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Docket Number:	16-AFC-01
Project Title:	Stanton Energy Reliability Center
TN #:	214206-15
Document Title:	5.5 Hazardous Materials Handling
Description:	Application for Certification Vol. 1
Filer:	Sabrina Savala
Organization:	Stanton Energy Reliability Center, LLC
Submitter Role:	Applicant
Submission Date:	10/27/2016 9:17:46 AM
Docketed Date:	10/26/2016

5.5 Hazardous Materials Handling

This section discusses the potential effects on human health and the environment from the use and storage of hazardous materials in conjunction with the Stanton Energy Reliability Center (SERC). Section 5.5.1 describes the existing environment that may be affected, and Section 5.5.2 identifies potential impacts on the environment and on human health from site development. Section 5.5.3 addresses potential cumulative effects, Section 5.5.4 presents proposed mitigation measures, and Section 5.5.5 presents the laws, ordinances, regulations, and standards (LORS) applicable to hazardous materials. Section 5.5.6 describes the agencies involved and provides agency contacts. Section 5.5.7 describes permits required and the permit schedule. Section 5.5.8 provides the references used to develop this section. Hazardous waste management, including handling of potentially contaminated soil and groundwater, is addressed in Section 5.14, Waste Management.

5.5.1 Affected Environment

5.5.1.1 Land Use

Land use in the immediate vicinity of the SERC site (discussed in detail in Section 5.6, Land Use) is built up and developed and includes industrial, commercial, and residential uses. Within a wider 6-mile radius of the SERC site, there is a large number of sensitive receptors. These receptors are listed in Appendix 5.1D and on Figure 5.1D-1. The nearest residence is approximately 100 feet southeast of the SERC site. There are several businesses, schools, and medical facilities within a 6-mile radius of the SERC site. The Barre Substation and a 49-megawatt (MW) peaking power plant are located east of the SERC, across Dale Avenue.

The nearest school to the SERC site is Robert M. Pyles Elementary, located at 10411 Dale Avenue, Stanton, California, approximately 1,200 feet north of the SERC site. The nearest hospital is the West Anaheim Medical Center, located at 3033 West Orange Avenue in Anaheim, California, and it is approximately 1.8 miles by road to the north-northwest.

5.5.1.2 SERC Hazardous Materials Use

The SERC will use hazardous materials during construction and operation. The SERC will comply with applicable laws and regulations for the storage of these materials to minimize the potential for a release of hazardous materials, and will conduct emergency response planning to address public health concerns regarding hazardous materials storage and use. The following sections describe this use, followed by tables detailing the hazardous materials used and their characteristics, quantities, and use locations.

5.5.1.2.1 Construction Phase

Relatively small quantities of hazardous materials will be onsite during construction and will be limited to gasoline, diesel fuel, motor oil, hydraulic fluid, solvents, cleaners, sealants, welding flux, various lubricants, paint, and paint thinner. There are no feasible alternatives to vehicle fuels and oils for operating construction equipment. The types of paint required are dictated by the types of equipment and structures that must be coated and by the service conditions and environment.

No regulated substances, as defined in California's Health and Safety Code, Section 25531, will be used during construction of the SERC. Therefore, no discussion on the storage or handling of regulated substances during construction is necessary.

5.5.1.2.2 Operations Phase

Storage locations for the hazardous materials that will be used during operation are described in Table 5.5-1. Table 5.5-2 presents information about these materials, including trade names, chemical

names, Chemical Abstract Service (CAS) numbers, maximum quantities onsite, reportable quantities (RQs), California Accidental Release Program (CalARP) threshold planning quantities (TPQs), and status as Proposition 65 chemicals (chemicals known to be carcinogenic or cause reproductive problems in humans). Health hazards and flammability data are summarized for these materials in Table 5.5-3, which also contains information on incompatible chemicals.

Most of the hazardous substances that will be used by the SERC are required for facility maintenance and lubrication of equipment, or will be contained within transformers and electrical switches. Batteries for off-peak power storage will be housed in containers in Parcel 2, west of the power block. The only regulated substance that will be used for the SERC is aqueous ammonia, which is used for emissions control. Toxicity characteristics and the exposure level criteria for this regulated substance are included in Table 5.5-4 and discussed in Section 5.5.2.3.2.

5.5.2 Environmental Analysis

Construction and operation of the SERC will involve the use of various hazardous materials and one regulated substance. The use of these materials and their potential to cause adverse environmental and human health effects are discussed in this section.

5.5.2.1 Significance Criteria

A project would have a significant effect on the environment in terms of hazardous materials handling if it would do the following (California Environmental Quality Act Guidelines Section 15002[g], Appendix G):

- Create a significant hazard to the public or the environment through the routine transport or use of hazardous materials
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
- Emit hazardous emissions or handle hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (also known as the Cortese List) and, as a result, create a significant hazard to the public or environment (refer to Section 5.14, Waste Management)
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan

5.5.2.2 Transportation of Hazardous Materials

SERC operation will require regular transportation of hazardous materials to the SERC site. Transportation of hazardous materials will comply with all California Department of Transportation (Caltrans), U.S. Environmental Protection Agency (EPA), California Department of Toxic Substances Control, California Highway Patrol (CHP), and California State Fire Marshal regulations. Aqueous ammonia, a regulated substance, will be delivered to the facility and transported in accordance with California Vehicle Code (CVC) Section 32100.5, which regulates the transportation of hazardous materials that pose an inhalation hazard. Additionally, ammonia will only be transported 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.

Table 5.5-1. Use and Location of Hazardous Materials

Chemical	Use	Quantity (gallons, lbs, cu ft)	Storage Location (General Arrangement Location Code)	State	Type of Storage
Aqueous ammonia NH ₃ (19 percent)	Control NO _x emissions through SCR	5,000 gallons	Onsite storage tank (15)	Liquid	Continuously onsite
Cleaning chemicals/detergents	Periodic cleaning of combustion turbine	110 gallons	Portable hazardous materials storage (9) (18)	Liquid	Continuously onsite
Hydraulic oil	Combustion turbine starting system and combustion turbine control valve actuators	190 gallons	Hydraulic start reservoirs (6) Combustion turbines (1) Portable hazardous materials storage (9) (18)	Liquid	Continuously onsite
Laboratory reagents	Water/wastewater laboratory analysis	10 gallons	Portable hazardous materials storage (18)	Liquid and granular solid	Continuously onsite
Synthetic lubricating oil	Rotating equipment (combustion turbine and gas compressor) lubrication	1,610 gallons	Combustion turbines and auxiliaries skids (1) (6) Fuel gas compressor (21) Portable hazardous materials storage (9) (18)	Liquid	Continuously onsite
Mineral lubricating oil	Rotating equipment (generator and clutch) lubrication	3,000 gallons	Combustion turbine generators and clutches (1)	Liquid	Continuously onsite
Mineral insulating oil	Transformers	17,250 gallons	Generator step-up transformer (47) Combustion turbine auxiliaries transformers (41) Fuel gas compressor auxiliaries transformer (42) Battery system auxiliaries transformer (41) Battery system isolation transformers (27)	Liquid	Continuously onsite
Sulfur hexafluoride	High voltage circuit breaker	45 lbs	Switchyard (46)	Gas	Continuously onsite
Acetylene	Welding gas	600 cu ft	Portable hazardous materials storage (9) (18)	Gas	Continuously onsite
Oxygen	Welding gas	600 cu ft	Portable hazardous materials storage (9) (18)	Gas	Continuously onsite
Propane	Torch gas	200 lbs	Portable hazardous materials storage (9) (18)	Gas	Continuously onsite
EPA Protocol gases	Calibration gases	8,000 cu ft	CEMS enclosures (13)	Gas	Continuously onsite

Table 5.5-1. Use and Location of Hazardous Materials

Chemical	Use	Quantity (gallons, lbs, cu ft)	Storage Location (General Arrangement Location Code)	State	Type of Storage
Cleaning chemicals	Cleaning	Varies (less than 25 gallons liquids or 100 lbs solids for each chemical)	Portable hazardous materials storage (9) (18)	Liquid and solid	Continuously onsite
Paint	Touchup of painted surfaces	Varies (less than 25 gallons liquids or 100 lbs solids for each type)	Portable hazardous materials storage (9) (18)	Liquid	Continuously onsite
FM-200	Fire extinguishing for combustion turbine power distribution and control modules and battery energy storage system	1,560 lbs	Combustion turbine power distribution and control modules (44) (45) Battery energy storage system (53)	Gas	Continuously onsite
CO ₂	Fire extinguishing for combustion turbine engine compartment	24,500 cu ft	Outside of Turbine Package (1)	Gas	Continuously onsite
Lead-acid batteries (and/or nickel-cadmium batteries)	Combustion turbine 24-VDC and 125-VDC battery systems	5,000 lbs	Combustion turbine power distribution modules (44)	Liquid and solid	Continuously onsite
Lithium ion batteries	Energy storage/integration	252 tons	Battery energy storage system (53)	Solid	Continuously onsite

Notes:

CO₂ = carbon dioxide

cu ft = cubic feet

lb = pound(s)

NO_x = nitrogen oxides

SCR = selective catalytic reduction

VDC = voltage direct current

Table 5.5-2. Chemical Inventory, Description of Hazardous Materials Stored Onsite, and Reportable Quantities

Trade Name	Chemical Name	CAS Number	Maximum Quantity Onsite (gallons, lbs, cu ft)	CERCLA SARA RQ ^a	RQ of Material as Used Onsite ^b	EHS TPQ ^c	Regulated Substance TQ ^d	Prop 65
Aqueous ammonia NH ₃ (19 percent NH ₃ by weight)	Aqueous ammonia	7664-41-7	5,000 gallons ^e	100 lbs	526 lbs	500 lbs	500 lbs	No
Cleaning chemicals/detergents	Various	None	110 gallons	e	e	e	e	No
Hydraulic oil	Oil	None	190 gallons	42 gallons ^f	42 gallons ^f	e	e	No
Laboratory reagents	Various	Various	10 gallons	e	e	e	e	No
Synthetic lubricating oil	Oil	None	1,610 gallons	42 gallons ^f	42 gallons ^f	e	e	No
Mineral lubricating oil	Oil	None	3,000 gallons	42 gallons ^f	42 gallons ^f	e	e	No
Mineral insulating oil	Oil	8012-95-1	14,400 gallons	42 gallons ^f	42 gallons ^f	e	e	No
Sulfur hexafluoride	Sulfur hexafluoride	2551-62-4	45 lbs	e	e	e	e	No
Acetylene	Acetylene	47-86-2	600 cu ft	e	e	e	e	No
Oxygen	Oxygen	7782-44-7	600 cu ft	e	e	e	e	No
Propane	Propane	74-98-6	200 lbs	e	e	e	e	No
EPA Protocol gases	Various	Various	8,000 cu ft	e	e	e	e	No
Cleaning chemicals	Various	Various	Varies (less than 25 gallons liquids or 100 lbs solids for each chemical)	e	e	e	e	No
Paint	Various	Various	Varies (less than 25 gallons liquids or 100 lbs solids for each type)	e	e	e	e	No
FM-200	FE-227	431-89-0	1,560 lbs	e	e	e	e	No
CO ₂	CO ₂	53569-62-3	24,500 cu ft	e	e	e	e	No
Lead-acid batteries (and/or nickel-cadmium batteries)	Lead-acid and/or nickel-cadmium batteries	Various	5,000 lbs	1,000	1,000	1,000	1,000	Yes

Table 5.5-2. Chemical Inventory, Description of Hazardous Materials Stored Onsite, and Reportable Quantities

Trade Name	Chemical Name	CAS Number	Maximum Quantity Onsite (gallons, lbs, cu ft)	CERCLA SARA RQ ^a	RQ of Material as Used Onsite ^b	EHS TPQ ^c	Regulated Substance TQ ^d	Prop 65
Lithium ion batteries	Lithium Ion Batteries	96-49-1 105-58-8	252 tons	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 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 lb)/(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 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 State RQ for oil spills that will reach California state waters (Ref. CA Water Code Section 13272(f)).

^g The NH₃ tank capacity is 5,000 gallons; however, the tank is only filled to 85 percent of its capacity, or 4,250 gallons.

Notes:

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

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

Hazardous Materials	Physical Description	Health Hazard	Reactive and Incompatibles	Flammability*
Aqueous ammonia NH ₃	Colorless liquid with pungent odor	Corrosive; irritation to permanent damage from inhalation, ingestion, and skin contact	Acids, halogens (e.g., chlorine), strong oxidizers salts of silver, and zinc	Liquid is incombustible; vapor is combustible, but difficult to burn
Cleaning chemicals/detergents	Liquid	Refer to individual chemical labels	Refer to individual chemical labels	Refer to individual chemical labels
Hydraulic oil	Oily, dark liquid	Hazardous if ingested	Oxidizers	Combustible
Laboratory reagents	Liquid and solid	Refer to individual chemical labels	Refer to individual chemical labels	Refer to individual chemical labels
Synthetic lubricating oil	Oily, dark liquid	Hazardous if ingested	Oxidizers	Flammable
Mineral lubricating oil	Oily, dark liquid	Hazardous if ingested	Oxidizers	Flammable
Mineral insulating oil	Oily, clear liquid	Minor health hazard	Oxidizers	Can be combustible, depending on manufacturer
Sulfur hexafluoride	Colorless gas	Asphyxiant gas; causes frostbite to area of contact	No reactivity hazards	Not flammable
Acetylene	Colorless gas	Asphyxiant gas	Oxygen and other oxidizers including all halogens and halogen compounds; forms explosive acetylide compounds with copper, mercury, silver, brasses containing > 66% copper and brazing materials containing silver or copper	Flammable
Oxygen	Colorless, odorless, tasteless gas	Therapeutic overdoses can cause convulsions; liquid oxygen is an irritant to skin	Hydrocarbons, organic materials	Oxidizing agent; actively supports combustion
Propane	Propane gas (odorant added to provide odor)	Asphyxiant gas; causes frostbite to area of contact	Strong oxidizing agents and high heat	Flammable
EPA Protocol gases	Gas	Refer to individual chemical labels	Refer to individual chemical labels	Refer to individual chemical labels
Cleaning chemicals	Liquid	Refer to individual chemical labels	Refer to individual chemical labels	Refer to individual chemical labels
Paint	Various colored liquid	Refer to individual container labels	Refer to individual container labels	Refer to individual container labels
FM-200	Colorless, odorless gas	Asphyxiant gas; causes frostbite to area of contact	Alkali metals, alkaline earth metals, powdered metals, powdered metal salts	Not flammable

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

Hazardous Materials	Physical Description	Health Hazard	Reactive and Incompatibles	Flammability*
CO ₂	Colorless, odorless gas	Exposure can cause nausea and respiratory problems; oxygen levels below 19.5% may cause asphyxia; high concentrations may cause vasodilation leading to circulatory collapse	Certain reactive metals, hydrides, moist cesium monoxide, or lithium acetylene carbide diammino may ignite Passing carbon dioxide over a mixture of sodium peroxide and aluminum or magnesium may cause explosion	Not flammable
Lead-acid batteries (and/or nickel-cadmium batteries)	Battery	Causes severe eye burns; causes burns of the mouth, throat, and stomach	Nitro compounds, carbides, dienes, alcohols (when heated): causes explosions. Oxidizing agents, such as chlorates and permanganates: causes fires and possible explosions. Allyl compounds and aldehydes: undergoes polymerization, possibly violent. Alkalis, amines, water, hydrated salts, carboxylic acid anhydrides, nitriles, olefinic organics, glycols, aqueous acids: causes strong exothermic reactions.	Not flammable
Lithium ion batteries	Battery	Irritant	Not reactive under normal conditions	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.

Note:

Data were obtained from Material Safety Data Sheets and Lewis, 1991.

Table 5.5-4. Toxic Effects and Exposure Levels of Regulated Substance

Name	Toxic Effects	Exposure Levels-Pure NH ₃
Aqueous NH ₃ (19 percent solution)	Contact with pure liquid or vapor causes eye, nose, and throat irritation, skin burns, and vesiculation. Ingestion or inhalation causes burning pain in mouth, throat, stomach, and thorax, constriction of thorax, and coughing followed by vomiting blood, breathing difficulties, convulsions, and shock. Other symptoms include dyspnea, bronchospasms, pulmonary edema, and pink frothy sputum. Contact or inhalation overexposure can cause burns of the skin and mucous membranes, headache, salivation, nausea, and vomiting. Other symptoms include labored breathing, bloody mucous discharge, bronchitis, laryngitis, hemoptysis, and pneumonitis. Damage to eyes may be permanent, including ulceration of conjunctiva and cornea and corneal and lenticular opacities.	Occupational Exposures: <ul style="list-style-type: none"> • PEL = 35 mg/m³ OSHA • TLV = 18 mg/m³ ACGIH • TWA = 25 mg/m³ NIOSH • STEL = 35 mg/m³ Hazardous Concentrations: <ul style="list-style-type: none"> • IDLH = 500 ppm • LD₅₀ = 350 mg/kg – oral, rat; ingestion of 3 to 4 mL may be fatal Sensitive Receptors: <ul style="list-style-type: none"> • ERPG-1 = 25 ppm • ERPG-2 = 200 ppm • ERPG-3 = 1,000 ppm

Notes:

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 = ACGIH threshold limit value for 8-hour workday

TWA = NIOSH time-weighted average for 8-hour workday

Trucks will enter the City of Stanton via State Route (SR)-39, and will proceed to the SERC site via a route best suited for each individual load and its designated offload location at the project. Trucks will enter the City of Stanton from either the north (routing connects to either SR-91 or Interstate 5) or the south (routing connects to either SR-22 or Interstate 405). Trucks will turn off of SR-39 (Beach Boulevard) eastward at either Katella Avenue or West Cerritos Avenue.

Trucks using Katella Avenue (eastward) will then turn left onto Dale Avenue (northward), and then turn left into the SERC driveway on Dale Avenue. Aqueous ammonia delivery trucks will be required to use the Katella Avenue route from Beach Boulevard to avoid passing Robert M. Pyles Elementary School, which borders both West Cerritos and Dale Avenue north of the project site.

Trucks using West Cerritos Avenue (eastward) will then turn right (southward) onto either Fern Avenue or Dale Avenue. Trucks using Fern Avenue will turn right, and then continue due south to the SERC driveway located at the southeastern corner of the intersection of Fern Avenue and Pacific Street. Trucks using Dale Avenue will turn right (southward), and then turn right into the SERC driveway on Dale Avenue.

5.5.2.3 Hazardous Materials Use

5.5.2.3.1 Construction Phase

Construction will involve the transport of limited quantities of hazardous materials to the SERC site and will pose minor hazards associated with their use. Small oil spills may occur during onsite refueling. Equipment refueling will be performed away from the Stanton Storm Channel, which bisects the site, to prevent contamination of water in the event of a fuel spill. Therefore, the potential environmental effects from fueling operations are expected to be limited to small areas of contaminated soil. If a fuel spill occurs on soil, the contaminated soil will be placed into barrels or trucks for offsite disposal as a hazardous waste. The worst-case scenario for a chemical release from fueling operations would be a vehicle accident involving a service or refueling truck.

The quantities of hazardous materials that will be handled during construction are relatively small. The best management practices (BMPs) described in Section 5.5.4.1 will be implemented by contractor personnel; therefore, the potential for environmental effects will be less than significant.

5.5.2.3.2 Project Operation

As stated previously, most of the hazardous substances that will be used by the SERC are required for NO_x emissions control (i.e., aqueous ammonia), facility maintenance, and lubrication of equipment, or will be contained within transformers and electrical switches. Their storage will be carefully contained within designated hazardous materials storage areas, and their use will be carefully prescribed in terms of hazardous materials handling plans, facility Health and Safety Plans, and the Hazardous Material Business Emergency Plan (HMBEP) required to be filed with the Orange County Health Care Agency, Environmental Health Division. For the non-CalARP-regulated materials, therefore, the risk of public exposure and serious hazard is low and would not be significant. The only regulated substance that will be used for the SERC is aqueous ammonia, described in Table 5.4-4 and as follows.

Aqueous Ammonia. The SERC facility will store the aqueous ammonia solution (19 percent NH₃ mixed with water) in a 5,000-gallon, vertical aboveground storage tank. The tank will be located outdoors and will be surrounded by a curbed containment area, which will be sloped to drain to a covered containment sump through three 6- by 24-inch rectangular openings in the sidewall of the sump. The sump will be sized to be capable of holding the full contents of the tank and accumulated precipitation from a 25-year, 24-hour storm event. The truck unloading area will include a concrete pad, sloped to drain spillage to the storage tank containment sump. The truck unloading station will include a storage tank fill line and vapor return line for pressure equalization between the storage tank and truck.

Aqueous ammonia will be used in an SCR process to control NO_x emissions from the combustion turbines. The SCR system will include catalyst modules and ammonia storage and injection systems. The aqueous

ammonia will be vaporized and injected into the turbine exhaust flow upstream of the catalyst modules. The rate of injection will be controlled by a monitoring system that uses sensors to determine the correct quantity of ammonia to feed to the injection system.

Ammonia will be delivered five times per year on average, and at a maximum frequency of six deliveries per month for continuous operation. The aqueous ammonia storage tanks will be equipped with continuous tank level monitors, automated leak detection system and alarm, pressure indication, and an emergency block valve.

Because of its hazardous properties, ammonia is classified as a regulated substance, and an accidental release of the aqueous ammonia solution could present a human health hazard. Ammonia is a volatile substance that is very soluble in water. Aqueous ammonia consists of a solution of ammonia and water. If the aqueous ammonia solution were to leak or be released without proper controls, the ammonia in solution could escape or evaporate as a gas into the atmosphere.

Potential toxic effects of ammonia and acceptable exposure levels are summarized in Table 5.5-4. The odor threshold of ammonia is about 5 ppm, and minor irritation of the nose and throat will occur at 30 to 50 ppm. Ammonia concentrations greater than 140 ppm will cause detectable effects on lung function even for short-term exposures (0.5 to 2 hours). At higher concentrations of 700 to 1,700 ppm, ammonia gas will cause severe effects; death occurs at concentrations of 2,500 to 6,000 ppm (Smyth, 1956).

Storage and use of ammonia 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. Secondary containment in the form of a spill containment sump will be provided for the ammonia storage tank and loading area. In addition, the facility will be required to prepare a risk management plan (RMP) in accordance with CalARP, further specifying safe handling procedures for the ammonia as well as emergency response procedures in the event of an accidental release. The RMP, which is discussed in more detail in Section 5.5.4.2.2, will be prepared for the SERC site using updated modeling guidance prior to operation of SERC.

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

5.5.2.4 Accidental Release Hazards

If a chemical release were to occur without proper engineering controls in place, the public could be exposed to harmful vapors, and incompatible chemicals could mix, causing vapors that could also potentially have harmful effects. In addition, an uncontrolled release of liquid chemicals could run off and drain into the stormwater system and potentially degrade water quality. However, the California Fire Code, Articles 79 and 80, includes specific requirements for the safe storage and handling of hazardous materials that would reduce the potential for a release of hazardous materials, and mixing of incompatible materials. The design of the SERC will incorporate state-of-the-art chemical storage and handling facilities in compliance with the current California Fire Code and other applicable federal, state, and local regulations. With the implementation of these measures, the impacts related to the accidental release of hazardous materials, including ammonia, will be less than significant.

5.5.2.4.1 Offsite Consequences Analysis

Because there is human activity in the vicinity of the proposed SERC site, an Offsite Consequences Analysis (OCA) was performed and is included in Appendix 5.5A. The analysis assesses the risk to humans if a spill or rupture of the aqueous ammonia storage tank were to occur and assesses the SERC in relation to three impact levels, the most stringent of which is the California Energy Commission's level of concern threshold of 75 ppm. The OCA concludes that no offsite impacts are expected to occur from the worst-case tank release scenario when compared to the three impact levels.

5.5.2.5 Fire and Explosion Hazards

Table 5.5-3 describes the flammability for the hazardous materials that will be onsite. Article 80 of the California Fire Code requires all hazardous material storage areas to be equipped with a fire extinguishing system, and also requires ventilation for all enclosed hazardous material storage areas.

Aqueous ammonia, which constitutes the largest quantity of hazardous materials to be stored onsite, is incombustible in its liquid state. Under normal storage conditions, ammonia would not evaporate to the atmosphere because it is contained in a sealed tank that maintains the ammonia in a state that precludes evaporation. In the unlikely event that a release were to occur, ammonia could evaporate directly to the atmosphere. Ammonia vapor is combustible only within a narrow range of concentrations in air. The evaporation rate of aqueous ammonia is similar to water, which is sufficiently low that the lower explosive limit of 15 percent (or 15,000 ppm) will not be reached.

The plant machinery lubrication oil is flammable. In accordance with Article 80 of the California Fire Code, the storage area for the lubrication oil would be equipped with a fire extinguishing system, and the lubrication oil would be handled in accordance with an HMBEP approved by the Orange County Environmental Health, Certified Unified Program Agency (CUPA)/Hazardous Materials, Orange County Fire Authority (OCFA), and the California Energy Commission. With proper storage and handling of flammable materials in accordance with the California Fire Code and the site-specific HMBEP, the risk of fire and explosion at SERC would be minimal.

The natural gas fuel that the facility will use is flammable and could leak from the high-pressure pipeline that brings the gas from the main transmission pipeline. Natural gas is composed mostly of methane, but also may contain ethane, propane, nitrogen, oxygen, carbon dioxide, butane, isobutene, pentane, isopentane, hexane, and sulfur. It is colorless, odorless, tasteless, and lighter than air. Methane is flammable when mixed in air at concentrations of 5 to 14 percent, which is also the detonation range. Natural gas, therefore, poses a risk of fire and explosion if an accidental release were to occur. However, the risk of a fire and/or explosion would be reduced through compliance with applicable codes, regulations, and industry design/construction standards.

The federal safety and operating requirements for natural gas pipelines are contained in Title 49 CFR, Parts 190 through 192. These requirements vary according to population density and land use; the pipeline classes are defined as follows:

- Class 1 includes pipelines in locations with 10 or fewer buildings intended for human occupancy.
- Class 2 includes pipelines in locations with more than 10 but fewer than 46 buildings intended for human occupancy.
- Class 3 includes pipelines in locations with more than 46 buildings intended for human occupancy, or where the pipeline is within 100 yards of any building or small well-defined outside area occupied by 20 or more people on at least 5 days per week for 10 weeks in any 12-month period.
- Class 4 includes pipelines in locations where buildings with four or more stories aboveground are prevalent.

The SERC's pipeline will be designed to meet Class 1 service and will meet CPUC GO-112-D and 58-A standards, in addition to the federal requirements for gas pipeline construction and safety.

Lithium ion batteries will be configured in multi-packs containing lithium ion batteries plus battery protection circuits sealed in a container. The containers will be located west of the power block, away from the hazardous materials storage enclosures and warehouse (see General Arrangement Drawing, Figure 2.1-1). The principal hazard associated with the batteries is fire or explosion should the battery casing be opened, punctured or crushed, or should the battery short circuit or overheat. In addition, contact with the internal contents of the batteries can cause skin and eye irritation. Electrolyte inside

the batteries is flammable and may vent, ignite, or produce sparks when heated to a high temperature. Burning batteries may release toxic gases, including hydrogen fluoride gas (U.S. Department of Transportation, 2016). Battery containers will be arranged in battery storage racks away from heat sources. The facility's health and safety training program will include a component on safe battery handling.

The closest fire station to SERC is Fire Station No. 46, located at 7871 Pacific Street in Stanton, California. The station is operated by the OCFA and is approximately 0.8 mile away (via road), and it would provide the first response to a fire at the SERC site (CH2M HILL Engineers, Inc. [CH2M], 2016a). If hazardous materials were involved in the incident, Station No. 79, located at 1320 East Warner Avenue in Santa Ana, would be the first hazmat response team onsite. Station No. 79 is approximately 12.6 miles away via road. If required, aid would also be provided by any of the neighboring cities with which the OCFA has an automatic aid agreement in place. Response times for an incident at the SERC were unavailable from the OCFA.

5.5.2.6 Schools

The nearest school to SERC is Robert M. Pyles Elementary, located at 10411 Dale Street, Stanton, California, approximately 1,200 feet north of the SERC site. The proposed transportation route for delivery of regulated materials such as aqueous ammonia (and for all other hazardous materials used at SERC) will arrive at SERC via approved routes avoiding the school. Transportation permits will be obtained for all heavy and oversize loads, as required by jurisdictional agencies. Trucks will enter the City of Stanton via SR-39 (Beach Boulevard), and will proceed to the SERC site via a route best suited for each individual load and its designated offload location at the project. Aqueous ammonia delivery trucks will be required to use the Katella Avenue route from SR-39 to avoid passing Robert M. Pyles Elementary School. See Section 5.12, Traffic and Transportation, for additional details.

Although Robert M. Pyles Elementary is located slightly closer than 0.25 mile to SERC (0.23 mile, or 1,200 feet), effects on the environment will be less than significant based on the proposed mitigation measures, including approved hazardous material delivery routes, use of 19 percent aqueous ammonia, ammonia tank secondary containment and covered containment sump, and additional engineering controls described in Section 5.5.2.3.

5.5.3 Cumulative Effects

A cumulative effect refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project (Public Resources Code Section 21083; Title 14 CCR, Sections 15064[h], 15065[c], 15130, and 15355).

There is aqueous ammonia (19 percent) stored in a 10,500-gallon tank at the existing small peaker plant across Dale Avenue from the project site at the Barre Substation (Southern California Edison, 2007).

To the north of the site are warehouses for businesses such as metal processing, golf cart sales, and a glass exporting company. Union Pacific Railroad tracks are to the south of the SERC, as well as additional warehouses for businesses such as machine shops, storage, paint shop, and shooting range. Residential neighborhoods are located to the northwest and southeast of the SERC. These types of shops are not likely to store large quantities of hazardous materials.

The hypothetical accidental release of aqueous ammonia that was evaluated for the SERC is described in the OCA in Appendix 5.5A. The OCA demonstrates that ammonia vapor plumes at hazardous levels would not extend more than a short distance from ammonia containment system. Therefore, the likelihood of a simultaneous release from multiple facilities with ammonia vapor plumes subsequently combining in concentrations at or above 75 ppm is very improbable. Existing laws and regulations will thus ensure that the proposed project's incremental effect is not cumulatively considerable.

5.5.4 Mitigation Measures

The following sections present measures to mitigate potential public health and environmental effects of handling hazardous materials and regulated substances during construction and operation.

5.5.4.1 Construction Phase

The hazardous materials that would be used during construction present a relatively low public health risk, but could contaminate surface water or groundwater if a release occurred. Use of BMPs would reduce the potential for the release of construction-related fuels and other hazardous materials to stormwater and receiving waters as discussed in Section 5.15, Water Resources. BMPs prevent sediment and stormwater contamination from spills or leaks, control the amount of runoff from the SERC, and require proper disposal or recycling of hazardous materials.

Construction service personnel will follow general industry health, safety, and environmental BMPs for filling and servicing construction equipment and vehicles. The BMPs are designed to reduce the potential for incidents involving the hazardous materials, and include the following:

- Refueling and maintenance of vehicles and equipment will occur only in designated areas that are either bermed or covered with concrete, asphalt, or other impervious surfaces to control potential spills. Employees will be present during refueling activities.
- Vehicle and equipment service and maintenance will be conducted only by authorized personnel.
- Refueling will be conducted only with approved pumps, hoses, and nozzles.
- Catch-pans will be placed under equipment to catch potential spills during servicing.
- All disconnected hoses will be placed in containers to collect residual fuel from the hoses.
- Vehicle engines will be shut down during refueling.
- No smoking, open flames, or welding will be allowed in refueling or service areas.
- Refueling will be performed away from storm drains and the drainage canal that bisects the property to prevent contamination of water in the event of a leak or spill.
- When refueling is completed, the service truck will leave the SERC site.
- Service trucks will be provided with fire extinguishers and spill containment equipment, such as absorbents.
- Should a spill contaminate soil, the soil will be put in containers and disposed of as appropriate. All containers used to store hazardous materials will be inspected at least once per week for signs of leaking or failure. 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 of a spill, the spill may need to be reported to the appropriate regulatory agencies, and cleanup of contaminated soil could be required. Small spills will be contained and cleaned up immediately by trained, onsite personnel. Larger spills will be reported via emergency phone numbers to obtain help from offsite containment and cleanup crews. All personnel working on the SERC during the construction phase will be trained in handling hazardous materials and the dangers associated with hazardous materials. An onsite health and safety person will be designated to implement health and safety guidelines and to contact emergency response personnel and the local hospital, if necessary.

If there is a large spill from a service or refueling truck, contaminated soil will be placed into barrels or trucks by service personnel for offsite disposal at an appropriate facility in accordance with law. If a spill involves hazardous materials quantities equal to or greater than the specific RQ (42 gallons for

petroleum products), then all federal, state, and local reporting requirements will be followed. In the event of a fire or injury, the local fire department will be called.

5.5.4.2 Operation Phase

During facility operation, various hazardous materials and one regulated substance will be stored onsite as shown in Table 5.5-1. Table 5.5-2 presents information about these materials, including trade names, chemical names, CAS numbers, maximum quantities onsite, RQs, CalARP TPQs, and status as Proposition 65 chemicals (chemicals known to be carcinogenic or cause reproductive problems in humans). Health hazards and flammability data are summarized for these materials in Table 5.5-3, which also contains information on incompatible chemicals. Table 5.5-4 describes the toxicity of the regulated substance and hazardous materials. The following sections list mitigation measures for minimizing the public health risks associated with hazardous material and regulated substance handling during facility operation.

5.5.4.2.1 Hazardous Materials

All hazardous materials will be handled and stored in accordance with applicable codes and regulations specified in Section 5.5.6. Specific requirements of the California Fire Code that reduce the risk of fire or the potential for a release of hazardous materials that could affect public health or the environment include the following:

- Provision of an automatic sprinkler system for any indoor hazardous material storage areas.
- Provision of an exhaust system for any indoor hazardous material storage areas.
- Separation of incompatible materials by isolating them from one another with a noncombustible partition.
- Spill control in all storage, handling, and dispensing areas.
- Separate secondary containment for each chemical storage system. The secondary containment is required to hold the entire contents of the tank plus the volume of water for the fire suppression system that could be used for fire protection for a period of 20 minutes in the event of a catastrophic spill.

In addition, a Business Emergency/Contingency Plan (i.e., Orange County's HMBEP) is required by CCR Title 19 and the Health and Safety Code (Section 25504). In accordance with these regulations, the HMBEP will include an inventory and location map of hazardous materials onsite and an emergency response plan for hazardous materials incidents. Specific topics addressed in the plan will include the following:

- Facility identification
- Emergency contacts
- Chemical inventory information (for every hazardous material)
- Site map
- Emergency notification data
- Procedures to control actual or threatened releases
- Emergency response procedures
- Training procedures
- Certification

The HMBEP will be filed with the Orange County Environmental Health Division—Hazardous Materials Management Section, the designated CUPA for the SERC site, and will be updated annually in accordance with applicable regulations.

In accordance with emergency response procedures specified in the HMBEP, designated personnel will be trained as members of a plant hazardous material response team, and team members will receive the first responder and hazardous material technical training to be developed in the HMBEP, including training in appropriate methods to mitigate and control accidental spills. In the event of a chemical emergency, plant personnel will defer to the Orange County Environmental Health Division–Hazardous Materials Management Section and first responders. Fire Station No. 46 in Stanton would be the first responder onsite. The nearest hazmat team, located at Station No. 79, 1320 East Warner Avenue in Santa Ana, may also be called on to respond. Staff from the Orange County Environmental Health Division–Hazardous Materials Management Section, which is the CUPA, may also be dispatched to the SERC site, if warranted.

5.5.4.2.2 Aqueous Ammonia

Aqueous ammonia is a regulated substance under the federal Clean Air Act (CAA) pursuant to 40 CFR 68 (Subpart G) and the CalARP pursuant to Health and Safety Code Sections 25331 through 25543.3. The California program is similar to the federal program but is more stringent in some areas.

In accordance with CalARP regulations, an RMP will be prepared for the ammonia tank. The RMP will be filed with the Orange County Environmental Health Division–Hazardous Materials Management Section, the designated CUPA for the SERC site. The RMP will include a hazard assessment to evaluate the potential effects of an accidental release, a program for preventing an accidental release, and a program for responding to an accidental release to protect human health and the environment. The specific components of the RMP include the following:

- Description of the facility
- Accident history of the facility
- History of equipment used at the facility
- Design and operation of the facility
- Site map(s) of the facility
- Piping and instrument diagrams of the facility
- Seismic analysis
- Hazard and operability study
- Prevention program
- Consequence analysis
- Offsite consequence analysis
- Emergency response
- Auditing and inspection
- Record keeping
- Training
- Certification

A Process Safety Management plan will not be required under the Occupational Safety and Health Act because the regulations apply only to aqueous ammonia solutions above 44 percent (29 CFR Part 199).

5.5.4.2.3 Petroleum Products

Federal and California regulations require a Spill Prevention Control and Countermeasure (SPCC) plan if petroleum products above certain quantities are stored. Both federal and state laws apply only to petroleum products that might be discharged to navigable waters. If stored quantities are equal to or greater than 660 gallons for a single container, or are equal to or greater than 1,320 gallons total (including aboveground storage tanks [ASTs], oil-filled equipment, and drums), an SPCC plan must be prepared. Because the facility will store more than 1,320 gallons of petroleum products, an SPCC plan will be prepared.

5.5.4.2.4 Transportation/Delivery of Hazardous Materials and Regulated Substances

Hazardous materials and one regulated substance will be delivered periodically to the facility. As discussed in Section 5.12, Traffic and Transportation, transportation of hazardous materials will comply with all Caltrans, EPA, California Department of Toxic Substances Control, CHP, and California State Fire Marshal regulations. Under the CVC, CHP has the authority to adopt regulations for transporting hazardous materials in California. Aqueous ammonia, a regulated substance, will be delivered to the facility, and will be transported in accordance with CVC Section 32100.5, which regulates the transportation of hazardous materials that pose an inhalation hazard. In addition, ammonia will only be transported along approved transportation routes. Trucks will enter the City of Stanton via SR-39 (Beach Boulevard), and will proceed to the SERC site via a route best suited for each individual load and its designated offload location at the project.

5.5.4.2.5 Security Plan

In addition to standard industrial business security measures, the SERC will be preparing a security plan that will include the following elements:

- Descriptions of site fencing and security gate
- Evacuation procedures
- A protocol for contacting law enforcement in the event of conduct endangering the facility, its employees, its contractors, or the public
- A fire alarm monitoring system
- Measures to conduct site personnel background checks, including employee and routine onsite contractors, consistent with state and federal law regarding security and privacy
- A site access protocol for vendors
- A protocol for hazardous materials vendors to prepare and implement security plans as per 49 CFR 172.800 and to ensure that all hazardous materials drivers are in compliance with personnel background security checks as per 49 CFR Part 172, Subpart I

The plan will also include a demonstration that the perimeter security measures will be adequate. The demonstration may include one or more of the following:

- Security alarm for critical structures
- Perimeter breach detectors and onsite motion detectors
- Video or still camera monitoring system to enable offsite monitoring

5.5.4.3 Monitoring

In accordance with applicable federal, state, and local regulations, SERC personnel would regularly inspect all hazardous materials handling facilities for compliance with applicable regulations and would ensure that any deficiencies were promptly repaired. In addition, the SERC would be subject to regular inspections by the OCHA, which would ensure compliance with appropriate regulatory requirements for hazardous materials and regulated substances handling.

5.5.5 Laws, Ordinances, Regulations, and Standards

The storage and use of hazardous materials and regulated substances at the facility are governed by federal, state, and local laws. Applicable laws and regulations address the use and storage of hazardous materials to protect the environment from contamination and to protect facility workers and the surrounding community from exposure to hazardous and regulated substances. The applicable LORS are summarized in Table 5.5-5 and described in the following subsections.

Table 5.5-5. Laws, Ordinances, Regulations, and Standards for Hazardous Materials Handling

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 CFR 370)	Requires one-time notification if EHS are stored in excess of TPQs.	Orange County Environmental Health Division–Hazardous Materials Management	An HMBEP will be prepared for submittal to Orange County Environmental Health Division–Hazardous Materials Management (Section 5.5.4.2.1).
Section 304, EPCRA (Public Law 99-499, 42 USC 11002) Emergency Planning and Notification (40 CFR 355)	Requires notification when there is a release of hazardous material in excess of its RQ.	Orange County Environmental Health Division–Hazardous Materials Management	An HMBEP will be prepared to describe notification and reporting procedures (Section 5.5.4.2.1).
Section 311, EPCRA (Public Law 99-499, 42 USC 11021) 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, LEPC, and Orange County Environmental Health Division – Hazardous Materials Management	Orange County Environmental Health Division–Hazardous Materials Management	The HMBEP to be prepared will include a list of hazardous materials for submission to agencies (Section 5.5.4.2.1).
Section 313, EPCRA (Public Law 99-499, 42 USC 11023) Toxic Chemical Release Reporting: Community Right-To-Know (40 CFR 372)	Requires annual reporting of releases of hazardous materials.	Orange County Environmental Health Division–Hazardous Materials Management	The HMBEP to be 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 listed hazardous material at a quantity greater than the TQ to develop an RMP.	Orange County Environmental Health Division–Hazardous Materials Management	Not applicable for 19 percent aqueous ammonia; a CalARP RMP will be prepared and submitted to Orange County Environmental Health Division–Hazardous Materials Management in accordance with the state CalARP program (Section 5.5.4.2.2).
Section 311, CWA (Public Law 92-500, 33 USC 1251 et seq.) Oil Pollution Prevention (40 CFR 112)	Requires preparation of an SPCC plan if oil is stored in a single AST with a capacity greater than 660 gallons or if the total petroleum storage (including ASTs, oil-filled equipment, and drums) is greater than 1,320 gallons. The facility will have petroleum in excess of the aggregate volume of 1,320 gallons.	RWQCB	An SPCC will be prepared (Section 5.5.4.2.3).

Table 5.5-5. Laws, Ordinances, Regulations, and Standards for Hazardous Materials Handling

LORS	Requirements/Applicability	Administering Agency	Application for Certification Section Explaining Conformance
Pipeline Safety Laws (49 USC 60101 et seq.) Hazardous Materials Transportation Laws (49 USC 5101 et seq.) Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards (49 CFR 192)	Specifies natural gas pipeline construction, safety, and transportation requirements.	U.S. Department of Transportation	The natural gas pipeline will be constructed in accordance with 49 CFR requirements (Section 5.5.2.5)
State			
Health and Safety Code, Section 25500, et seq. (HMBEP)	Requires preparation of an HMBEP if hazardous materials are handled or stored in excess of threshold quantities.	Cal/OSHA	An HMBEP will be prepared for submittal to the Orange County Environmental Health Division–Hazardous Materials Management (Section 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 an RMP if regulated substances are handled or stored in excess of TPQs.	Orange County Environmental Health Division–Hazardous Materials Management	An RMP will be prepared and submitted to the Orange County Environmental Health Division–Hazardous Materials Management (Section 5.5.4.2.1).
Health and Safety Code, Section 25270 through 25270.13 (Aboveground Petroleum Storage Act)	Requires preparation of an SPCC plan if oil is stored in a single AST with a capacity greater than 660 gallons or if the total petroleum storage (including ASTs, oil-filled equipment, and drums) is greater than 1,320 gallons. The facility will have petroleum in excess of the aggregate volume of 1,320 gallons.	RWQCB	An SPCC plan will be prepared (Section 5.5.4.2.3).
Health and Safety Code, Section 25249.5 through 25249.13 (Safe Drinking Water and Toxics Enforcement Act) (Proposition 65)	Requires warning to persons exposed to a list of carcinogenic and reproductive toxins and protection of drinking water from same toxins.	OEHHA	The site will be appropriately labeled for chemicals on the Proposition 65 list (Section 5.5.5.2.4).
CVC Section 32100.5.	Establishes the procedures for the state to determine transportation corridors for materials that may pose an inhalation hazard.	Caltrans, CHP	Transportation of aqueous NH ₃ will follow designated routes (Section 5.5.4.2.4).
CPUC GO-112-E and 58-A	Specify standards for gas service and construction of gas gathering, transmission, and distribution piping systems.	CPUC	Construction of the natural gas pipeline will comply with the standards specified in these GOs (Section 5.5.5.2.5).

Table 5.5-5. Laws, Ordinances, Regulations, and Standards for Hazardous Materials Handling

LORS	Requirements/Applicability	Administering Agency	Application for Certification Section Explaining Conformance
Local			
No local ordinances. Orange County follows state laws and regulations.			

Notes:

Cal/OSHA = California Division of Occupational Safety and Health
CWA = 1972 Amendments to the Federal Water Pollution Control Act, commonly known as the Clean Water Act
EPCRA = Emergency Planning and Community Right-to-Know Act of 1986
GO = General Order
LEPC = local emergency planning committee
OEHHA = Office of Environmental Health Hazard Assessment
RWQCB = Regional Water Quality Control Board
SDS = Safety Data Sheet
USC = United States Code

5.5.5.1 Federal LORS

Hazardous materials are governed under CERCLA, the CAA, and the CWA.

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 OSHA and Cal/OSHA.

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. Department of Transportation.

5.5.5.1.3 CERCLA

SARA amends CERCLA and governs hazardous substances. The applicable part of SARA for the proposed project is Title III, otherwise known as the 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 LEPC and the State Emergency Response Commission when a hazardous material is released in excess of 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 EPA Region 9, the National Response Center, and the Orange County Environmental Health Division. The Orange County Environmental Health Division is the CUPA.

5.5.5.1.4 Clean Air Act

Regulations (40 CFR 68) under the 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 an 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. Aqueous ammonia is a listed substance, and its TQ for solutions of 20 percent and greater is 20,000 pounds of solution. Aqueous ammonia in concentrations less than 20 percent by weight is not subject to CAA RMP requirements.

5.5.5.1.5 Clean Water Act

The SPCC rule under the 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 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 Orange County Environmental Health Division.

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

5.5.5.1.6 Natural Gas Pipeline Construction and Safety

Title 40 CFR, Parts 190 through 192, specifies safety and construction requirements for natural gas pipelines. Part 190 outlines pipeline safety procedures, Part 191 requires a written report for any reportable incident, and Part 192 specifies minimum safety requirements for pipelines.

5.5.5.2 State LORS

California laws and regulations relevant to hazardous materials handling at the SERC include Health and Safety Code Section 25500 (hazardous materials), Health and Safety Code 25531 (regulated substances), and the Aboveground 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 HMBEP 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 an RMP, formerly known as a Risk Management and Prevention Program. CalARP is found in Title 19 CCR, Chapter 4.5. The TPQ for ammonia is 500 pounds. Portions of the aqueous ammonia process that can be demonstrated to have a partial pressure of the regulated substance in the mixture (solution) under the handling or storage conditions (less than 10 millimeters of mercury) do not count toward the threshold.

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 OEHHA. Some of the chemicals to be used at the SERC are on the cancer-causing and reproductive-toxicity lists of Proposition 65.

5.5.5.2.6 Natural Gas Pipeline Construction and Safety

The CPUC enforces GO-58-A, which specifies standards for natural gas service in the State of California, and GO-112-E, which specifies rules governing the design, construction, testing, operation, and maintenance of natural gas gathering, transmission, and distribution piping systems. The proposed project will connect to an existing high-pressure natural gas pipeline.

5.5.5.2.7 CVC Section 32100.5

CVC Section 32100.5 regulates the transportation of hazardous materials that pose an inhalation hazard. Aqueous ammonia, a regulated substance, will be delivered to the facility and transported in accordance with this section by following the designated access routes, as described in Section 5.5.4.2.4.

5.5.5.3 Local LORS

Orange County does not have any local ordinances, but follows the state laws and regulations. The Orange County Environmental Health Division—Hazardous Materials Management Section is the designated CUPA and is responsible for administering HMBEPs, SPCC Plans, and RMPs filed by businesses located in the county (Orange County, 2016). The Orange County Environmental Health Division is also responsible under the CUPA program for underground storage tank compliance. In addition, the agency is responsible for ensuring that businesses and industry store and use hazardous materials safely and in conformance with various regulatory codes.

OCFA prepared a guideline applicable to battery energy storage systems (OCFA, 2015). This document outlines the requirements and regulations for battery energy storage systems, including plan review submittal requirements.

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 the 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 that an HMBEP 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.
- The American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII.

5.5.6 Agencies and Agency Contacts

Several agencies regulate hazardous materials, and they will be involved in regulating the hazardous materials stored and used at SERC. At the federal level, EPA will be involved; at the state level, California EPA will be involved. However, local agencies primarily enforce hazardous materials laws. For SERC, the primary local agencies with jurisdiction will be the Orange County Environmental Health Division—Hazardous Materials Management Section and OCFA. Contact information is shown in Table 5.5-6.

Table 5.5-6. Agency Contacts for Hazardous Materials Handling

Issue	Agency	Contact
CUPA for Hazardous Materials Inventory and Business Emergency Plan and RMP	Orange County Environmental Health Division—Hazardous Materials Management Section	CUPA Supervisor Darwin Chang Orange County Environmental Health Division—Hazardous Materials Management Section 1241 East Dyer Road, Suite 120 Santa Ana, CA 92705 (714) 433-6000
Fire Department Permits	OCFA	Linda Martinez Orange County Fire Authority Planning and Development Services 1 Fire Authority Road Irvine, CA 93602 (714) 573-6145
Hazardous Materials Response	OCFA	Mike Morganstern, Battalion Chief Station 79 Santa Ana 1320 East Warner Avenue Santa Ana, CA 92705 (714) 567-3236
	Orange County Environmental Health Division—Hazardous Materials Management Section	CUPA Supervisor Darwin Chang Orange County Environmental Health Division—Hazardous Materials Management Section 1241 East Dyer Road, Suite 120 Santa Ana, CA 92705 (714) 433-6000 / (714) 433-6250

5.5.7 Permits and Permit Schedule

The Orange County Environmental Health Division requires that project developers obtain the permits listed in Table 5.5-7 before storing hazardous materials onsite.

Table 5.5-7. Permits and Permit Schedule for Hazardous Materials Handling

Permit	Agency Contact	Schedule
HMBEP	Orange County Environmental Health Division– Hazardous Materials Management Section 1241 East Dyer Road, Suite 120 Santa Ana, CA 92705 (714) 433-6000	Approximately 30 days before any regulated substance comes onsite, and submitted through Orange County’s E-Submit Business Portal or the California Environmental Reporting System (CERS)
RMP	Orange County Environmental Health Division– Hazardous Materials Management Section 1241 East Dyer Road, Suite 120 Santa Ana, CA 92705 (714) 433-6000	As requested by Orange County Environmental Health

5.5.8 References

CH2M HILL Engineers, Inc. (CH2M). 2016a. Telephone Conversation Record – Milia, Orange County Fire Authority. August 17.

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