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5.15 HAZARDOUS MATERIALS HANDLING

This section presents a discussion of the potential impacts from storage and use of hazardous materials during construction and operational phases of the proposed Pio Pico Energy Center (PPEC). Design features have been incorporated into PPEC regarding the use of hazardous materials, specifically storage procedures, to keep potential impacts below defined thresholds of significance. Hazardous waste generation and management are further discussed in Section 5.14, Waste Management. With proposed mitigation measures and conditions of certification as outlined in this section, the project would have no significant impacts and comply with all applicable laws, ordinances, regulations, and standards (LORS).

The discussion in the following section includes existing conditions; environmental consequences associated with hazardous materials usage during construction and operation of PPEC; cumulative impacts; mitigation measures; and applicable LORS.

5.15.1 Affected Environment

Pio Pico Energy Center (PPEC) is a proposed 300 megawatt (MW) simple-cycle electrical generating facility located in an industrial area of San Diego County, adjacent to the existing Otay Mesa Generating Project (OMGP). PPEC will supply fast response power to help San Diego Gas & Electric (SDG&E) meet cyclic demand and further utilize renewable resources. The project will be constructed on disturbed land and prepared land, and will include a 230 kilovolt (kV) transmission line, a natural gas supply pipeline, and short connections into adjacent streets for potable and recycled water supply, and sewer and stormwater discharge.

The project site is comprised of a 9.99 acre parcel located in the southeast quadrant of the Alta Road and Calzada de la Fuente intersection. The proposed project site comprises the entire parcel with Assessor's Parcel Number (APN) 648-040-45, and the laydown area consists of 6.00 acres of an adjacent parcel to the south (APN 648-040-46) (Figure 3.3-2, Project Location).

URS' observation and evaluation of adjoining properties were limited to features and conditions that were visible from public rights-of-way and from project site interviews. The project site is bounded by undeveloped, vacant land to the north, south, and west. The proposed project is located in the southeast quadrant of the Alta Road and Calzada de la Fuente intersection. Located further to the north of the project site are Kuebler Ranch and the Lower Otay Reservoir. Calpine's OMGP is located immediately to the east. Provided below are the observations and information regarding the adjacent properties:

- North: Calzada de la Fuente, vacant land that is currently being graded, and Kuebler Ranch. The Richard J. Donovan Correctional Facility and the San Diego County Correctional Facility Complex are located approximately 4,000 feet northwest, and 4,800 feet north, respectively.
- South: Paseo de la Fuente, undeveloped, vacant land with Otay Mesa Road further to the south.
- East: OMGP (647 Alta Road and 606 De La Fuente Court).
- West: Alta Road and undeveloped, vacant land.

5.15.2 Environmental Consequences

The criteria used to evaluate whether the hazardous materials handling associated with the project would cause significant effects are taken from the Environmental Checklist Form of the California Environmental Quality Act (CEQA) Guidelines and the standards and thresholds adopted by the agencies with jurisdiction over this Application for Certification (AFC). Accordingly, the project would result in a significant effect if it would do the following:

- 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 mile of an existing or proposed school.
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or environment.
- Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.

5.15.2.1 Construction Phase

The hazardous materials to be used during project construction include gasoline, diesel fuel, oil, and lubricants as well as minimal amounts of cleaners, solvents, adhesives, and paint materials. No acutely hazardous materials would be used or stored onsite during construction. A summary of the hazardous materials to be used and stored for construction is provided in Table 5.15-1, Hazardous Materials Usage and Storage During Construction Based on Title 22 Hazardous Characterization, and Table 5.15-2, Hazardous Materials Usage and Storage During Construction Based on Material Properties. These tables identify, respectively, the hazardous materials to be used during construction based on the Title 22 California Code of Regulations (CCR) characteristics criteria and based on the properties of the substances themselves.

TABLE 5.15-1
HAZARDOUS MATERIALS USAGE AND STORAGE DURING CONSTRUCTION BASED ON TITLE 22 HAZARDOUS CHARACTERIZATION

Material	Hazardous Characteristics[1]	Purpose	Storage Location	Maximum Stored[2]	Storage Type
Acetylene	Ignitability	Welding	Hazardous Material Storage Area	270 cf	Cylinder
Argon	Ignitability	Welding	Hazardous Material Storage Area	270 cf	Cylinder
Diesel Fuel	Ignitability	Emergency generator	Hazardous Material Storage Area	2,000 gal	Tank, UL C.S.

Material	Hazardous Characteristics[1]	Purpose	Storage Location	Maximum Stored[2]	Storage Type
Oxygen – Gaseous	Ignitability	Welding operation	Hazardous Material Storage Area	275 cf	Cylinder
Paint	Toxicity	Painting	Hazardous Material Storage Area	100 gal	Can
Sodium Hydroxide	Corrosivity	Spill neutralization	Hazardous Material Storage Area	2 gal	Carboy

Source: Kiewit Power Engineers, 2010.
Notes:
1 Hazardous characteristics identified per Title 22 California Code of Regulations Section 66261.20 et seq. for hazardous wastes.
2 All numbers are approximate.
cf = cubic feet
gal = gallons (s)

TABLE 5.12-2
HAZARDOUS MATERIALS USAGE AND STORAGE DURING CONSTRUCTION BASED ON MATERIAL PROPERTIES

Material	Hazardous Characteristics[1]	Purpose	Storage Location	Maximum Stored[2]	Storage Type
Lubricating Oil	Mildly toxic	Lubricating equipment parts	Hazardous Material Storage Area	550 gal	Drum

Source: Kiewit Power Engineers, 2010.
Notes:
1 Hazardous characteristics based on material properties and potential health hazards provided by those properties.
2 All numbers are approximate.
gal = gallons (s)

In general, construction contractors would utilize lubricating oils, solvents, and other hazardous materials during construction of PPEC. The contractor would be responsible for verifying that the use, storage, and handling of these materials are in compliance with applicable federal, state, and local LORS, including licensing, personnel training, accumulation limits, reporting requirements, and recordkeeping. A Hazardous Materials Business Plan (HMBP) that outlines hazardous materials handling, storage spill response, and reporting procedures will be prepared prior to construction activities.

The following site services will also be provided, either by separate contract or incorporated into individual construction subcontracts for PPEC:

- Environmental health and safety training;
- Site security;
- Site first aid;
- Construction testing (e.g., soil, concrete);
- Furnishing and servicing of sanitary facilities;
- Trash collection and disposal; and

- Disposal of hazardous materials and waste in accordance with local, state, and federal regulations.

Small quantities of spilled fuel oil and grease drippings from construction equipment may occur during construction. Such materials generally have a low relative risk to human health and the environment. If there is a large spill, the spill area will be bermed or controlled as quickly as is practical to minimize the footprint of the spill. Contaminated soil and materials produced during cleanup of a spill will be placed into drums for offsite disposal as a hazardous waste at a permitted hazardous waste transfer, storage, and disposal facility. If a spill or leak into the environment involves hazardous materials equal to or greater than the specific reportable quantity, federal, state, and local reporting requirements will be adhered to. In particular, the County of San Diego, Department of Environmental Health (DEH), Hazardous Materials Division (HMD), will be notified. The San Diego Rural Fire Protection District (RFPD) will be called in the event of a fire or injury. Contractors will be expected to implement best management practices (BMPs) consistent with hazardous materials storage, handling, emergency spill response, and reporting specified in the HMBP. As a result of the implementation of the above procedures, impacts associated with the use of hazardous materials during the construction phase would not be significant.

5.15.2.2 Operations Phase

The hazardous materials to be used or stored onsite during project operation are listed in Table 5.15-3, Hazardous Materials Usage and Storage During Operation Based on Title 22 Hazardous Characterization, and Table 5.15-4, Hazardous Materials Usage and Storage During Operation Based on Material Properties. These two tables list the materials to be used during regular project operation that can be characterized as hazardous based on Title 22 criteria and the properties of the materials, respectively.

TABLE 5.15-3
HAZARDOUS MATERIALS USAGE AND STORAGE DURING OPERATION BASED ON TITLE 22 HAZARDOUS CHARACTERIZATION

Material	Hazardous Characteristics[1]	Purpose	Storage Location	Maximum Stored[2]	Storage Type
Acetylene	Ignitability	Welding	Hazardous Materials Storage Area	270 cf	Cylinder
Aqueous Ammonia ([19%] NH_4 OH)	Reactivity, toxicity	Oxides of nitrogen (NO_x) emissions control	Selective catalytic reduction unit	20,000 gal	Aboveground tank
Acid (Sulfuric or HCL)	Corrosivity, reactivity, toxicity	Cooling tower pH control	Cooling tower	5,000 gal	Aboveground tank
Argon	Ignitability	Welding	Hazardous Materials Storage Area	270 cf	Cylinder
Diesel Fuel Oil	Ignitability	Emergency generator	Emergency generator	2,000 gal	Tank
Sulfuric Acid for Station Batteries	Corrosivity, reactivity, toxicity	Combustion turbine, miscellaneous	Electrical/ bldg.	100 gal	Battery

Laboratory Reagents	Corrosivity, reactivity, toxicity	Miscellaneous lab work	Lab	20 gal liquid; 100 lbs solid	Manufacturer's containers
Dispersant	Toxicity	Prevent particulate settlement deposit on cooling tower	Cooling tower	200 gal	Aboveground container
Scale/Corrosion Inhibitor	Toxicity	Prevent scale and corrosion in cooling tower circulation water lines	Cooling tower	200 gal	Aboveground container

Source: Pio Pico Energy Center Project Team, 2010.
Notes:
1 Hazardous characteristics identified per Title 22, California Code of Regulations, Section 66261.20 et seq., for hazardous wastes.
2 All numbers are approximate.
cf = cubic feet
gal = gallons (s)
lbs = pounds

TABLE 5.15-4
HAZARDOUS MATERIALS USAGE AND STORAGE DURING OPERATION BASED ON MATERIAL PROPERTIES

Material	Hazardous Characteristics[1]	Purpose	Storage Location	Maximum Stored[2]	Storage Type
Cleaning Chemicals and Detergents	Toxicity, irritant	Miscellaneous cleaning	Hazardous Materials Storage Area	20 gal	Manufacturer's containers
Lubricating Oil	Mildly toxic	Bearing and sleeves lubrication	Various locations	24,000 gal	Lubricating sumps of turbines and 55-gallon drums
Mineral Transformer Insulating Oil	Mildly toxic	Provides overheating and insulation protection for transformers	Transformers	60,000 gal	Transformers
Hydraulic Oil	Mildly toxic	Power transmission medium in hydraulically operated equipment	Hazardous Materials Storage Area	500 gal	55-gallon drums
Nitrogen	Asphyxiant	Transformers	Hazardous materials storage area	275 cf	Cylinder
Sodium Hypochlorite	Corrosivity, reactivity	Biocide for condenser cooling water system water treatment	Cooling tower area	5,000 gal	Aboveground tank, plastic tank

Source: Pio Pico Energy Center Project Team, 2010.
Notes:
1 Hazardous characteristics based on material properties and potential health hazards provided by those properties.
2 All numbers are approximate.
cf = cubic feet
gal = gallons (s)

The following describes potential hazards associated with the storage of hazardous or acutely hazardous materials.

Fire and Explosion Risks

Natural Gas

Natural gas, which will be used as a fuel for PPEC, poses a fire and/or explosion risk as a result of its flammability. Although natural gas is used in significant quantities, it is and will be continuously delivered to the project site through a pressurized natural gas line. This delivery system precludes the need for any onsite natural gas storage. The risk of a fire and/or explosion will be minimized through adherence to applicable codes and design features, including isolation valves, and the continued implementation of effective safety management practices. The federal safety and operating requirements for natural gas lines are contained in Title 49 of the Code of Federal Regulations (CFR), Parts 190 through 192. The natural gas pipeline will be constructed by SDG&E in accordance with all applicable LORS including Title 49 of the CFR.

Other Gases

Other gases expected to the stored and used at the PPEC site include gases typically used for maintenance activities, such as shop welding and emissions monitoring. These gases include small amounts of acetylene, argon, carbon monoxide, nitric oxide, nitrogen, and oxygen. The potential impacts presented by the use of these gases are not considered to be significant based on the following:

- A limited quantity of each gas would be stored at the PPEC facility.
- The gases would be stored in United States Department of Transportation (DOT)-approved safety cylinders, secured to prevent upset and physical damage.
- Incompatible gases (e.g., flammable gases and oxidizers) would be stored separately.
- The gases would be stored in multiple standard-sized portable cylinders, in contrast to larger cylinders, generally limiting the quantity released from an individual cylinder failure to less than 200 cubic feet.

Transformer Oil/Lubricating Oil

Transformer oil would not be stored on the project site, except in the transformers. Nearly the only risk of fire would be the unlikely event of a catastrophic transformer failure. This event would require an emergency response from the San Diego RFPD or the San Diego County Fire Department, HazMat Team. The potential effects presented by the use of transformer oil at the project site would not be significant. Lubricating oil will be used inside rotating equipment. The potential effects presented by the use of lubricating oil at the project site would not be significant.

Acutely Hazardous Materials/Regulated Substances

CCR, Title 8, Section 5189, Appendix A, lists acutely hazardous materials, which are defined as substances that present a potential for a catastrophic event at or above the threshold quantity

(TQ). Aqueous ammonia (approximately 19 percent solution) is a listed acutely hazardous material that is subject to the requirements of the California Accidental Release Prevention (CalARP) Program and process safety management (PSM), dependent on the quantity to be used/stored onsite. Aqueous ammonia will be stored in a single 20,000-gallon, single-walled, aboveground storage tank. Other chemicals proposed for use at the PPEC site are not listed acutely hazardous materials.

In September 1996, Senate Bill (SB) 1889 was enacted to change the California Health and Safety Code (CHSC) Section 25531 *et seq.*, replacing the Risk Management and Prevention Program requirements with the Risk Management Plan (RMP) requirements established pursuant to Section 112(r) of the Federal Clean Air Act (42 United States Code (USC) Section 7412). Pursuant to SB 1889, the California Office of Emergency Services (OES) was required to adopt implementing regulations, initially as emergency regulations, and to seek and maintain delegation of the federal program. The CalARP Program merges federal and state programs for the prevention of accidental releases of regulated toxic and flammable substances. The goal was to eliminate the need for two separate and distinct chemical risk management programs. The CalARP Phase I Final Regulations were approved on November 16, 1998.

The CalARP Program final regulations (CCR Title 19, Division 2, Chapter 4.5) provide two sets of lists of regulated substances: one for federal regulated substances and one for state regulated substances.

- Section 2770.5 – Tables 1 and 2 of Section 2770.5 list federal regulated substances and threshold quantities for accidental release prevention, including flammable substances. Aqueous ammonia, hydrochloric acid, and sulfuric acid are on the list. The quantities of aqueous ammonia, sulfuric acid, and hydrochloric acid proposed for use during PPEC operation, as listed in Table 5.15-3, do not exceed the threshold quantity limits and are therefore not regulated substances under these circumstances.

- Section 2770.5 – Table 3 of Section 2770.5 lists state regulated substances and threshold quantities for accidental release prevention. Aqueous ammonia, hydrochloric acid, and sulfuric acid are included on this list. The quantities of sulfuric acid and hydrochloric acid proposed for use during PPEC operation, as listed in Table 5.15-3, do not exceed the threshold quantity limits and are therefore not regulated substances in this setting. The proposed quantity of aqueous ammonia, as listed in Table 5.15-3, does, however, exceed the threshold quantity limits.

Based on these regulations and the expected future use of aqueous ammonia at PPEC, an RMP is required and will be submitted to the County of San Diego DEH, HMD.

No special regulatory requirements or management practices related to the storage or use of sulfuric acid or hydrochloric acid are anticipated.

An Offsite Consequences Analysis (OCA) for accidental releases of aqueous ammonia was conducted in accordance with California Energy Commission (CEC) regulations. The analysis is included in Section 5.15.2.3.

Other Hazardous Materials

No adverse environmental impacts related to other hazardous materials used at the PPEC facility are anticipated. Only small quantities of paints, oils, solvents, pesticides, and cleaners typical of those packaged for retail consumer use are, or will be, present during operation of the PPEC facility. Small volumes of petroleum products associated with construction equipment would be onsite during construction. As described in Sections 5.15.2.2 and 5.15.3, long-term or cumulative impacts will be avoided by managing any accidental leaks or spills of these materials according to applicable regulations.

Material Safety Data Sheets

Material Data Safety Sheets (MSDSs) for the hazardous materials will be kept onsite as required by 29 CFR, Section 1910, Occupational Safety and Health Administration Hazard Communication Rules and Regulations.

Transportation of Hazardous Materials

Project operation would require regular transportation of hazardous materials to the PPEC site. Transportation of hazardous materials will comply with all California Department of Transportation (Caltrans), U.S. Environmental Protection Agency (USEPA), 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 PPEC facility and transported in accordance with Vehicle Code Section 32100.5, which addresses the transportation of hazardous materials that pose an inhalation hazard. In addition, ammonia will only be transported along approved routes specified in Section 5.11, Traffic and Transportation.

Site Security

The use of hazardous materials requires that special site security measures be developed and implemented to prevent unauthorized access. In addition to standard business security practices, a site-specific security plan will include descriptions of the following:

- Site fencing and security gates
- Alarms (fire and other)
- Evacuation procedures
- Protocol for contacting law enforcement in the event of a security breach

The use of security guards

- A site access protocol for vendors
- Measures to conduct site personnel background checks, including employee and routine onsite contractors, consistent with state and federal laws regarding security and privacy

5.15.2.3 Offsite Consequence Analysis

This section presents the OCA used to evaluate potential acute public health impacts from an accidental release of aqueous ammonia. Details of the calculations for this analysis are included below under Model Parameters.

Aqueous ammonia will be present in sufficient quantity and concentration to be a state-regulated substance that would require the development of an RMP. It will be the only hazardous substance present onsite in a sufficient quantity to be considered a state-regulated substance subject to the requirements of the CalARP program. Aqueous ammonia will be used in the selective catalytic reduction (SCR) system to reduce NO_x emissions from the generating units. The 19.1 percent aqueous ammonia solution would be stored in one storage tank, which holds a maximum of 20,000 gallons. The tank would be refilled periodically by offloading from ammonia tanker trucks.

The OCA was performed for a hypothetical worst-case accidental release scenario. CalARP regulations (19 CCR 2735.3(zz)), specifies that the worst-case release scenario must be "the release of the largest quantity of a regulated substance from a vessel or process line failure that results in the greatest distance to an endpoint." For PPEC, this would be the failure of the 20,000-gallon storage tank. It is assumed that the worst-case release would occur under a set of meteorological conditions that would lead to the highest possible impact concentrations. Impact area values provided from the worst-case scenario evaluation are considered to be highly conservative.

For the OCA, distances to specified concentrations of ammonia were estimated through the use of an EPA approved atmospheric dispersion computer model to predict airborne dispersion and resulting ground-level concentrations. Four recognized concentration levels, or "levels of concern," were utilized to evaluate public health impacts associated with hypothetical releases of aqueous ammonia:

- Lethal. The lethal concentration is 2,000 parts per million by volume (ppmv) averaged over 30 minutes.

- Immediately Dangerous to Life and Health (IDLH). The IDLH concentration is 300 ppmv, averaged over 30 minutes (National Institute of Occupational Safety and Health (NIOSH), 1997). This concentration was chosen by the NIOSH to ensure that workers can escape without injury or irreversible health effects from an IDLH exposure. Exposure to ammonia at or above the IDLH poses a threat of death or immediate or delayed permanent adverse health effects or prevents escape from the impacted environment.

- CalARP Toxic Endpoint Concentration (CalARP-TEC). The CalARP toxic endpoint concentration is 200 ppmv (CCR Title 19, Division 2, Chapter 4.5), which is the maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair an individual's ability to take protective action.

- CEC Significance Value. The CEC uses a more stringent significance value of 75 parts per million (ppm) of ammonia averaged over 30 minutes, based on public short-term limits set by the National Research Council. The CEC uses this concentration as a screening guideline to determine the potential for significant impact. CEC has determined that exposure above this level poses a potentially significant risk of adverse health impacts on sensitive members of the general public.

In the present analysis, the potential adverse offsite impact of an accidental release of ammonia is considered to be less than significant if the examined concentration levels do not reach a public receptor. The CalARP Program final regulations (CCR Title 19, Division 2, Chapter 4.5) define a public receptor to mean "offsite residences, institutions (e.g., schools, hospitals), industrial, commercial, and office buildings, parks, or recreational areas inhabited or occupied by the public at any time without restriction by the stationary source where members of the public could be exposed to toxic concentrations, radiant heat, or overpressure, as a result of an accidental release". Subject to CalARP Risk Management Plan (RMP) regulations, program requirements are based on whether the CalARP-TEC concentration poses an impact onto public receptors. If concentrations at the CalARP-TEC level do not extend to any public receptor, then the PPEC would be subject to compliance with CalARP RMP Program 1 requirements. However, if concentrations equal to or greater than the CalARP-TEC level are determined to impact public receptors, then PPEC would be subject to either CalARP RMP Program 2 or Program 3 requirements, depending on requirements set by the Administrative Agency (i.e. County of San Diego DEH, HMD).

The OCA includes four components. The first is to describe the worst-case scenario, including passive features designed to minimize emissions, in enough detail to allow quantitative analysis. The second component is to estimate emission rates associated with the scenario. The third component is to determine atmospheric dispersion of the emissions in order to predict the maximum distances to the levels of concern in the scenario. The fourth component is to assess the potential degree and extent of offsite consequences (if any) in terms of the concentrations computed by the dispersion modeling.

The following subsections describe the following: the assumptions used to characterize the worst-case release scenarios with varying degrees of exposed surface area for the release of aqueous ammonia; the input parameters for the modeling analyses of each scenario; the selected atmospheric dispersion modeling methodology; and the results of the modeling analysis.

Scenarios

The OCA conducted for the PPEC examines a worst-case scenario release. The hypothetical worst-case scenario release for the PPEC entails the failure of the 20,000-gallon aqueous ammonia storage tank, where upon 100% of its contents would be instantly released. The release is assumed under worst-case meteorological conditions that would lead to the highest possible impact concentrations

In addition to requiring a complete release of contents during a worst-case scenario release, RMP guidance also allows for the use of passive mitigation measures to be considered for the OCA. Passive mitigation measures are defined as equipment, devices, or technologies that function without human, mechanical, or other energy input to mitigate the release.

For this analysis, it is assumed that the tank is currently proposed near the southeastern corner of the site, approximately 50 feet from the site boundary. Four separate worst-case release scenarios were evaluated through this OCA. These four scenarios were examined to determine the passive mitigation measures that need to be applied to provide a less than significant impact from a worst-case release of aqueous ammonia at the PPEC site. The four worst-case release scenarios are as follows:

- Worst-case Scenario #1: Passive Mitigation Used Consists of a Concrete Berm;
- Worst-case Scenario #2: Passive Mitigation Used Consists of a Concrete Berm and Floating High-Density Polyethylene (HDPE) Ball Cover;
- Worst-case Scenario #3: Passive Mitigation Used Consists of a Concrete Berm and an Underground Vault with a 30-inch Drain Diameter; and
- Worst-case Scenario #4: Passive Mitigation Used Consists of a Concrete Berm and an Underground Vault with a 24-inch Drain Diameter.

Worst-case Scenario #1: Passive Mitigation Used Consists of a Concrete Berm

The first hypothetical worst-case scenario release considered for the PPEC entails 20,000 gallons of 19.1% aqueous ammonia being instantaneously released from the storage tank onsite. Aqueous ammonia released would be sequestered within a bermed concrete containment area surrounding the ammonia storage tank. The concrete containment area will have the following dimensions: 4 feet (height) x 20 feet (width) x 60 feet (length); and be capable of holding the entire contents from the ammonia tank plus that of a 24-hour, 25-year storm event (i.e., 3.70 inches (WRCC, 1918-2009)). A storm event of this magnitude results in an approximate volume of 2,800 gallons of rainwater. For the OCA, the release rate of the ammonia is considered to be the rate of evaporation from the total exposed ammonia in the concrete containment area. As such, for this worst-case scenario release, an area of 1,200 square feet is used to determine the release rate of ammonia for the OCA. The results of this scenario are summarized in Table 5.15-6.

Worst-case Scenario #2: Passive Mitigation Used Consists of a Concrete Berm and Floating HDPE Ball Cover

The second hypothetical worst-case scenario release for the PPEC also entails 20,000 gallons of 19.1% aqueous ammonia being instantaneously released from the storage tank into a bermed secondary containment area. The bermed secondary containment area has similar dimensions to that used for Worst-case Scenario #1. However, for Worst-case Scenario #2, the OCA evaluation for the PPEC utilizes a floating HDPE ball cover as an additional means of passive mitigation. The floating HDPE ball cover effectively reduces the surface area of the exposed ammonia in the bermed containment area after the hypothetical spill. Only the void space between floating HDPE balls is considered, thus the exposed area is reduced by 85% and yields a reduced exposed area of 180 square feet used for modeling this scenario. The results of this scenario are summarized in Table 5.15-6.

Worst-case Scenario #3: Passive Mitigation Used Consists of a Concrete Berm and an Underground Vault with a 30-inch Drain Diameter

The third hypothetical worst-case scenario release for the PPEC also considers the instantaneous release of 20,000 gallons of 19.1% aqueous ammonia from the storage tank into a bermed secondary containment area. However, for Worst-case Scenario #3, the storage tank is also equipped with an underground vault sized to contain 20,000 gallons of ammonia and the maximum rainfall from a 24-hour, 25-year storm event (i.e., 3.70 inches [WRCC, 1918-2009]). The volume for this corresponding vault is approximately 22,800 gallons. The concrete containment area surrounding the storage tank would be sloped in such a manner as to expeditiously drain the 20,000 gallons into the vault through a 30-inch drain. As such, the 30-inch drain would be the only remaining exposed surface area through which the ammonia may evaporate. The results of this scenario are summarized in Table 5.15-6.

Worst-case Scenario #4: Passive Mitigation Used Consists of a Concrete Berm and an Underground Vault with a 24-inch Drain Diameter

Similar to Worst-case Scenario #3, the fourth hypothetical worst-case scenario release for the PPEC considers the instantaneous release of 20,000 gallons of 19.1% aqueous ammonia from the storage tank into a bermed secondary containment area that is equipped with an underground vault. The underground vault is sized to contain 20,000 gallons of ammonia and the maximum rainfall from a 24-hour, 25-year storm event (3.70 inches [WRCC, 1918-2009]). However, in lieu of a 30-inch drain, Worst-case Scenario #4 considers the use of a 24-inch diameter drain. The concrete containment area surrounding the storage tank would be sloped in such as manner as to expeditiously drain the 20,000 gallons into the vault through a 24-inch drain. As such, the 24-inch drain would be the only remaining exposed surface area from the aqueous ammonia spill through which the ammonia may evaporate. The results of this scenario are summarized in Table 5.15-6.

Modeling Methodology

To examine the impacts from a hypothetical spill of aqueous ammonia, the USEPA-approved atmospheric dispersion model Aerial Location of Hazardous Atmospheres (ALOHA) was employed. ALOHA is an air-dispersion model that evaluates hazardous chemical scenarios used to help quantify chemical dangers.

An accidental aqueous ammonia release would evaporate in the form of ammonia gas. Ammonia gas is lighter than air (17.03 g/gram-mole to 29 g/gram-mole, respectively) and therefore modeling methodology applied for ammonia must be suitable. For an ammonia release scenario, a dense gas model, such as SLAB (an atmospheric dispersion model for denser-than-air releases) or DEGADIS (Dense Gas Dispersion Model), would be inappropriate.

Only one meteorological condition, a single stability class and wind speed (regardless of wind direction), needs to be examined for the OCA. Therefore, the complexity of a dispersion model such as AERMOD is unnecessary in this case.

ALOHA provides the ability to use Gaussian Air Modeling for releases lighter than air. Additionally, ALOHA allows for a simplified input of meteorological conditions to be used for the air dispersion analysis. As such, ALOHA is an appropriate model for the required analysis.

Model Parameters

RMP OCA guidance requires a wind speed of 1.5 meters per second (m/s) for a worst-case scenario. For this OCA, the wind speed used was taken from measurements made at the standard height of ten meters (33 feet). Low wind speeds can result in a low rate of volatilization, but also result in a low vapor dispersion rate as it is carried downwind.

The CalARP guidance requires that the worst-case release scenario utilize the maximum air temperature observed onsite in the previous three years. The highest measured daily temperature of approximately 108°F at Brown Field Airport was used (National Weather Service, 2007-2010). CalARP also requires that the average humidity for the site (68%) be used for the modeling.

Atmospheric stability is an important meteorological parameter used in modeling the dispersion of the ammonia vapor. The worst-case scenario requires Stability Class F, which is the most stable classification. In a stable atmosphere, little turbulent motion is present, hence very little mixing occurs, so the ammonia concentration would remain high as the vapor is carried downwind.

Table 5.15-5 shows the parameters used to model the ammonia dispersion for the four worst-case release scenarios examined, as described above.

TABLE 5.15-5
DISPERSION MODEL PARAMETERS

	Worst-case Scenario #1: Concrete Berm	Worst-case Scenario #2: Concrete Berm and Floating HDPE Ball Cover	Worst-case Scenario #3: Concrete Berm and Underground Vault (Drain diameter = 30 inches)	Worst-case Scenario #4: Concrete Berm and Underground Vault (Drain diameter = 24 inches)
Ambient Temperature (°Fahrenheit)	108	108	108	108
Atmospheric Stability Class	F	F	F	F
Wind Speed (meters per second [m/s])	1.5	1.5	1.5	1.5
Ambient Humidity (%)	68	68	68	68
Release Area (square feet [ft^2])	1,200	180	4.91	3.14
Volume of Tank (gallons)	20,000	20,000	20,000	20,000

Modeling Results

Table 5.15-6 summarizes the modeling results and approximate distances reached by each level of concern through the various hypothetical worst-case release scenarios examined.

TABLE 5.15-6
DISPERSION MODELING RESULTS

Thresholds		Worst-case Scenario #1: Concrete Berm	Worst-case Scenario #2: Concrete Berm and Floating HDPE Ball Cover	Worst-case Scenario #3: Concrete Berm and Underground Vault (Drain diameter = 30 inches)	Worst-case Scenario #4: Concrete Berm and Underground Vault (Drain diameter = 24 inches)
Distance to Threshold Concentration	Lethal (2,000 ppm)	1340 feet	555 feet	108 feet	87 feet
	IDLH (300 ppm)	3850 feet	1520 feet	282 feet	228 feet
	CalARP-TEC (200 ppm)	4840 feet	1900 feet	345 feet	282 feet
	CEC (75 ppm)	26900 feet	3290 feet	574 feet	465 feet

ppm = parts per million
IDLH = immediately dangerous to life and health
CalARP-TEC = CalARP - Toxic Endpoint Concentration
CEC = California Energy Commission

The nearest site boundary of PPEC is located approximately 50 feet south of the proposed tank location. Therefore, any distance to the concentration threshold beyond this 50-feet limit is considered "offsite." Additionally, the nearest public receptor to the site is the proposed Corrections Corporation of America Correctional Facility, which is located in the northeast quadrant of Alta Road and Calzada de la Fuente (north of OMGP), northeast of the PPEC site. The distance between the ammonia tank and Correctional Facility is approximately 620 feet when measuring from the northern edge of the bermed containment to the northern side of Calzada de la Fuente (Energy Center Way).

The worst-case release scenario examined for the use of the concrete berm containment as the sole means of passive mitigation does not provide sufficient mitigation to maintain concentrations of concern within the site boundaries and away from the nearest public receptor (Table 5.15-6). Likewise, the use of a HPDE ball floating cover, would also not maintain concentrations of concern within site boundaries and away from the nearest public receptor. As such, PPEC will not be using either of the proposed mitigation system, since neither provides sufficient mitigation of ammonia during a worst-case spill scenario.

The OCA for the third worst-case scenario release demonstrates that all concentrations of concern extend offsite; however, these concentrations do not impact the nearest public receptor, the Correctional Facility. Although this third worst-case release scenario with the 30-inch diameter drain allows PPEC to meet CalARP RMP Program 1 regulatory requirements, the distance to which the ammonia may spread offsite can be reduced by using a smaller diameter drain.

The use of the concrete berm and underground vault with a 24-inch diameter drain for mitigation will maintain the majority of concentrations of concern closer to PPEC site boundaries when compared with results for the third worst-case scenario release OCA (Table 5.15-6). Figure 5.15-1 shows that lethal, IDLH, CalARP-TEC, and CEC concentrations levels will not impact the nearest public receptor, the Correctional Facility. Applying the passive mitigation measures examined through Worst-case Scenario #4, the impact from the CalARP-TEC level emission of

200 ppm will not affect public receptors, and thus the impact would be considered insignificant. As such, PPEC would be expected to comply with CalARP RMP Program 1 regulatory requirements.

The PPEC will apply the use of a sloped concrete berm and a 22,800 gallon-underground vault with a 24-inch diameter drain as a means of passive mitigation for the ammonia tank onsite. With the use of this passive mitigation, lethal, IDLH, CalARP-TEC, and CEC concentrations levels will not impact public receptors, and the aqueous ammonia storage tank at PPEC will present an insignificant risk to the public. PPEC will be committed to working closely with the County of San Diego DEH, HMD and comply with all regulatory requirements to safely operate the site.

5.15.2.4 Abandonment/Closure

Facility closure will be outlined in the PPEC closure plan which will be prepared prior to operation of the facility. Closure of the facility may be temporary or permanent. In the event of a premature or unexpected cessation of operations, the facility closure plan will ensure that: 1) materials maintained onsite which might present risks to the public health and safety and the environment are properly stored and disposed of; and 2) the site is secured to prevent unauthorized access and risk to public health and safety. Closure procedures will be established to comply with all federal, state, and local requirements related to hazardous materials and hazardous waste. The plan will include monitoring the vessels and receptacles of materials or wastes, safe cessation of processes using hazardous materials or storing hazardous wastes, and the inspection of secondary containment structures.

Temporary Closure

The PPEC facility's closure plan will outline measures for temporary closure that enable all hazardous materials and waste to be removed from the facility or that provide 24-hour security monitoring at the project site. The CEC will be notified prior to closure. Temporary contingency closure measures will be prepared as part of the facility closure plan prior to startup of the facility and will be developed consistent with BMPs, the HMBP, the RMP, and the Spill Prevention, Control, and Countermeasures (SPCC) Plan. The measures will be in accordance will all applicable LORS and will be implemented to protect health and safety and the environment.

Permanent Closure

Permanent closure is defined as a cessation in operations with no intent to restart operations because of facility age, damage to the project that is beyond repair, adverse economic conditions, or other significant reasons. The planned permanent closure of PPEC will be incorporated into the facility closure plan and evaluated at the end of the generating station's economic operation. The facility closure plan will outline measures for permanent closure to secure materials and waste, including the inventory, management, and disposal of materials and wastes, and permanent closure of permitted hazardous materials and waste storage units.

The permanent closure measures will be prepared as part of the facility closure plan prior to startup of the facility and will be developed consistent with BMPs, the HMBP, the RMP, and the SPCC Plan. The measures will be in accordance will all applicable LORS and will be implemented to protect health and safety and the environment.

5.15.3 Cumulative Impacts

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. Section 5.18 presents a list of potential projects that could result in cumulative impacts with the proposed project.

Cumulative impacts considered for PPEC focused on accidental releases of hazardous materials. Specifically, the increased risk to public health and safety when multiple facilities handling hazardous materials were considered together with the proposed project.

In the evaluation of cumulative impacts, the only property identified that may provide an incremental effect or cumulative impact is OMGP. The OMGP is located east, adjacent to the PPEC project site, and was identified as a facility that handles hazardous materials. OMGP was identified to handle large quantities of aqueous ammonia. However, results of the OCA completed for the OMGP site reported that concentrations of ammonia derived from an accidental release would be principally confined to the OMGP site and not affect any public receptors or migrate toward the PPEC site.

The PPEC OCA also identified significant ammonia emission concentrations levels to remain near the PPEC site boundaries. Although IDLH, CalARP-TEC, and CEC concentrations from PPEC are modeled to extend onto the OMGP site, the plumes from the OMGP accidental release scenario do not commingle with plumes from the PPEC accidental release scenario. As such, no cumulative impacts would be expected to be derived from the commingling of ammonia emissions of an accidental release at PPEC and the adjacent OMGP. No incremental risk to the public could be identified from the cumulative impacts between PPEC and adjacent properties.

5.15.4 Mitigation Measures and Conditions of Certification

The CEC standard conditions and the procedures described in Sections 5.15.4.1 and 5.15.4.2 provide appropriate mitigation and conditions of certification that enable PPEC to utilize hazardous materials in compliance with all applicable LORS and in a manner that would not cause significant environmental impacts.

HAZMAT-1

The project owner shall not use any hazardous materials not approved by the CEC or in greater quantities than those identified by chemical name unless approved in advance by the Compliance Project Manager (CPM).

Verification: The project owner shall provide to the CPM, in the Annual Compliance Report, a list of hazardous materials and storage quantities contained at the facility.

HAZMAT-2

The project owner shall concurrently provide a Business Plan and a RMP to the Certified Unified Program Authority (CUPA) (County of San Diego DEH, HMD) and the CPM for review at the time the RMP is first submitted to the USEPA. After receiving comments from the CUPA, the USEPA, and the CPM, the project owner shall reflect all recommendations in the final documents. Copies of the final Business Plan and RMP shall then be provided to the CUPA and USEPA for information and to the CPM for approval.

Verification: At least 60 days prior to receiving any hazardous material on the site for commissioning or operations, the project owner shall provide a copy of a final Business Plan to the CPM for approval. At least 60 days prior to delivery of aqueous ammonia to the site, the project owner shall provide the final RMP to the CUPA for information and to the CPM for approval.

HAZMAT-3

The project owner shall develop and implement a Safety Management Plan for delivery of aqueous ammonia. The plan shall include procedures, protective equipment requirements, training and a delivery procedures checklist. It shall also include a section describing all measures to be implemented to prevent mixing of aqueous ammonia with incompatible hazardous materials.

Verification: At least 60 days prior to the first delivery of aqueous ammonia to the facility, the project owner shall provide a safety management plan as described above to the CPM for review and approval.

HAZMAT-4

The aqueous ammonia storage facility shall be designed to either the American Society of Mechanical Engineers (ASME) Pressure Vessel Code or American National Standards Institute (ANSI) K61.6 or to API 620. In either case, the storage tank shall be protected by a secondary containment basin capable of holding the storage volume plus the volume associated with 24 hours of rain assuming the 25-year storm. The final design drawings and specifications for the ammonia storage tank and secondary containment basins shall be submitted to the CPM for review and approval.

Verification: At least 60 days prior to the first delivery of aqueous ammonia to the facility, the project owner shall submit final design drawings and specifications for the ammonia storage tank and secondary containment basin to the CPM for review and approval.

HAZMAT-5

The project owner shall ensure that no flammable material is stored within 50 feet of the sulfuric acid tank.

Verification: At least 60 days prior to the first receipt of sulfuric acid onsite, the project owner shall provide copies of the facility design drawings showing the location of the sulfuric acid storage tank and the location of any tanks, drums, or piping containing any flammable materials to the CPM.

HAZMAT-6

The project owner shall direct all vendors delivering aqueous ammonia to the site to use only tanker truck transport vehicles that meet or exceed the specifications of U.S. DOT Code MC-307.

Verification: At least 60 days prior to the first receipt of aqueous ammonia on site, the project owner shall submit copies of the notification letter to supply vendors indicating the transport vehicle specifications to the CPM for review and approval.

HAZMAT-7

The project owner shall direct all vendors delivering any hazardous material to the site to use only the route approved by the CPM. The project owner shall submit any desired change to the approved delivery route to the CPM for review and approval.

Verification: At least 60 days prior to receipt of any hazardous materials on site, the project owner shall submit copies of the required transportation route limitation direction to the CPM for review and approval.

HAZMAT-8

At least 30 days prior to commencing construction, a site-specific Construction Site Security Plan for the construction phase shall be prepared and submitted to the CPM for review and approval. The Construction Security Plan shall include the following:

1. Perimeter security consisting of fencing enclosing the construction area;
2. Security guards;
3. Site access control consisting of a check-in procedure or tag system for construction personnel and visitors;
4. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on-site or off-site;
5. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; and
6. Evacuation procedures.

Verification: At least 30 days prior to commencing construction, the project owner shall notify the CPM that a site-specific Construction Security Plan is available for review and approval.

HAZMAT-9

In order to determine the level of security appropriate for this power plant, the project owner shall prepare a Vulnerability Assessment and submit that assessment as part of the Operations Security Plan to the CPM for review and approval. The Vulnerability Assessment shall be prepared according to guidelines issued by the North American Electrical Reliability Council

(NERC, 2002), the U.S. Department of Energy (DOE, 2002), and the U.S. Department of Justice Chemical Vulnerability Assessment Methodology (July 2002). Physical site security shall be consistent with the guidelines issued by the NERC (Version 1.0, June 14, 2002) and the DOE (2002) and will also be based, in part, on the use, storage, and quantity of hazardous materials present at the facility.

The project owner shall also prepare a site-specific Security Plan for the operational phase and submit it to the CPM for review and approval. The project owner shall implement site security measures addressing physical site security and hazardous materials storage. The level of security to be implemented will be determined by the results of the Vulnerability Assessment but in no case shall the level of security be less than that described as below (as per NERC 2002).

The Operation Security Plan shall include the following:

1. Permanent full perimeter fence or wall, at least eight feet high;

2. Main entrance security gate, either hand operable or motorized;

3. Evacuation procedures;

4. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;

5. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages onsite or off-site;

6. Site personnel background checks, including employee and routine on-site contractors (Site personnel background checks are limited to ascertaining that the employee's claims of identity and employment history are accurate. All site personnel background checks shall be consistent with state and federal law regarding security and privacy);

7. Site access controls for employees, contractors, vendors, and visitors;

8. Requirements 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 1572, Subparts A and B;

9. Closed Circuit TV (CCTV) monitoring system, recordable, and viewable in the power plant control room and security station (if separate from the control room) capable of viewing, at a minimum, the main entrance gate and the ammonia storage tank; and

10. Additional measures to ensure adequate perimeter security consisting of either:

    A. Security guards present 24 hours per day, 7 days per week or

    B. Power plant personnel on-site 24 hours per day, 7 days per week and all of the following:

1. The CCTV monitoring system required in number 9 above shall include cameras that are able to pan, tilt, and zoom (PTZ), have low-light capability, are recordable, and are able to view 100% of the perimeter fence, the ammonia storage tank, the outside entrance to the control room, and the front gate from a monitor in the power plant control room; and

2. Perimeter breach detectors or onsite motion detectors The project owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to the security plant components (e.g., transformers, gas lines, compressors, etc.) depending on circumstances unique to the facility or in response to industry-related standards, security concerns, or additional guidance provided by the U.S. Department of Homeland Security, the U.S. DOE, or NERC, after consultation with appropriate law enforcement agencies and the applicant.

Verification: At least 30 days prior to the initial receipt of hazardous materials onsite, the project owner shall submit a site-specific Vulnerability Assessment and Operations Site Security Plan are available to the CPM for review and approval.

5.15.5 Laws, Ordinances, Regulations, and Standards

The LORS applicable to PPEC are discussed in this section in the context of hazardous materials handling. Construction and operation of PPEC will be in accordance with all applicable LORS pertaining to hazardous materials.

Federal, state, and local laws will govern the storage and use of hazardous materials and acutely hazardous materials at the PPEC site. Applicable laws and regulations address the use and storage of hazardous materials to protect the environment from contamination, and facility workers and the surrounding community from exposure to hazardous and acutely hazardous materials. The applicable LORS related to hazardous materials handling are summarized in Table 5.15-7.

TABLE 5.15-7
SUMMARY OF LORS – HAZARDOUS MATERIALS HANDLING

LORS	Applicability	Administering Agency	Agency Contact	Conformance (AFC Section)
Federal Jurisdiction				
The Superfund Amendments and Reauthorization Act (SARA) of 1986	Contains the Emergency Planning and Community Right to Know Act (also known as SARA Title III)	County of San Diego DEH, HMD	(619) 338-2231	5.15.5.1
The Clean Air Act (CAA) 42 USC 7401 *et seq.* as amended	Establishes a nationwide emergency planning and response program and imposes reporting requirements for business that store, handle, or produce significant quantities of extremely hazardous materials.	County of San Diego DEH, HMD	(619) 338-2231	5.15.5.1

LORS	Applicability	Administering Agency	Agency Contact	Conformance (AFC Section)
CAA Risk Management Plan 42 USC, Section 112(r)	Requires states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility.	County of San Diego DEH, HMD	(619) 338-2231	5.15.5.1
The Clean Water Act (CWA) 40 CFR 112	Prevents the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Requires a written Spill Prevention, Control, and Countermeasures (SPCC) Plan to be prepared for facilities that store certain quantities of oil that could leak into navigable waters.	County of San Diego DEH, HMD	(619) 338-2231	5.15.5.1
6 CFR Part 27	The Chemical Facility Anti-Terrorism Standard (CFATS) regulation of the U.S. Department of Homeland Security (DHS) that requires facilities that store hazardous materials above certain thresholds to submit information to the DHS to determine vulnerability and implementation of security measures.	DHS	CFATS Helpline (866) 323-2957	5.15.5.1
U.S. DOT Regulations, 49 CFR 171-177	Governs the transportation of hazardous materials, including the marking of the transportation vehicles.	U.S. DOT Federal Motor Carrier Safety Administration	California Division (916) 930-2760	5.15.5.1
Pipeline Safety Laws (49 USC 6010 *et seq.*) Transportation of Natural and Other Gas by Pipeline (49 CFR 192)	Specifies natural gas pipeline construction safety and transportation requirements.	U.S DOT Pipeline and Hazardous Materials Safety Administration	1-800-HMR-4922	5.15.5.1
State Jurisdiction				
California Health and Safety Code Section 25500, *et seq.* (Waters Bill)	Requires preparation of an HMBP if hazardous materials are handled or stored in excess of TQ.	County of San Diego DEH, HMD	(619) 338-2231	5.15.5.2
California Health and Safety Code Section 25531, *et seq.* (La Follette Bill)	Requires registration of the facility with local authorities and preparation of an RMP if hazardous materials stored or handled in excess of TQ.	Count y of San Diego DEH, HMD	(619) 338-2231	5.15.5.2
California Health and Safety Code, Section 25531 to 25543.4	The California Accidental Release Program (CalARP) requires the Preparation of a Risk Management Plan (RMP), Offsite Consequence Analysis (OCA), and submittal to the CUPA for approval.	County of San Diego DEH, HMD	(619) 338-2231	5.15.5.2
Title 8 CCR Section 5189	Facility owners are required to implement Safety Management Plans to ensure safe handling of hazardous materials.	County of San Diego DEH, HMD	(619) 338-2231	5.15.5.2
California Uniform Building Code	Requirements regarding the storage and handling of hazardous materials.	San Diego County Department of Public Works	(858) 694-2055	5.15.5.2

LORS	Applicability	Administering Agency	Agency Contact	Conformance (AFC Section)
California Government Code Section 65850.2	Restricts issuance of commercial operating date until the facility has submitted an RMP.	County of San Diego DEH, HMD	(619) 338-2231	5.15.5.2
Local Jurisdiction				
Count y of San Diego DEH, HMD	Requires new/modified businesses to complete a hazardous materials business before final plan/permit approval.	County of San Diego DEH, HMD	(619) 338-2231	5.15.5.3
Industry Standards Jurisdiction				
UFC (Articles 79 and 80)	Requirements for secondary containment, monitoring, etc., for extremely hazardous materials.	San Diego RFPD	(619) 669-1188	5.15.5.4

Source: California Department of Toxic Substances Control, 2010; Cal/EPA, 2010; County of San Diego, DEH, HMD 2010; San Diego RFPD, 2010

Notes:

AFC = Application for Certification
CCR = California Code of Regulations
CFR = Code of Federal Regulations
CUPA = Certified Unified Program Agency
DOT = Department of Transportation
DHS = Department of Homeland Security
DTSC = Department of Toxic Substances Control
DEH = Department of Health
HMD = Hazardous Materials Division
HMBP = Hazardous Materials Business Plan
RFPD = Rural Fire Protection District
LORS = laws, ordinances, regulations, and standards
RMP = Risk Management Plan
TQ = Threshold Quantity
U.S. = United States
USC = United States Code
UFC = Uniform Fire Code

5.15.5.1 Federal

The Superfund Amendments and Reauthorization Act of 1968 (SARA) Title III (Sections 302, 304, 311, and 313) and regulations pursuant to the Clean Air Act of 1990 (40 CFR 68) (together, the "Acts") established a nationwide emergency planning and response program and imposed reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials. The Acts require states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility (see 40 CFR, Section 68.115). The requirements of this implemented system are reflected in the California Health and Safety Code, Section 25531 *et seq.*

The energy sector is one of 14 areas of critical infrastructure listed by the U.S. Department of Homeland Security (DHS). In April 2007, DHS published in the Federal Register (6 CFR Part 27), an Interim Final Rule requiring facilities that use or store certain hazardous materials to conduct vulnerability assessments and implement certain specified measures. This rule was implemented with the publication of Appendix A, which lists those certain chemicals and their thresholds. Ammonia 20 percent, or greater, is identified on the Appendix A list. PPEC will not be required to submit a "Top Screen" assessment to the DHS; however, the project will develop

and implement security measures as described in the NERC published Security Guidelines for Electricity Security.

The Clean Water Act, 40 CFR Part 112, aims to prevent the discharge or threat of discharge or oil into navigable water or adjoining shorelines. The regulations require a written SPCC Plan to be prepared for facilities that store of treat oil that could leak into navigable waters. PPEC will prepare and implement an SPCC Plan prior to operation of the facility.

Title 49, CFR Parts 171-177, govern the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.

The federal safety and operating requirements for natural gas pipelines are contained in Title 49 of the CFR, Parts 190 through 192. Part 190 outlines pipeline safety procedures; Part 191 requires a written report for any reportable incident; and Part 192 specific minimum safety requirements for pipelines. The safety requirements for pipeline construction vary according to population density and land use that characterize the surrounding area. PPEC's natural gas line will be constructed in accordance with these requirements.

5.15.5.2 State

The California Health and Safety Code, Section 25500, requires companies that handle hazardous materials in sufficient quantities to develop an HMBP. The HMBP includes basic information on the location, type, quantity, and health risks of hazardous materials handled, stored, used, or disposed of that could be accidentally released into the environment. It also includes a plan for training new personnel and annual training of all personnel in safety procedures to follow in the event of a release of hazardous materials. It also includes an Emergency Response Plan and identifies the business representative able to assist emergency personnel in the event of a release. PPEC will develop and implement an HMBP prior to construction and operation of the facility.

The California Health and Safety Code, Section 25531, directs facility owners storing or handling acutely hazardous materials in reportable quantities to develop an RMP and submit it to appropriate local authorities, the USEPA, and the designated local Administering Agency for review and approval. The RMP includes an evaluation of the potential impacts associated with an accidental release; the likelihood of an accidental release occurring; the magnitude of potential human exposure; any pre-existing evaluations or studies of the material; the likelihood of the substance being handled in the manner indicated; and the accident history of the material. This new, recently developed program supersedes the California Risk Management and Prevention Plan and is known as the CalARP. PPEC will develop and submit an RMP prior to operation of the facility.

The CCR, Title 8, Section 5189, requires facility owners to develop and implement effective Safety Management Plans to ensure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process.

California Government Code, Section 65850.2, states that a city or county will not issue a final certificate of occupancy unless there is verification that the Applicant has met the applicable requirements of Health and Safety Code, Section 25531, and requirements, if any, for a permit from the air pollution control district.

The Uniform Building Code contains requirements regarding the storage and handling of hazardous materials. The Chief Building Official must inspect and verify compliance with these requirements prior to issuance of an occupancy permit.

5.15.5.3 Local

The designated Certified Unified Program Agency for the PPEC site is the County of San Diego DEH, HMD, and is responsible for: 1) the implementation of the HMBP and Emergency Response Plan and 2) the storage of hazardous materials in underground storage tanks and cleanup of petroleum releases. The County of San Diego DEH, HMD, will be contacted in the event of a release of hazardous wastes or materials to the environment. In addition, the facility Emergency Response Plan will include a list of other federal, state, and local agencies that may need to be contacted in case of an emergency or release of hazardous materials or wastes.

5.15.5.4 Industry Standards

The Uniform Fire Code (UFC) contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80. Article 80 was extensively revised in the latest edition (1994). These articles contain requirements that are generally similar to those contained in the California Health and Safety Code, Section 25531 *et seq.* The UFC does, however, contain unique requirements for secondary containment, monitoring, and treatment of toxic gases emitted through emergency venting. These unique requirements are generally restricted to extremely hazardous materials.

5.15.6 Involved Agencies and Agency Contacts

A number of federal and state agencies regulate hazardous materials, including the USEPA at the federal level and the California EPA at the state level. However, local agencies are the primary enforcers of hazardous materials laws. For PPEC, the local agency is the County of San Diego DEH, HMD, and the contact is shown in Table 5.15-8.

TABLE 5.15-8
AGENCY CONTACT LIST FOR LORS

Agency	Contact	Address	Telephone
County of San Diego DEH, HMD, CUPA	Hazardous Materials Duty Specialist	P.O. Box 129261 San Diego, CA 92112	(619) 338-2231
San Diego RFPD	Chief Dave Nissen	RFPD Headquarters 14024 Peaceful Valley Ranch Road Jamul, CA 91935	(619) 669-1188
San Diego RFPD	Staff	Station #22 (Otay Mesa) 446 Alta Road San Diego, CA 92154	(619) 661-2820

Source: County of San Diego DEH, HMD, 2010; San Diego RFPD, 2010.
Notes:
CUPA = San Diego County, Certified Unified Program Agency
LORS = laws, ordinances, regulations, and standards
RFPD = Rural Fire Protection District

5.15.7 Permits Required and Permit Schedule

PPEC will develop an HMBP prior to construction activities.

PPEC will submit an RMP prior to the storage of aqueous ammonia onsite. See Table 5.15-9 for a list of potential permit requirements.

TABLE 5.15-9
APPLICABLE PERMITS

Responsible Agency	Permit/Approval	Schedule
Federal Agencies	No permits required	N/A
State Agencies	No permits required	N/A
County of San Diego DEH, HMD, CUPA	Hazardous Materials Business Plan	Prepare Hazardous Materials Business Plan 30 days prior to storage of hazardous materials onsite.
County of San Diego DEH, HMD, CUPA	CalARP Risk Management Plan	Prepare Risk Management Plan 90 days prior to ammonia delivery.
County of San Diego DEH, HMD, CUPA	SPCC Plan	Prepare 30 days prior to commissioning of the facility.
San Diego RFPD	Fire Department requirements, storage of hazardous materials, flammables and combustible liquids, compressed gases and lead acid battery systems	Coordinate with San Diego RFPD Department before storing these materials onsite.

Source: County of San Diego DEH, HMD, 2010, San Diego RFPD, 2010
Notes:
CalARP = California
CUPA = San Diego County, Certified Unified Program Agency
DEH = Department of Environmental Health
HMD = Hazardous Materials Division
RFPD = Rural Fire Protection District
SPCC = Spill Prevention and Countermeasures
N/A = Not Applicable

5.15.8 References

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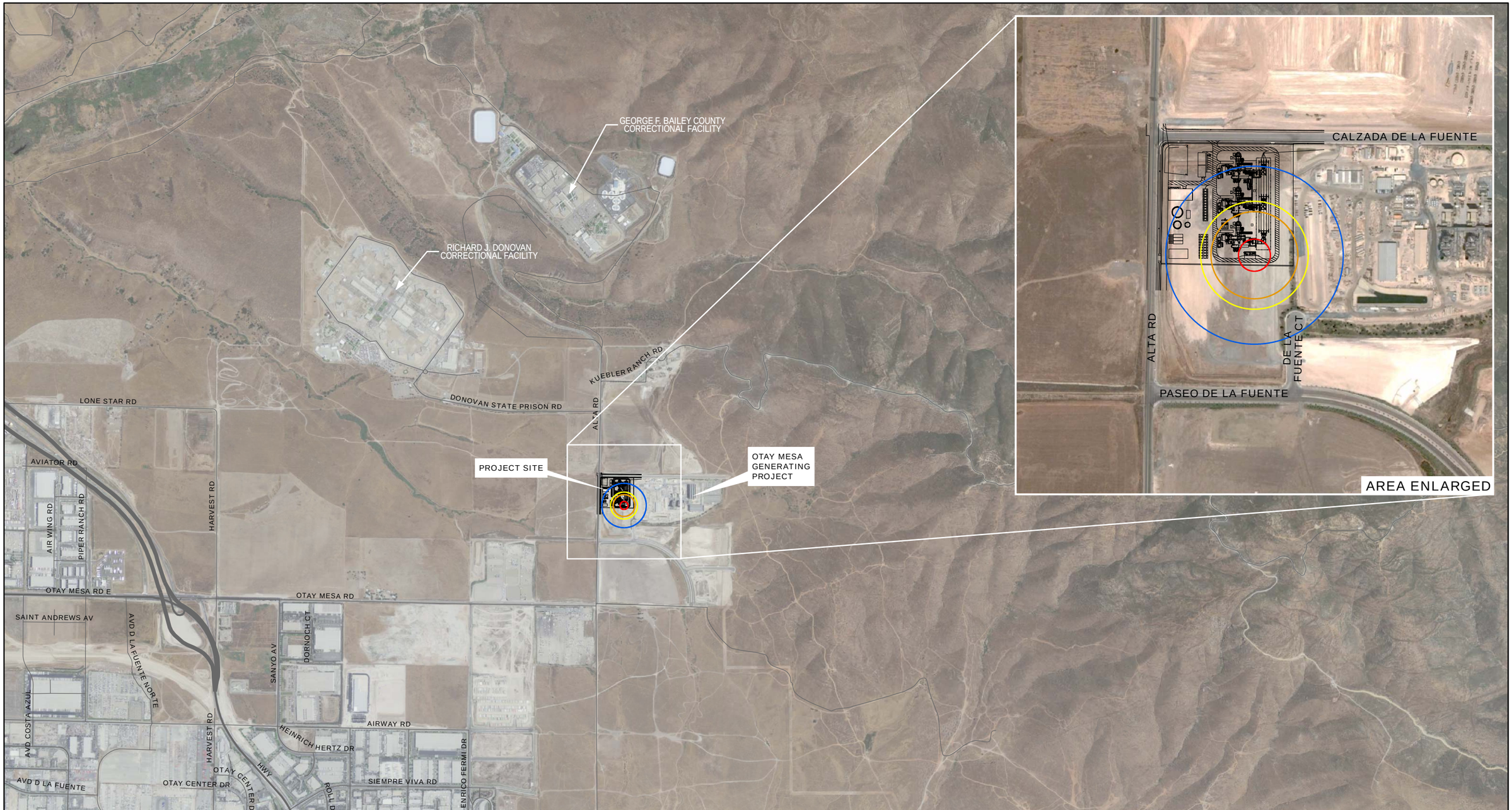

Legend

- Proposed Project
- Lethal Threshold (2000 ppm)
- IDLH Threshold (300 ppm)
- CalARP Threshold (200 ppm)
- CEC Threshold (75 ppm)

N

0 1,000 2,000 Feet

FIGURE 5.15-1

THREAT ZONES FOR MITIGATION TECHNIQUES USING CONCRETE BERM AND VAULT WITH A 24-INCH DIAMETER DRAIN

PIO PICO ENERGY CENTER

PROJECT NO.: 29874827

DATE: JANUARY 2011

URS

Adequacy Issue: Adequate ____ Inadequate ____

DATA ADEQUACY WORKSHEET

Revision No. 0 Date ____

Technical Area: **Hazardous Materials Handling** Project: Pio Pico Energy Center Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (e) (1)	A discussion of how facility closure will be accomplished in the event of premature or unexpected cessation of operations.	Section 5.15.2.4		
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.	Section 5.15.1, 5.15.2, 5.15.3 and 5.15.4 Figure 5.15-1		
Appendix B (g) (10) (A)	A list of all materials used or stored on-site which are hazardous or acutely hazardous, as defined in Title 22, California Code of Regulations, § 66261.20 et seq., and a discussion of the toxicity of each material.	Section 5.15.2 Tables 5.15-1, 5.15-2, 5.15-3, and 5.15-4		
Appendix B (g) (10) (B)	A map at a scale of 1:24,000 depicting the location of schools, hospitals, day-care facilities, emergency response facilities and long-term health care facilities, within the area potentially affected by any release of hazardous materials.	Figure 5.15-1		
Appendix B (g) (10) (C)	A discussion of the storage and handling system for each hazardous material used or stored at the site.	Section 5.15.2 and 5.15.4		
Appendix B (g) (10) (D)	The protocol that will be used in modeling potential consequences of accidental releases that could result in off site impacts. Identify the model(s) to be used, a description of all input assumptions, including meteorological conditions. The results of the modeling analysis can be submitted after the AFC is complete.	Section 5.15.2.3		

Adequacy Issue: Adequate ____ Inadequate ____

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SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (10) (E)	A discussion of whether a risk management plan (Health and Safety Code § 25531 et seq.) will be required, and if so, the requirements that will likely be incorporated into the plan.	Section 5.15.2.2 page 7 Tables 5.15-5 and 5.15-6		
Appendix B (g) (10) (F)	A discussion of measures proposed to reduce the risk of any release of hazardous materials.	Section 5.15.2 and 5.15.4		
Appendix B (g) (10) (G)	A discussion of the fire and explosion risks associated with the project.	Section 5.15.2.2		
Appendix B (i) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; and	Section 5.15.5 Table 5.15-7		
Appendix B (i) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.	Section 5.15.5 and 5.15.6 Table 5.15-7		
Appendix B (i) (2)	The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.	Section 5.15.6, Table 5.15-8		

Adequacy Issue: Adequate ____ Inadequate ____

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SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (i) (3)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.	Section 5.15.7, Table 5.15-9		