

## **5.5 Hazardous Materials Handling**

This section discusses the potential effects on human health and the environment from the storage and use of hazardous materials in conjunction with the proposed Mariposa Energy Project (MEP). 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 Local Land Use**

Land use in the area surrounding the project site (discussed in detail in Section 5.6, Land Use) is primarily agricultural. A 6.5-megawatt cogeneration facility is located on the same parcel and immediately north of MEP. Additionally, several utility-related facilities are located in the immediate area, including the Pacific Gas and Electric Company (PG&E) Bethany Compressor Station and Kelso Substation. Sensitive receptors within a 6-mile radius of the project site include five schools and 23 preschool/day care facilities. These receptors are listed in Appendix 5.5A and shown on Figure 5.5-1, which includes additional sensitive receptors that were not identified in the Environmental Data Resources database search. The list of sensitive receptors and information sources are discussed further in Section 5.9, Public Health. The nearest of these receptors, as well as the nearest school to the project site, is Mountain House School at 3950 Mountain House Road, located approximately 1.4 miles east of the project site. The nearest hospital is Sutter Tracy Community hospital, which is located approximately 9.6 miles southeast.

#### **5.5.1.2 MEP Hazardous Materials Use**

MEP will use hazardous materials during construction and operation. Hazardous materials are required for emissions control and facility operation and maintenance, such as lubrication of equipment, or will be contained within transformers and electrical switches. Mariposa Energy 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 these uses, followed by tables detailing the hazardous materials used, their characteristics, the quantities of use, and use locations.

##### **5.5.1.2.1 Construction Phase**

The quantities of hazardous materials that will be onsite during construction are small relative to the quantities used during operation. They 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 manufacturers' requirements for coating.

Regulated substances, as defined in California's Health and Safety Code, Section 25531, will not be used during construction of the project. Therefore, no discussion of regulated substances storage or handling is included in this section.

#### **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 a Proposition 65 chemical (a chemical 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 (for example, sodium hypochlorite and ammonia).

Most of the hazardous substances that will be used by the project are required for facility maintenance and lubrication of equipment, or will be contained within transformers and electrical switches. The only regulated substance that will be used for the project is aqueous ammonia used for emissions control; toxicity characteristics and the exposure level criteria for this regulated substance are included in Table 5.5-4.

### **5.5.2 Environmental Analysis**

Construction and operation of the project 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**

According to California Environmental Quality Act (CEQA) significance criteria, the proposed project would result in a significant impact if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal 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 or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, 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



**TABLE 5.5-1**  
Use and Location of Hazardous Materials

Chemical	Use	Quantity	Storage Location (GA Location Code)	State	Type of Storage
Aqueous Ammonia (19% NH <sub>3</sub> by weight)	Control oxides of nitrogen (NO <sub>x</sub> ) emissions through selective catalytic reduction	8,500 gallons	Onsite storage tanks with secondary containment (38)	Liquid	Continuously onsite
R 134A (1-1-1-2-Tetrafluoroethane)	Refrigerant in the inlet air chiller system	26,960 pounds	Inlet air chiller system (21)	Liquid	Continuously onsite
Cleaning chemicals/detergents	Periodic cleaning of combustion turbine	Varies (less than 25 gallons liquids or 100 pounds solids for each chemical)	Chemical storage tote or drums at a protected temporary storage location onsite (40)	Liquid	Continuously onsite
Diesel No. 2	Fuel back-up fire pump	200 gallons	Permanent onsite storage in above ground storage tank with secondary containment (32)	Liquid	Continuously onsite
Hydraulic oil	High-pressure combustion turbine starting system, turbine control valve actuators	150 gallons	Onsite 55-gallon drums (9)	Liquid	Continuously onsite
Laboratory reagents	Water/wastewater laboratory analysis	Varies (less than 5 gallons liquids or 10 pounds solids for each chemical)	Laboratory chemical storage cabinets (stored in original chemical storage containers/bags) (43)	Liquid and granular solid	Continuously onsite
Lubrication oil	Lubricate rotating equipment (e.g., gas turbine and steam turbine bearings)	400 gallons	Onsite 55-gallon drums and 200-gallon waste oil storage tank (5)	Liquid	Continuously onsite
Mineral insulating oil	Transformers/switchyard	28,800 gallons	Inside the transformers; no mineral actually stored on site (18)	Liquid	Continuously onsite

**TABLE 5.5-1**  
Use and Location of Hazardous Materials

Chemical	Use	Quantity	Storage Location (GA Location Code)	State	Type of Storage
Sodium carbonate	Alkalinity source for nitrification reactor	200 pounds	Dry storage area	Solid Powder	Initial startup and periodically onsite
Sodium hypochlorite (12.5 % solution)	Biocide/biofilm control for potable, fire, and service water systems	500 gallons	Water treatment chemical feed storage (40)	Liquid	Continuously onsite; 250-gallon stackable totes inside secondary containment
Acetylene	Welding gas	185 pounds	Maintenance / warehouse building (40)	Gas	Continuously onsite
Oxygen	Welding gas	250 pounds	Maintenance / warehouse building (40)	Gas	Continuously onsite
Propane	Torch gas	300 pounds	Maintenance /warehouse building (40)	Gas	Continuously onsite
EPA protocol gases	Calibration gases	25 pounds	CEMS enclosures (2)	Gas	Continuously onsite
Cleaning chemicals	Cleaning	Varies (less than 25 gallons liquids or 100 pounds solids for each chemical)	Admin/control building, maintenance/warehouse building (40)	Liquid or solid	Continuously onsite
Paint	Touchup of painted surfaces	Varies (less than 25 gallons liquids or 100 pounds solids for each type)	Maintenance /warehouse building (40)	Liquid	Continuously onsite

**TABLE 5.5-2**  
 Chemical Inventory, Description of Hazardous Materials Stored On Site, and Reportable Quantities

Trade Name	Chemical Name	CAS Number	Maximum Quantity Onsite	CERCLA SARA RQ <sup>a</sup>	RQ of Material as Used Onsite <sup>b</sup>	EHS TPQ <sup>c</sup>	Regulated Substance TQ <sup>d</sup>	Prop 65
Aqueous ammonia (19% NH <sub>3</sub> by weight)	Aqueous ammonia	7664-41-7	8,500 <sup>e</sup> gal	100 lb	100 lb	500 lb	500 lb	No
R134A	1-1-1-2-Tetrafluoroethane	811-97-2	26,960 gal	f	f	f	f	No
Cleaning chemicals/detergents	Various	None	Varies (less than 25 gal liquids or 100 lbs solids for each chemical)	f	f	f	f	No
Diesel No. 2	Diesel No. 2	68476-34-6	200 gal	f	f	f	f	No
Hydraulic oil	Oil	None	150 gal	442 gal <sup>g</sup>	42 gal <sup>g</sup>	f	f	No
Laboratory reagents	Various	Various	Varies (less than 5 gal liquids or 10 lbs solids for each chemical)	f	f	f	f	No
Lubrication oil	Oil	None	400 gal	42 gal <sup>g</sup>	42 gal <sup>g</sup>			No
Mineral insulating oil	Oil	8012-95-1	28,800 gal	42 gal <sup>g</sup>	42 gal <sup>g</sup>			No
Sodium carbonate	Sodium carbonate	497-19-8	200 lb	f	f	f	f	No
Sodium hypochlorite	Sodium hypochlorite	7681-52-9	500 gal	100 lb	100 lb	f	f	No
Acetylene	Acetylene	47-86-2	185 lb	f	f	f	f	No
Oxygen	Oxygen	7782-44-7	250 lb	f	f	f	f	No
Propane	Propane	74-98-6	300 lb	f	f	f	f	No
EPA protocol gases	Various	Various	25 lb	f	f	f	f	No

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Trade Name	Chemical Name	CAS Number	Maximum Quantity Onsite	CERCLA SARA RQ <sup>a</sup>	RQ of Material as Used Onsite <sup>b</sup>	EHS TPQ <sup>c</sup>	Regulated Substance TQ <sup>d</sup>	Prop 65
Cleaning chemicals	Various	Various	Varies (less than 25 gal liquids or 100 lbs solids for each chemical)	f	f	f	f	No
Paint	Various	Various	Varies (less than 25 gal liquids or 100 lbs solids for each type)	f	f	f	f	No

<sup>a</sup> RQ for a pure chemical, per the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Superfund Amendments and Reauthorization Act (SARA) (Ref. 40 Code of Federal Regulations [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.

<sup>b</sup> RQ for materials as used onsite. Since 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% of a reportable chemical and the RQ is 100 lb., the RQ for that material would be (100 lb.)/(10%) = 1,000 lb.

<sup>c</sup> Extremely Hazardous Substance (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.

<sup>d</sup> TQ is from 19 California Code of Regulations (CCR) 2770.5 (state) or 40 CFR 68.130 (federal)

<sup>e</sup> Ammonia tank capacity is 10,000 gallons; however, the tank is only filled to 85% of its capacity, or 8,500 gallons.

<sup>f</sup> No reporting requirement. Chemical has no listed threshold under this requirement.

<sup>g</sup> State RQ for oil spills that will reach California state waters [Ref. CA Water Code Section 13272(f)]

gal = gallon  
 lb = pound  
 TQ = threshold quantity

**TABLE 5.5-3**  
Toxicity, Reactivity, and Flammability of Hazardous Substances Stored On Site

<b>Hazardous Materials</b>	<b>Physical Description</b>	<b>Health Hazard</b>	<b>Reactive &amp; Incompatibles</b>	<b>Flammability*</b>
Aqueous ammonia	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
R 134A	Colorless liquid gas, slight ether-like odor	Inhalation in high concentrations is harmful, may cause heart irregularities, unconsciousness or death	Alkali, alkaline earth metals, and molten salts	Flammable
Cleaning chemicals/detergents	Liquid	Refer to individual chemical labels	Refer to individual chemical labels	Refer to individual chemical labels
Diesel No. 2	Oily, light liquid	May be carcinogenic	Sodium hypochlorite	Flammable
Hydraulic oil	Oily, dark liquid	Hazardous if ingested	Sodium hypochlorite; oxidizers	Combustible
Laboratory reagents	Liquid and solid	Refer to individual chemical labels	Refer to individual chemical labels	Refer to individual chemical labels
Lubrication oil	Oily, dark liquid	Hazardous if ingested	Sodium hypochlorite; oxidizers	Flammable
Mineral insulating oil	Oily, clear liquid	Minor health hazard	Sodium hypochlorite; oxidizers	Can be combustible, depending on manufacturer
Sodium carbonate	White solid (solid powder) and odorless	Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation (lung irritant)	Reactive with acids Slightly reactive to reactive with moisture	Not flammable
Sodium hypochlorite	Colorless liquid with strong odor	Harmful by ingestion, inhalation and through skin contact	Incompatible with strong acids, amines, ammonia, ammonium salts, reducing agents, metals, aziridine, methanol, formic acid, phenylacetoneitrile	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 percent copper, and brazing materials containing silver or copper	Flammable

**TABLE 5.5-3**  
Toxicity, Reactivity, and Flammability of Hazardous Substances Stored On Site

<b>Hazardous Materials</b>	<b>Physical Description</b>	<b>Health Hazard</b>	<b>Reactive &amp; Incompatibles</b>	<b>Flammability*</b>
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

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

\* Per U.S. Department of Transportation regulations, under 49 CFR 173: "Flammable" liquids have a flash point less than or equal to 141 degrees Fahrenheit (°F); "Combustible" liquids have a flash point greater than 141°F.

**TABLE 5.5-4**  
Toxic Effects and Exposure Levels of Regulated Substance

Name	Toxic Effects	Exposure Levels-Pure NH <sub>3</sub>
Aqueous ammonia (19% 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, hemmoptysis, and pneumonitis. Damage to eyes may be permanent, including ulceration of conjunctiva and cornea and corneal and lenticular opacities.	Occupational Exposures: PEL = 35 mg/m <sup>3</sup> OSHA TLV = 18 mg/m <sup>3</sup> ACGIH TWA = 25 mg/m <sup>3</sup> NIOSH STEL = 35 mg/m <sup>3</sup> Hazardous Concentrations: IDLH = 500 ppm LD <sub>50</sub> = 350 mg/kg – oral, rat ingestion of 3 to 4 mL may be fatal Sensitive Receptors: ERPG-1 = 25 ppm ERPG-2 = 200 ppm ERPG-3 = 1,000 ppm

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

LD<sub>50</sub> = Dose lethal to 50 percent of those tested

mg/kg = milligrams per kilogram

mg/m<sup>3</sup> = milligrams per cubic meter

mL = milliliter

PEL = Occupational Health and Safety Administration-permissible exposure limit for 8-hour workday

ppm = parts 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

### 5.5.2.2 Transportation of Hazardous Materials

Project operation will require regular transportation of hazardous materials to the project site (see also Section 5.12, Traffic and Transportation). 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 (DTSC), 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 Vehicle Code 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. The recommended route subject to Caltrans approval for hazardous materials delivery to the MEP site is from I-580 and/or I-205 to northwest along Byron Bethany Road and south along Bruns Road. From Contra Costa County, the route will be southeast on Byron Bethany Road and south on Bruns Road to the site. This route was selected to avoid residential and sensitive receptor locations.

### 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 MEP site and will pose minor hazards associated with their use. Small oil spills have the potential to occur during onsite refueling. Equipment refueling will be performed away from water bodies 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. In the event of a fueling truck accident, first responders would be notified immediately to direct emergency response requirements appropriate for the situation. Following initial emergency response, follow-on investigation and clean-up would be performed with agency oversight in accordance with the approved notification requirements of the construction SWPPP.

The quantities of hazardous materials that will be handled during construction are relatively small and Best Management Practices (BMPs) will be implemented by contractor personnel. Therefore, the potential for environmental effects is expected to be small.

#### 5.5.2.3.2 Project Operation

As stated previously, most of the hazardous substances that will be used by the project are required for nitrogen oxides (NO<sub>x</sub>) emission controls (i.e., 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 Materials Business Plan (HMBP). As shown on Figure 5.5-1, hazardous or acutely hazardous materials, substances, or wastes will not be handled or emitted within 0.25 miles of an existing or proposed school.

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 project is aqueous ammonia, described below and in Table 5.4-4.

#### ***Aqueous Ammonia***

Ammonia is required for the selective catalytic reduction (SCR) process to control NO<sub>x</sub> emissions from the combustion turbines. Ammonia can be stored and used either in anhydrous (pure) form or as a solution in water (aqueous). Anhydrous ammonia is commonly used for agricultural purposes in the project area for crop fertilization. As an example, a mobile anhydrous ammonia tank was observed adjacent to an irrigation ditch on North Tracy Boulevard on April 29, 2009.

Aqueous ammonia has the advantage of increased safety associated with transportation and storage. If an accidental release were to occur, ammonia would be released to the atmosphere via evaporation from the aqueous solution at a significantly slower rate than would be the case with an accidental release of anhydrous ammonia, which would result in a near instantaneous release of ammonia in gaseous form. Therefore, airborne concentrations from a release of aqueous ammonia would be significantly lower than a direct release of anhydrous ammonia. The disadvantages of using aqueous ammonia are

increased transportation costs and loss of operational efficiency because of the heat input required for water evaporation. Despite the increased costs and reduced operational efficiency, Mariposa Energy has elected to use a 19 percent by weight aqueous solution at MEP to maximize public and worker safety.

The MEP facility will store the 19 percent aqueous ammonia solution in a single stationary aboveground storage tank (AST). The capacity of the tank is approximately 10,000 gallons, but will only be filled to 85 percent capacity, or 8,500 gallons, to minimize the potential for overflow during tank filling. The tank will be surrounded by a secondary containment structure capable of holding the full contents of the tank and accumulated precipitation.

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 an underground spill containment vault will be provided for the ammonia storage tank and loading area. Additionally, 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 will be prepared for the site using updated modeling guidance prior to operation of MEP.

Because sodium hypochlorite and aqueous ammonia are incompatible chemicals, the sodium hypochlorite will be stored in a bermed area for secondary containment (an area capable of capturing any spills) that will be designed such that it is separated from ammonia, to eliminate potential interactions/reactions in the event that the chemicals are accidentally released. These materials will be physically separated at the site. The aqueous ammonia tank will be isolated within a dedicated secondary containment basin at the north end of the MEP site. Sodium hypochlorite will be stored in 250-gallon totes within secondary containment at the warehouse and maintenance building or adjacent to the potable water tank at distances of over 100 feet and 50 feet away, respectively, from the ammonia storage area. In the unlikely event of simultaneous accidental release of these materials, they would not commingle due to secondary containment, site drainage, and separation distance.

#### **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. Additionally, an uncontrolled release of liquid chemicals could run off and drain into the stormwater system and potentially degrade water quality. However Articles 79 and 80 of the California Fire Code include 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 project 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.

#### 5.5.2.4.1 Ammonia Release

Because of its hazardous properties, ammonia is classified as a regulated substance, and an accidental release of the 19-percent aqueous ammonia solution could present a human health hazard. Pure ammonia ( $\text{NH}_3$ ) is a volatile substance that is very soluble in water. Aqueous ammonia is not pure; instead, it 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. The rate of ammonia evaporation from a 19 percent aqueous solution would be very slow, as compared to a release of pure anhydrous ammonia. Therefore, potential airborne concentrations would be significantly less from an aqueous ammonia release.

#### 5.5.2.4.2 Offsite Consequences Analysis

Because there is human activity in the vicinity of the proposed MEP site, an Offsite Consequences Analysis (OCA) was performed to assess the risk to humans from the release of aqueous ammonia. Dispersion modeling was conducted using the SLAB numerical dispersion model (LLNL, 1990). The analysis assesses the risk to humans at various distances from the site if a spill or rupture of the aqueous ammonia storage tank were to occur or if a spill from the supply truck were to occur while refilling the storage tanks. The OCA analysis is provided in Appendix 5.5B and summarized below.

One 10,000-gallon aqueous ammonia aboveground storage tank (holding a maximum of 8,500 gallons of aqueous ammonia) will be installed. The ammonia tank will be 30 feet long and 10 feet in diameter. The ammonia storage tank and truck unloading area will drain into the 60-foot-long by 20-foot-wide by 3.5-foot-deep secondary containment basin capable of holding the full contents of the tank, plus rainwater. The containment basin will be covered, reducing exposed liquid surfaces by greater than 90 percent, in order to reduce downwind exposure in the case of a catastrophic release. This measure adds an additional, highly protective, level of mitigation beyond the selection of 19 percent aqueous solution.

An analysis of tank failure and subsequent release of aqueous ammonia was prepared using a numerical dispersion model. The analysis assumed the complete failure of the storage tank, the immediate release of the contents of the tank and the formation of an evaporating pool of aqueous ammonia within the covered secondary containment structure. Evaporative emissions of ammonia would be subsequently released into the atmosphere. Release rates for ammonia vapor from an evaporating 19 percent solution of aqueous ammonia were calculated assuming mass transfer of ammonia across the liquid surface occurs according to principles of heat transfer by natural convection.

Table 5.5-5 shows the modeled distance to the four benchmark criteria concentrations: lowest concentration posing a risk of lethality, (2,000 ppm), OSHA's IDLH (300 ppm), AIHA's ERPG-2 (150 ppm), and the CEC significance value (75 ppm).

**TABLE 5.5-5**  
Distance to EPA/CalARP and CEC Toxic Endpoints (ammonia)

Scenario	Distance in Feet (Meters) to 2,000 ppm	Distance in Feet (Meters) to IDHL (300 ppm)	Distance in Feet (Meters) to AIHA's ERPG-2 (150 ppm)	Distance in Feet (Meters) to CEC Significance Value (75 ppm)
0 ft (0 m) AGL	16 (4.9)	17 (5.3)	19 (5.7)	19 (5.9)
5.2 ft (1.6 m) AGL	20 (6.2)	23 (6.9)	25 (7.5)	25 (7.7)

The model input file and the output files are available upon request.

The site perimeter fenceline is located approximately 65 feet (20 meters) at its closest point (to the northeast) to the edge of the covered ammonia containment area. The results of the offsite consequence analysis for the worst-case release scenario of aqueous ammonia at MEP indicate that there will be no exceedances of the toxic endpoints beyond the fenceline and no significant offsite impacts associated with a failure of the ammonia tank.

#### 5.5.2.5 Fire and Explosion Hazards

Table 5.5-3 describes the flammability of the hazardous materials that will be found onsite. Article 80 of the California Fire Code requires all hazardous materials storage areas to be equipped with a fire extinguishing system and to be properly ventilated if enclosed.

Aqueous ammonia, which constitutes the largest quantity of hazardous materials 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; concentrations would remain well below the lower explosive limit of 15 percent (or 15,000 ppm).

The plant machinery lubrication oil is flammable. In accordance with Article 80 of the California Fire Code, the storage area for the lubrication oil will be equipped with a fire extinguishing system and the lubrication oil will be handled in accordance with an HMBP approved by the Alameda County Fire Department, Alameda County Environmental Health Department, and the CEC. With proper storage and handling of flammable materials in accordance with the California Fire Code and the site-specific HMBP, the risk of fire and explosion at the generating facility will be minimal.

The natural gas fuel the facility will use is flammable and could leak from the pipeline that brings the gas from the main PG&E distribution pipeline. Natural gas is composed mostly of methane, but also may contain ethane, propane, nitrogen, butane, isobutene, and isopentane. 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 will 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 of the 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 project's pipeline will be designed to meet at least Class 1 service and will meet California Public Utilities Commission (CPUC) General Order 112-D and 58-A standards, in addition to the federal requirements for gas pipeline construction and safety.

Alameda County Fire Department (ACFD) Station 8, located at 1617 College Avenue in Livermore, will be the primary responding station to MEP. It is located 19 miles from the project site and the response time to an emergency at the project site is about 30 minutes. There are three hazardous materials response (hazmat) teams in Alameda County, based at Stations 4, 12 and 20. The closest, and first responding hazmat team to MEP, is from Station 20, located at 7000 East Avenue in Livermore, which is 16 miles from MEP, with a response time of about 25 minutes.

ACFD has a mutual aid agreement with Tracy Fire Department (TFD). The mutual aid agreement calls for TFD to dispatch resources, if available, from Station 98, located at 911 Tradition Street in the community of Mountain House (Bosch, 2009). Station 98 is approximately 4.2 miles from the project site. The response time from Station 98 to the project site is approximately 12 minutes. Additional information on first response resources and jurisdiction is provided in Section 5.10, Socioeconomics.

Construction and operation of MEP is not expected to impair implementation of or physically interfere with any adopted emergency response plans or emergency evacuation plans.

#### **5.5.2.6 Schools**

The nearest school to MEP is Mountain House School, which is located approximately 1.4 miles to the east at 3950 Mountain House Road. The proposed transportation route for delivery of regulated materials such as aqueous ammonia, as well as for all other hazardous materials used at MEP, will not pass in the vicinity of the school or any other schools in the area. This route travels along Byron Bethany Road and south on Bruns Road to the project site from I-580, I-205, or from Contra Costa County.

### 5.5.3 Cumulative Effects

A cumulative impact 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 (Pub. Resources Code § 21083; California Code of Regulations [CCR] tit. 14, §§ 15064(h), 15065(c), 15130, and 15355).

Additional projects near the MEP site include the following:

- Mountain House community buildout
- East Altamont Energy Center
- Green Volts Utility Scale Solar Field, located on Kelso Road, across from the Tracy Substation
- Altamont Motorpark Sports Rezoning
- Midway Power, LLC Project
- Jess Ranch Organics Composting Facility, located south of I-580/Grant Line Road.

With the exception of the East Altamont Energy Center and the Midway Power Project, the remaining planned projects are not uses that would typically be anticipated to store hazardous materials in quantities significant enough to cause cumulative impacts.

The proposed East Altamont Energy Center, approximately 1.7 miles northeast of the site, will store approximately 24,000 gallons of anhydrous ammonia for use in its SCR system. The proposed Midway Power Project, located approximately 4.7 miles southeast of the MEP site, will store approximately 50,000 gallons of aqueous ammonia for emission controls.

Although the probability of a simultaneous release of ammonia from two or more sources is very low, the possibility of a multiple-release scenario was considered. Because of the distance between MEP and both the proposed East Altamont Energy Center and Midway Power Project, and because it is anticipated that a release of aqueous ammonia at MEP would not cause offsite impacts, cumulative effects from a simultaneous release would not be expected.

Additionally, existing laws and regulations address the handling of hazardous materials and the transportation and use of ammonia, an acutely hazardous material, and will ensure that all hazardous materials at MEP are safely managed.

### 5.5.4 Mitigation Measures

The following sections present measures included in the project to mitigate potential public health and environmental impacts of handling hazardous materials and regulated substances during construction and operation.

#### 5.5.4.1 Construction Phase

The hazardous materials that will 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 will 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 site, and require proper disposal or recycling of hazardous materials.

Construction service personnel will follow general industry health, safety, and environmental standards for filling and servicing construction equipment and vehicles. The standards are designed to reduce the potential for incidents involving the hazardous materials. They 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 hose.
- 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 bodies of water to prevent contamination of water in the event of a leak or spill.
- When refueling is completed, the service truck will leave the project 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 project 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), 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 a Proposition 65 chemical (a chemical 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 (for example, sodium hypochlorite and ammonia). Table 5.5-4 describes the toxicity of the regulated substance and hazardous materials. Listed below are 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:

- Provision of an automatic sprinkler system for indoor hazardous material storage areas
- Provision of an exhaust system for indoor hazardous material storage areas
- Separation of incompatible materials by isolating them from each other 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

An HMBP is required by CCR Title 19 and the Health and Safety Code (Section 25504). In accordance with these regulations, the HMBP will include an inventory and location map of hazardous materials onsite and an emergency response plan for hazardous materials incidents. Specific topics currently addressed in the plan will include:

- 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 HMBP will be filed with the Alameda County Environmental Health Department, the designated Certified Unified Program Agency (CUPA) for the project site, and will be updated annually in accordance with applicable regulations.

In accordance with emergency response procedures specified in the HMBP, designated personnel will be trained as members of a plant hazardous materials response team, and team members will receive the first responder and hazardous material technical training to be developed in the HMBP, including training in appropriate methods to mitigate and control accidental spills. In the event of a chemical emergency, plant personnel will defer to the Alameda County Environmental Health Department and first responders. Alameda County Fire Station No. 8 would be the first responders onsite. If warranted, the first responding hazmat team to the MEP site would be the team from Station 20, located at 7000 East Avenue in Livermore. Additionally, TFD may respond to emergencies if requested by ACFD, based on resource availability.

#### **5.5.4.2.2 Aqueous Ammonia**

Aqueous ammonia will be used in an SCR process to control NO<sub>x</sub> emissions created in the combustion chambers of the combustion turbines. The SCR system will include catalyst modules, an ammonia storage system, and an ammonia injection system. The aqueous ammonia, stored as a liquid solution of 19 percent ammonia and 81 percent water, will be injected into the turbine exhaust housing 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.

Approximately two to three times per month (or a maximum of 33 deliveries per year), one 6,500-gallon tanker truck will deliver aqueous ammonia to the site. The ammonia will be stored in an AST with a 10,000-gallon capacity (filled to a maximum of 8,500 gallons), within a secondary containment system, as required by the Uniform Fire Code. This containment system includes a bermed containment area surrounding the tank. The aqueous ammonia storage tank will be equipped with continuous tank level monitors, automated leak detection system, temperature and pressure monitors and alarms, and excess flow and emergency block valves.

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 Alameda County Environmental Health Department, the designated CUPA for the project site. The RMP will include a hazard assessment to evaluate the potential effects of accidental releases; a program for preventing accidental releases; and a program for responding to accidental releases to protect human health and the environment. The specific components of the RMP will include:

- 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 Occupational Health and Safety Administration (OSHA) regulations, because the OSHA 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. 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 equal to or greater than 1,320 gallons total (including 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, DTSC, CHP, and California State Fire Marshal regulations. Under the California Vehicle Code, the CHP has the authority to adopt regulations for transporting hazardous materials in California. The CHP can issue permits and specify the route for hazardous material delivery. Aqueous ammonia, a regulated substance, will be delivered to the facility, and transported in accordance with Vehicle Code Section 32100.5, which regulates the transportation of hazardous materials that pose an inhalation hazard. Ammonia will be transported only along approved transportation routes. The recommended route subject to Caltrans approval for hazardous materials delivery to the MEP site is from I-580 and/or I-205 to Northwest along Byron Bethany Road and South along Bruns Road. From Contra Costa County, the route would be southeast on Byron Bethany Road to Bruns Road.

#### **5.5.4.2.5 Security Plan**

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

- Descriptions of the 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 guards
- Security alarm for critical structures
- Perimeter breach detectors and onsite motion detectors
- Video or still camera monitoring system

#### **5.5.4.3 Monitoring**

In accordance with applicable federal, state, and local regulations, site personnel will regularly inspect all hazardous materials handling facilities for compliance with applicable regulations and would ensure that any deficiencies were promptly repaired. Additionally, the facility will be subject to regular inspections by the Alameda County Department of Environmental Health, which will 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 5.5-6 and described below.

TABLE 5.5-6

Laws, Ordinances, Regulations, and Standards for Hazardous Materials Handling

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
<b>Federal</b>			
Section 302, EPCRA (Pub. L. 99-499, 42 USC 11022)  Hazardous Chemical Reporting: Community Right-To-Know (40 CFR 370)	Requires one-time notification if extremely hazardous substances are stored in excess of TPQs.	Alameda County Environmental Health Department	An HMBP will be prepared for submittal to Alameda County Environmental Health Department (Section 5.5.4.2.1).
Section 304, EPCRA (Pub. L. 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.	Alameda County Environmental Health Department	An HMBP will be prepared to describe notification and reporting procedures (Section 5.5.4.2.1).
Section 311, EPCRA (Pub. L. 99-499, 42 USC 11021)  Hazardous Chemical Reporting: Community Right-To-Know (40 CFR 370)	Requires that MSDSs for all hazardous materials or a list of all hazardous materials be submitted to the SERC, LEPC, and Alameda County Environmental Health Department.	Alameda County Environmental Health Department	The HMBP will include a list of hazardous materials for submission to agencies (Section 5.5.4.2.1)
Section 313, EPCRA (Pub. L. 99-499, 42 USC 11023)  Toxic Chemical Release Reporting: Community Right-To-Know (40 CFR 372)	Requires annual reporting of releases of hazardous materials.	Alameda County Environmental Health Department	The HMBP will describe reporting procedures (Section 5.5.4.2.1).
Section 112, CAA Amendments (Pub. L. 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.	Alameda County Environmental Health Department	Not applicable for 19% aqueous ammonia; a CalARP RMP will be prepared and submitted to the Alameda County Environmental Health Department (Section 5.5.4.2.2)
Section 311, CWA (Pub. L. 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.	SWRCB	An SPCC will be prepared (Section 5.5.4.2.3)

**TABLE 5.5-6**  
Laws, Ordinances, Regulations, and Standards for Hazardous Materials Handling

<b>LORS</b>	<b>Requirements/Applicability</b>	<b>Administering Agency</b>	<b>AFC Section Explaining Conformance</b>
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)
<b>State</b>			
Health and Safety Code, Section 25500, et seq. (HMBP)	Requires preparation of an HMBP if hazardous materials are handled or stored in excess of threshold quantities.	Cal-OSHA	An HMBP will be prepared for submittal to the Alameda County Environmental Health Department (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.	Alameda County Environmental Health Department	An RMP will be prepared and submitted to the Alameda County Environmental Health Department (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.	SWRCB	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)
CPUC General Order Nos. 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 General Orders (Section 5.5.5.2.5)

**TABLE 5.5-6**  
Laws, Ordinances, Regulations, and Standards for Hazardous Materials Handling

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
<b>Local</b>			
East County Area Plan	Provides guidance for siting and management of facilities that store, collect, treat, dispose, or transfer hazardous waste and hazardous materials.	Alameda County Environmental Health Department and Alameda County Fire Department	Mariposa Energy will comply with the county's Hazardous Materials stipulations as put forth in the East County Area Plan (Section 5.5.5.3)
AST	Aboveground Storage Tank		
CAA	Clean Air Act		
CalARP	California Accidental Release Program		
Cal-OSHA	California Division of Occupational Safety and Health		
CPUC	California Public Utilities Commission		
CWA	Clean Water Act		
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986		
LEPC	local emergency planning committee		
MSDS	Material Safety Data Sheet		
OEHHA	Office of Environmental Health Hazard Assessment		
Pub. L.	Public Law		
RMP	Risk Management Plan		
RQ	Reportable Quantities		
SERC	state emergency response commission		
SPCC	Spill Prevention Control and Counter Measures		
SWRCB	State Water Resources Control Board		
TPQs	Threshold Planning Quantities		
USC	United States Code		

### 5.5.5.1 Federal LORS

Hazardous materials are governed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); the CAA; and the Clean Water Act (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 agency for the above authority is OSHA and the California Division of Occupational Safety and Health (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); standards for packaging hazardous materials (Parts 173); and standards for transporting hazardous materials in tank cars (179). The administering agencies for the above authority are the CHP and U.S. Department of Transportation.

### 5.5.5.1.3 CERCLA

The Superfund Amendments and Reauthorization Act (SARA) amends 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:

- 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 committee (LEPC) and the state emergency response commission (SERC) 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, D.C. (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 MSDSs for all hazardous materials or a list of all hazardous materials be submitted to the SERC, 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 IX, the National Response Center, and the Alameda County Environmental Health Department. The Alameda County Environmental Health Department is the designated 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 that store 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.

### 5.5.5.1.5 Clean Water Act

The SPCC program 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 program 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 program is administered by the local CUPA, which is Alameda County Environmental Health Department.

Other related federal laws that address hazardous materials but do not specifically address their handling, are 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 of the 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 facility 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, California Code of Regulations, Section 339; Section 3200 et seq., Section 5139 et seq. and Section 5160 et seq.**

Section 339 of Title 8 of the CCR lists hazardous chemicals relating to the Hazardous Substance Information and Training Act ; 8 CCR Section 3200 *et seq.* and 5139 *et seq.* address control of hazardous substances; and 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 (California Accidental Release Program)**

California Health and Safety Code, Section 25531, *et seq.*, and the CalARP regulate the registration and handling of regulated substances. Regulated substances are any chemicals designated as EHSs by the 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. The 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, that is 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 federal 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 a SPCC plan.

#### **5.5.5.2.5 Safe Drinking Water and Toxics Enforcement Act (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. Some of the chemicals to be used at the facility are on the cancer-causing and reproductive-toxicity lists of the act.

#### **5.5.5.2.6 Natural Gas Pipeline Construction and Safety**

The CPUC enforces General Order No. 58-A specifying standards for natural gas service in the State of California and General Order No. 112-E specifying rules governing the design, construction, testing, operation, and maintenance of natural gas gathering, transmission, and distribution piping systems. MEP will connect to an existing PG&E high-pressure natural gas pipeline, which is located northeast of the site, via a new 580-foot pipeline.

#### **5.5.5.3 Local LORS**

The Alameda County Environmental Health Department is the designated CUPA and is responsible for administering HMBPs, Hazardous Materials Management Plans, SPCC Plans, and RMPs filed by businesses located in the county. The Alameda County Environmental Health Department is also responsible under the CUPA program for underground storage tank compliance. Additionally, the Alameda County Environmental Health Department is responsible for ensuring that businesses and industry store and use hazardous materials safely and in conformance with various regulatory codes. The Alameda County Environmental Health Department performs inspections at established facilities to verify that hazardous materials are properly stored and handled and that the types and quantities of materials reported in a firm’s HMBP are accurate.

#### **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:

- California Vehicle Code, 13 CCR 1160, et seq. – Provides the CHP with authority to adopt regulations for the transportation of hazardous materials in California; the CHP can issue permits and specify the route for hazardous material delivery.
- The California Fire Code, Articles 79 and 80 – The hazardous materials sections of the Fire Code; local fire agencies or departments enforce this code and can require that an HMBP and a Hazardous Materials Inventory Statement be prepared; the California Fire Code is based on the Federal 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 (ASME) Boiler and Pressure Vessel Code, Section VIII
- Alameda County Municipal Code

### 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 MEP. At the federal level, the EPA will be involved; at the state level, the California Environmental Protection Agency will be involved. However, local agencies primarily enforce hazardous materials laws. For MEP, the primary local agencies with jurisdiction will be the Alameda County Environmental Health Department and the Alameda County Fire Department. The persons to contact are shown in Table 5.5-7.

**TABLE 5.5-7**  
Agency Contacts for Hazardous Materials Handling

Issue	Agency	Contact
CUPA for Hazardous Materials Inventory and Emergency Business Plan and Risk Management Plan	Alameda County Department of Environmental Health, Hazardous Materials Division 1131 Harbor Bay Parkway Alameda, CA 94502	Rosana Garcia, Hazardous Materials Duty Specialist (510) 777-2149
Hazardous Materials Response	Alameda County Department of Environmental Health, Hazardous Materials Division 1131 Harbor Bay Parkway Alameda, CA 94502	Rosana Garcia, Hazardous Materials Duty Specialist (510) 777-2149

### 5.5.7 Permits Required and Permit Schedule

The Alameda County Environmental Health Department require that project developers obtain the permits listed in Table 5.5-8 before storing hazardous materials on site.

**TABLE 5.5-8**  
Permits and Permit Schedule for Hazardous Materials Handling

Permit	Agency Contact	Schedule
Hazardous Materials Business Plan	Alameda County Department of Environmental Health, Hazardous Materials Division Rosana Garcia, Hazardous Materials Duty Specialist 1131 Harbor Bay Parkway Alameda, CA 94502 (510) 777-2149	Approximately 60 days before any regulated substance comes onsite

**TABLE 5.5-8**  
Permits and Permit Schedule for Hazardous Materials Handling

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<b>Permit</b>	<b>Agency Contact</b>	<b>Schedule</b>
Risk Management Plan	Alameda County Department of Environmental Health, Hazardous Materials Division Rosana Garcia, Hazardous Materials Duty Specialist 1131 Harbor Bay Parkway Alameda, CA 94502 (510) 777-2149	Approximately 60 days before any regulated substance comes onsite

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### 5.5.8 References

Bosch, Chris/Tracy Fire Department Fire Chief. 2009. Personal communication with Fatuma Yusuf/CH2M HILL. May 18.

Lewis, Richard J., Sr. 1991. *Hazardous Chemical Desk Reference*, 2nd Edition.