseminate information on hazardous substances present at facilities in local communities. The law provides primarily for planning, reporting, and notification concerning hazardous substances. Key sections of the law are as follows:

- Section 302—Requires one-time notification when EHSs are present in excess of their TPQs. EHSs and their TPQs are found in Appendices A and B to 40 CFR Part 355.

- Section 304—Requires immediate notification to the Local Emergency Planning Committees (LEPC) and the State Emergency Response Commission when a hazardous material is released in quantities over its RQ. If a CERCLA-listed hazardous substance RQ is released, notification must also be given to the National Response Center in Washington, DC. (RQs are listed in 40 CFR Part 302, Table 302.4). These notifications are in addition to notifications given to the local emergency response team or fire personnel.

- Section 311—Requires that either SDSs for all hazardous materials or a list of all hazardous materials be submitted to the State Emergency Response Commission, LEPC, and local fire department.

- Section 313—Requires annual reporting of hazardous materials released into the environment either routinely or as a result of an accident.

The administering agencies for the above authority are the EPA Region 9 National Response Center and the KCPHSD, which is the CUPA for GESC's location.

5.5.5.1.4 Clean Air Act

Regulations (40 CFR 68) under the Clean Air Act (CAA) are designed to prevent accidental releases of hazardous materials. The regulations require facilities storing a TQ or greater of listed regulated substances to develop a Risk Management Plan (RMP), including hazard assessments and response programs to prevent accidental releases of listed chemicals. Section 112(r)(5) of the CAA discusses the regulated substances. These substances

are listed in 40 CFR 68.130. As stated in Section 5.5.1.2.2, the proposed GESC project does not anticipate any storage of regulated substances, therefore these regulations do not apply to the project.

5.5.5.1.5 Clean Water Act

The SPCC rule under the Clean Water Act (CWA) is designed to prevent or contain the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Regulations (40 CFR 112) under the CWA require facilities to prepare a written SPCC plan if they store oil, and its release would pose a threat to navigable waters. The SPCC rule is applicable if a facility has a single oil Aboveground Storage Tank (AST) with a capacity greater than 660 gallons, total petroleum storage (including ASTs, oil-filled equipment, and drums) greater than 1,320 gallons, or underground storage capacity greater than 42,000 gallons. The SPCC rule is administered by the local CUPA, which is the Kern County Public Health Services Department. GESC The GESC will store sufficient diesel to supply local backup power for fire pumps required to meet fire department and insurance requirements. Should this exceed 1320 gallons total on site, measures consistent with the Kern County Public Health Services Department, ASPA Program guidance will be followed in preparation of the SPCC, which will be included in the Hazardous Material Business Plan (HMBP).

Other related federal laws that address hazardous materials but do not specifically address their handling include the Resource Conservation and Recovery Act (discussed in Section 5.14, Waste Management) and the Occupational Safety and Health Act (discussed in Section 5.16, Worker Health and Safety).

5.5.5.1.6 Commerce of Explosives and MSHA

27 CFR Part 555 outlines regulations for manufacturing, importing, buying, selling, transporting, and storing explosive materials. This regulation explains requirements for manufacturing, importing, buying, selling, transporting, and storing explosive materials. Mine Safety and Health Administration regulations are outlined in Title 30, Mineral Resources, Chapter I. It outlines all approved mining products, filing requirements, education, training, accidents, injuries, illnesses, employment and production rights, metal and nonmetal safety and health and uniform mine health regulations. Construction of underground cavern will abide by all health and safety requirements outlined herein.

5.5.5.2 State LORS

California laws and regulations relevant to hazardous materials handling at the GESC facility include Health and Safety Code Section 25500 (hazardous materials), Health and Safety Code 25531 (regulated substances), and the Above Ground Petroleum Storage Act (petroleum in aboveground tanks).

5.5.5.2.1 Title 8, CCR, Section 339; Section 3200 et seq., Section 5139 et seq., and Section 5160 et seq.

Title 8 CCR Section 339 lists hazardous chemicals relating to the Hazardous Substance Information and Training Act; Title 8 CCR Section 3200 et seq. and 5139 et seq. address control of hazardous substances; and Title 8 CCR Section 5160 et seq. addresses hot, flammable, poisonous, corrosive, and irritant substances.

5.5.5.2.2 Health and Safety Code Section 25500

California Health and Safety Code, Section 25500, et seq., and the related regulations in 19 CCR 2620, et seq., require local governments to regulate local business storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases. Those using and storing hazardous materials are required to submit an HMBP to their local CUPA and to report releases to their CUPA and the State Office of Emergency Services. The TQs for hazardous materials are 55

gallons for liquids, 500 pounds for solids, and 200 cubic feet for compressed gases measured at standard temperature and pressure.

5.5.5.2.3 Health and Safety Code Section 25531 (CalARP)

California Health and Safety Code, Section 25531, et seq., and CalARP regulate the registration and handling of regulated substances. Regulated substances are any chemicals designated as an EHS by EPA as part of its implementation of SARA Title III. Health and Safety Code Section 25531 overlaps or duplicates some of the requirements of SARA and the CAA. Facilities handling or storing regulated substances at or above TPQs must register with their local CUPA and prepare a RMP, formerly known as a Risk Management and Prevention Program (19 CFR 1910.119). CalARP is found in Title 19 CCR, Chapter 4.5.

5.5.5.2.4 Aboveground Petroleum Storage Act

The California Health and Safety Code Sections 25270 to 25270.13 ensure compliance with the CWA. The law applies to facilities that operate a petroleum AST with a capacity greater than 660 gallons or combined ASTs capacity greater than 1,320 gallons, or oil-filled equipment where there is a reasonable possibility that the tank(s) or equipment may discharge oil in “harmful quantities” into navigable waters or adjoining shore lands. If a facility falls under these criteria, it must prepare an SPCC plan.

5.5.5.2.5 Proposition 65

This California law requires the state to identify chemicals that cause cancer and reproductive toxicity, contains requirements for informing the public of the presence of these chemicals, and prohibits discharge of the chemicals into sources of drinking water. Lists of the chemicals of concern are published and updated periodically by California’s Office of Environmental Health Hazard Assessment (OEHHA).

5.5.5.2.6 Cal/OSHA Title 8

The California Code of Regulations, Title 8, Division 1 Sections 5251 through 5258 establish general industrial safety orders for transportation, handling, storage of explosive materials and blasting units. Additionally, Sections 344.20 through 344.22 establish requirements for blasters license necessary for blasting work.

5.5.5.3 Local LORS

5.5.5.3.1 Kern County General Plan

The GESC project will adhere to all policies within the Kern County General Plan, Section 4.9 Hazardous Materials. The following policies and implementation measures for Kern County were identified:

- **Policy 1.** The proposed siting or expansion of hazardous waste facilities will be in conformance with the adopted Kern County and Incorporated Cities Hazardous Waste Management Plan.

- **Policy 2.** Innovative technologies to manage hazardous waste streams generated in Kern County will be encouraged.

- **Implementation Measure A.** Facilities used to manufacture, store, and use of hazardous materials shall comply with the Uniform Fire Code, with requirements for siting or design to prevent on-site hazards from affecting surrounding communities in the event of inundation.

- **Implementation Measure B.** The proposed siting or expansion of hazardous waste facilities will be in conformance with the adopted Kern County and Incorporated Cities Hazardous Waste Management Plan.

5.5.5.3.2 Kern County and Incorporated Cities Hazardous Waste Management Plan

The Kern County and Incorporated Cities Hazardous Waste Management Plan was adopted in May 1991and has been added as an amendment to the Kern County General Plan. Although the Kern County and Incorporated Cities Hazardous Waste Management Plan focuses in areas of county jurisdiction, the plan also applies to incorporated cities state and federal lands. An analysis of Kern County waste streams, siting criteria and permit requirements for hazardous waste management facilities, and transportation routes for commercial shipping of hazardous waste. Transportation of hazardous materials will also be in conformance with the Kern County and Incorporated Cities Hazardous Waste Management Plan (KCPD 2009b).

5.5.5.3.3 Kern County Public Health Services Department

The designated CUPA for the GESC project is the Kern County Public Health Services Department. The GESC project is subjected to the requirements made by the Hazardous Materials Business Plan program, Aboveground Storage program and CalARP program (KCPHSD 2021a).

Hazardous Materials Business Plan Program. To satisfy the California Health and Safety Code, Section 25500, et seq., and the related regulations in 19 CCR 2620, et seq., a Hazardous Materials Business Plan will be developed and submitted to the Kern County Public Health Services Department.

Aboveground Petroleum Storage Tank Program. To adhere to 40 CFR 112, this program requires any facility with an aggregate capacity of 1,320 gallons of petroleum products or greater to prepare and implement at Spill Prevention and Countermeasure (SPCC) plan. Permits for AST are acquired from the Kern County Fire Prevention Office (Kern County, 2021B).

California Accidental Release Program. Under the CalARP regulations, facilities that store extremely hazardous substances or regulated substances above the threshold quantities must submit a risk management plan (RMP).

5.5.5.4 Codes

The design, engineering, construction, and operation of hazardous materials storage and dispensing systems will be in accordance with all applicable codes and standards, including the following:

- CVC, 13 CCR 1160, et seq. – Provides CHP with authority to adopt regulations for the transportation of hazardous materials in California. CHP can issue permits and specify which route for hazardous material delivery
- The California Fire Code, Articles 79 and 80 – These are the hazardous materials sections of the Fire Code. Local fire agencies or departments enforce this code and can require than a HMBP and a Hazardous Materials Inventory Statement be prepared. The California Fire Code is based on the federal fire guidelines, which include the Uniform Fire Code.
- State Building Standard Code, Health and Safety Code Sections 18901 to 18949 – Incorporates the Uniform Building Code, Uniform Fire Code and Uniform Plumbing Code

5.5.6 Agencies and Agency Contacts

Several agencies regulate hazardous materials, and they will be involved in regulating the hazardous materials stored on and used at Gem. Federal and some state level agencies discussed in this section will all be involved in regulation of hazardous materials use and storage. However, the regulations are administered and enforced primarily through designated by local agencies. According to California Environmental Reporting System (CERS),

the designated CUPA for the region is the Kern County Public Health Services Department (CalEPA 2021b). Contact information is provided in **Table 5.5.6.**

Table 5.5-6: Agency Contacts for Hazardous Materials Handling

Issue	Agency	Contact
CUPA for Hazardous Materials Business Plan (HMPB)	Kern County Public Health Services Department - Hazardous Materials Program	Cilal Korin 661-862-8730
AST Permits	Kern County Fire Prevention Office (661-391-3310)	Matt Redstone 661-330-0363
Hazardous Materials Response for Spills or Fires	Kern County Public Health Services Department Emergency Response Hotline	661-549-9927*

Notes:

* Kern County Public Health Services Department Hotline does not have a specified personnel contact.

5.5.7 Permits and Permit Schedule

The KCPHSD and Kern County Fire Prevention Office require that the project developers obtain permits listed in **Table 5.5.7** before storing hazardous materials on site.

Table 5.5-7: Permits and Permit Schedule for Hazardous Material Handling

Permit	Agency Contact	Schedule
AST	Kern County Fire Department Fire Prevention Office 3219 35th St Rosamond, CA 93560 661-256-2401	Submittal prior to construction and operation. Permits are available on the Kern County Fire Department website.
HMBP	Kern County Public Health Services Department Hazardous Materials Program 2700 M Street, Suite 300 Bakersfield CA 93301 (661)-862-8740	Submittal prior to operation. Permits are available on the Kern County Public Health Services Department main website.
RMP	Kern County Public Health Services Department Hazardous Materials Program 2700 M Street, Suite 300 Bakersfield CA 93301 (661)-862-8740	Submittal prior to operation. Permits are available on the Kern County Public Health Services Department main website.

5.5.8 References

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