

## 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 Redondo Beach Energy Project (RBEP). Section 5.5.1 describes the project setting and Section 5.5.2 describes the existing environment that may be affected. Section 5.5.3 identifies potential impacts on the environment and on human health from site development. Section 5.5.4 addresses potential cumulative effects, Section 5.5.5 presents proposed mitigation measures, and Section 5.5.6 presents the laws, ordinances, regulations, and standards (LORS) applicable to hazardous materials. Section 5.5.7 describes the agencies involved and provides agency contacts. Section 5.5.8 describes permits required and the permit schedule. Section 5.5.9 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 Setting

RBEP is a 496-megawatt (MW)<sup>1</sup> natural-gas-fired power plant, consisting of one 3-on-1 combined-cycle gas turbine power block. The power block includes three combustion turbine generators (CTG), three supplemental-fired heat recovery steam generators (HRSG), one steam turbine generator (STG), an air-cooled condenser, and related ancillary equipment. RBEP will be constructed entirely within the existing approximately 50-acre Redondo Beach Generating Station site in Redondo Beach, California. The project will use the existing onsite potable water, natural gas, stormwater, process wastewater, and sanitary pipelines and electrical transmission facilities. No offsite linear developments are proposed as part of the project.

RBEP will use potable water, provided by the California Water Service Company, for construction water and for operational process and sanitary uses. During RBEP operation, stormwater and process wastewater will be discharged to a retention basin and then ultimately to the Pacific Ocean via an existing permitted outfall. Sanitary wastewater will be conveyed to the Los Angeles County Sanitation District via the existing City of Redondo Beach sewer connection. A new onsite 230-kilovolt (kV) transmission interconnection will connect the RBEP power block to the existing onsite Southern California Edison (SCE) 230-kV switchyard.

Construction and demolition activities at the project site are anticipated to last 60 months, from January 2016 until December 2020. The first activities to occur onsite will be the dismantling and partial removal of existing Units 1–4. The major generating equipment including steam turbines, generators, boilers, and duct work will be removed, leaving the administration building and western portion of the building that houses Units 1–4 intact. These buildings will be left standing temporarily to provide screening between the construction site of the new power block and Harbor Drive. Construction of the new power block will begin in the first quarter of 2017 and continue through to the end of the second quarter 2019, when it will be ready for commercial operation. Although operational, construction will continue through 2019 including construction of the new control building and the relocation of the Wyland Whaling Wall. The existing Units 5–8 and auxiliary boiler No. 17 will remain in service until the second quarter of 2018. Units 5–8 and auxiliary boiler No. 17 will be demolished starting the first quarter of 2019 through the fourth quarter of 2020. During the demolition and removal of Units 5–8, the Wyland Whaling Wall will be dismantled and moved to a new location directly in front of the new power block. Finally, the remaining buildings and structures left standing will be demolished and removed by the end of 2020.

All laydown and construction parking areas will be located within the existing Redondo Beach Generating Station fence line, as shown in Figure 2.1-1. Approximately 17 acres onsite will be used for construction laydown and parking. All construction equipment and supplies will be trucked directly to the site.

### 5.5.2 Affected Environment

Land use in the vicinity of the RBEP site (discussed in detail in Section 5.6, Land Use) is a mix of commercial, residential, and recreational development. The project site is bounded to the north by residential areas in the city

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<sup>1</sup> Referenced to site ambient average temperature (SAAT) conditions of 63.3°F dry bulb and 58.5°F wet bulb temperature.

of Hermosa Beach, to the east by a storage facility and office buildings, to the south by mixed use residential and commercial areas, and to the west by King Harbor marina and the Pacific Ocean.

A total of 1,635 sensitive receptors have been identified within 6 miles of the site, including 644 daycare facilities; 797 hospitals, doctors' offices, and long-term/senior care facilities; and 194 schools and colleges. These receptors are listed in Appendix 5.9A. The nearest residences are across Herondo Street from the project site approximately 80 feet to the north of the Redondo Beach Generating Station fence line. In addition, residential areas are interspersed throughout the project vicinity to the north, east and south.

The nearest school to the project site is the Redondo Beach Yak Academy Learning Center and Preschool, located at 553 North Pacific Coast Highway, Redondo Beach, California, 90277, approximately 825 feet east of the project fence line. The nearest hospital is Providence Little Company of Mary Medical, which is located at 4101 Torrance Boulevard in Torrance, California, and is approximately 3 miles southeast of the project. The nearest long-term health care facility/senior facility is Salvation Army's Roland R. Mindeman Senior Residence at 125 W. Beryl Street, Redondo Beach, California, 90277, located adjacent to the southern fence line of RBEP.

### 5.5.3 Environmental Analysis

Construction/demolition 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.

#### 5.5.3.1 Significance Criteria

The project could have a significant effect on the environment in terms of hazardous materials handling if it would do the following (California Environmental Quality Act [CEQA] 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.

#### 5.5.3.2 RBEP Hazardous Materials Use

RBEP will use hazardous materials during project construction, demolition, and operation activities. The project 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, their characteristics, the quantities to be used, and use locations.

##### 5.5.3.2.1 Construction and Demolition Phases

Relatively small quantities of hazardous materials will be onsite during RBEP construction and demolition of the existing Redondo Beach Generating Station facilities, 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. Best management practices (BMP) described in Section 5.5.5.1 will be implemented by contractor personnel. Therefore, the potential for environmental effects will be less than significant.

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

### 5.5.3.2.2 Operations Phase

Storage locations for the hazardous materials that will be used during project operations 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 (RQ), California Accidental Release Program (CalARP) threshold planning quantities (TPQ), 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 (e.g., sodium hypochlorite and ammonia).

TABLE 5.5-1  
Use and Location of Hazardous Materials

Chemical	Estimated Delivery Schedule	Use	Quantity	Storage Location	State	Type of Storage
Aqueous ammonia (19% NH <sub>3</sub> by weight)	One Truck (7,000 gallon) approx 4 to 5 times per month	Control NOx emissions through selective catalytic reduction (SCR)	24,000 gallons	Onsite storage tank	Liquid	Continuously onsite
Aqueous ammonia (19% NH <sub>3</sub> by weight)	One tote per month	Condensate/feedwater/ boiler water and steam pH control, i.e., cycle pH control	400-gallon tote	Onsite storage tank	Liquid	Continuously onsite
Anti-scalant (e.g., NALCO PermaTreat® PC-191T)	One tote per year	Inhibit mineral scale in reverse osmosis (RO) microfiltration (MF) membranes	400 gallons	Water treatment building	Liquid	Continuously onsite
Battery electrolyte	Complete change out every 10 years	Uninterruptible power supply and emergency shutdown battery array	1,000 gallons	Battery rooms	Liquid	Continuously onsite
Citric acid	Two pallets for commissioning, then one pallet every 5 years	Cleaning of heat-recovery steam generator Reverse osmosis microfiltration membrane cleaning	500 pounds	Pallet supported chemical storage bags in existing hazardous storage area.	Solid powder	Initial startup and periodically onsite
Cleaning chemicals/detergents	One drum (50 gallon) every 2 years	Periodic cleaning of combustion turbine	55 gallons	Chemical storage tote or drums at existing hazardous storage area.	Liquid	Continuously onsite
Cleaning chemicals / detergents for membrane-based water treatment systems* (e.g., NALCO PermaClean® PC-77, NALCO PERMACLEAN® PC-40, and NALCO PermaClean® PC-98)	One drum every 2 years	Periodic cleaning of RO, MF, and electrodeionization (EDI) systems	25 gallons	Water treatment building	Liquid and/or powders	Continuously onsite (used intermittently)
Sanitization chemicals for membrane-based (MF/RO/EDI) water treatment systems (e.g., NALCO PermaClean® PC-11)	One tote per year	Periodic cleaning of accumulated biofilms on the membranes of the RO, MF, and EDI systems	400 gallons	Water treatment building	Liquids	Continuously onsite (used intermittently)
Hydraulic Fluid	As needed in very small quantities	Portable equipment in shop	100 gallons	Shop	Liquid	Continuously onsite

TABLE 5.5-1  
Use and Location of Hazardous Materials

Chemical	Estimated Delivery Schedule	Use	Quantity	Storage Location	State	Type of Storage
Fire Resistive Hydraulic fluid (e.g., Akzo Chemicals Fyrquel®)	Three drums every 5 years	Steam turbine control valve actuators	150 gallons	Hydraulic oil reservoir beneath the steam turbine pedestal and drums storage in existing hazardous material storage area.	Liquid	Continuously onsite
Laboratory reagents	Replenish monthly	Water/wastewater laboratory analysis	10 gallons	Chemical storage cabinets (stored in original chemical storage containers/bags) in lab areas located in steam cycle sample enclosure and Water Treatment Building	Liquid and granular solid	Continuously onsite
Lubrication oil	55 gallons every 6 months (makeup for losses during filter changes)	Lubricate rotating equipment (e.g., combustion turbine and steam turbine bearings)	10,000 gallons	Lubricating oil reservoirs adjacent to the combustion turbines and steam turbine and drum storage in existing hazardous material storage area	Liquid	Continuously onsite
Mineral insulating oil	Once, prior to operations	Transformers	41,000 gallons	Transformer tanks and drum storage in existing hazardous material storage area	Liquid	Continuously onsite
Waste Oil	Every 90 days	Vehicle and small equipment oil changes	500 gallons	Waste oil storage tank existing hazardous material storage area	Liquid	Continuously onsite but drained every 90 days
Amine solution (e.g., NALCO 5711)	One tote per month	Condensate/feedwater/ boiler water and steam pH control (i.e., cycle pH control)	400 gallons	West of steam turbine pedestal	Liquid	Continuously onsite
Sodium bisulfite (NaHSO <sub>3</sub> ) (e.g., NALCO PERMA-CARE® PC-7408)	One tote per year	Reduce oxidizers in RO feed to protect the RO membranes	500 gallons	Water treatment building	Liquid	Continuously onsite
Sulfuric acid (93%)	One tote per year	RO feedwater pH control	600 gallons	Water treatment building	Liquid	Continuously onsite
Sodium hydroxide (NaOH) solution (20 to 50%)	One tote per year	MF membrane cleaning	400 gallon	Water treatment building	Liquid	Continuously onsite

TABLE 5.5-1  
Use and Location of Hazardous Materials

Chemical	Estimated Delivery Schedule	Use	Quantity	Storage Location	State	Type of Storage
Sodium hypochlorite (12.5% trade)	One tote per year	Fire/service water storage tank biological control MF system membrane cleaning Evaporative fluid cooler biocide	600 gallons	Water treatment building and adjacent to the evaporative fluid cooler	Liquid	Continuously onsite
Hydrochloric acid	One tote every 2 years	MF system membrane cleaning	25 gallons	MF treatment area	Liquid	Continuously onsite (used intermittently)
Sodium nitrite	One tote per year	Closed loop cooling corrosion inhibitor	500 pounds	Water treatment building and under steam turbine pedestal	Solid	Continuously onsite (used intermittently)
Proprietary corrosion/scale inhibitor (e.g., NALCO TRAC107)	Two drums per year	Closed loop cooling corrosion/scale inhibitor	110 gallons	Water treatment building and under steam turbine pedestal	Liquid	Continuously onsite (used intermittently)
Proprietary non-oxidizing biocide (e.g., NALCO 7330)	One tote every few years	Evaporative fluid cooler (i.e., wet surface air cooler) non-oxidizing biocide	400 gallons	Adjacent to the evaporative fluid cooler	Liquid	Continuously onsite
Propylene Glycol	One drum per year	Closed loop wetting agent/antifreeze	1,500 gallons	Cooling loop	liquid	Continuously onsite
Trisodium phosphate ( $\text{Na}_3\text{PO}_4$ ) or phosphate/sodium hydroxide blend (e.g., NALCO BT-3400 or NALCO BT-4000)	One tote every 6 months	Boiler water pH and corrosion control	400 gallons	Phosphate chemical feed area (located near boiler feed pumps)	Liquid	Continuously onsite
Sulfur hexafluoride	Estimate one tank every 5 years	Circuit breakers	200 pounds	SCE switchyard	Gas	Continuously onsite
Acetylene	As needed in very small quantities	Welding gas	540 cubic feet	Existing hazardous material storage area	Gas	Continuously onsite

TABLE 5.5-1  
Use and Location of Hazardous Materials

Chemical	Estimated Delivery Schedule	Use	Quantity	Storage Location	State	Type of Storage
Oxygen	As needed in very small quantities	Welding gas	540 cubic feet	Existing hazardous material storage area	Gas	Continuously onsite
Propane	As needed in very small quantities	Torch gas	200 cubic feet	Existing hazardous material storage area	Gas	Continuously onsite
EPA Protocol gases	10 bottles per month	Calibration gases	1,500 cubic feet	CEMS Enclosures	Gas	Continuously onsite
Cleaning chemicals	As needed in very small quantities	Cleaning	Varies (less than 25 gallons of liquids or 100 pounds of solids for each chemical)	Existing hazardous material storage area	Liquid or solid	Continuously onsite
Paint	As needed in very small quantities	Touchup of painted surfaces	Varies (less than 25 gallons of liquids or 100 pounds of solids for each type)	Existing hazardous material storage area	Liquid	Continuously onsite

\*Water treatment system is a combination of MF, RO and EDI equipment.  
CEMS = continuous emissions monitoring system

TABLE 5.5-2

## Chemical Inventory, Description of Hazardous Materials Stored Onsite, 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	24,000 gallons <sup>e</sup>	100 pounds	526 pounds	500 pounds	500 pounds	No
Aqueous ammonia (19% NH <sub>3</sub> by weight)	Aqueous ammonia	7664-41-7	400 gallons	100 pounds	340 pounds	500 pounds	500 pounds	No
Anti-scalant (e.g., NALCO PermaTreat® PC-191T)	Antiscalant	Various	400 gallons	e	e	e	e	No
Battery Electrolyte	Sulfuric Acid	7664-93-9	1,000 gallons	1,000 pounds	2,632 pounds	1,000 pounds	1,000 pounds	Yes
Citric acid	Citric Acid	77-92-9	500 pounds	e	e	e	e	No
Cleaning chemicals/detergents	Various	None	55 gallons	e	e	e	e	No
Cleaning chemicals/detergents for membrane-based water treatment systems (e.g., NALCO PermaClean PC-77, NALCO PermaClean PC-40, NALCO PermaClean PC-98)	Various	None	25 gallons	e e	e e	e e	e e	No No
Sanitizing chemicals for membrane-based (MF/RO/EDI) water treatment systems (e.g., NALCO PermaClean PC-11)	Dibromoacetonitrile 2,2-Dibromo-3-nitripropionamide Polyethylene Glycol	3252-43-5 10222-01-2 25322-68-3	400 gallons	e	e	e	e	No No No
Diesel No. 2	Diesel No. 2	68476-34-6	400 gallons	e	e	e	e	No
Hydraulic oil	Phosphate ester	None	300 gallons	42 gallons <sup>f</sup>	42 gallons <sup>f</sup>	e	e	No
Laboratory reagents	Various	Various	10 gallons	e	e	e	e	No
Lubrication oil	Oil	None	10,000 gallons	42 gallons <sup>f</sup>	42 gallons <sup>f</sup>			No
Mineral insulating oil	Oil	8012-95-1	41,000 gallons	42 gallons <sup>f</sup>	42 gallons <sup>f</sup>			No
Waste Oil	Oil	None	500 gallons	e	e	e	e	No
Amine solution	Amine	2008-39-1	400 gallons	e	e	e	e	No
Sodium bisulfite (NaHSO <sub>3</sub> )	Sodium bisulfite	7631-90-5	500 gallons	5,000 pounds	5,000 pounds	e	e	No

TABLE 5.5-2  
Chemical Inventory, Description of Hazardous Materials Stored Onsite, 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
Sulfuric acid (93%)	Sulfuric acid	7664-93-9	600 gallons	1,000 pounds	1,075 pounds	1,000 pounds	1,000 pounds	Yes
Sodium hydroxide (NaOH) (20 to 50%)	Sodium hydroxide	1310-73-2	400 gallons	1,000 pounds	2,000 pounds	e	e	No
Sodium hypochlorite (12.5%)	Sodium hypochlorite	7681-52-9	600 gallons	100 pounds	800 pounds	e	e	No
Hydrochloric acid	Hydrochloric acid	7647-01-0	25 gallons	5,000 pounds	5,000 pounds	e	15,000 pounds	No
Sodium nitrite	Sodium nitrite	7632-00-0	500 pounds	100 pounds	100 pounds	e	e	No
Proprietary corrosion/scale inhibitor (e.g., NALCO TRAC107)	Inorganic Salt	Proprietary	25 gallons	e	e	e	e	No
	Sodium Hydroxide	1310-73-2		e	e	e	e	No
Proprietary non-oxidizing biocide (e.g., NALCO 7330)	5-Chloro-2-Methyl-4-Isotiazolin-3-one (1.1%)	26172-55-4	400 gallons	e	e	e	e	No
	2-Methyl-4-Isothiazolin-3-one (0.3%)	2682-20-4		e	e	e	e	No
Propylene Glycol	Propylene Glycol	57-55-6	1,500 gallons	e	e	e	e	Yes
Trisodium phosphate (Na <sub>3</sub> PO <sub>4</sub> ) or phosphate/sodium hydroxide blend (e.g., NALCO BT-3400 or NALCO BT-4000)	Trisodium phosphate	7601-54-9	400 gallons	e	e	e	e	No
Sulfur hexafluoride	Sulfur hexafluoride	2551-62-4	200 pounds	e	e	e	e	No
Acetylene	Acetylene	47-86-2	540 cubic feet	e	e	e	e	No
Oxygen	Oxygen	7782-44-7	540 cubic feet	e	e	e	e	No
Propane	Propane	74-98-6	200 cubic feet	e	e	e	e	No
EPA Protocol gases	Various	Various	1,500 cubic feet	e	e	e	e	No
Cleaning chemicals	Various	Various	Varies (less than 25 gallons of liquids or 100 pounds solids for each chemical)	e	e	e	e	No

TABLE 5.5-2  
**Chemical Inventory, Description of Hazardous Materials Stored Onsite, 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
Paint	Various	Various	Varies (less than 25 gallons of liquids or 100 pounds solids for each type)	e	e	e	e	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 percent of a reportable chemical and the RQ is 100 lb., the RQ for that material would be  $(100 \text{ lb}) / (10\%) = 1,000 \text{ lb}$ .

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

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

<sup>g</sup>The ammonia tank capacity is 24,000 gallons; however, the tank is only filled to 85 percent of its capacity, or 20,400 gallons.

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	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
Anti-scalant	Amber liquid	May cause slight irritation to the skin and moderate irritation to the eyes	None	Nonflammable
Battery Electrolyte (Sulfuric Acid)	Oily, colorless to slightly yellow, clear to turbid liquid; odorless.	Causes severe skin burns; 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
Citric acid	Odorless, white granules	Causes irritation to the skin, gastrointestinal tract, and respiratory tract	Metal nitrates (potentially explosive reaction), alkali carbonates and bicarbonates, potassium tartrate; will corrode copper, zinc, aluminum and their alloys	Slightly flammable
Cleaning chemicals/detergents	Liquid	Refer to individual chemical labels	Refer to individual chemical labels	Refer to individual chemical labels
Cleaning chemicals/detergents for membrane-based water treatment systems (e.g., NALCO PermaClean PC-77, NALCO PermaClean PC-40, NALCO PermaClean PC-98)	Liquid	Causes irritation to the skin and eyes with prolonged contact.	None	Non flammable

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

Hazardous Materials	Physical Description	Health Hazard	Reactive and Incompatibles	Flammability*
Sanitizing chemicals for membrane-based (MF/RO/EDI) water treatment systems (e.g., NALCO PermaClean PC-11)	Clear, colorless amber	CORROSIVE: Causes irreversible eye damage. May be fatal if inhaled or swallowed. Causes skin irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.	None.	Slightly flammable
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
Amine solution (e.g. NALCO 5711)	Clear, pale yellow liquid with phenolic-amine odor	Harmful if swallowed; causes irreversible eye damage	Hazardous polymerization will not occur	Not flammable
Sodium bisulfite (e.g., NALCO PERMA-CARE® PC-7408)	Yellow liquid	Corrosive: Irritation to eyes, skin, and lungs; may be harmful if digested	Strong acids and strong oxidizing agents	Nonflammable
Sulfuric acid	Oily, colorless to slightly yellow, clear to turbid liquid; odorless.	Causes severe skin burns; causes severe eye burns; causes burns of the mouth, throat, and stomach	Nitro compounds, carbides, dienes, and alcohols (when heated): cause 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, and aqueous acids: cause strong exothermic reactions.	Not flammable
Sodium hydroxide	Solid, white, and odorless	Causes eye and skin burns; hygroscopic; may cause severe respiratory tract irritation with possible burns; may cause severe digestive tract irritation with possible burns	Incompatible with acids, water, flammable liquids, organic halogens, metals, aluminum, zinc, tin, leather, wool, and nitromethane	Not flammable

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

<b>Hazardous Materials</b>	<b>Physical Description</b>	<b>Health Hazard</b>	<b>Reactive and Incompatibles</b>	<b>Flammability*</b>
Sodium hypochlorite	Colorless liquid with strong odor	Harmful by ingestion and inhalation, and through skin contact	Incompatible with strong acids, amines, ammonia, ammonium salts, reducing agents, metals, aziridine, methanol, formic acid, phenylacetoneitrile	Not flammable
Hydrochloric acid	Colorless to light-yellow liquid	Very hazardous in case of skin contact, of eye contact and of ingestion; slight hazard in case of inhalation; skin contact may produce burns. Inhalation may produce severe irritation of respiratory tract; severe over-exposure can result in death	Highly reactive with metals. Reactive with oxidizing agents, organic materials, alkalis, and water	Nonflammable
Sodium nitrite	White to slightly yellowish. Solid (powdered solid), odorless	Very hazardous in case of eye contact (irritant), of ingestion, of inhalation; hazardous in case of skin contact (irritant); slightly hazardous in case of skin contact (permeator); prolonged exposure may result in skin burns and ulcerations; overexposure by inhalation may cause respiratory irritation; severe overexposure can result in death; inflammation of the eye is characterized by redness, watering, and itching	Highly reactive with combustible materials, organic materials; reactive with reducing agents, metals, acids; slightly reactive to reactive with moisture	Not flammable
Proprietary corrosion/scale inhibitor (e.g., NALCO TRAC107)	Clear liquid, ammonia smell	Irritating to eyes and skin.	Contact with strong acids (e.g. sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) may generate heat, splattering or boiling and toxic vapors.	Not flammable
Proprietary non-oxidizing biocide (e.g., NALCO 7330)	Light yellow or green liquid	Corrosive. Causes irreversible eye damage or skin burns. Harmful if inhaled, swallowed or absorbed through skin. Do not get in eyes, on skin or on clothing. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.	Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors.	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*
Propylene Glycol	Clear oily liquid	Hazardous in case in ingestion. Slightly hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of inhalation.	Hygroscopic; keep container tightly closed. Incompatible with chloroformates, strong acids (nitric acid, hydrofluoric acid), caustics, aliphatic amines, isocyanates, strong oxidizers, acid anhydrides, silver nitrate, and reducing agents.	Flammable
Trisodium phosphate / sodium hydroxide blend (e.g., NALCO BT-3400 or NALCO BT-4000)	White crystal	Severe irritant; causes pain and redness; prolonged or repeated contact may cause mild burn	Strong acids	Not flammable
Sulfur hexafluoride	Colorless Gas	Simple asphyxiant -This product does not contain oxygen and may cause asphyxia if released in a confined area. Maintain oxygen levels above 19.5%. Nonflammable. Decomposes to toxic fluoride compounds at temperatures above 400°F (204°C).	Reported to explode in contact with disilane. Oxygen and certain metals cause slow decomposition to toxic fluorides	Non 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
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
Paint	Various colored liquid	Refer to individual container labels	Refer to individual container labels	Refer to individual container labels

## Notes:

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

Per California Department of Transportation regulations, under 49 CFR 173: "Flammable" liquids have a flash point less than or equal to 141°F; "Combustible" liquids have a flash point greater than 141°F.

Hazardous substances used by the project will be contained within designated hazardous materials storage areas and their use will be prescribed in terms of hazardous materials handling plans, facility Health and Safety Plans, and the Hazardous Materials Business Plan (HMBP). For the non-CalARP-regulated materials, the risk of public exposure and serious hazard is low and would not be significant.

Most of the hazardous substances that will be used by the project are required for oxides of nitrogen (NO<sub>x</sub>) emissions control (i.e., 19 percent aqueous ammonia), treatment and laboratory analyses of process and cooling water, 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 19 percent aqueous ammonia. The toxicity characteristics and the exposure level criteria for this regulated substance are included in Table 5.5-4 and discussed below.

### ***Aqueous Ammonia***

The RBEP facility will store the aqueous ammonia solution in a 24,000-gallon, horizontal aboveground storage tank (AST). The tank will be surrounded by a covered secondary containment structure capable of holding the full contents of the tank and accumulated precipitation. 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<sub>x</sub> emissions created from fuel combustion in the combustion gas turbines. The SCR system will include catalyst modules (located inside the HRSG), an ammonia storage system, and an ammonia injection system. 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.

The volume of aqueous ammonia required by RBEP and the number of truck deliveries required will be dependent on the actual operating hours of the plant. Based on the maximum operating profile for the RBEP power block (6,838 hours per year), approximately 4 to 5 times per month (48 to 60 deliveries per year), a 7,000-gallon tanker truck will deliver aqueous ammonia to the RBEP site. The aqueous ammonia storage tanks will be equipped with continuous tank level monitors, automated leak detection system, temperature and pressure monitors and alarms, and emergency block valves.

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. Pure ammonia (NH<sub>3</sub>) 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.

Ammonia gas can be toxic to humans at sufficient concentrations. Potential toxic effects of ammonia and acceptable exposure levels are summarized in Table 5.5-4. The odor threshold of ammonia is about 5 parts per million (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 would 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 vault 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 5.5.5.2.2, will be prepared for the site using updated modeling guidance prior to operation of RBEP.

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 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.	<p>Occupational Exposures:</p> <ul style="list-style-type: none"> <li>• PEL = 35 mg/m<sup>3</sup> OSHA</li> <li>• TLV = 18 mg/m<sup>3</sup> ACGIH</li> <li>• TWA = 25 mg/m<sup>3</sup> NIOSH</li> <li>• STEL = 35 mg/m<sup>3</sup></li> </ul> <p>Hazardous Concentrations:</p> <ul style="list-style-type: none"> <li>• IDLH = 500 ppm</li> <li>• LD<sub>50</sub> = 350 mg/kg – oral, rat ingestion of 3 to 4 ml may be fatal</li> </ul> <p>Sensitive Receptors:</p> <ul style="list-style-type: none"> <li>• ERPG-1 = 25 ppm</li> <li>• ERPG-2 = 150 ppm</li> <li>• ERPG-3 = 750 ppm</li> </ul>

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

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

OSHA = Occupational Safety and Health Administration

PEL = OSHA-permissible exposure limit for 8-hour workday

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

Because sodium hypochlorite and aqueous ammonia are incompatible chemicals, the sodium hypochlorite will be stored within 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.

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

### 5.5.3.3 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 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 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. Compliance with applicable regulations will ensure that impacts from the transportation of hazardous materials will be less than significant.

RBEP will have truck traffic associated with the delivery of various cleaning chemical, gasoline and diesel fuel, lubricants, sulfuric acid and other hazardous material associated with plant operation. It is expected that there will be a maximum of six truck deliveries per month to the RBEP site (including aqueous ammonia). The truck route for aqueous ammonia and other regulated materials to the RBEP site is I-405 (San Diego Freeway), south to Hwy. 213 (South Western Avenue), then west along West 190th Street, which is also called Anita Street, through Torrance and Herondo Street through Redondo Beach, then south on North Harbor Drive to the RBEP entrance. 190th Street is a designated truck route by the City of Redondo Beach from the boundary with the City of Torrance through to the Pacific Coast Highway, with trucks allowed beyond on restricted streets when necessary for the purpose of making pickups or deliveries (City of Redondo Beach, 1989)

#### 5.5.3.4 Accidental Release Hazards

If a chemical release were to occur without proper engineering controls in place, the public could potentially 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 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. With the implementation of these measures, the impacts related to the accidental release of hazardous materials, including ammonia, will be less than significant.

##### 5.5.3.4.1 Offsite Consequences Analysis

Because there is human activity in the vicinity of the RBEP site, an Offsite Consequences Analysis (OCA) was performed to support the Application for Certification (AFC) process. The analysis assessed the risk to humans at various distances from the RBEP site if a spill or rupture of a aqueous ammonia storage tank were to occur or if a spill from the supply truck were to occur while refilling the storage tanks, and assessed the project in relation to the California Energy Commission's (CEC) significance threshold of 75 ppm.

The worst-case accidental release scenario assumed that the aqueous ammonia storage tank was punctured and the entire contents of the tank were released into a secondary containment structure located beneath the tank. A second release scenario could occur during unloading of the tanker truck; however, in this instance the ammonia would be directed to the secondary containment structure located beneath the tank and would result in similar offsite impacts. An initial ammonia emission rate for an evaporating pool of 19 percent aqueous ammonia solution was calculated pursuant to the guidance given in *RMP Offsite Consequence Analysis Guidance* (EPA, 2004), and using the emission calculation tool for evaporating solutions provided in the Area Locations of Hazardous Atmospheres (ALOHA) model provided by the EPA (<http://www.epa.gov/ceppo/cameo/index.htm>). An initial ammonia evaporation rate was calculated and assumed to occur for one hour after the initial release. For concentrated solutions, the initial evaporation rate is substantially higher than the rate averaged over time periods of a few minutes or more since the concentration of the solution immediately begins to decrease as evaporation begins. However, using the initial evaporation rate results in a worst-case ammonia emission rate for the evaporating pool of ammonia. 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 according to principles of heat transfer by natural convection. The ammonia release rate was calculated using the evaporation calculator, meteorological data listed below, and the dimensions of the secondary containment area. The OCA provided as Appendix 5.5A.

Parameters used to calculate the ammonia emission rates include an atmospheric stability classification of 'F,' a wind speed of 1.5 meters/second and a temperature of 105°F, which represents the highest temperature recorded in the past 3 years. Using these parameters, the ammonia plume was predicted—using a height of 1.6 meters—to extend approximately 14.1 meters (46.3 feet) from the ammonia storage tank at a concentration of 150 ppm. At a concentration of 75 ppm, the distance was 15.2 meters (49.9 feet) from the tank (see Table 5.5-5).

The following assumptions used in the ammonia analysis:

- Ammonia emissions are assumed to occur over 1 hour, representing an evaporating pool of 24,000 gallons of a 19 percent ammonia solution
- An ammonia storage temperature of 103°F
- A covered secondary containment basin measuring 38 feet by 18 feet wide
- A cover of the secondary containment area that reduces the exposed surface area of ammonia to approximately 41 square feet

TABLE 5.5-5  
Gaseous Ammonia Concentrations in the Event of a Release

Concentration (ppm)	Distance in meters from Ammonia Tank to Plume Edge (feet)	
	0-Meter Receptor Height	1.6-Meter Receptor Height
2000 ppm (risk of lethality)	5.6 (18.3)	8.5 (27.9)
300 ppm (OSHA's IDLH)	7.6 (24.9)	12.5 (41.0)
150 ppm (EPA/CalARP toxic endpoint)	8.5 (27.9)	14.1 (46.3)
75 ppm (CEC Significance Value)	9.2 (30.2)	15.2 (49.9)

Note: The OCA is provided in Appendix 5.5A.

Distances calculated at ground level and based on the height of the average human (1.6 m).

Based on this conservative modeling analysis, the worst-case accident is not expected to result in an offsite concentration greater than 75 ppm at the RBEP site. The closest offsite location to the area of a potential ammonia spill is approximately 142 meters (467 feet) from the center of the ammonia tank storage area. Because the general public will not be exposed to ammonia concentrations above 75 ppm during a worst-case release scenario, the storage of aqueous ammonia onsite will not pose a significant risk to the public.

### 5.5.3.5 Fire and Explosion Hazards

Table 5.5-3 describes the flammability for the hazardous materials that will be onsite at RBEP. 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 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 RBEP 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 HMBP approved by the Redondo Beach Fire 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 would be minimal.

Natural gas will be delivered to the site via an existing Southern California Gas Company, high-pressure natural gas pipeline located onsite. This is a 20-inch-diameter line that operates at a nominal 145 pounds per square inch. The natural gas will flow from the existing metering station to a gas pressure control station, and gas scrubber/filtering equipment. Prior to being supplied to the CTGs, the natural gas will be compressed, scrubbed and filtered consistent with the turbine vendor recommendations. The natural gas used in the HRSG duct burner will not

require gas compression, but will require filtering and scrubbing performed at the gas metering station. The natural gas for the building heating systems will flow through the metering station and gas pressure control station, and will not require compression, or filtering. The natural gas fuel RBEP will use is flammable and could leak from the high-pressure pipeline located onsite.

Natural gas is composed mostly of methane, but also may contain ethane, propane, nitrogen, butane, isobutene, and isopentane. It is colorless, odorless, tasteless, and is 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 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 existing Southern California Gas Company natural gas supply pipeline to the RBEP site and the new onsite natural gas supply line from the Southern California Gas Company meter to the RBEP electrical generation units are designed to meet Class 3 service and meet the 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.

The closest fire station to RBEP is Redondo Beach Fire Department's Station No. 3 at 280 Marina Way in Redondo Beach, California, 90277. The station is approximately 0.3 mile away and would provide the first response to a fire at the project site, with an approximate 2-minute response time 80 percent of the time (Madrigal, 2012). The Project Owner has engaged the Redondo Beach Fire Department in discussions regarding the project's fire protection needs and the Redondo Beach Fire Department's ability to respond. In addition, the facility will have an onsite fire suppression system, which is described in detail in Section 2.0, Project Description.

If hazardous materials were involved in the incident, Station No. 3 would be the first onsite, requesting additional resources from the other two stations in the district, and the HazMat team as applicable. If needed, Redondo Beach Fire has mutual aid agreements for additional response from other Los Angeles County fire departments. The HazMat team is stationed at Station No. 1 at 401 South Broadway, Redondo Beach, California, 90277, approximately 1.4 miles from the project site (Madrigal, 2012).

### 5.5.3.6 Schools

The nearest school to the Project site the Redondo Beach Yak Academy Learning Center and Preschool, located at 553 North Pacific Coast Highway, Redondo Beach, California, 90277, approximately 825 feet east of the project fence line. The proposed transportation route for delivery of regulated materials such as aqueous ammonia (and for all other hazardous materials used at RBEP) will not pass near the school. The truck route for aqueous ammonia and other regulated materials to the RBEP site is I-405 (San Diego Freeway), south to Hwy. 213 (South Western Avenue), then west along West 190th Street, which turns into Anita Street through Torrance, then Herondo Street through Redondo Beach, then south on North Harbor Drive to the RBEP entrance. West 190th Street to Pacific Coast Highway is a designated truck route (City of Redondo Beach, 1989).

## 5.5.4 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 § 21083; CCR Title 14, §§ 15064(h), 15065(c), 15130, and 15355).

Existing laws and regulations address the handling of hazardous materials and the transportation and use of aqueous ammonia, an acutely hazardous material, and will ensure that hazardous materials at the RBEP site are safely managed.

### 5.5.4.1 Cumulative Spills of Ammonia

The hypothetical accidental releases of aqueous ammonia have been evaluated for the RBEP as described in the OCA provided as Appendix 5.5A. No sites containing major amounts of hazardous materials were identified in the vicinity of the RBEP by the Redondo Beach Fire Department (Madrigal, 2012).

As noted in Section 5.5.3.4.1, the OCA modeling has determined that in the event of a spill of ammonia at RBEP, the 75 ppm measurement does not extend offsite, but instead travels approximately 49.9 feet from the ammonia tank. Therefore, the likelihood of ammonia vapor plumes combining in concentrations at or above 75 ppm is highly improbable. Existing laws and regulations will thus ensure that RBEP's incremental effect is not cumulatively considerable.

## 5.5.5 Mitigation Measures

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

### 5.5.5.1 Construction and Demolition Phases

The hazardous materials that would be used during RBEP construction/demolition 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/demolition-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/demolition service personnel will follow general industry health, safety, and environmental BMPs for filling and servicing construction/demolition equipment and vehicles. The following BMPs are designed to reduce the potential for incidents involving the hazardous materials:

- 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 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 in accordance with local, state and federal regulations 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 and demolition phases 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 a large spill occurs 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 (Redondo Beach Fire Department Fire Station No. 3).

### 5.5.5.2 Operation Phase

During RBEP operations, 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 (e.g., sodium hypochlorite and ammonia). 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 RBEP operations.

#### 5.5.5.2.1 Hazardous Materials

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

- Provide an automatic sprinkler system for indoor hazardous material storage areas.
- Provide an exhaust system for indoor hazardous material storage areas.
- Separate incompatible materials by isolating them from each other with a noncombustible partition.
- Control spills 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, an HMBP is required by CCR Title 19 and the Health and Safety Code (Section 25504). As the project site has an existing HMBP, the plan will be updated twice—once upon operation of the RBEP, and again when the existing Redondo Beach Generating Station has been decommissioned. The HMBP will be updated in accordance with these regulations, and will include an inventory and location map of hazardous materials onsite and emergency response procedures for hazardous materials incidents. Specific topics addressed in the HMBP 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 revised HMBP will be filed with the Redondo Beach Fire Department, the designated Certified Unified Program Agency (CUPA) Participating Agency for the project site (for HMBPs), and will be updated annually in accordance with applicable regulations.

In accordance with emergency response procedures specified in the HMBP, designated RBEP personnel will be trained as members of a plant hazardous materials response team, and team members will receive the first responder and hazardous materials 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, RBEP personnel will defer to the Redondo Beach Fire Department Hazardous Materials Program. Redondo Beach Fire Department Fire Station No. 3 would be the first onsite. Teams from the Hazardous Materials Response Team, located at Station No. 1 at 401 South Broadway, Redondo Beach, California, 90277, approximately 1 mile from the RBEP site (standard of less than 5 minute response time to the project site 80 percent of the time), will be dispatched to the site after initial assessment by the first responders, if warranted (Madrigal, 2012).

#### **5.5.5.2.2 Aqueous Ammonia**

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 tanks. As the project site has an existing RMP, the plan will be updated twice—once upon operation of the RBEP, and again when the existing Redondo Beach Generating Station has been decommissioned. The updated 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. The specific components of the revised RMP 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

The revised RMP will be filed with the Redondo Beach Fire Department, the agency in charge of HMBP review under a cooperative agreement with the County of Los Angeles Fire Department—Health Hazardous Materials Division (LAFD-HHMD), which is the designated CUPA for the RBEP 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.

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 (8 CCR 5189).

#### **5.5.5.2.3 Petroleum Products**

Federal and California regulations require a Spill Prevention Control and Countermeasure (SPCC) plan if petroleum products above certain quantities are stored onsite. 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 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. As the project site has an existing SPCC, the plan will be updated twice—once upon operation of RBEP, and again when the existing Redondo Beach Generating Station has been decommissioned.

#### **5.5.5.2.4 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 CVC, the CHP has the authority to adopt regulations for transporting hazardous materials in California. Aqueous ammonia, a regulated substance, will be delivered to RBEP, and 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. It is expected that there will be a maximum of six truck deliveries per month of hazardous materials and one regulated substance to the operating facility. The truck route for aqueous ammonia and other regulated materials to the RBEP site is I-405 (San Diego Freeway), south to Hwy. 213 (South Western Avenue), then west along West 190th Street, which turns into Anita Street through Torrance, then Herondo Street through Redondo Beach, then south on North Harbor Drive to the RBEP entrance. West 190th Street to Pacific Coast Highway is a designated truck route (City of Redondo Beach, 1989).

#### **5.5.5.2.5 Security Plan**

In addition to standard industrial business security measures, RBEP will prepare 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

### 5.5.5.2.6 Facility Closure

When RBEP is closed, both nonhazardous and hazardous wastes must be handled properly. Premature or unexpected closure would be for a period greater than the time required for normal maintenance, including overhaul or replacement of the combustion turbines. Causes for premature or unexpected closure could be a disruption in the supply of natural gas, flooding of the site, or damage to the plant from earthquake, fire, storm, or other natural causes.

For a premature or unexpected closure of RBEP, where there is no release of hazardous materials, facility security will be deployed on a 24-hour basis, and the CEC will be notified. Depending on the length of shutdown necessary, a contingency plan for the temporary cessation of operations will be implemented. The plan will be developed to ensure conformance with all applicable LORS and the protection of public health and safety and the environment. The plan, depending on the expected duration of the shutdown, could include draining all chemicals from storage tanks and other equipment, and the safe shutdown of all equipment. All hazardous materials and wastes will be disposed of according to applicable LORS.

If the temporary closure is in response to facility damage, or where there is a release or threatened release of hazardous waste or materials into the environment, procedures will be followed as set forth in a risk management plan. Procedures include methods to control releases, notification of applicable authorities and the public, emergency response, and training for generating facility personnel in responding to and controlling releases of hazardous materials and hazardous waste. Once the immediate problem of hazardous waste and materials release is contained and cleaned up, temporary closure will proceed as described for a closure where there is no release of hazardous materials or waste.

### 5.5.5.3 Monitoring

In accordance with applicable federal, state, and local regulations, site 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 RBEP would be subject to periodic inspections by the Redondo Beach Fire Department and the LAFD-HHMD, which would ensure compliance with appropriate regulatory requirements for hazardous materials and regulated substances handling.

## 5.5.6 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.	Redondo Beach Fire Department (as a Participating Agency under the auspices of the LAFD-HHMD as the Designated CUPA)	A revised HMBP will be prepared for submittal to the Redondo Beach Fire Department (Section 5.5.5.2.1).

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

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
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.	Redondo Beach Fire Department (as a Participating Agency under the auspices of the LAFD-HHMD as the Designated CUPA)	A revised HMBP will be prepared to describe notification and reporting procedures (Section 5.5.5.2.1).
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 Redondo Beach Fire Department	Redondo Beach Fire Department (as a Participating Agency under the auspices of the LAFD-HHMD as the Designated CUPA)	A revised HMBP will include a list of hazardous materials for submission to agencies (Section 5.5.5.2.1).
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.	Redondo Beach Fire Department (as a Participating Agency under the auspices of the LAFD-HHMD as the Designated CUPA)	A revised HMBP will describe reporting procedures (Section 5.5.5.2.1).
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.	Redondo Beach Fire Department (as a Participating Agency under the auspices of the LAFD-HHMD as the Designated CUPA)	A revised RMP will be prepared as part of the HMBP and submitted to Redondo Beach Fire Department (Section 5.5.5.2.2).
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 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.	Redondo Beach Fire Department (as a Participating Agency under the auspices of the LAFD-HHMD as the Designated CUPA)	A revised SPCC will be prepared (Section 5.5.5.2.3).
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 5.5.3.5)

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

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
<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	A revised HMBP will be prepared for submittal to the Redondo Beach Fire Department (Section 5.5.5.2.1).
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.	Redondo Beach Fire Department (as a Participating Agency under the auspices of the LAFD-HHMD as the Designated CUPA)	A revised RMP will be prepared and submitted to the Redondo Beach Fire Department (Section 5.5.5.2.2).
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.	Redondo Beach Fire Department (as a Participating Agency under the auspices of the LAFD-HHMD as the Designated CUPA)	A revised SPCC plan will be prepared (Section 5.5.5.2.3).
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 ammonia will follow designated routes (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).
<b>Local</b>			
Uniform Fire Code Articles 79 and 80	Require secondary containment, monitoring and treatment for accidental releases of toxic gases.	Redondo Beach Fire Department	Section 5.5.5.3

Cal/OSHA = California Division of Occupational Safety and Health

CWA = Clean Water Act

EPCRA = Emergency Planning and Community Right-to-Know Act of 1986

LEPC = local emergency planning committee

OEHHA = Office of Environmental Health Hazard Assessment

Pub. L. = Public Law

SERC = State Emergency Response Commission

SPCC = Spill Prevention Control and Countermeasures

USC = United States Code

### 5.5.6.1 Federal LORS

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

#### 5.5.6.1.1 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 Cal/OSHA.

#### 5.5.6.1.2 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 for transporting hazardous materials in tank cars (Part 179). The administering agencies for the above authority are the CHP and U.S. Department of Transportation.

#### 5.5.6.1.3 CERCLA

The 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 of 1986 (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 include:

- 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, the Redondo Beach Fire Department, and the LAFD-HHMD. The LAFD-HHMD is the CUPA with the Redondo Beach Fire Department acting as a Participating Agency charged with review of HMBPs.

#### 5.5.6.1.4 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.

#### 5.5.6.1.5 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 total petroleum storage (including ASTs, oil-filled equipment, and drums) greater than 1,320 gallons. The SPCC rule is administered by the local CUPA Participating Agency, which is the Redondo Beach Fire Department.

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.

#### **5.5.6.1.6 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.

#### **5.5.6.2 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).

##### **5.5.6.2.1 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; 8 CCR Section 5160 et seq. addresses hot, flammable, poisonous, corrosive, and irritant substances.

##### **5.5.6.2.2 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.

##### **5.5.6.2.3 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 an extremely hazardous substance 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 (less than 10 millimeters of mercury) do not count toward the threshold.

##### **5.5.6.2.4 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 have a combined AST 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.

#### 5.5.6.2.5 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 OEHHA. Some of the chemicals to be used at the facility are on the cancer-causing and reproductive-toxicity lists of the Act.

#### 5.5.6.2.6 Natural Gas Pipeline Construction and Safety

The CPUC enforces General Order No. 58-A, which specifies standards for natural gas service in the State of California, and General Order No. 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 Southern California Gas Company high-pressure natural gas pipeline located onsite.

#### 5.5.6.2.7 California Vehicle Code 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 previously in Section 5.5.5.2.4.

### 5.5.6.3 Local LORS

The Redondo Beach Fire Department and the LAFD-HHMD share responsibility for CUPA programs. The Redondo Beach Fire Department is responsible for administering HMBPs, Hazardous Materials Management Plans, SPCCs, and RMPs filed by businesses located in the county. In addition, the Redondo Beach Fire Department and LAFD-HHMD share responsibility for ensuring that businesses and industry store and use hazardous materials safely and in conformance with various regulatory codes (Uyehara, 2012). The LAFD-HHMD is responsible for all other CUPA programs including underground storage tank compliance (Madrigal, 2012). The Redondo Beach Fire 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 (Madrigal, 2012).

The LAFD-HHMD and the Redondo Beach Fire Department will be contacted in the event of a release of hazardous wastes or materials to the environment. The Project Owner will work with local authorities to properly register and handle all hazardous materials onsite.

### 5.5.6.4 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 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 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 (ASME) Boiler and Pressure Vessel Code, Section VIII.
- City of Redondo Beach Municipal Code.

## 5.5.7 Agencies and Agency Contacts

Several agencies regulate hazardous materials, and they will be involved in regulating the hazardous materials stored and used at RBEP. At the federal level, the EPA will be involved; at the state level, the California Environmental Protection Agency (CalEPA) will be involved. However, local agencies primarily enforce hazardous materials laws. For RBEP, the primary local agencies with jurisdiction will be the LAFD-HHMD and the Redondo Beach 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	Persons Contacted
CUPA for Hazardous Materials Inventory and Emergency Business Plan and Risk Management Plan, SPCC	Redondo Beach Fire Department	Dan Madrigal, Fire Chief City of Redondo Beach 401 S. Broadway, Redondo Beach, CA 90277 (310) 318-0625 Dan.Madrigal@Redondo.org
Fire Department Permits	Redondo Beach Fire Department	Dan Madrigal, Fire Chief City of Redondo Beach 401 S. Broadway, Redondo Beach, CA 90277 (310) 318-0625 Dan.Madrigal@Redondo.org
Hazardous Materials Response	Redondo Beach Fire Department	Dan Madrigal, Fire Chief City of Redondo Beach 401 S. Broadway, Redondo Beach, CA 90277 (310) 318-0625 Dan.Madrigal@Redondo.org
All other CUPA Programs (UST)	County of Los Angeles Fire Department- Health Hazardous Materials Division	Stan Uyehara, Inspector Southwest County District Office 24330 Narbonne Ave. Lomita, CA 90717 (310) 534-6270 SUyehara@fire.lacounty.gov

## 5.5.8 Permits and Permit Schedule

The Redondo Beach Fire Department requires 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	Dan Madrigal, Fire Chief City of Redondo Beach 401 S. Broadway Redondo Beach, CA 90277 (310) 318-0625 Dan.Madrigal@Redondo.org	Approximately 60 days before any regulated substance comes onsite
Risk Management Plan	Dan Madrigal, Fire Chief City of Redondo Beach 401 S. Broadway Redondo Beach, CA 90277 (310) 318-0625 Dan.Madrigal@Redondo.org	Approximately 60 days before any regulated substance comes on site (acceptable to integrate with HMBP)

\*Discussion of permits is included in Section 5.5.4.2, Mitigation Measures, Operations

## 5.5.9 References

City of Redondo Beach. 2012. City of Redondo Beach Fire Department website, accessed April 2012 at <http://www.redondo.org/depts/fire/default.asp>.

City of Redondo Beach Municipal Code, Title 3, Chapter 7 Article 9. 1989. Accessed May 2012 at <http://www.qcode.us/codes/redondobeach/>.

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U.S. Environmental Protection Agency (EPA). 2004. *RMP Offsite Consequence Analysis Guidance*. April. Online at: [http://www.epa.gov/oem/content/rmp/rmp\\_guidance.htm](http://www.epa.gov/oem/content/rmp/rmp_guidance.htm). Accessed June 2012.