DOCKETED

Docket Number:	15-AFC-01
Project Title:	Puente Power Project
TN #:	204219-12
Document Title:	4.5 Hazardous Materials Handling
Description:	N/A
Filer:	Sabrina Savala
Organization:	NRG Oxnard Energy Center, LLC
Submitter Role:	Applicant
Submission Date:	4/16/2015 10:44:09 AM
Docketed Date:	4/15/2015

4.5 HAZARDOUS MATERIALS HANDLING

The proposed Puente Power Project (P3 or project) would use hazardous materials during both the construction and operation phases. This section discusses the storage, handling, and use of hazardous materials during the construction and operation of P3. The project area discussed in this section refers to all areas associated with the construction and operation of the new plant and ancillary systems, and construction laydown areas. No new offsite linear facilities are required for P3. Design features regarding the use and storage of hazardous materials have been incorporated into the project facilities to keep maximum potential impacts below defined thresholds of significance. Hazardous waste generation and management are further discussed in Section 4.14, Waste Management. Worker health and safety is further discussed in Section 4.16, Worker Safety and Fire Protection.

The sections below provide an overview of the affected environment; an evaluation of the environmental consequences of the proposed project from hazardous materials handling; a cumulative impact analysis; identification of mitigation measures that will avoid and reduce project impacts to less-than-significant levels; and applicable laws, ordinances, regulations, and standards (LORS).

4.5.1 Affected Environment

P3 would be sited in the northern portion of the existing, approximately 36-acre Mandalay Generating Station (MGS). The site is bordered by sand dunes and the Pacific Ocean to the west; McGrath Lake State Park and land owned by SunCal to the north; industrial uses to the north, south, and east; and agricultural uses farther to the east. The closest existing residential neighborhood is the Oxnard Shores Mobile Home Park, approximately 0.75 mile (or approximately 3,900 feet) south from the proposed P3 stack, south of West 5th Street, and west of Harbor Boulevard. The North Shore at Mandalay Bay is a proposed residential development scheduled to commence vertical construction in 2016. The distance from P3 to the closest North Shore at Mandalay Bay development boundary is approximately 0.47 mile, or approximately 2,460 feet.

P3 would consist of a new natural-gas–fired generation facility and ancillary systems on vacant property at the existing MGS. The MGS is an existing natural-gas–fired steam electric-generating facility. MGS currently operates two conventional steam turbine units (Units 1 and 2) and one gas combustion turbine unit (Unit 3). MGS Units 1 and 2 were constructed in the 1950s, and have a combined generating capacity of 430 megawatts MW). Cooling water for Units 1 and 2 is ocean water conveyed via the 2.5-mile-long Edison Canal from the Channel Islands Harbor. MGS discharges into the Pacific Ocean via a concrete-and-rock revetted structure at a point immediately offshore to the west of the facility. MGS has a National Pollutant Discharge Elimination System permit for withdrawal and discharge. MGS Units 1 and 2 will be decommissioned by the completion of commissioning of P3.

MGS Unit 3 is a combustion turbine engine–powered unit that was commissioned in 1970, and has a generating capacity of approximately 130 MW. Unit 3 would continue to operate and would not be affected by the proposed P3.

Hazardous materials typical of a natural-gas–fired power plant are currently used at the MGS facility and stored in aboveground storage tanks (ASTs,) equipment, drums, and small containers. The electric-generating units are fueled by natural gas. Electric transformers onsite contain dielectric oil. Ammonium hydroxide, hydrazine, sodium hydroxide, and tri-sodium phosphate are used for boiler water chemical control. Sodium nitrate is used as a corrosion inhibitor in the equipment cooling-water system. Sodium hypochlorite is used to treat the circulating water system. Gasoline and diesel are used for fueling vehicles and equipment. Various solvents, paints, lubricants, and compressed gases are used in the servicing and maintenance of equipment. Aqueous ammonia (ammonium hydroxide) (29 percent) is used for the selective catalytic reduction (SCR) system for the control of emissions of oxides of nitrogen (NO_X). Industrial processes involving hazardous materials are either enclosed with covered structures or

surrounded by secondary containment structures. The facility maintains a Hazardous Materials Business Plan (HMBP) with the City of Oxnard Fire Department, Certified Unified Program Agency (CUPA). The HMBP includes a chemical inventory and emergency response procedures. Oil storage and receiving procedures and oil spill prevention and response procedures are outlined in the facility's existing Spill Prevention, Control, and Countermeasure Plan (SPCC). MGS has implemented a Risk Management Plan (RMP) for the storage and use of aqueous ammonia. Hazardous wastes are currently generated at the facility. The facility maintains a United States Environmental Protection Agency (USEPA) Identification Number (USEPA ID#) for the generation of hazardous waste. Hazardous wastes are accumulated in satellite accumulation areas throughout the facility, or in the hazardous waste accumulation area to the north of the maintenance shop/warehouse building. The hazardous waste accumulation area floor is constructed of concrete and surrounded by a 6-inch concrete curb. It is covered and secured with perimeter fencing, and is reportedly locked when not in use.

4.5.2 Environmental Consequences

4.5.2.1 Significance Criteria

The following sections evaluate the potential impacts associated with hazardous materials handling during construction and operation of P3. Appendix G of the California Environmental Quality Act (CEQA) describes project-related effects that would normally be considered to have a significant effect on the environment. Based on this guidance, project-related hazardous-materials–handling impacts are considered significant if the project would do any of 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 a hazardous material into the environment;

- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or wastes 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, would create a significant hazard to the public or the environment; or

- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

P3 would not handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing school, because there are no schools within 0.25 mile of the P3 site. In addition, based on the nature of the proposed project and its location, P3 would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. There would be no impacts relative to these criteria; therefore, they are not discussed further.

The following is a discussion of potential impacts from hazardous materials handling during construction and operation of P3. The information below addresses the major potential impacts that may occur on the site and to the surrounding area from the storage and use of hazardous materials. This evaluation included a review of the following:

- The proposed listing of hazardous materials that would be stored on site during construction and operational phases;

- Land uses in the surrounding areas (sensitive receptors; see Figures 4.9-1 and 4.9-2, Section 4.9, Public Health);

- An analysis of the toxicity and flammability of each hazardous substance based on their Safety Data Sheets (SDS) and Chemical Abstract Service Number classification information; and

- An analysis of a worst-case scenario and alternative-case scenario of the release of aqueous ammonia (19 percent), using the Areal Location of Hazardous Atmospheres (ALOHA) modeling program, which was developed jointly by the National Oceanic and Atmospheric Administration and USEPA.

4.5.2.2 Project Construction

Hazardous materials that would be used during the construction phase are listed in Table 4.5-1. These include unleaded gasoline, diesel fuel, oil, lubricants, solvents, adhesives, welding gases and flux, and paint materials. These hazardous materials are expected to be stored in the construction laydown area, the plant construction site, or in equipment/vehicle fuel tanks during the project's construction phase.

The construction contractor would be responsible for ensuring that the use, storage, and handling of these materials is in compliance with applicable federal, state, and local LORS, including licensing, personnel training, accumulation limits, reporting requirements, and recordkeeping. A HMBP would be developed prior to construction activities. The HMBP would outline hazardous materials handling, storage spill response, and reporting procedures for all hazardous substances used on site during construction.

There would be minimal potential for significant environmental impact from hazardous material incidents during construction, because only small volumes of hazardous materials would be on site during construction. Trained maintenance and service personnel would be handling these materials when they are used. The most likely incidents involving these materials would be dripping of gasoline, diesel fuel, oil, and lubricants from vehicles or equipment. An accident involving the release of one of these materials from a service vehicle during equipment maintenance or fueling would be the worst-case scenario. The risk of such an occurrence would be minimized through the emergency response training program and procedures that would be implemented by the contractor during construction.

Additionally, California Energy Commission (CEC) standard conditions and the procedures presented in Section 4.5.4 (see HM-1) would further ensure that impacts from fueling and maintenance of construction vehicles and equipment would be less than significant.

As shown in Table 4.5-2, the hazardous materials that would be used during construction of P3 have low acute toxicity. If a spill or leak into the environment were to involve hazardous materials equal to or greater than the specific reportable quantity, federal, state, and local reporting requirements would be adhered to. In particular, the Ventura County CUPA, City of Oxnard Fire Department would be notified. In the event the spill or leak leads to fire or injury, the City of Oxnard Fire Department would also be called to respond. Contractors would be expected to implement best management practices with regard to hazardous materials storage, handling, emergency spill response, and reporting procedures. Measures HM-2 through HM-4 will ensure that proper procedures are followed in the event of a hazardous materials spill. With implementation of the standard conditions and the procedures identified below in Section 4.5.4, impacts from hazardous materials handling during construction are expected to be less than significant.

The MGS site, which includes the P3 site, is on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5. As discussed in Section 4.14, Waste Management, a Phase I Environmental Site Assessment (Phase I ESA) (AECOM, 2015) of the MGS site was prepared in accordance with the American Society for Testing and Materials International Practice E 1527-13. The objective of the

Phase I ESA was to identify recognized environmental conditions that may exist on the MGS site or the surrounding area. According to the Phase I ESA (Appendix L-1), MGS was identified on several agency databases related to impacts to soil and groundwater associated with historical MGS activities. Impacts to soil and groundwater are currently being assessed and remediated. Closure activities associated with prior operations of retention basins and associated appurtenances on the MGS property are not part of the proposed project. These activities are Southern California Edison's obligations as the previous owner of the property, and include ongoing groundwater monitoring related to cleanup and closure of the three retention basins north of MGS Unit 2. These retention ponds were remediated in 2011 and groundwater monitoring has been ongoing. The Department of Toxic Substances Control (DTSC) is expected to grant closure to the retention basin remediation in 2015. There is the potential for subsurface impacts to areas in MGS that were not previously assessed and remediated. These areas include, but are not limited to, the powerblock area around Units 1, 2, and 3, the transformer areas, pipeline areas, oil-pumping areas, historical dredge-spoil-pile areas, the oil/water separator and sump, and AST and chemical storage areas. According to a briefing report, the MGS property will be investigated and evaluated under corrective action of the DTSC (2015a). The P3 site consists of only a small portion of the boundary of the Phase I ESA, and is outside of the areas of identified subsurface impacts. However, based on the historical use of the property as an electrical-generating station, and the known and potential subsurface impacts identified in the Phase I ESA, there is the potential for subsurface impacts in the areas of the proposed P3 site. Mitigation Measure WM-8, as detailed in Section 4.14, Waste Management, provides details for a Soil Management Plan to be developed and implemented for the construction activities of P3. The objective of the Soil Management Plan would be to provide guidance for the proper identification, handling, onsite management, and disposal of impacted soil or groundwater that may be encountered during construction activities (ground disturbance). With implementation of Mitigation Measure WM-8, subsurface impacts during construction are expected to be less than significant.

4.5.2.3 Project Operations

The hazardous materials to be stored and/or used during operation of P3 are listed in Table 4.5-3. Table 4.5-2 shows the toxicity/hazards of each material. Hazardous materials are currently stored at the MGS site for use in the operation of the existing units. Hazardous materials used and stored for P3 would consist of incremental increases of hazardous material, and the impacts from hazardous materials handling would be less than significant with adherence to applicable LORS, as described below.

P3 will comply with all regulations and standards for the proper use and handling of each onsite hazardous material. SDSs for the hazardous materials will be kept on site as required by 29 Code of Federal Regulations (CFR) 1910, Occupational Safety and Health Administration (OSHA) Hazard Communication rules and regulations. P3 would update the existing HMBP for operations of P3, which would outline hazardous materials handling, storage spill response, and reporting procedures for all hazardous substances used on site during operation.

Project operations will require regular transportation of hazardous materials to P3. Transportation of hazardous materials will comply with all California Department of Transportation (Caltrans), USEPA, United States Department of Transportation (DOT), DTSC, California Highway Patrol, and California State Fire Marshal regulations.

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 be prepared for P3.

As detailed below, P3 operations would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; and would not 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.

4.5.2.3.1 Hazardous and Acutely Hazardous Materials

A list of all materials that are recognized as hazardous or acutely hazardous (as defined in Title 22, California Code of Regulations [CCR], § 66261.20 *et seq.*), and used or stored on site during operations, is provided in Tables 4.5-2 and 4.5-3.

The hazardous material stored in the greatest quantity on the P3 site during operation would be 19 percent aqueous ammonia (NH_3). Ammonia is regulated by Risk Management Program regulations (Title 40 CFR, Part 68, and California Accidental Release Prevention [CalARP] Program, 19 CCR § 2735.1–§ 2785.1), discussed below. Aqueous ammonia will be the only hazardous substance present at the project site in sufficient quantity to be considered a regulated substance subject to the requirements of the CalARP program.

Aqueous Ammonia. Ammonia would be used as a reducing agent for control of dry low NO_X emissions from the combustion turbine generator (CTG). P3 would store a maximum of 12,450 gallons of NH_3 in one existing steel horizontal storage tank. The tank has a maximum capacity of 14,650 gallons, but administrative controls limit the capacity to 85 percent, or 12,450 gallons. The tank is surrounded on all sides by an existing 39-foot by 33.5-foot by 2.5-foot-tall concrete containment berm that has a containment capacity of 21,980 gallons, or approximately 150 percent of the tank capacity.

The tank is filled with 6-inch-diameter high-density polyethylene (HDPE) balls that cover the surface of any liquid pool in the containment berm (passive mitigation), and reduce the surface area exposed to the environment by 90.7 percent.

Aqueous ammonia (19 percent) is delivered to the station via tanker truck, and a typical delivery is approximately 6,000 gallons. During deliveries of aqueous ammonia, the tanker truck parks over a bermed truck apron equipped with a drain to the onsite stormwater-retention basin, which has a 900,000-gallon capacity.

Aqueous ammonia is a potentially toxic chemical that vaporizes upon release into a vapor cloud. Aqueous ammonia (19 percent) is listed in the following federal and state regulations:

- Title 40 CFR 68 Chemical Accident Prevention Provisions;
- Title 29 CFR 1910.119 Process Safety Management of Highly Hazardous Chemicals;
- California Health and Safety Code (HSC), §§ 25531 to 25543.3; and
- CCR Title 19, §§ 2735.1 to 2785.1.

Table 1 of 40 CFR Part 68.130 RMP lists a storage threshold quantity of aqueous ammonia to be 20,000 pounds at concentrations of 20 percent or greater. Appendix A of 29 CFR 1910.119 Process Safety Management (PSM) lists the storage threshold quantity of aqueous ammonia to be 20,000 pounds at concentrations of 44 percent or greater. Table 1 of CCR Title 19 § 2770.5 CalARP Program lists the storage threshold quantities for aqueous ammonia to be 500 pounds. There is no minimum concentration for the CalARP Program. The concentration stored at P3 would be 19 percent concentration, and therefore not subject to federal RMP regulations or federal PSM regulations. Because the quantity of aqueous ammonia would exceed the 500-pound State CalARP requirement, the CalARP Program requirements apply. Ammonia is currently stored at the MGS facility above the CalARP threshold, and an RMP already exists for the facility. Prior to the commissioning and delivery of ammonia for the P3, the RMP will updated to incorporate the features of the new project. The revised RMP will be submitted to the CUPA and CEC for review and approval.

Aqueous Ammonia Delivery. Aqueous ammonia will be delivered to P3 by a local ammonia supply company. In California, aqueous ammonia is delivered in Caltrans-certified trucks designated for ammonia transport, and operated by a trained driver. Truck trips required to deliver aqueous ammonia

during normal plant operations are expected to be slightly more (approximately 15 additional trips per year) than those for current MGS operations.

Delivery trucks would travel along public roads permitted for hazardous materials transport. Aqueous ammonia and other materials deemed hazardous would be sourced from local suppliers. Specifically, it is anticipated that incoming deliveries would travel on Highway 101, exiting on Victoria Avenue and traveling south to Gonzales Road, then west on Gonzales Road to Harbor Boulevard, then south on Harbor Boulevard to the MGS entrance (refer to Figure 4.12-3). Outgoing delivery trips would similarly exit P3 via the same route. This route provides the most direct access route for hazardous materials transport to the P3 site, and minimizes transport through residential neighborhoods. The unloading area for the aqueous ammonia transport truck would have a concrete pad with a spill collection system.

Offsite Consequence Analysis. The CalARP RMP programs require that facility owners perform an offsite consequence analysis (OCA) of a worst-case release of any toxic substances exceeding threshold quantities that are stored on site.

An OCA for the worst-case release scenario was performed for aqueous ammonia stored at P3. The worst-case release scenario assumed that the aqueous ammonia tank developed a leak, and all of its contents were instantaneously released into the concrete containment berm. Once into the berm, the aqueous ammonia would cause the HDPE balls to rise to the surface of the berm, and would cover the entire spill volume of the ammonia pool and reduce the area exposed to evaporation from 1,306 square feet to 122 square feet. The nearest existing sensitive receptors to the P3 site are residences along the northern edge of the Oxnard Shores neighborhood, approximately 1,200 yards from the aqueous ammonia tank. The North Shore at Mandalay Bay residential development is anticipated to have residents in 2018. The distance from P3 to the closest North Shore at Mandalay Bay development boundary is approximately 0.47 mile, or approximately 820 yards.

The distance to the toxic endpoint was determined using the ALOHA modeling program. ALOHA is a USEPA-approved computer program developed jointly by the National Oceanic and Atmospheric Administration and USEPA to model chemical releases for emergency responders and planners.

ALOHA estimates threat zones associated with hazardous chemical releases, including toxic gas clouds, fires, and explosions. A threat zone is an area where a hazard has exceeded a user-specified level of concern. Three levels of concern were used to evaluate the potential impacts associated with the hypothetical worst-case aqueous ammonia release:

- CEC Significance Level – The CEC Significance Level is 75 parts per million by volume (ppmv) and constitutes the odor threshold of aqueous ammonia.

- Emergency Response Planning Guideline Level 2 (ERPG-2) – The ERPG-2, developed by the American Industrial Hygiene Association is 150 ppmv. It is the maximum concentration in air where a 1-hour exposure would not result in irreversible or other serious health effects.

- USEPA/CalARP Toxic Endpoint (the Endpoint) – The CalARP Program for aqueous ammonia concentration, based on USEPA 40 CFR 68, is 200 ppmv (0.14 milligram per liter) averaged over 1 hour. The Endpoint concentration is the maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to 1 hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair an individual's ability to take protective action.

4.5.2.3.2 Modeling Parameters

The following parameters were used in the ALOHA model:

- **Location:** Oxnard, California
- **Release Quantity:** 12,450 gallons of 19 percent ammonium hydroxide (NH_4OH)
- **Wind Speed and Atmospheric Stability.** Class F (stable atmosphere) and wind speed of 1.5 meters per second (3.4 miles per hour). This low wind speed results in a low volatilization rate, but also results in a low dispersion rate of the vapor as it is carried downwind. In a stable atmosphere, the ammonia concentration in the accidental release plume remains high as the vapor is carried downwind, because there is little mixing with surrounding air.
- **Cloud Cover:** 5 tenths (Partial Cover)
- **Air Temperature:** 100 degrees Fahrenheit (°F)[1]
- **No inversion height**
- **Relative Humidity:** 80 percent[2]
- **Source:** Evaporating puddle
- **Release Duration:** ALOHA limits the duration to 1 hour
- **Puddle Area:** 122 square feet (9.3 percent of the concrete containment surface area 39 feet by 33.5 feet)
- **Puddle Volume:** 12,450 gallons
- **Ground Type:** Concrete
- **Ground Temperature:** 100°F
- **Initial Puddle Temperature:** 81.9°F

The calculated threat zones, as shown on Figure 4.5-1, for 75 parts per million [ppm] (CEC significance value), 150 ppm DOT Emergency Response Program Level 2 "ERPG-2"), and 200 ppm (USEPA/ CalARP Program Toxic Endpoint) are shown below:

- 75 ppm (CEC significance value) – 216 yards
- 150 ppm (ERPG-2) – 149 yards
- 200 ppm (USEPA/CalARP Toxic Endpoint) – 127 yards

The OCA ALOHA output is included in Appendix F. The calculated threat zones do not extend to any offsite sensitive receptors. The 75 ppm endpoint, which has the largest radius, is approximately 1,000 yards short of the nearest existing sensitive receptors, located in the Oxnard Shores neighborhood, and approximately 500 yards from the nearest future residential receptor at the North Shore at Mandalay development. A worst-case release from the ammonia tank would have a less-than-significant impact to sensitive receptors.

[1] Highest observed temperature at Santa Barbara, California COOP Station 047902. Available online at: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7902.

[2] Annual average humidity at Oxnard-Pt. Mugu PMTC. Available online at: http://www.wrcc.dri.edu/climatedata/climtables/westcomp.rhmorn/.

The placement of the HDPE balls in secondary containment is a measure used to mitigate the release of ammonia from the tank. However, when the worst-case scenario is modeled without the HDPE balls, the result is an approximately 150-yard distance between the 75-ppm endpoint and the nearest sensitive receptor. The HDPE balls are a mitigation measure to minimize impact from a worst-case scenario. Regardless of mitigated or unmitigated release scenarios, the result of a worst-case release scenario remains unchanged in terms of impact with no exposure greater than 75 ppm experienced at the nearest current or future receptor.

4.5.2.3.3 Fire and Explosion Risk

Fire and explosions hazards would also be present on the P3 site due to the presence of natural gas, hydrogen, and other compressed gasses. As shown in Table 4.5-2, materials of different reactivity and flammability levels would be handled at P3 during operation of the power plant.

Natural Gas. Natural gas would be used as a fuel for the facility. Natural gas poses a fire and explosion risk as a result of its flammability. Although natural gas would be used in significant quantities, it would be continuously delivered to P3 through a pressurized natural gas pipeline and would not need to be stored on site. The risk of a fire and/or explosion would be minimized through adherence to applicable codes and the continued implementation of effective safety management practices. DOT rules govern gas pipeline operations, which reduce the fire and explosion risk.

Other Gases. Gases typically used for maintenance activities such as shop welding and emissions monitoring, would be stored and used at the facility. These gases include acetylene, argon, nitrogen, and oxygen. Gases would be stored in accordance with the HMBP. The potential impacts from the use of these gases are considered less-than-significant based on the following:

- A limited quantity of each gas would be stored at the facility;
- All compressed-gas cylinders would be labeled to clearly identify the gas content with either the chemical or the trade name of the gas. Durable labels would be used to avoid detachment and removal;
- The gases would be stored in DOT-approved safety cylinders. All gas cylinders would be placed in an upright position and secured by chains to fixed support properly at all time to prevent them from falling, rolling, or tipping;
- Incompatible gases (e.g., flammable gases and oxidizers) would be stored separately;
- The gases would be stored in multiple, standard-sized portable cylinders, rather than larger cylinders, generally limiting the quantity released from failure of an individual cylinder to less than 200 cubic feet; and
- The gas compressor area would be properly labeled and placed in an area that is not close to any ignition sources.

Transformer Oil/Lubricating Oil. Transformer oil would be stored in the transformers at the P3 site. Generator step-up transformers and other oil-filled transformers would be contained and provided with a deluge system. The only risk of fire associated with this material would be during the unlikely event of a catastrophic transformer failure. This type of event would require an emergency response from the Ventura County CUPA, City of Oxnard Fire Department Hazardous Materials (HazMat) Team. The potential impacts associated with the use of transformer oil at the proposed P3 site would not be significant because of the amounts being used and secondary containment.

Lubricating oil would be used inside rotating equipment. The potential impacts associated with the use of lubricating oil at P3 would not be significant because of the relatively small amounts being used. Lubrication oil is a hydrocarbon-based chemical with low flammability. In accordance with Article 80 of the California Fire Code, the storage area for lubrication oil would be equipped with a fire extinguishing system and the lubrication oil would be handled in accordance with a HMBP approved by the Ventura County CUPA, City of Oxnard 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.

Diesel Fuel. Diesel fuel for the backup starter generator and the emergency fire water pump would be stored in one 500-gallon AST. The fuel tank would be located away from electrical lines and other potential ignition sources. The fuel tank would be designed with integral secondary containment and firewalls. The tank would be installed in such a way that the exterior surface, including the bottom of the tank and connection piping, can be directly monitored and directly viewed. The potential impacts associated with the use of diesel fuel at P3 would not be significant because of the monitoring system and secondary containment.

4.5.2.4 Abandonment/Closure

Facility closure can be temporary or permanent. Temporary closure consists of a cessation in operations for a period of time greater than the time required for normal maintenance, including overhauls or replacements of major equipment. Permanent closure consists of a cessation in operations with no intent to restart operations. Temporary and permanent facility closure activities are discussed in Section 2.11. Closure activities would be conducted to ensure public health and safety; protection of the environment; and conformance with all applicable LORS. With implementation of procedures described in Section 2.11, hazardous materials management impacts associated abandonment/closure would be less than significant.

4.5.3 Cumulative Impacts Analyses

A cumulative impact of the use and storage of hazardous materials could occur if there was a simultaneous release of a chemical with an offsite impact from two or more sites. The worst-case scenario release showed that an ammonia spill would not cause a toxic vapor cloud that would propagate off site. Therefore, a release of aqueous ammonia would not create a cumulative impact to another site.

Compliance with existing LORS that address the handling of hazardous materials will ensure that P3 will not create a significant hazard to the public or the environment related to the handling or accidental release of hazardous materials. Past, present, and reasonably foreseeable future projects are also subject to existing LORS that address the handling and accidental release of hazardous materials. Therefore, existing LORS will ensure that the incremental effects of P3, when considered together with the effects of past, present, and reasonably foreseeable projects, will not create a cumulatively considerable hazard to the public or environment related to the handling or accidental release of hazardous materials.

4.5.4 Mitigation Measures

The CEC standard conditions and the procedures described below would enable P3 to use hazardous materials in compliance with all applicable LORS, and in a manner that would not cause significant environmental impacts.

HM-1 Vehicle Fueling and Maintenance

The following measures will be implemented related to fueling and maintenance of construction vehicles and equipment:

- No smoking, open flames, or welding will be allowed in the fueling/services areas.
- Vehicle engines will be shut down during refueling.
- Fueling, service, and maintenance will be conducted only by authorized, trained personnel.
- Refueling will be conducted only with regulatory-approved pumps, hoses, and nozzles.
- All disconnected hoses will be handled in a manner to prevent residual fuel and fluids from being released into the environment.
- Catch pans will be placed under equipment/hose connections to catch potential spills during fueling and servicing.
- Containment will be implemented to catch potential spills during fueling and servicing.
- Service trucks will be provided with fire extinguishers and spill containment equipment, such as absorbents, shovels, and containers.
- Delivery/service trucks will not remain on the job site after fueling and service are complete.

HM-2 Spill Response During Construction

Spills that occur will be cleaned up immediately, and contaminated soil will be containerized and sent for subsequent evaluation and offsite disposal. A log of all spills and cleanup actions will be maintained. Small spills will be contained and cleaned up immediately by trained, onsite personnel. Large spills will be reported by using emergency phone numbers to contact offsite cleanup contractors. If a spill involves quantities of hazardous materials equal to or greater than the specified reporting quantity, all federal, state, and local reporting requirements will be followed. In the event of a fire or injury, the City of Oxnard Fire Department will be contacted. As required by the OSHA Hazard Communication Rules and Regulations, the Applicant or general contractor will keep all necessary SDSs on site for the hazardous materials used in project construction and operation.

HM-3 Security Plan

The Applicant will prepare a site-specific Construction Security Plan for the construction phase and submit it to the CEC for review and approval. The Applicant will implement site security measures addressing physical site security and hazardous materials storage. The Security Plan will be updated for Operations following the completion of the project. The Security Plan will include 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 or a passive security system (security guard[s] present 24 hours per day, 7 days per week [conducting both routine and random patrols] of the perimeter);
- Site access procedures for employees, contractors, vendors, and visitors; and
- Instructions to follow in conducting site personnel background checks, including employee and routine onsite contractors that are consistent with state and federal laws regarding security and privacy.

HM-4 Containerized Materials

Containerized materials will typically consist of returnable tanks (approximately 100-gallon capacity), 55-gallon drums, or 5-gallon pails of lubricants and oils, and smaller containers of paints and solvents. These materials will be managed as described below to mitigate potential releases.

- Hazardous materials will be stored in accordance with applicable regulations and codes (the Uniform Fire Code [UFC]).
- Trucks delivering hazardous materials will be parked adjacent to the area where they will be used or stored to minimize potential unloading and transportation accidents.
- Incompatible materials will be stored separately per local fire code requirements.
- Containerized hazardous materials will be stored in original containers appropriately designed for the individual characteristics of the contained material. Containers will be labeled with contents and identification of fire hazards as required by the National Fire Protection Association 704.
- Containers of flammable materials will be stored in inflammable storage cabinet(s) when not in use.
- Hazardous materials will be stored in structures equipped with secondary containment structures, typically constructed of sealed concrete. These structures will have capacity for the contents of the largest container. Alternatively, containerized hazardous materials may also be stored in commercially available hazardous materials storage sheds with built-in secondary containment.
- Commercially available secondary containment pallets may also be used for containers stored in warehouse facilities to augment other spill control measures.
- Empty containers, especially portable tanks and drums, will be emptied, drained, and returned to the supplier for reuse to the maximum extent possible, or recycled off site.
- Pollution prevention efforts such as replacement of hazardous materials with less hazardous materials, reduction of hazardous waste generation volumes, and recycling will be employed at the facility, as practicable.

HM-5 Bulk Hazardous Materials

Bulk hazardous materials at the facility will consist primarily of aqueous ammonia for emissions control of the SCR system. The ammonia-handling facility at the proposed P3 site would be equipped with extensive ammonia detection and alarm systems to protect workers and equipment in the event of a malfunction anywhere in the system. These design features will reduce potential offsite impacts in the event of an accidental ammonia release to a less-than-significant level; therefore, additional mitigation measures will not be required.

In addition, hazardous materials will be managed as described below to mitigate the potential for releases to the environment. Each bulk chemical storage tank will be equipped with a local level gauge and a level switch. The level switch is interlocked with the storage tank high- and low-level alarms and the metering pump controls. The storage tank high-level alarm rings at the local common alarm panel when the storage tank level reaches the high-level set point. The storage tank low-level alarm rings at the local feed system control panel when the storage tank liquid level reaches the low-level set point. Associated skid-mounted equipment includes the feed pumps, valves, interconnecting piping, controls, etc. A

separate control panel is mounted on each chemical equipment skid. Controls, instrumentation, and interlocks are provided for safe operation of the equipment during all modes of operation.

Tank trucks will be unloaded in a tank truck unloading area. This unloading area will be paved with concrete, and will be equipped with a bermed truck apron equipped with a drain to the onsite stormwater-retention basin, which has a 900,000-gallon capacity.

Seismic loads for hazardous materials storage and containment areas will be determined by the static lateral-force procedures of the Uniform Building Code, and site-specific design features will be incorporated into these storage facilities. These structures will be designed and constructed in accordance with applicable codes, regulations, and standards.

HM-6 Personnel Training and Equipment

Personnel working with chemicals will be trained in proper handling and emergency response to chemical spills or accidental releases. Additionally, designated personnel will be trained for a plant hazardous materials response team.

Safety equipment will be provided for use as required during chemical containment and cleanup activities, and will include safety showers and eyewash stations. Service water hose connections will be provided near chemical use and storage areas to allow flushing of chemical spills, if needed.

HM-7 Hazardous Materials Management – Plans and Procedures

Several programs will address hazardous materials storage locations: emergency response procedures, employee training requirements; hazard recognition fire safety; first-aid/emergency medical procedures; hazardous materials release containment/control procedures; hazard communication training; personal protective equipment; training; and release reporting requirements. These programs will include the HMBP, worker safety program, fire response program, plant safety program, and facility standard operating procedures. The HMBP will include procedures on hazardous materials handling, use, and storage; emergency response, spill prevention, and control; and training, record keeping, and reporting. Containers used to store hazardous materials will be properly labeled and kept in good condition. It is anticipated that these standard operating procedures will minimize the potential for incidents involving hazardous materials. An RMP for aqueous ammonia will also be prepared. The RMP requires that a Process Hazard Analysis be prepared, and a Seismic Analysis be conducted of the facilities, operations, and equipment. Emergency telephone numbers will be available on site for the fire department, police, local hospitals, ambulance service(s), and environmental regulatory agencies.

HM-8 Spill Response Procedures During Operation

Personnel at P3 will be trained in spill response reporting and cleanup procedures. The facility will maintain one or more spill response kits on site. These kits will contain absorbents appropriate for the hazardous materials kept on site, and each kit will be clearly designated for the type of spilled material. Typically, these kits contain a barrel, shovel, and absorbents. In addition, the facility will maintain a supply of gloves and protective clothing for use during spill response events.

Personnel discovering a spill will report to the on-shift Control Room Operator. The Control Room Operator will notify the Operations Supervisor and/or the Plant Manager. The Supervisor or Manager will function as the onsite Coordinator and will be in charge of activities related to spill containment, control, and cleanup, as well as regulatory agency reporting, if needed. The onsite Coordinator will assess the situation; contain the leak or spill; begin cleanup operations with onsite staff or offsite contractors, as needed; and collect information for reporting, if needed. The following information will be needed for reporting:

- Type of chemical released;
- Amount of release or spill; i.e., volume and description, liquid, vapor, etc.;
- Direction of release and distance traveled, if the release is outside the secondary containment;
- Cause of spill or release;
- Potential hazard to offsite personnel and local water bodies, including groundwater; and
- Actions undertaken to mitigate the spill or release.

4.5.5 Laws, Ordinances, Regulations, and Standards

P3 will be constructed and operated in accordance with all LORS applicable to hazardous-materials handling. Federal, state, and local LORS applicable to hazardous materials handling are discussed below and summarized in Table 4.5-4, Summary of LORS.

4.5.5.1 Federal

Hazardous materials are primarily governed under the Comprehensive Environmental Response and Liability Act (CERCLA), the Clean Air Act (CAA), and the Clean Water Act (CWA).

4.5.5.1.1 Superfund Amendments and Reauthorization Act of 1968, Title III §§ 302, 304, 311, and 313

The Superfund Amendments and Reauthorization Act of 1968 (SARA) Title III 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. SARA 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.

CERCLA. SARA amended CERCLA and provides the regulatory framework for managing hazardous substances. The part of SARA applicable for the proposed P3 is Title III, otherwise known as the Emergency Planning and Community Right-to-Know Act of 1986. Title III requires states to establish a process for developing local chemical emergency preparedness programs and to receive and disseminate information on hazardous substances present at facilities in local communities. The law provides primarily for planning, reporting, and notification concerning hazardous substances. Key sections of the law are:

- Section 302: Requires a one-time notification of extremely hazardous substances that are present in excess of their respective threshold planning quantities.

- Section 304: Requires the immediate notification to the local emergency planning committee (LEPC) and the state emergency response commission (SERC) when a hazardous material is released. In addition, notification must also be given to the National Response Center in Washington, D.C., if a hazardous material is released in quantities equal to or in excess of their respective reportable quantities.

- Section 311: Requires that SDSs 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 Applicant will develop and implement, in concurrence with federal authorities, a chemical emergency preparedness plan for all applicable hazardous materials on site. In doing so, P3 will provide appropriate notification of all extremely hazardous substances present in excess of their respective

threshold planning quantities and SDSs for all hazardous materials. In addition, P3 will provide immediate notification to the LEPC and the SERC when a hazardous material is released, along with a regular annual report of any hazardous materials released into the environment.

4.5.5.1.2 Clean Air Act of 1990, 42 USC 7401–7671

The CAA, as amended in 1990, also 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 (see 40 United States Code [USC], § 68.115). It establishes a nationwide emergency planning and response program and imposes reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials. The requirements of this implemented system are reflected in the California Health and Safety Code, §§ 25531 *et seq*. regulations (40 CFR 68) under the CAA are designed to prevent accidental releases of hazardous materials. The regulations require facilities that store a Threshold Quantity (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. The proposed facility will not store aqueous ammonia in quantities exceeding the TQ listed under 40 CFR 68.

4.5.5.1.3 CAA Risk Management Plan, 42 USC § 112(r)

This section of the CAA determines that facilities storing or handling significant amounts of acutely hazardous materials are required to prepare and submit a RMP. Because no regulated substance would be present in quantities exceeding the applicability thresholds, an RMP is not required.

4.5.5.1.4 Clean Water Act, 33 USC §§ 26 et seq.

The CWA, 33 USC §§ 26 *et seq.*, aims to prevent the discharge or threat of discharge of oil into navigable water or adjoining shorelines. The regulations require that a written SPCC Plan be prepared for facilities that store or treat oil that could leak into navigable waters. The SPCC program requires facilities to prepare a written SPCC Plan if they store oil, and its release would pose a threat to navigable waters. The SPCC program is applicable if a facility has an AST for petroleum with a capacity greater than 660 gallons; total petroleum storage (including ASTs, oil-filled equipment, and drums) is greater than 1,320 gallons; or underground storage capacity for petroleum is greater than 42,000 gallons. The existing SPCC will be updated by the Applicant.

4.5.5.1.5 Chemical Facility Anti-Terrorism Standards, 6 CFR 27

The energy sector is one of 14 areas of critical infrastructures listed by the U.S. Department of Homeland Security (DHS). DHS published a Final Rule in the Federal Register, known as the Chemical Facility Anti-Terrorism Standards (CFATS), 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 5.11C4A, which lists those certain chemicals and their thresholds. The Applicant would not be required to submit a "Top Screen" assessment to the DHS; however, the Applicant will develop and implement security measures as described in the North America Electric Reliability Council document titled Security Guidelines for Electricity Security.

4.5.5.1.6 Code of Federal Regulations Title 49, Parts 171–177

DOT regulations (49 CFR Parts 171–1770) govern the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles. P3 would have hazardous materials delivered on a regular basis. Therefore, facility operators of P3 will enforce compliance with

the aforementioned regulation and its corresponding parts whenever a hazardous material is going to be delivered onto its facility.

4.5.5.1.7 Pipeline Safety Laws, 49 USC §§ 6010 et. seq. and 49 CFR 190-192

Title 49 of the CFR, Parts 190 through 192, specifies safety and construction requirements for natural gas pipelines. This regulation is enforced by the DOT. 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. P3 would receive natural gas via gas lines being fed into the facility. All gas lines going into the P3 site will be compliant with pertinent regulations.

4.5.5.1.8 Occupational Safety and Health Administration – Hazardous Waste Operations and Emergency Response

Title 49 of the CFR, Section 1910.120, specifies the operational and response requirements related to the use, generation, and storage of hazardous materials. This regulation is enforced by OSHA. P3 would store and use several hazardous materials and will abide by the requirements presented in this regulation to protect the safety and health of personnel that would be working at P3.

4.5.5.2 State

4.5.5.2.1 California Health and Safety Code § 25500

The California Health and Safety Code, Section 25500, requires companies that handle quantities of hazardous materials above specified levels to develop an HMBP. P3 will develop an HMBP that includes the 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 will also include a plan for training new personnel, for annual training of all personnel in safety procedures to follow in the event of a release of hazardous materials, as well as an emergency response plan that identifies the business representative able to assist emergency personnel in the event of a release. P3 will comply with HSC 25500 through the update of the existing HMBP. The facilities HMBP will be submitted to the Ventura County CUPA—the City of Oxnard Fire Department.

4.5.5.2.2 California Health and Safety Code § 25531 (California Accidental Release Program)

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 occurrence of an accidental release, 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 recently developed program supersedes the earlier California Risk Management and Prevention Plan, and is known as the California Accidental Release Program. The existing RMP will be revised for P3 to comply with HSC 25531.

4.5.5.2.3 Aboveground Petroleum Storage Act

Health and Safety Code Sections 25270 to 25270.13 ensure compliance with the federal CWA regulations. The law applies to facilities that operate a petroleum AST with a capacity greater than 660 gallons, or combined ASTs with 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 meets these criteria, it must prepare an SPCC

plan. The Applicant will update and implement an SPCC plan for the onsite storage of its petroleum products.

4.5.5.2.4 Safe Drinking Water and Toxics Enforcement Act (Proposition 65)

Proposition 65 requires the state to identify chemicals that cause cancer and reproductive toxicity, contain requirements for informing the public of the presence of these chemicals, and prohibit discharge of the chemicals into sources of drinking water. Lists of the chemicals of concern are published and updated periodically by CA OEHHA. Some of the chemicals to be used at P3 would be on the Proposition 65 list and would require applicable labeling and notification.

4.5.5.2.5 California Code of Regulations, Title 8, Section 5189

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. Although such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process. P3 will be in compliance with 8 CCR 5189, and implement safety management plans along with process safety management plans.

4.5.5.2.6 California Uniform Building Code

The California 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. P3 will follow all California Uniform Building Code requirements for the storage and handling of hazardous materials on site.

4.5.5.2.7 California Government Code Section 65850.2

California Government Code Section 65850.2, states that a city or county shall not issue a final certificate of occupancy unless there is verification that the applicant has met the applicable requirements of HSC 25531 and requirements, if any, for a permit from the air pollution control district. P3 will comply with all government requirements to secure a certificate of occupancy.

4.5.5.2.8 Natural-Gas Pipeline Safety Laws, California Public Utilities Commission (CPUC) General Order Nos. 112-E and 58-A

The California Public Utilities Commission enforces General Order No. 58-A specifying standards for natural gas service in the State of California, and General Order No. 112-E specifying rules governing the design, construction, testing, operation, and maintenance of natural gas gathering, transmission, and distribution piping systems. All pertinent gas line regulatory requirements have been followed for lines going into the P3 site.

4.5.5.3 Local

The designated CUPA for the P3 site is the City of Oxnard Fire Department.

4.5.5.3.1 Industry Standards

The UFC contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80. The latest edition (1994) of Article 80 was extensively revised. These articles contain requirements that are generally similar to those contained in the California HSC 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. All extremely hazardous materials (i.e., sulfuric acid) will be handled in accordance to the pertinent UFC provisions.

4.5.5.3.2 Application of Risk Management Plan

P3 will use SCR technology to reduce emissions of NO_X. The SCR system operated at P3 will consist of a post-combustion flue gas NO_X emission control technology that removes NO_X from the flue gas downstream from the combustion process. A reducing agent is used to reduce NO_X emissions, primarily nitric oxide and nitrogen dioxide, by oxidation-reduction reactions in the presence of a catalyst. The most common reducing agent (reagent) used with SCR is ammonia. Injection of the correct ammonia/air mixture into the combustion exhaust stream before the catalyst initiates the reactions and achieves the desired removal of NO_X emissions upstream from the stack. The proposed P3 would store 12,450 gallons of NH_3 in one 14,650-gallon AST for its SCR technology.

Due to the hazardous nature of the aqueous ammonia, P3 will be required to comply with specific regulatory requirements, as enforced by the local, state, and federal government agencies. P3 is required to develop an RMP, conduct a Process Hazard Analysis, and conduct an Seismic Analysis of the facilities, operations, and equipment. Requirements for the proposed P3 are primarily dictated by the CalARP Program and the RMP. The regulatory requirements pertaining to the use of the NH_3 solution for the operations at the proposed project are found in:

- Title 19 Division 2 Chapter 4.5 Sections 2735.1–2785.1 of the CCR (19 CCR § 2735.1 – § 2785.1);
- Title 40 Part 68 of the CFR (40 CFR 68);
- Title 42 Chapter 85 Subchapter I Part A Section 7412(r) of the U.S. Code (42 USC § 7412[r]);
- Title 29 Section 1910.119 of the CFR (29 CFR § 1910.119); and
- Sections 25531–25543.3 of the California HSC (H&SC §§ 25531–25543.3).

Regulatory requirements presented in 19 CCR § 2735.1 – § 2785.1 and 40 CFR 68 provide the majority of the compliance elements for the RMP. 42 USC § 7412(r) is the U.S. Code law that supports regulation 40 CFR 68. Title 20 CFR § 1910.119 provides an amendment to 40 CFR 68 titled *Accidental Release Prevention Requirements: Risk Management Program Requirements Under Clean Air Act Section 112(r)(7); Amendments to the Submission Schedule and Data Requirements*, which provides the latest changes and specifications to the USEPA Chemical Accident Prevention Provisions. Lastly, H&SC §§ 25531–25543.3 provides the California statute authorizing the CalARP Program.

The RMP (or federal) threshold quantity for aqueous ammonia at concentrations of 20 percent or greater is 20,000 pounds, while the CalARP Program (or state) threshold quantity for all ammonia is 500 pounds. Because P3 would store 12,450 gallons of NH_3, it must comply with state CalARP Program regulations.

Enforcement of the CalARP Program for the P3 site will be provided by the local administering agency. The Administrative Agency is the City of Oxnard Fire Department, which also serves as the local Ventura County CUPA.

4.5.6 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 P3, the local agency contacts are shown in Table 4.5-5.

4.5.7 Permits Required and Permit Schedule

An HMBP and Chemical Inventory Forms will be developed for P3 prior to the startup of operation. All regulatory compliance issues will be addressed and resolved prior to any activities being conducted at the site. The potential permit requirements that need to be fulfilled prior to any operations activities being conducted on site are listed below in Table 4.5-6.

4.5.8 References

AECOM, 2015. Phase I Environmental Site Assessment. March.

Cal-EPA (California Environmental Protection Agency), 2011. Website http://www.calepa.ca.gov/.

CFR (Code of Federal Regulations), Part 355, 1998. Emergency Planning and Notification, Appendix A 40. July 1. 52 Federal Register 13395.

DTSC (California Department of Toxic Substances Control), 2015a. Personal Communication between Mr. Steven Rounds, DTSC MGS Case Worker and Tricia Winterbauer, AECOM regarding briefing report, March 6, 2015.

DTSC (California Department of Toxic Substances Control), 2015b. Information from http://www.dtsc.ca.gov.

Lewis, Richard J., Sr., 1992. Sax's Dangerous Properties of Industrial Materials. Eighth Edition.

NIOSH (National Institute of Occupational Safety and Health), 1997. NIOSH pocket guide to chemical hazards. DHHS Publication No. 97 140. U.S. Government Printing Office. Washington, D.C. Van Nostrand Reinhold. New York, New York.

Table 4.5-1
Hazardous Materials Use and Storage during Construction

Hazardous Material	Purpose	Maximum Stored	Storage Type	Storage Location
Acetylene	Welding	270 cubic feet	Cylinder	Construction laydown area
Adhesives	Construction	55 gallons	Various containers	Construction laydown area – storage cabinets
Cleaners	Cleaning	55 gallons	Various containers	Construction laydown area – storage cabinets
Diesel fuel	Fuel for construction equipment/vehicles	500 gallons	Tank	Equipment/vehicle fuel tanks
Gasoline	Fuel for construction equipment/vehicles	500 gallons	Tank	Construction laydown area
Lubricants	Lubrication for equipment/vehicles (i.e., hydraulic oil, motor oil, and transmission oil)	55 gallons	Various containers	Fuel/lube trucks or construction laydown area
Oxygen	Welding	270 cubic feet	Cylinder	Construction laydown area
Paint	Painting	100 gallons	Can/bucket	Construction laydown area – storage cabinets
Sealants	Construction	55 gallons	Various containers	Construction laydown area – storage cabinets
Solvents	Cleaning	110 gallons	Various containers	Construction laydown area – storage cabinets
Various hazardous wastes	Waste	110 gallons	Steel drums	Construction laydown area
Welding flux	Welding	55 gallons	Various containers	Construction laydown area

Table 4.5-2
Toxicity and Hazard Information for Hazardous Materials and Acutely Hazardous Materials

Hazardous Materials	Project Phase	Toxicity	Hazard Identification	National Fire Protection Association			CAS Number
				Health	Flammability	Instability	
Acetylene	Construction and Operation	No known toxic effects.	Flammable	1	4	3	47-86-2
Adhesives	Construction	Refer to individual chemical labels.	N/A				Various
Amine	Operation	Toxic by inhalation. Irritating to respiratory system. Harmful if absorbed through skin.	Corrosive	3	0	0	7664-41-7
Anti-scalant	Operation	Irritant with prolonged contact to skin or eyes. Irritant when ingested.	N/A	0	1	0	N/A
Aqueous ammonia (19 percent NH_3)	Operation	Corrosive to eyes and skins, very toxic by inhalation and ingestion.	Corrosive	2	0	0	7664-91-7
Carbon dioxide	Operation	Irritant to eyes and skin. Irritant when inhaled. Can cause rapid suffocation. May cause severe frostbite.	N/A	1	0	0	124-38-9
Citric acid	Operation	Irritant to eyes and skin. Irritant when inhaled.	N/A	2	1	0	77-92-9
Cleaners/Detergents	Operation	Refer to individual chemical labels.	N/A				None
Cleaning chemicals	Operation	Irritant with prolonged contact to skin and eyes.	N/A	1	0	0	Various
Diesel No. 2 or Ultra-Low Sulfur Diesel	Construction and Operation	Low-toxicity.	Flammable	0	2	0	684-34-6
Hydraulic Oil	Operation	Not expected to be an irritant.	N/A	0	1	0	None
Hydrogen	Operation	Contact with rapidly expanding gas may cause burns or frostbite. Acts as a simple asphyxiant.	Flammable	0	4	0	1333-74-0
Laboratory reagents	Operation	Refer to individual chemical labels					Various
Lithium-ion batteries	Operation	N/A	N/A	0	0	0	Various

Table 4.5-2
Toxicity and Hazard Information for Hazardous Materials and Acutely Hazardous Materials (Continued)

Hazardous Materials	Project Phase	Toxicity	Hazard Identification	National Fire Protection Association			CAS Number
				Health	Flammability	Instability	
Lubrication oil	Construction and Operation	Hazardous if ingested.	Flammable				Various
Mineral insulating oil	Operation	Causes eye and skin irritation. Inhalation of a mist of this material may cause irritation of the lungs.	N/A	0	1	0	8012-95-1
Natural gas (methane)	Operation	Flammable. Asphyxiant. Effects are due to lack of oxygen.	Flammable	1	4	0	74-82-8
Nitrogen	Operation	May cause burns or frostbite. Acts as a simple asphyxiant.	N/A	0	0	0	7727-37-9
Oxygen	Construction and Operation	Contact with rapidly expanding gas may cause burns or frostbite.	N/A	0	0	0	7782-44-7
Oily rags and oil absorbents	Construction and Operation	N/A	N/A				N/A
Paint	Construction and Operation	Refer to individual container labels.	N/A				Various
Phosphoric acid (70 percent)	Operation	Irritant to skin and eyes. Irritant if ingested.	N/A	3	0	0	7664-38-2
Propane	Operation	Low toxicity.	Flammable	1	4	0	74-98-6
Sealants	Construction	Refer to individual chemical labels					
Sodium bisulfite (NALCO PC-7408)	Operation	Harmful if swallowed. Contact with acids liberates toxic gas. Irritating to eyes, respiratory system and skin. Possible sensitizer.	Corrosive	2	0	1	7631-90-5
Sodium hydroxide (<30 percent)	Operation	May cause tissue damage. Irritant and corrosive.	Corrosive	3	0	1	1310-73-2

Table 4.5-2
Toxicity and Hazard Information for Hazardous Materials and Acutely Hazardous Materials (Continued)

Hazardous Materials	Project Phase	Toxicity	Hazard Identification	National Fire Protection Association			CAS Number
				Health	Flammability	Instability	
Sodium hypochlorite (12 to 14 percent)	Operation	Toxic and corrosive.	Corrosive	3	0	0	7681-52-9
Sodium nitrite (NALCO 2536 Plus)	Operation	Irritant to skin and eyes. Irritant when inhaled or ingested.	N/A	2	0	1	7632-00-0
Solvents	Construction	Refer to individual chemical labels.	N/A				Various
Trisodium phosphate	Operation	Irritant to skin. Irritant when inhaled. Extreme irritant to eyes.	N/A	2	0	1	7601-54-9
Unleaded gasoline	Construction	Irritant	Flammable	1	3	0	Mixture
Various hazardous wastes	Construction and Operation	N/A					None
Waste oil	Operation	N/A					None
Welding flux	Construction	N/A					None

Note:
CAS = Chemical Abstract Service
N/A = Not applicable
NH_3 = ammonia

Table 4.5-3
Hazardous Materials Use and Storage during Operations

Hazardous Material	Purpose	Maximum Stored	Storage Type	Storage Location
Acetylene	Welding	540 cubic feet	Cylinder	Maintenance/warehouse building
Amine	Steam-cycle corrosion inhibitor	400 gallons	Aboveground tote	Boiler-chemical feed area
Antiscalant	RO system	400 gallons	Aboveground tote	Water treatment building
Aqueous ammonia (19 percent)	NO_X reduction in SCR	20,000 gallons	Aboveground tank	Ammonia storage area
Aqueous ammonia (19 percent)	Steam-cycle condensate corrosion inhibitor	400 gallons	Aboveground tank	Boiler-chemical feed area
Carbon dioxide	Fire suppression for CTG	500 gallons	Aboveground tank	Fire-suppression systems near CTG
Citric acid	Cleaning of HRSG interior piping	5,000 gallons	Chemical storage bags	TBD
Cleaners/Detergents	Combustion turbine cleaning	1,000 gallons	Manufacturer containers	Water treatment building
Cleaning chemicals	Reverse osmosis cleaning	150 gallons	Manufacturer containers	Water treatment building
Cleaning chemicals	Cleaning	<25 gallons or 100 pounds	Manufacturer containers	Admin/Control building, maintenance/ warehouse building
Diesel No. 2 or Ultra-low Sulfur Diesel	Black-start generator/fire pump	500 gallons	Tanks	Fire-pump area
USEPA Protocol gases	Calibration gases	1,000 cubic feet	Cylinder	TBD
Hydraulic oil	High-pressure combustion turbine starting system	700 gallons	Equipment/Steel drum	Equipment/maintenance/warehouse building
Hydrogen	Cooling for generator	100 gallons	Aboveground tank	TBD
Laboratory reagents	Water/wastewater laboratory analysis	10 gallons	Manufacturer container	Laboratory chemical storage cabinet
Lubrication oil	Lubrication for rotating equipment	1,500 gallons	Lubricating oil reservoirs/ steel drums	Rotating equipment
Mineral-insulating oil	Insulating	3,500 gallons	Transformers	Transformers

Table 4.5-3
Hazardous Materials Use and Storage during Operations (Continued)

Hazardous Material	Purpose	Maximum Stored	Storage Type	Storage Location
Natural gas	Fuel for power plant	Not stored on site	Pipeline	Continuous by pipeline
Nitrogen	Nitrogen blanketing of HRSG layup	Truck load	N/A	Near HRSG
Oxygen	Welding	540 cubic feet	Cylinder	Maintenance/warehouse building
Paint	Painting	25 gallons	Can/bucket	Maintenance/warehouse building
Phosphoric acid (70 percent)	Ultrafilter membrane cleaner	400 gallons	Aboveground tote	Water treatment building
Propane	Torch gas	200 cubic feet	Cylinder	Maintenance/warehouse building
Sodium bisulfite	RO system	400 gallons	Aboveground tote	Water treatment building
Sodium hydroxide (<30 percent)	Circulating water	200 gallons	Aboveground tote	Water treatment building
Sodium hydroxide (<30 percent)	Boiler-water pH control	55 gallons	Drum	Boiler-chemical feed area
Sodium hypochlorite (12 to 14 percent, trade)	Membrane cleaner	500 gallons	Aboveground tote	Water treatment building
Sodium nitrite	Corrosion inhibitor	55 gallons	Drum	Water treatment building
Trisodium phosphate	Boiler-water pH control	400 gallons	Aboveground tote	Boiler-chemical feed area
Waste oil	Oil waste from various plant machinery	150 gallons	Drum	Hazardous waste storage area
Various hazardous wastes	Waste	TBD	Drum	Hazardous waste storage area

Notes: Quantities are based on presumed operation conditions. Use and storage would be optimized during final design.

CTG = combustion turbine generator
HRSG = heat recovery steam generator
N/A = not applicable
NO_X = oxides of nitrogen
RO = reverse osmosis
SCR = selective catalytic reduction
TBD = to be determined
USEPA = U.S. Environmental Protection Agency

Table 4.5-4
Summary of LORS – Hazardous Materials Handling

LORS	Administering Agency	Applicability	AFC Section
Federal			
Superfund Amendments and Reauthorization Act (SARA) of 1986, 42 United States Code (USC) Title III	Ventura County CUPA-City of Oxnard Fire Department	Contains the Emergency Planning and Community-Right-to-Know Act (also known as SARA Title III)	4.5.5.1
Clean Air Act (CAA) 42 USC 7401–7671	Ventura County CUPA-City of Oxnard Fire Department	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.	4.5.5.1
CAA Risk Management Plan (RMP) 42 USC § 112(r)	Ventura County CUPA-City of Oxnard Fire Department	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. Because no regulated substance would be present in quantities exceeding the applicability thresholds, a federal RMP pursuant to CAA is not required.	4.5.5.1
Clean Water Act 33 USC §§ 26 *et seq.*	Regional Water Quality Control Board (RWQCB)	Prevents the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Requires a written Spill Prevention, Control and Countermeasure (SPCC) Plan to be prepared for facilities that store certain quantities of oil that could leak into navigable waters.	4.5.5.1
Chemical Facility Anti-Terrorism Standards (CFATS) 6 CFR Part 27	U.S. Department of Homeland Security (DHS)	The CFATS regulation of the 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.	4.5.5.1

Table 4.5-4
Summary of LORS – Hazardous Materials Handling (Continued)

LORS	Administering Agency	Applicability	AFC Section
U.S. Department of Transportation (DOT) Regulations, 49 CFR 171–177	DOT	Governs the transportation of hazardous materials, including the marking of the transportation vehicles.	4.5.5.1
Pipeline Safety Laws 49 USC 6010 *et seq.* Transportation of Natural and Other Gas by Pipeline 49 CFR 192	DOT	Specifies natural-gas pipeline construction safety and transportation requirements.	4.5.5.1
Hazardous Waste Operations and Emergency Response 49 CFR Section 1910.120	OSHA	Specifies the operational and response requirements related to the use, generation, and storage of hazardous materials.	4.5.5.1
State			
California Health and Safety Code §§ 25500, *et seq.* (Waters Bill)	Ventura County CUPA-City of Oxnard Fire Department	Requires preparation of a Hazardous Materials Business Plan (HMBP) if hazardous materials are handled or stored in excess of the threshold quantity (TQ).	4.5.5.2
California Health and Safety Code §§ 25531, *et seq.* (La Follette Bill)	Ventura County CUPA-City of Oxnard Fire Department	Requires registration of the facility with local authorities and preparation of an RMP if hazardous materials are stored or handled in excess of TQ.	4.5.5.2
California Health and Safety Code, §§ 25531–25543.4	Ventura County CUPA-City of Oxnard Fire Department	CalARP Program requires the preparation of a RMP, Offsite Consequence Analysis, and submittal to the CUPA for approval.	4.5.5.2
California Health and Safety Code §§ 25270–25270.13 (Aboveground Petroleum Storage Act)	RWQCB	Requires preparation of an SPCC plan if oil is stored in a single aboveground storage tank with a capacity greater than 660 gallons or if the total petroleum storage (including aboveground storage tanks, 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.	4.5.5.2

Table 4.5-4
Summary of LORS – Hazardous Materials Handling (Continued)

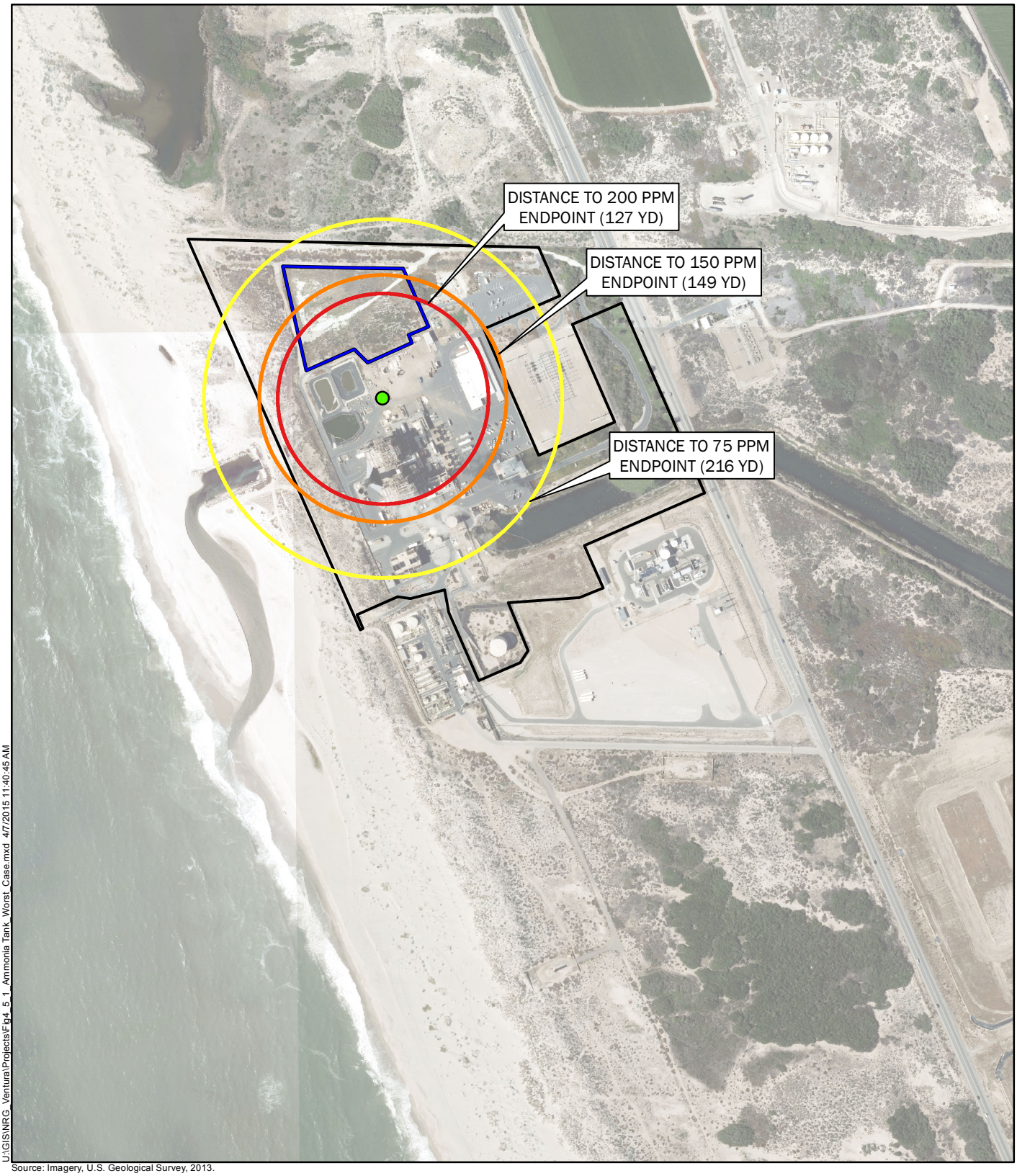
LORS	Administering Agency	Applicability	AFC Section
California Health and Safety Code §§ 25249.5–25249.13 (Safe Drinking Water and Toxics Enforcement Act) (Proposition 65)	Ventura County CUPA-City of Oxnard Fire Department	Requires warning to persons exposed to a list of carcinogenic and reproductive toxins and protection of drinking water from these chemicals.	4.5.5.2
8 CCR § 5189	Ventura County CUPA-City of Oxnard Fire Department	Facility owners are required to implement Safety Management Plans to ensure safe handling of hazardous materials.	4.5.5.2
California Building Code	City of Oxnard Building Department	Requirements regarding the storage and handling of hazardous materials.	4.5.5.2
California Government Code § 65850.2	Ventura County CUPA-City of Oxnard Fire Department	Restricts issuance of commercial operating date until the facility has submitted an RMP.	4.5.5.2
California Public Utilities Commission (CPUC) General Order Nos. 112-E and 58-A	CPUC	Specify standards for gas service and construction of gas gathering, transmission, and distribution piping systems.	4.5.5.2
Local			
Industry Standards			
Uniform Fire Code	Ventura County CUPA-City of Oxnard Fire Department	Requirements for secondary containment, monitoring, etc., for extremely hazardous materials.	4.5.5.3

Table 4.5-5
Involved Agencies and Agency Contacts

Issue	Agency	Contact/Title	Telephone	E-mail
Hazardous Waste Generator Requirements	Department of Toxic Substances Control (DTSC)	DTSC Duty Officer – Andre Amy-Chatsworth Office	(818) 717-6581	aamy@dtsc.ca.gov
Hazardous Materials Business Plan	Ventura County CUPA-City of Oxnard Fire Department	Miguel Trujillo	(805) 385-8364	oxnard_fire@ci.oxnard.ca.us
Risk Management Plan	Ventura County CUPA-City of Oxnard Fire Department	Miguel Trujillo	(805) 385-8364	oxnard_fire@ci.oxnard.ca.us

Table 4.5-6
Hazardous Materials Handling Permits Required and Permit Schedule

Responsible Agency	Permit/Approval	Schedule
Department of Toxic Substances Control	Hazardous Waste Generator ID Number	30 days prior to construction
Ventura County CUPA-City of Oxnard Fire Department	Hazardous Materials Business Plan	30 days prior to construction
Ventura County CUPA-City of Oxnard Fire Department	Emergency Response Contingency Plan Form	30 days prior to construction
Ventura County CUPA-City of Oxnard Fire Department	Risk Management Plan	30 days prior to ammonia being brought onsite



U:\GIS\NRG_Ventura\Projects\Fig4_5_1_Ammonia Tank_Worst_Case.mxd 4/7/2015 11:40:45 AM

Source: Imagery, U.S. Geological Survey, 2013.

AMMONIA TANK (19% WITH 6" BALLS)
WORST-CASE RELEASE SCENARIO

- Ammonia Tank Location
- Puente Power Project (P3) Site
- Mandalay Generating Station Property

0 250 500 FEET

NRG
Puente Power Project
April 2015 Oxnard, California

FIGURE 4.5-1