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5.17 WORKER SAFETY

This section addresses safety and health issues and describes or outlines systems and procedures that will be implemented to provide occupational safety and health protection for the Pio Pico Energy Center (PPEC) workers in accordance with all applicable worker health and safety laws, ordinances, regulations, and standards (LORS). All applicable elements of the Title 8 California Code of Regulations (CCR), General Industry Safety Orders (GISO), Construction Safety Orders (CSO), and Electrical Safety Orders (ESO) are addressed. This section also provides information regarding the project's planned fire prevention and protection programs. Section 5.17.1 describes the affected environment relative to worker health and safety. An outline of the principal components of the health and safety programs to be implemented during construction and operation is presented in Section 5.17.2, Environmental Consequences. Section 5.17.3 discusses cumulative impacts. Mitigation measures and conditions of certification are discussed in Section 5.17.4. Section 5.17.5 addresses compliance with LORS, and Section 5.17.6 presents references. With implementation of the proposed mitigation measures and conditions of certification as outlined in this section, the project will have no significant environmental impacts and will comply with all applicable LORS.

5.17.1 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. 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).

Descriptions of the facility's fire protection and safety features are presented in Section 3.5.10 and shown on Figure 3.5-4. Descriptions of hazardous materials and wastes to be used and stored on the PPEC site are discussed in Section 5.14 (Waste Management) and Section 5.15 (Hazardous Materials).

5.17.2 Environmental Consequences

5.17.2.1 Occupational Health and Safety

Construction, operation, and maintenance activities may expose workers to the hazards identified in Table 5.17-1 and Table 5.17-3. Exposure to these hazards can be minimized through adherence to appropriate engineering design criteria and administrative controls, use of applicable personal protective equipment (PPE), and compliance with all applicable health and safety LORS. The programs, regulations, and preventive measures intended to control potential worker health and safety impacts associated with these hazards are described in the remainder of

this section. This encompasses a comprehensive health, safety, and fire prevention program and an accident/injury prevention program intended to ensure healthful and safe operations at the facility.

Construction Health and Safety Program.

To protect the health and safety of workers during construction, the Applicant (or construction contractor) will ensure compliance with the Construction Health and Safety Program, and all federal, state, and local health standards that pertain to worker health and safety.

**TABLE 5.17-1
POTENTIAL WORKER HAZARDS DURING
PROJECT CONSTRUCTION**

Activity	Potential Hazard
Elevated work	Slips/trips/falls
Hot work (welding/cutting)	Flash burns, explosion, thermal burns, toxic welding fumes
Excavations	Excavation/trench wall collapse, spoil movement, oxygen deficiency, buildup of toxic gases, fumes, vapors, dusts or mists, wet exposures, crushing hazards, confined spaces, potentially contaminated soil/waste
Cement/forms work	Slips/trips/falls, protruding objects, caustics, punctures, and lacerations
Equipment operation - motor vehicle and heavy equipment use	Noise exposure, vehicle accidents, load hazards, induced current
Transmission lines/ transformer station (working on electrical equipment and systems)	Slips/trips/falls, contact with live electricity and energized equipment, electrocution, flash burns
Painting	Paint solvents, paint vapors, chemical burns, fire/explosion, and slips/trips/falls
Abrasive blasting	Dust, flying particles, pressure vessels, noise
Powered hand tools	Noise, dust, flying particles, cuts, amputation, crushing
Fueling and working with flammable and combustible liquids	Fire, explosion, spills, environmental contamination
Construction and testing of high-pressure steam and air systems	Injury from failure of pressurized system components or unexpected pressure release
General construction activities	Heat and cold stress, biological hazards, noise exposure, dust exposure, injury to head, eyes, face, body, foot, and skin, ergonomic injuries, exposure to hazardous materials

Source: California Department of Industrial Relations, 2010.

Injury and Illness Prevention Program for Project Construction

The Construction Health and Safety Program will meet the California Division of Occupational Safety and Health Administration (Cal-OSHA) Injury and Illness Prevention (IIPP) requirements. The IIPP requirements are as follows.

- A written Code of Safe Practices that relates to construction activities
- Identification of the person or persons responsible for implementing the program
- Posting of the Code of Safe Practices at a conspicuous location at each job site office or providing it to each supervisor, who shall have it readily available
- A system for identifying workplace hazards that includes inspections

- A system of verifying employee and subcontractor compliance
- “Toolbox” or “tailgate” meetings that supervisors conduct with employees to discuss job hazards and mitigation measures
- Methods of communicating with employees that encourage employees to expose unsafe activities
- Procedures for correcting unsafe conditions

When workers are first employed, they will be instructed regarding the hazards and safety precautions applicable to the type of work. Workers will also be directed to read the Code of Safe Practices. When employees are required to work near known job site hazards, they will be instructed in hazards recognition, the procedures for protecting themselves from injury, and the first-aid procedures in the event of injury.

Written Health and Safety Programs for Project Construction

Written safety programs that will be implemented in conjunction with the Code of Safe Practices are as follows.

- Accident/incident reporting procedures
- Blood-Borne Pathogens Exposure Control Program
- Procedures for use of compressed gas and air-handling systems
- Confined-space entry procedures
- Contractor Safety Program
- Electrical safety procedures
- Emergency Action Plan/Emergency Response Plan
- Emergency response procedures
- Excavation, Trenching, and Shoring Program
- Fall Protection Program
- Fire Protection and Prevention Plan
- First-Aid/Cardiopulmonary Resuscitation/Automated External Defibrillator Program
- Hand tools and equipment guarding safety procedures
- Hazard Communication Plan (including Proposition 65 requirements)
- Hazardous materials handling procedures

- Hazardous waste awareness training
- Hearing Conservation Program
- Heat stress/cold stress prevention
- Heavy equipment procedures
- Hoist/chain/wire rope/webs/rope slings/crane procedures
- Hot Work Program (welding, cutting, and brazing)
- Industrial Hygiene Program
- Industrial truck (forklift) safety
- Ladders, scaffolds, and work platforms
- Lockout/Tag-out Program
- Motor vehicle safety
- PPE Program
- Portable electric and pneumatic tools
- Preventing slips, trips, and falls
- Repetitive stress injuries/ergonomics/lifting hazards
- Respiratory Protection Program
- Safety and Housekeeping Inspection Program
- Safety Committee and toolbox tailgate safety meetings
- Security Program
- Signs, tags, and barricades
- Tools, power- and hand-operated

PPE Program for Project Construction

Employees will be instructed on the proper use PPE during construction activities. Required PPE will be approved for use, distinctly marked to facilitate identification, and used in accordance with the manufacturer's instructions. The PPE will be of such design, fit, and durability as to provide adequate protection against the hazards for which it is designed. The type of PPE required for each job task will be described in the job hazard analysis (JHA) for that task. The use of PPE for site activities includes, but is not limited to, the items specifically described in

Table 5.17-2, Basic Protective Equipment Guide, and will comply with Cal-OSHA and National Institute of Occupational Safety and Health (NIOSH) requirements. When protective-insulating equipment is used, it will comply with the electrical safety codes.

A Respiratory Protection Program that complies with Title 8 California Code of Regulations (CCR) Section 5144 and General Industry Safety Order requirements will be developed, including respirator training, fit testing, monitoring, selection, etc.

**TABLE 5.17-2
BASIC PROTECTIVE EQUIPMENT GUIDE**

Body Area	Hazards	Recommended Protection
Eyes/face	Low-velocity flying particles	Safety glasses with side shields
	High-velocity chips and sparks	Impact goggles or safety glasses with full face shield
	Corrosive liquid splash during transfer	Splash proof goggles and face shield
	Welding: injurious light rays	Welding hood with appropriate eye filter lenses
Head/ears	General wear, overhead rigging, material handling, maintenance, and general construction processes	Hardhat
	High noise level	Earplugs or muff
Respiratory system	Low-hazard inert dusts	Dust mask
	Low-concentration solvent vapors	Cartridge-type organic vapor respirator
	Acid mists	Cartridge-type acid mist respirator
	High-concentration dusts or vapors	Airline respirator
	Oxygen deficiencies or gases	Self-contained breathing apparatus
Hands and arms	Handling rough or sharp objects	Leather gloves
	Handling hot objects	Insulated gloves
	Using solvents	Impervious synthetic gloves
Feet and legs	General wear for light object handling	Safety-toe shoes
	Handling heavy objects	Metatarsal safety shoes
	Working with corrosive liquids	Safety-toe boots
	Underground work	Safety-toe synthetic boots
Trunk and full body	Hot or corrosive liquids	Synthetic apron
	Punctures, impact, or cuts	Canvas or leather kickback apron or metal mesh apron
	Fire or explosion	Full-body suit made of NOMEX
Fall protection/ rescue	Working from an elevated structure or platform without standard railings	Safety belt and lanyard
	Vessel entry	Harness and lifeline or wristlets and lifeline
	Suspended scaffolds	Lifeline, safety belt/lanyard

Source: California Department of Industrial Relations, 2010.

Fire Protection and Prevention Plan

PPEC will rely on both on-site fire protection systems and local fire protection services. A Fire Protection and Prevention Plan will be developed and followed throughout all phases of construction. The specified firefighting equipment will be provided to site personnel.

During construction, the permanent fire protection system will be placed in service as early as practicable. An interim fire protection system will be in place during construction until the permanent system is completed. The fire protection systems for PPEC are described in Section 3.5.10. Construction fire regulations in 8 CCR, Section 1620 et seq. will be followed as necessary to prevent construction fires.

Applicable local fire requirements include:

- 2007 Edition of California Fire Code and all applicable National Fire Protection Association (NFPA) standards (24 CCR Part 9)
- Uniform Fire Code Standards
- California Building Code Title 24, California Code of Regulations (24 CCR § 3, et seq.)

Special attention will be paid to operations involving open flames, such as welding, and use of flammable materials. Personnel involved in such operations will have appropriate training. A fire watch utilizing appropriately classed extinguishers or other equipment will be maintained during hot work operations. Site personnel will not be expected to fight fires past the incident stage. The local responding fire officials will be given information on the site hazards and the location of these hazards, and the information will be included in the emergency response planning.

Materials brought on site must conform to contract requirements, insofar as flame resistance or fireproof characteristics are concerned. Specific materials in this category include fuels, paints, solvents, plastic materials, lumber, paper, boxes, and crating materials. Specific attention will be given to compressed gas, fuel, solvent, and paint storage. Electrical wiring and equipment located in inside storage rooms used for Class I liquids will be stored in accordance with the requirements of electrical codes and safety requirements. Outside storage areas will be graded to divert possible spills away from buildings and will be kept clear of vegetation and other combustible materials. Precautions will be taken to protect storage areas against tampering where necessary.

On-site fire prevention during construction will consist of portable and fixed firefighting equipment. Portable firefighting equipment will consist of fire extinguishers and small hose lines in conformance with Cal-OSHA and NFPA for the potential types of fire from construction activities. Periodic fire prevention inspections will be conducted by the contractor's safety representative.

Fire extinguishers will be inspected routinely and replaced immediately if defective or in need of recharge. All firefighting equipment will be conspicuously located and marked with unobstructed access. A water supply of sufficient volume, duration, or pressure to operate the required firefighting equipment will be provided onsite. Designated, approved storage areas and containers for flammable materials shall be used with adequate fire control services.

Plant Operational Safety Program

The potential worker hazards during PPEC operation are listed in Table 5.17-3, Potential Worker Hazards during Project Operation and Maintenance.

**TABLE 5.17-3
POTENTIAL WORKER HAZARDS DURING
PROJECT OPERATION AND MAINTENANCE**

Activity	Potential Hazard
Generation enclosure	High voltage
Operations building	High voltage, repetitive trauma
Transformer	Electrocution, flash burns
Compressor	Fire, noise, temperature, rotating equipment, pressure
Chemical storage	Chemical splashes, burns, reactions, gases, vapors, fumes, injury due to ingestion, inhalation, or dermal contact
Machinery, general	Noise, temperature extremes, rotating equipment, electrocution
Elevated work	Slips/trips/falls
Hot work (welding/cutting)	Flash burns, explosion, thermal burns, toxic welding fumes
Equipment operation (motor vehicle and heavy equipment use)	Noise exposure, vehicle accidents, load hazards, induced current
Fueling and working with flammable and combustible liquids	Fire, explosion, spills, environmental contamination
Transmission lines/ transformer station - working on electrical equipment and systems	Slips/trips/falls, contact with live electricity and energized equipment, electrocution, flash burns
Maintenance of high-pressure steam and air systems	Injury from failure of pressurized system components or unexpected pressure release
General project operation activities	Heat and cold stress, biological hazards, noise exposure, dust exposure, injury to head, eyes/face, body, foot, and skin, ergonomic injuries, exposure to hazardous materials

Source: California Department of Industrial Relations, 2010.

The locations of potential worker hazards during the operational phase are listed in Table 5.17-4. Programs that address these hazards will include:

- Regular employee education and training in safe work practices for general and particular task areas
- Communication of hazards in accordance with federal and state standards
- Accident and incident evaluations
- Administrative safety procedures
- Emergency response
- Fire prevention and fire response
- Security
- Maintenance of safety performance data

All operations personnel will be provided with written safety guidance. All construction safety programs and procedures that apply to facility operations will be incorporated into the Plant Operational Safety Program.

Operations Injury Illness Prevention Program.

The primary mitigation measures for worker hazards during operation are contained in the IIPP, which is required by 8 CCR, Section 3203. The written IIPP contains the following information:

- Identity of the person(s) with authority and responsibility for implementing the program
- A system for verifying that employees comply with safe and healthful work practice
- A system for communicating with employees in a readily understandable form
- Procedures for identifying and evaluating workplace hazards including inspections to identify hazards and unsafe conditions
- Methods for correcting unhealthy/unsafe conditions in a timely manner - when the hazard is discovered and/or when there is an imminent danger
- A training program for:
 - Establishing the program initially
 - New, transferred, or promoted employees
 - New processes and equipment
 - Supervisors
- Methods of documenting inspections and training and maintaining records for three years

**TABLE 5.17-4
LOCATION OF POTENTIAL WORKER HAZARDS AT
PIO PICO ENERGY CENTER (OPERATIONAL PHASE)**

Location	Acid ¹	Flammable Material	Hazardous Material	High Voltage	Noise ²	Pressure Vessel	Pressurized Gas Cylinders	Rotating Equipment	High Temperature
Control Room	X			X					
Maintenance Shop/Warehouse		X	X		X			X	
CTG ³	X	X	X		X	X			
Switchyards			X	X					
Stacks							X		
Deareator									X

1 Acid - Areas containing acids (sulfuric acid in batteries or sulfuric acid and hydrochloric acid for pH control).

2 Noise - Area requiring noise protection.

3 CTG - combustion turbine generator.

The IIPP designates a safety representative who is responsible for implementing the program. It also describes safety training for new employees and procedures for tracking safety training. The IIPP provides JHAs for each job. The JHA will identify safety hazards related to each work task and establish procedures for avoiding, correcting, reporting, and notifying employees of these hazards.

Operational Written Safety Programs.

The IIPP is used in conjunction with other written safety programs. These programs may include the following:

- Accident/Incident Reporting Procedures
- Blood-borne Pathogens Exposure Control Program
- Chemical Hygiene Plan
- Code of Safe Practices for Equipment and Operation
- Compressed Gas and Air Handling Systems
- Confined-Space Entry Procedures
- Electrical Safety Procedures
- Emergency Action Plan
- Emergency Response Procedures
- Fall Protection Program
- Fire Protection and Prevention Plan
- First-Aid/Cardiopulmonary Resuscitation/Automated External Defibrillator Program
- Hand Tools and Equipment Guarding Safety Procedures
- Hazard Communication Plan (including Proposition 65 Requirements)
- Hazardous Materials Handling Procedures
- Hazardous Waste Awareness Training
- Hearing Conservation Program
- Heat Stress/Cold Stress Prevention
- Heavy Equipment Procedures
- Hoist/Chain/Wire Rope/Webs/Rope Slings/Cranes

- Hot Work Program (Welding, Cutting, and Brazing)
- Industrial Hygiene Program
- Industrial Truck (Forklifts) Safety
- Ladders, Scaffolds, and Work Platforms
- Lock Out/Tag Out Procedure
- Motor Vehicle Safety
- PPE Program
- Portable Electric and Pneumatic Tools
- Preventing Slips, Trips, and Falls
- Repetitive Stress Injuries/Ergonomics/Lifting Hazards
- Respiratory Protection Program
- Safety and Housekeeping Inspection Program
- Safety Committee and Toolbox/Tailgate Safety Meetings
- Security Program
- Stop Work Authority
- Signs, Tags, and Barricades
- Tools, Power- and Hand-operated

These programs will be reviewed annually to determine if they are affected by any new regulations and to evaluate the effectiveness of their implementation. Other written programs or plans may relate to worker safety in that they enable work to be performed in a safe manner. These include standard operating procedures, worker qualifications programs, and site security.

Operations Safety Training Programs.

All PPEC workers will be instructed regarding their responsibility for safe conduct of their work. These instructions will be given, in part, at the time the employee is first hired and as an ongoing training program of hazard recognition and avoidance.

Workers will be instructed in the safety regulations pertinent to their employment tasks. Safe working conditions, work practices, and protective equipment requirements will be communicated in the following manner:

- New, promoted, or transferred employees will receive safety training orientation.

- Weekly safety meetings are held with employees.
- Toolbox/tailgate safety meetings are conducted periodically for each crew. General safety topics and specific hazards that may be encountered will be discussed. Comments and suggestions from all employees will be encouraged.
- Regularly scheduled safety meeting will be held for supervisors.
- Hazard communication training, including California Proposition 65 warnings and discharge prohibitions, will be conducted as new hazardous materials are introduced into the workplace.
- Material Safety Data Sheets (MSDSs) will be provided for all appropriate chemicals. A bulletin board with required postings and other information will be maintained at the plant site.
- Warning signs will be posted in hazardous areas.

Safety training will be provided to each new employee as follows:

- A list of safe work rules for PPEC will be explained to each new employee.
- A copy of the applicable Safe Work Practices will be given to each new employee. The provisions will be incorporated into training for the qualifications programs so that employees may fully understand what the protective provisions mean.
- The Hazard Communication Program and other applicable training and requirements for personal protection for the types of hazards that may be encountered at PPEC will be explained to employees. This training will be documented.
- Unusual hazards that are found on site will be explained in detail to each new employee, including any specific requirements for personal protection
- Safety requirements for the new employee's specific job assignment will be explained by the foreman upon initial assignment and upon any reassignment.

Operations Personal Protective Equipment Program.

Personal protective clothing and equipment will be used during specified work operations. Each employee will be provided the following information pertaining to the protective clothing and equipment:

- Proper use and maintenance
- When the protective clothing and equipment are to be used
- Benefits and limitations
- When and how the protective clothing and equipment are to be replaced

- Each employee is checked for proper fit and to see if they are medically capable of wearing the equipment

All safety equipment will meet NIOSH or American National Standards Institute (ANSI) standards and have all required markings, numbers, or certificates of approval. Table 5.17-2 contains a list of the basic protective equipment that will be used at PPEC.

Hazardous Materials Handling and Storage.

Various hazardous materials will be stored and used during construction and operation of PPEC. The storage, handling, and use of all chemicals will follow applicable LORS to minimize risks to workers. All hazardous materials will be appropriately labeled and stored in hazardous materials storage facilities. Bulk hazardous materials will be stored in aboveground storage tanks. Other hazardous materials will be stored in their delivery containers. Hazardous materials storage and chemical feed areas will be surrounded by containment or curbing to contain leaks and spills. The containment areas will be sized to hold an appropriate volume (considering the potential for the local hazard contingencies) as designated by a California registered Professional Engineer. At a minimum, this volume equals the full contents of the largest single tank plus sufficient capacity for precipitation from a 25-year, 24-hour storm event in the case of outdoor storage tanks. A Risk Management Plan (RMP) will be developed for the storage and use of aqueous ammonia onsite. The RMP will detail specific safety requirements, procedures, and training to protect workers from exposure to ammonia.

Safety showers and eyewash stations will be provided in or adjacent to corrosive chemical storage areas and in required areas in accordance with regulatory requirements. PPE and spill response equipment for the exposure and cleanup will be readily available for plant personnel for use during spill containment and cleanup activities. A hazardous material emergency response team trained in handling these emergencies and accidental releases of hazardous materials will be available to PPEC through contract. Emergency contact numbers will be available for spill response contractors and for notification to local agencies of spill incidents. These and other procedures will be detailed in the PPEC Emergency Action Plan.

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 generating plant site through a pressurized natural gas line and will not be stored on site. 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 PPEC Fire Prevention Plan will include information regarding control of fuel sources.

Operations Emergency Action Plan/Emergency Response Plan.

In addition to the incorporation of various safety and environmental features and design measures to minimize emergencies and their effects on public and worker safety, a site-specific Emergency Action Plan/Emergency Response Plan will be developed for the project site. A typical Emergency Action Plan/Emergency Response Plan outline is provided in Table 5.17-5. The Emergency Action Plan/Emergency Response Plan is designed to address potential emergencies, including hazardous materials releases, fires, earthquakes, bomb threats, pressure vessel ruptures, and other catastrophic events. The plan will describe evacuation routes, warning

devices, points of contact, assembly areas, responsibilities, and other actions to be taken in the event of an emergency. The plan will have a layout map and a fire extinguisher list and will describes arrangements with local emergency response agencies for responding to emergencies.

Fire Prevention Plan.

Fire protection at PPEC will include measures relating to safeguarding human life, preventing personnel injury, preserving property, and minimizing downtime due to fire or explosion (National Safety Council, 1992). This Plan will involve physical arrangements, such as sprinkler systems, water supplies, and fire extinguishers. Fire protection measures include fire prevention measures to prevent the inception of fires. Of concern are adequate exits, fire-safe construction, reduction of ignition sources, and control of fuel sources.

The Fire Prevention Plan provides for fire protection practices, including routine inspections of PPEC by the designated safety representative. The plan requires prompt action to correct situations deemed to be a fire hazard. In addition, the plan identifies firefighting equipment and systems at the plant and methods to safely store flammable and combustible materials. Facilities have been designed by a California Registered Fire Protection Engineer and fire protection equipment is installed and maintained in accordance with all applicable NFPA standards and recommendations (NFPA, 1994). A fire reporting protocol (depending on the size of the fire) and investigation protocol are detailed in the Fire Prevention Plan.

The comprehensive on-site fire protection system and procedures will be designed and implemented to protect both personnel and property. It will address the following:

- Names and/or job titles responsible for maintaining equipment and accumulation of flammable or combustible material control
- Procedures in the event of fire
- Fire alarm and protection equipment
- System and equipment maintenance
- Monthly inspections
- Annual inspections
- Firefighting demonstrations
- Housekeeping practices
- Training

**TABLE 5.17-5
SAMPLE EMERGENCY ACTION/EMERGENCY
RESPONSE PLAN OUTLINE**

Section Number	Description	Section Number	Description
1.0	Introduction	4.6	Bomb Threat
1.1	Purpose	4.7	Emergency Plant Shutdown
1.2	Scope	4.8	Site Security
2.0	Responsibilities	4.9	Emergency Medical Treatment and First Aid
2.1	Incident Command System	4.10	Decontamination
	Emergency Response Coordinator	4.11	Documentation and Recordkeeping
	Emergency Evacuation Coordinator	4.12	News Media
	Alternate	4.13	Emergency Notification List
	Safety Coordinator	4.14	Emergency Telephone Numbers List
2.2	Position Description Assignments	5.0	Reference Procedures
	Construction/Facility Manager	5.1	Evacuation Plan
	Construction/Facility Supervisor	5.2	Emergency Equipment Locations
	Operators	5.3	Fire Extinguisher Locations
	Health and Safety Manager	5.4	Security
	Security	5.5	Accident Reporting and Investigation
3.0	Response and Notification Plan (Points of Contact)	5.6	Lockout/Tagout
3.1	Supervisor/Emergency Coordinator	5.7	Hazard Communication
3.2	Health and Safety Manager	5.8	Spill Containment and Reporting
4.0	Response Procedures	5.9	First Aid and Medical Response
4.1	Evacuation Routes and Procedures	5.10	Respiratory Protection
4.2	Accidents Involving Serious Injury and/or Death	5.11	Personal Protective Equipment
4.3	Fire	5.12	Sanitation
4.4	Hazardous Waste or Chemical Spills	5.13	Work Site Inspections
4.5	Earthquake		

Fire Suppression.

The fire protection system will mitigate personnel injury, loss of life, property loss, and plant downtime due to fire.

- **Carbon Dioxide Fire Protection System.** This system protects the combustion turbine, its generator, and its accessory equipment compartments from fire. The system will have fire detection sensors in all compartments.
- **Deluge Spray System.** This system provides fire protection to the generator transformers (outdoor design) and auxiliary power transformer. The deluge system will be fed by the firewater storage and supply system.
- **Fire Hydrants/Hose Stations.** This system will supplement the plant fire protection system. The fire protection system will be connected to the Otay Water District's potable water system as its primary water source. As a backup to the primary water supply, the lower portion of the 500,000-gallon service water storage tank will be reserved for fire protection. An electric fire protection pump will activate automatically if the fire protection system pressure drops below acceptable levels. A dedicated underground firewater distribution system with fire hydrants, sprinkler systems, and deluge systems, as

required by the NFPA code, will be used to distribute the fire protection water, as required by code.

- **Sprinkler System.** This system will provide protection to the administration and maintenance buildings.
- **Smoke Detectors, Combustible Gas Detectors, and Fire Extinguishers.** These will be provided at all locations having potential fire hazards due to the presence of combustible liquids, solids, or other highly flammable materials, and where major property damage could result. Extinguishers will be strategically located at code-approved intervals throughout the facility and selected for the appropriate class of service.
- **Fire Alarm and Detection.** Fire alarms will be installed in buildings in accordance with NFPA 72 and as required by local fire codes. The alarm system will include alarm annunciation, supervisory, and trouble signals. Alarms will require urgent action by the plant operators. Supervisory signals indicate abnormal conditions that require investigation. Trouble signals indicate adverse conditions, such as ground fault or power supply problem, which should be rectified by qualified personnel.

Water will be used as the primary extinguishing agent. Chemical and gas extinguishing agents (permanently installed or in portable extinguishers) will be provided in special hazard areas where water would be ineffective or harmful to the equipment being protected.

PPEC's on-site fire suppression systems will be backed up by fire suppression support from the San Diego Rural Fire Protection District (RFPD). Both fire and emergency service will be provided out of Fire Station 22 located at 446 Alta Road, with an estimated response time of four minutes. Firewater will be supplied from the firewater distribution system, as described in Section 3.5.10, Fire Protection System.

5.17.3 Cumulative Impacts

The purpose of this section is to identify past, present, and reasonably foreseeable actions in the PPEC project area that could affect the same resources as those of the project and provide the following analysis:

- Determine if the impacts of PPEC and the other actions would overlap in time or geographic extent.
- Determine if the impacts of the proposed project would interact with, or intensify, the impacts of the other actions.
- Identify any potentially significant cumulative impacts.

Section 5.18 presents a list of potential projects that could result in cumulative impacts with the proposed project. These projects will be responsible for complying individually with applicable worker safety requirements. Therefore, no cumulative impacts on worker safety are expected as a result of PPEC.

5.17.4 Mitigation Measures and Conditions of Certification

The California Energy Commission (CEC) standard conditions and the procedures provided in Section 5.17.2 provide appropriate mitigation and compliance conditions that enable worker safety compliance with all applicable LORS in a manner than results in no significant environmental impacts.

WORKER SAFETY-1:

The project owner will prepare a Project Construction Health and Safety Health Program containing the following:

- A Construction Personal Protective Equipment Program
- A Construction Exposure Monitoring Program
- A Construction Injury and Illness Prevention Program
- A Construction Emergency Action Plan
- A Construction Fire Prevention Plan

WORKER SAFETY-2:

The project owner will prepare an Operations & Maintenance Health and Safety Health Program containing the following:

- An Operation Injury and Illness Prevention Plan
- An Emergency Action Plan
- Hazardous Materials Management Program
- Fire Prevention Plan (8 Cal Code Regs., § 3221)
- Personal Protective Equipment Program (8 Cal Code Regs., §§ 3401-3411)

WORKER SAFETY-3:

The project owner will provide a site Construction Safety Supervisor (CSS), who, by way of training and/or experience, is knowledgeable of power plant construction activities and relevant LORS; is capable of identifying workplace hazards relating to the construction activities; and has authority to take appropriate action to ensure compliance and mitigate hazards. The CSS will:

- Have overall authority for coordination and implementation of all occupational safety and health practices, policies, and programs.
- Verify that the safety program for the project complies with Cal-OSHA and federal regulations related to power plant projects.

- Verify that all construction and commissioning workers and supervisors receive adequate safety training.
- Complete accident and safety-related incident investigations and emergency response reports for injuries and inform the Compliance Project Manager of safety-related incidents.
- Ensure that all the plans identified in Conditions of Certification regarding worker safety are implemented.

5.17.5 Laws, Ordinances, Regulations, and Standards

The following LORS are applicable or potentially applicable to PPEC in the context of the public and occupational safety and health protection measures addressed in this section and in Section 5.16, Public Health and Safety. LORS applicable to worker safety are summarized in Table 5.17-6.

**TABLE 5.17-6
SUMMARY OF LORS – WORKER SAFETY**

LORS	Applicability	Administering Agency	Agency Contact	Conformance (AFC Section)
Federal Jurisdiction				
Occupational Health and Safety Act of 1970, 29 USC 651 et seq.; 29 CFR 1910 et seq.; 29 CFR 1926 et seq.	Meet employee health and safety standards for general industry and the construction industry.	DIR Cal-OSHA	Public Information (415) 703-5070 Cal-OSHA Consultation Services (800) 963-9424	5.17.5.1
Department of Labor, Safety and Health Regulations for Construction Promulgated Under Section 333 of the Contract Work Hours and Safety Standards Act, 40 USC 327 et seq.	Meet employee health and safety standards for construction activities. Requirements addressed by Title 8 CCR, General Construction Safety Orders.	DIR Cal-OSHA	Public Information (415) 703-5070 Cal-OSHA Consultation Services (800) 963-9424	5.17.5.1
NFPA	Meet standards necessary to establish a reasonable level of safety and property protection from the hazards created by fire and explosion.	San Diego RFPD	Chief Dave Nissen (619) 669-1188	5.17.5.1
State Jurisdiction				
Title 8 CCR	Meet requirements for a safe and hazard-free work environment. Categories of requirements include General Industry Safety Orders, General Construction Safety Orders, and Electrical Safety Orders.	DIR Cal-OSHA	Public Information (415) 703-5070 Cal-OSHA Consultation Services (800) 963-9424	5.17.5.2

SECTION 5.0**ENVIRONMENTAL INFORMATION**

LORS	Applicability	Administering Agency	Agency Contact	Conformance (AFC Section)
California Clean Air Act, California Health and Safety Code Section 39650 et seq.	Meet requirements for best available control technology to minimize exposure limits to toxic air pollutants and possible risk assessments for carcinogen pollutants.	San Diego Air Pollution Control District	(858) 586-2600	5.17.5.2
California Health and Safety Code Section 25500–25541; 19 CCR Sections 2720–2734	Estimate emissions for listed air toxic pollutants and submit inventory to air district for major sources of criteria air pollutants. Follow-up from air district may require a health risk assessment.	San Diego Air Pollution Control District	(858) 586-2600	5.17.5.2
Local Jurisdiction				
County of San Diego, DEH, HMD	Provide implementation of the Hazardous Materials Business Plan and Risk Management Plan	County of San Diego DEH, HMD	(619) 338-2231	5.17.5.3

Sources: California Department of Industrial Relations, 2010; California Department of Toxic Substances Control, 2010; California Environmental Protection Agency (Cal-EPA), 2008; County of San Diego, DEH, HMD, 2010; San Diego RFPD, 2010; San Diego Air Pollution Control District, 2010.

Notes:

AFC	=	Application for Certification
Cal-OSHA	=	Division of Occupational Safety and Health
CCR	=	California Code of Regulations
CFR	=	Code of Federal Regulations
DEH	=	Department of Environmental Health
DIR	=	Department of Industrial Relations
HMD	=	Hazardous Materials Division
LORS	=	laws, ordinances, regulations, and standards
NFPA	=	National Fire Protection Association
RFPD	=	Rural Fire Protection District
USC	=	United States Code

5.17.5.1 Federal

PPEC will comply with all federal LORS by developing appropriate plans and policies as well as by measures described in 5.17.2 and 5.17.3.

Occupational Safety and Health Act of 1970 (OSHA), 29 USC §651 et seq.; 29 CFR §§1910 et seq.; and 29 CFR §1926 et seq.

The authority establishes occupational safety and health standards (§1910) (i.e., permissible exposure limits for toxic air contaminants [§1910.100], electrical protective equipment requirements [§1910.137], electrical workers safety standards [§1910.269], and the requirement that information concerning the hazards associated with the use of all chemicals is transmitted from employers to employees [§1910.1200]) and safety and health regulations for construction (§1926). Subpart I of §1910 and Subpart E of §1926 address personal protective equipment.

Under the Operational Status Agreement of October 5, 1989, between the Federal OSHA and the California Department of Industrial Relations, Division of Occupational Safety and Health (DOSHS), the state resumed full enforcement responsibility for most of the relevant federal standards and regulations, (55 Federal Register 18610 [July 12, 1990]; 29 CFR §1952.172).

Federal OSHA has retained concurrent enforcement jurisdiction with respect to certain federal standards, including standards relating to hazardous materials at 29 CFR §1910.120 (Id.).

Administering Agencies. The administering agencies for the above authority are OSHA and DOSH (or Cal-OSHA).

Department of Labor, Safety and Health Regulations for Construction Promulgated Under §333 of the Contract Work Hours and Safety Standards Act, 40 USC 327, et seq.

The code establishes safety and health regulations for construction. The requirements for this regulation are all addressed in Title 8 California Code of Regulations, Chapter 4, Subchapter 4, General Construction Safety Orders.

Administering Agencies. The administering agencies for these regulations are OSHA and DOSH (or Cal-OSHA).

Uniform Fire Code, Article 80.

The article includes provisions for storage and handling of hazardous materials. Considerable overlap exists between this code and Chapter 6.95 of the Health and Safety Code. However, the fire code contains independent provisions regarding fire protection and neutralization systems for emergency venting (§80.303, D, Compressed Gases). Other articles that may be applicable include Article 4, Permits, and Article 79, Flammable and Combustible Liquids.

Administering Agency. The administering agency for these regulations is the San Diego Rural Fire Protection District.

National Fire Protection Association.

NFPA prescribes minimum requirements necessary to establish a reasonable level of fire safety and property protection from the hazards created by fire and explosion. The standards apply to the manufacture, testing, and maintenance of the equipment.

Administering Agency. The administering agency for these regulations is the San Diego Rural Fire Protection District.

5.17.5.2 State

PPEC will comply with all state LORS by developing appropriate plans and policies as well as by measures described in 5.17.2.

Title 8, California Code of Regulations.

These authorities prescribe general occupational safety and health regulations and standards in addition to the construction and industrial safety regulations, standards, and orders. Applicable sections of Title 8 CCR, Chapter 4, Subchapter 7 and 24 CCR, will be complied. Specifically, Title 8 CCR §1509 (Construction) and §3203 (General Industry) make numerous changes designed to redirect the emphasis of Cal-OSHA towards ensuring that employers have an effective work site IIPP to focus Cal-OSHA discretionary inspections in the highest hazard industries as determined by workers' compensation and other occupational injury data, and to limit the number of follow-up inspections that Cal-OSHA must perform. Title 8, CCR 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 Risk Management Plan process.

California Health and Safety Code, Section 25500.

This code requires companies that handle hazardous materials in sufficient quantities to develop a Hazardous Materials Business Plan (HMBP). The HMBP 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. This code also includes a plan for training new personnel and for annual training of all personnel in safety procedures to follow in the event of a release of hazardous materials. In addition, this code includes an Emergency Response Plan and identifies the business representative able to assist emergency personnel in the event of a release.

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 the RMP to appropriate local authorities, the Environmental Protection Agency, 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 California Accidental Release Program. PPEC will develop and submit an RMP prior to operation of PPEC.

5.17.5.3 Local

PPEC will comply with all local LORS. PPEC will develop a HMBP for construction and operation of the new facility and will develop an RMP for operation of the new facility. In addition, PPEC will continue compliance by updating the appropriate health and safety plans and policies as well as by the measures described in Sections 5.17.2 and 5.17.4.

County of San Diego Department of Environmental Health, Hazardous Materials Division.

Provides for the implementation of the HMBP and RMP.

5.17.6 Involved Agencies and Agency Contacts

Agencies with jurisdiction to issue applicable permits and/or enforce LORS related to worker safety are shown in Table 5.17-7.

**TABLE 5.17-7
AGENCY CONTACT LIST FOR LORS**

Agency	Contact	Address	Telephone
Cal-OSHA	Compliance Officer	7575 Metropolitan Drive, Suite 207 San Diego, CA 92108	(619) 767-2280
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

Sources: County of San Diego, DEH, HMD, 2010; Cal-OSHA, 2010; San Diego RFPD, 2010.

Notes:

Cal-OSHA =	California Occupational Safety and Health Administration
CUPA =	Certified Unified Program Agency
DEH =	Department of Environmental Health
LORS =	laws, ordinances, regulations, and standards
HMD =	Hazardous Materials Division

5.17.7 Permits Required and Permit Schedule

The permits required for this project are listed in Table 5.17-8. A HMBP will be developed prior to construction and will be updated prior to operation. A RMP will be developed prior to ammonia being brought on to PPEC.

**TABLE 5.17-8
APPLICABLE PERMITS**

Responsible Agency	Permit/Approval	Schedule
Cal-OSHA	Trenching or Excavation Permit, Pressure Vessel Permit	Prior to commencing construction activity, permit will be issued within 24 hours
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 before storing these materials on site.
County of San Diego DEH, HMD, CUPA	Hazardous Waste Generator Program Permit Hazardous Materials Business Plan	30 days prior to generation of hazardous waste and storage of hazardous materials onsite
County of San Diego DEH, HMD, CUPA	Cal-ARP Risk Management Plan	90 days prior to ammonia delivery

Sources: Cal-OHSA 2010; County of San Diego DEH, HMD 2010, San Diego RFPD, 2010

Notes:

Cal-ARP =	California Accidental Release Prevention
Cal-OSHA =	California Occupational Safety and Health Administration
CUPA =	Certified Unified Program Agency
DEH =	Department of Environmental Health
HMD =	Hazardous Materials Division

5.17.8 References

American Conference of Governmental Industrial Hygienists. 1996. Threshold Limit Values (TLV) for Chemical Substances and Physical Agents and Biological Exposure Indices.

California Code of Regulations. ND. Title 8. "General Industry Safety Orders, Construction Safety Orders, and High Voltage Electrical Safety Orders."

California Department of Industrial Relations. 2010a. Information downloaded from http://www.dir.ca.gov/occupational_safety.html.

California Department of Industrial Relations. 2010b. Information downloaded from <http://www.dir.ca.gov/dosh/DistrictOffices.htm>

California Department of Toxic Substances Control. 2010. Information downloaded from <http://www.dtsc.ca.gov/>.

California Environmental Protection Agency (Cal-EPA). 2010. Website <http://www.calepa.ca.gov/>.

San Diego County Rural Fire Protection District (RFPD). 2010. URS (J.Wu) personal communication with Staff. December 16.

Code of Federal Regulations. ND. Title 29 Part 1910. "Construction Safety Orders."

County of San Diego, Department of Environmental Health (DEH), Hazardous Materials Division (HMD). 2010. Information downloaded from http://www.sdcounty.ca.gov/deh/hazmat/hazmat_permits.html.

ND. Title 29 Part 1926. "General Industry Safety Orders."

National Fire Protection Association. 1994. A Compilation of NFPA Codes, Standards, Recommended Practices, and Guides. Quincy, Massachusetts.

National Institute for Occupational Safety and Health. 1992. Health Hazard Evaluation Report, U.S. Army Corps of Engineers, Ozark Power Plant, Ozark, Kansas. HETA-92-0243-2377.

National Safety Council. 1992. Accident Prevention Manual. Volume 2, Chapter 6, Fire Protection: pp. 1324-1386.

San Diego Air Pollution Control District. 2010. Information downloaded from <http://www.sdapcd.org/>.

Adequacy Issue: Adequate _____ Inadequate _____

DATA ADEQUACY WORKSHEET

Revision No. 0 Date _____

Technical Area: Worker Safety

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 (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.	Sections 5.17.1, 5.17.2, and 5.17.4.		
Appendix B (g) (11) (A)	A description of the safety training programs which will be required for construction and operation personnel.	Section 5.17.2		
Appendix B (g) (11) (B)	A complete description of the fuel handling system and the fire suppression system.	Sections 3.8.1 and 3.5.10 Section 5.17.2		
Appendix B (g) (11) (C)	Provide draft outlines of the Construction Health and Safety Program and the Operation Health and Safety Program, as follows: Construction Health and Safety Program: * Injury and Illness Prevention Plan (8 Cal. Code Regs., § 1509); * Fire Protection and Prevention Plan (8 Cal. Code Regs., § 1920); * Personal Protective Equipment Program (8 Cal. Code Regs., §§ 1514-1522) Operation Health and Safety Program: * Injury and Illness Prevention Program (8 Cal. Code Regs., § 3203); * Fire Prevention Plan (8 Cal. Code Regs., § 3221); * Emergency Action Plan (8 Cal. Code Regs., § 3220); Personal Protective Equipment Program (8 Cal. Code Regs., §§ 3401-3411).	Section 5.17.2 Section 5.17.2 Section 5.17.2 Section 5.17.2 Section 5.17.2 Section 5.17.2 Section 5.17.2		

Adequacy Issue: Adequate _____ Inadequate _____

DATA ADEQUACY WORKSHEET

Revision No. 0 Date _____

Technical Area: Worker Safety

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 (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 5.17.5 Table 5.17-6		
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 5.17.5 Tables 5.17-6 and 5.17-8		
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 5.17.6 Table 5.17-7		
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 5.17.7 Table 5.17-8		