DOCKETED

Docket Number:	07-AFC-06C
Project Title:	Carlsbad Energy Center - Compliance
TN #:	211683
Document Title:	CPC PROJECT SAFETY MANUAL
Description:	CPC Project Safety Manual
Filer:	Jonathan Fong
Organization:	NRG Energy, West Region
Submitter Role:	N/A
Submission Date:	5/31/2016 1:41:11 PM
Docketed Date:	5/31/2016

CARLSBAD ENERGY CENTER PROJECT

CPC
PROJECT SAFETY MANUAL

This is a living document and will be updated as needed throughout the project

TABLE OF CONTENTS

TABLE OF CONTENTS

CPC HS ABSOLUTES

These fundamental HS Program elements **must** be followed:

- Management will provide a safe and healthful work environment
- All employees will be trained with the CPC Code of Safe Practices and CPC Hazard Communication Program.
- Foreman and General Foreman will receive additional training in regards to their leadership roles.
- Monthly Supervisor's Safety Meetings will be conducted by the Project Safety Manager
- New Employee Orientation will be conducted by CPC.
- All employees will attend NRG Safety Orientation prior to working on-site.
- Daily Safety Meetings will be conducted by the Foremen
- Weekly All Hands Safety Meetings will be conducted by the Project Safety Manager
- A Job Safety Analysis (JSA) will be developed for each task daily by the Foreman/Crew
- Formal Accident Investigation will be conducted for all incidents to help prevent recurrence
- Fall Protection Audits will be conducted to ensure 100% fall protection
- Drug/Alcohol Screens (Pre-employment, post accident, for cause, random) will be conducted for each employee by Management
- Every employee and contractor for CPC and NRG is responsible and authorized to stop any task that does not comply with project safety guidelines. There will be no repercussions for exercising Stop Task Authority; it is a right and a responsibility.

It is CPC'S guiding principal that all accidents and injuries are preventable. CPC has the obligation for providing a safe and healthful workplace. Each employee has a personal and vital responsibility to work safely. By joint effort of all project personnel an "incident-and-injury free" work environment may be achieved. CPC believes that it is in the best interest of all to protect the safety and health of its employees.

PREFACE

The intent of CPC to provide a consistent framework of communication regarding our expectations to perform our work safely. Further, to facilitate continual improvement HS performance improvement on our projects while continuing the journey towards achievement of the ultimate goal of, **"ZERO"**, incidents and injuries. It is our belief that a systems approach is required in order to reach the level of sustainability required to continuously build projects without injuring any of our personnel.

The framework described in the following pages of this HS Plan applies to this project. Under each element are specific practices that CPC believes are associated with Best in Class project HS performances. CPC holds sub-contractors accountable for implementing the same management system requirements as detailed in this document.

Most of the specific practices under each element noted in this document are associated with construction industry best performances and are found in all projects to a certain extent. It is the intent of this document to collectively implement as many as possible to in pursuit of continual improvement towards our ultimate goal of **ZERO**.

- **Hazard Control References:**
    - Code of Federal Regulations, Title 29, Part 1926 Safety and Health Regulations for Construction
    - Cal OSHA Title 8 Construction Safety Orders
    - CPC Code of Safe Practices

1.0 POLICY & LEADERSHIP

1.0 This Plan will provide for communicating the policies and demonstrating management's commitment to an HS culture that drives towards **Zero** accidents and incidents. This document will apply internally and externally as appropriate to other stakeholders of the construction project. A means of confirming that the policies are accessible, communicated, understood and implemented shall be included in our system.

ARB Health and Safety Policy Statement

The health and safety of ARB employees is a core business value; where this value applies everywhere, to everyone, in every activity and decision, at all times. All incidents and injuries are preventable and we are committed to provide all necessary resources to achieve an incident free workplace.

We recognize that it is a leadership responsibility to implement actions necessary to achieve a healthy and injury-free workplace. We are committed to continual improvement of our company's health and safety management system, and recognize the importance of employee participation.

Our organization will conduct operations in compliance with applicable laws and regulations, as well as in conformance with both our own and our customers health and safety standard.

"No business objective is so important that it will be pursued at the sacrifice of safety."

- *Brian Pratt*

Timothy R. Healy,
President ARB Industrial

Scott Summers,
President ARB Underground

Should you become aware of any practice, condition, or information that you believe is contrary to these commitments, inform your supervisor. If you subsequently have reason to believe no action will be taken, or you do not receive an adequate explanation, continue to report "up the line" through your management until appropriate response is received. Any information that concerns the health and safety of employees can be reported anonymously to the safety department. All employees are protected under "Whistleblower Protection Laws" Any health and safety concerns can also be reported to the Corporate Safety Director:

ARB, Corporate Safety Director
16000 Commercentre Drive
Lake Forest, CA 92630

1.0 POLICY & LEADERSHIP

1.1 Project Health, Safety & Environmental (HS) Policy

It is the Policy of CPC to ensure at all times the safety of all personnel, the integrity and reliability of all installations, and the protection of the environment. **Our Policy is based on the concept that – "Our work is never too urgent or important that we cannot take the time to do it safely."** As such, CPC recognizes its responsibilities and accountability for the protection of each employee and the preservation of project's property and equipment.

Each employee and subcontractor is responsible for providing and maintaining a safe and healthful work environment where all hazards and unsafe acts must be identified, analyzed and controlled or eliminated and documented in a mandatory proactive and aggressive safety and health program. Each member of management and supervision is responsible and accountable for the safety and safe work conduct of all employees under their supervision. Each employee is expected to comply with established safe rules, practices and procedures, use the safety equipment, proper tools and devices provided, and act in a manner which ensures their safety and that of their fellow employees. All personnel are responsible to assist in the jobsite safety & health program by participating in training activities and reporting any unsafe act, practice, procedure or condition observed to their superior.

Each person working has the responsibility to perform quality work in a safe and environmentally conscientious manner. A personal commitment to participate in this program is expected and is a key condition of employment.

1.2 Management Commitment

The project manager has ultimate responsibility for the Project HS Process. He/She must demonstrate commitment to the HS Process by participation in; but not limited to, project safety orientations, pre-task safety analysis, safety audits, incident investigations, and safety recognition programs. The project management team shall communicate this commitment to all employees prior to beginning work at the site this Safety Plan.

1.3 CPC's Influence on Sub Contractor's Safety Activities

CPC will participate and will have an active role in this site safety management program. This will include activities such as reviews of subcontractors safety plan and procedures to ensure conformance to the project requirements, safety meeting attendance and participation, site safety auditing and, sharing of safety learning's and incidents from other incidents.

2.0 RISK MANAGEMENT

2.0 Documented processes or procedures should be implemented and maintained to identify, assess, and manage existing and/or potential health; safety, environmental or other impacts over which the construction project can be expected to have influence. The scope of assessment(s) should include activities, operations, project and products from the inception of the design, through project execution, through handover, commissioning, and start-up. The assessment should consider normal, abnormal, and emergency operating conditions. Assessment results and resulting action plans should be documented. A process is in place to periodically review and, if necessary update risk assessments.

2.1 Work Planning

As individual hazardous tasks, that have not previously identified, are identified during a supervisor's weekly planning, safe procedures are developed to address these hazards.

2.2 Daily Task Analysis

A Daily Task Analysis is a review of general categories of typical tasks, conditions, equipment needs, materials, etc., for which there are special requirements, known hazards or special equipment required to perform the work safely.

2.2.1 The intent of a Task Analysis is to identify those categories using a list of known items as a guide, for a review of the planned installation of the design, environmental conditions, etc., which could exist onsite and to prepare to avoid accidents, injury, work stoppages, delays and other forms of loss caused by inadequate planning.

Periodically, thereafter the analysis shall be reviewed and updated based on availability of more detailed information and future activities.

2.3 Job Safety Analysis (JSA) PRO-SAF-1511

A daily task analysis shall be conducted by supervision with employees prior to beginning the day's work assignments. Additionally, employees shall conduct a Job Safety Analysis (JSA) at their respective work areas prior to beginning each new task to identify potential hazards relating to their task and work area. Each hazard identified shall be satisfactorily addressed prior to beginning work. Task analysis meetings will be attended and conducted periodically by the construction management.

The purpose of the Job Safety Analysis (JSA) is designed to protect the health and safety of all our employees. The JSA is considered an important accident prevention tool that works by finding hazards and eliminating them before the job is performed. The contractor field supervisor shall initiate and complete the JSA with his/her crew. Upon completion of the JSA, all employees assigned to the task, prior to work beginning, shall review and sign it. After a review of the JSA, employees are encouraged to offer any input they may have to ensure a safer working environment.

2.4 Substance Abuse Program

CPC and their subcontractors shall comply with the requirements of their respective Substance Abuse Programs. No drugs or alcohol are allowed on the project site, including in private vehicles parked in the contractor parking lot.

2.4.1 CPC's substance abuse program incorporates industry standard requirements. CPC's policy shall be communicated and documented to all employees. CPC's comprehensive substance abuse policy and practices at a minimum include the following:

A. Appropriate prohibitions
B. Appropriate notification to employees

C. Substance abuse deterrence and detection
   1. Testing areas, substances, and cut-off levels.
   2. Appropriate rehabilitation obtained and fitness for duty determined before permitting return to work for employees identified as having a substance abuse problem.
   3. Searches

2.4.2 Specifically, testing must be performed with regard to all employees employed on the site.

Testing Circumstances

A. Pre-employment
B. "For Cause" – All project management and supervision shall receive substance abuse recognition training.
C. Post-Accident
D. Random

3.0 STRUCTURE AND RESPONSIBILITY

3.0 Roles, responsibilities, accountabilities and interrelations necessary to implement and maintain the system and facilitate HS management should be defined and documented and an effective means of communicating them shall be in place. Project management should provide resources essential for implementation of the system and foster employee ownership at all levels of the project/construction organization including subcontractors. The system shall also provide for management of change of personnel and organizational structure.

3.1 Management and supervision at each level of activity will be accountable to specify & implement the safety standards with close support from the project safety organization. Though levels of accountability differ and though there are overlapping areas of responsibility, everyone from the project manager to the construction worker is considered responsible for completing tasks safely.

This section of the plan has been written to clearly indicate the areas of responsibilities and accountability in regard to loss prevention as it applies to the Project Personnel.

3.2 Personnel

Craft Employee

It is the responsibility of the craft employees to:

- Work in accordance with accepted safety practices.
- Promptly report accidents and injuries
- Inspect all tools and work area to ensure safety prior to beginning work
- Report unsafe conditions and practices.
- Observe all safety rules and regulations.
- Make safety suggestions.
- Do not undertake jobs they do not fully understand.
- Attend all safety training meetings.

Craft Foreman

The craft foreman shall provide support to the superintendent in implementing and maintaining safety and accident procedures. Specific responsibilities include the following:

- Monitor assigned operations to ensure they are safely carried out as planned.
- Assist with the conducting of safety training meetings.
- Inspection of tools, equipment and areas for unsafe conditions and follow up with corrective action.
- Observe employees for unsafe behavior and follow up with corrective action.
- Supervise the use of personal protective equipment.
- Assist in investigating accidents to determine the cause and corrective action necessary to prevent reoccurrence.
- Report to the superintendent unsafe items and practices beyond his control.

Superintendent/Construction Manager

The construction manager/superintendent is responsible for accident prevention on the jobsite. Specific responsibilities include the following:

- Support the safety manager in his overall safety efforts.
- Frequently check supervisory personnel (foremen) to determine that they are meeting their safety responsibilities.
- Daily inspection of the project site to ensure implementation of the safety program.
- Pre-plan for safe work procedures.
- Conduct employee safety training meetings.
- Coordinate accident prevention activities with those of subcontractors.
- Coordinate accident prevention activities with the client.
- Supervise job site OSHA record keeping requirements.
- Assist in foreman safety training.
- Accident investigations.

Project Manager

The project manager's responsibilities include the following:

- Support the Project Safety Manager in his overall safety efforts.
- Advise potential subcontractors of the Project's safety requirements.
- Advise potential subcontractors of Project insurance requirements.
- Advise potential subcontractors of the Project's safety requirements.
- Assist the superintendent in coordinating subcontractor and client safety.
- Assist the superintendent and the safety coordinator in pre-planning safe work procedures.

Project Safety Manager

The Project Safety Manager is responsible for the administration of Site Specific HS Plan. Specific responsibilities include the following:

- Maintain and monitoring the Site Specific HS Plan.
- Assist superintendents in assessing and fulfilling their safety responsibilities.
- Assist with the establishment of emergency procedures for each job site.
- Work with the client's designated safety representative to assure compliance with the client's safety and security regulations.
- Work with the subcontractor's designated safety representative to assure their compliance with job site safety rules.
- Assist the superintendent with the investigation of accidents.
- Review accident investigation reports and investigate potentially serious claims.
- Analyze accident records.

- Set up training programs for supervisors and employee groups.
- Set up requirements for personal protective equipment and medical treatment at job sites.
- Make periodic site audits of field locations.
- Advise supervisory personnel on safety problems, OSHA activities and regulatory body directives affecting job operations.
- Summary reports on safety achievements.

Corporate Safety Director

The Safety Director is responsible for establishing and monitoring HS Program. Also, the measurement and evaluation of the effectiveness of the program and the modifications needed to achieve optimum results.

4.0 SAFETY PROGRAMS AND PROCEDURES

4.1 ACCESS, ORDER, ARRANGEMENT, AND HOUSEKEEPING

4.1.1 SCOPE

This procedure provides basic guidance for planning and utilization of construction areas, including the unit site, laydown, and warehousing areas.

4.1.2 DEFINITIONS

This procedure contains no unique definitions.

4.1.3 PURPOSE

The purpose of maintaining good order, arrangement, and housekeeping is to:

- Reduce opportunities for fires to start
- Minimize tripping hazards
- Reduce double handling of trash and materials
- Contribute to jobsite efficiency

4.1.4 HOUSEKEEPING – PRO SAF-0031

Each person is responsible for keeping their immediate work area free from trash, excessive scrap material, and tools not in use.

Oily rags and packing materials shall not be allowed to accumulate on floors or in job boxes. Receptacles intended for the waste of oily rags of oil grease, and other flammables subject to spontaneous ignition shall be of the self-closing lid type, approved for this purpose. They must also be marked for their intended use ”only”.

Planning for waste management must include the strategic location of receptacles at the fieldwork sites to minimize walking distance. Consideration for potential collection sites for: drinking cups, sawdust, scrap wood and metals, weld rods, etc. Trash container shall be emptied on a regular basis, not allowing debris to accumulate and overflow.

4.1.4.1 Small round objects, such as pieces of conduit, pipe, and welding rods shall be properly discarded and never left on the ground. Welding rods and some nuts and bolts can fall through grating and must not be left on grating.

4.1.4.2 Waste paints or solvents must be stored or staged in areas designated as flammable storage. No more than 25 gallons of flammable or combustible liquid will be stored in a room outside of an approved cabinet.

4.1.4.3 Scrap lumber shall be stacked and then removed daily from work areas.

4.1.4.4 Containers for scrap metal shall be provided and utilized.

4.1.5 ORDER AND ARRANGEMENT

4.1.5.1 Material storage areas shall be clearly identified and properly maintained. Material should not be delivered to the work area until it is needed.

4.1.5.2 Toolboxes, and equipment in an organized manner.

4.1.5.3 Tape barricades shall be maintained at approximately 42" above ground.

4.1.5.4 Ladders shall not be left lying around on floors or leaning upright. Return them to proper storage when not in use.

4.1.5.5 Material must not be placed within six feet of any hoist way or other inside floor openings, nor within 10 feet of any exterior walls, which does not extend above the top of the material stored.

4.1.5.6 Stack or pile safely. Always start with a safe base. Uneven surfaces of floor or yards should be leveled. Make sure the pile will not shift. Stack materials and supplies in a safe and orderly manner and out of walkways.

4.1.5.7 Do not pile trash or materials in areas where they will block exits or fire doors, fire extinguishers, electrical disconnects, or safety equipment. Aisles, stairs and passageways must be kept clear to provide access and egress in emergencies.

4.1.5.8 Unprotected cardboard containers shall be protected with a heavy duty plastic. Cardboard containers (ex. Insulation boxes, concrete bags, etc.) shall not be exposed to wet or deteriorating weather elements.

4.1.5.9 Store frequently accessed materials at waist height to minimize bending and stooping.

4.1.5.10 Exits must not be obstructed. The following clearances must be maintained:

- 36” from sprinkler deflectors
- 36” from fire door openings
- 24” around the “path of travel” of fire doors

4.1.6 PERSONNEL PATHWAYS

4.1.6.1 Personnel pathways are necessary to allow safe, efficient access throughout the jobsite.

4.1.6.2 When planning and establishing these pathways,

4.1.6.2.1. Ensure pathways have adequate lighting (not less than 5 foot-candles) if nighttime access is required.

4.1.6.2.2 When planning pathways make provisions to store material as close as possible to work areas.

4.1.6.2.3 Never store material in pathways or at ingress/egress areas, especially at the bottom of ladders and stairways.

4.1.6.2.4 Isolate hoses, cords, and welding leads from walking surfaces and doorways.

- Hoses and cords shall be kept 7 feet (2.1 meters) above walkways wherever possible.
- Where cords or hoses are laid on the ground, they shall lie flat with no loops and be covered with protective runways (bridges) where exposed to vehicle traffic.

- All cords shall be elevated above or routed away from walkways to avoid tripping hazards.

4.1.6.2.5 Ensure that any pathway bridge has handrails, midrails and toe boards, is anchored on either side of any ditch 4' deep or greater, and is sufficiently strong to carry the intended loads.

4.1.7 TRAINING

All employees shall be instructed on the proper housekeeping and lifting requirements for handling material.

4.1.7.1 FORMS (See Section 13.0)

- **Form 3** Daily Inspection Checklist

4.2 AIR COMPRESSORS

4.2.1 SCOPE

This procedure provides minimum requirements for inspecting and operating portable air compressors.

4.2.2 DEFINITIONS

Qualified Inspector - An experienced craftsperson or engineer, acceptable to the CPC, who has demonstrated his or her ability or competency to inspect equipment.

4.2.3 EQUIPMENT INSPECTION

4.2.3.1 A qualified inspector must inspect all air compressors prior to their use on site, this may be achieved by having the rental provider inspect the equipment prior to delivering the equipment. Equipment shall be inspected quarterly thereafter.

4.2.3.2 Records of all inspections and maintenance shall be completed and maintained for review.

4.2.4 MODIFICATIONS

Do not modify or alter an air compressor without prior written permission from the manufacturer.

4.2.5 COUPLINGS

4.2.5.1 Check coupling daily before use.

4.2.5.2 Use only couplings designed for compressed air services.

4.2.5.3 Provide all couplings with a positive locking device.

4.2.6 HOSES

4.2.6.1 Check hoses daily before use.

4.2.6.2 Use only hoses designed for compressed air services. Air hose and hose connections used with pneumatic tools shall be designed for the pressure and service to which they are subjected.

4.2.6.3 Before assembling the system, check all hoses for cuts, breaks, and loose connections daily and prior to use for defects.

4.2.6.4 Hose fittings must be properly fastened onto the hose using manufacturer-approved hose clamps. Wire, rope, twine, etc ARE NOT to be used for this application.

4.2.6.5 Disconnect source and "bleed" hose before breaking the connection on any hose or tool. Never crimp, couple, or uncouple a pressurized hose.

4.2.6.6 Unless the equipment has quick-change connectors (with internal check valves), shut off the air at the air supply valve before making adjustments or changing air tools.

4.2.6.6.1 Bleed the hose at the tools before breaking the connection.

4.2.6.7 All hoses exceeding 1/2 inch (1.3 centimeters) inner diameter must have a safety device (an excess flow valve) at the source of supply or branch line to reduce pressure in case of hose failure.

4.2.6.8 All connections must be equipped with safety chains that must be pinned or chained to prevent whipping should disconnection occur.

4.2.6.9 Hoses equipped with special connections require special tightening techniques or methods. Do not tighten these connections by hand.

4.2.6.10 Air hose connections that are designed to accept wire must be fitted with wire in the holes provided to prevent disconnections.

4.2.7 COMPRESSED AIR CLEANING

4.2.7.1 Air used for cleaning off equipment shall be regulated to 30 psi or less.

4.2.7.2 Always wear additional eye and hearing protection when using air tools or using air to clean off equipment.

4.2.8 RELIEF VALVE

Each compressor must be equipped with a properly sized relief valve.

4.2.9 REFUELING

All engines of compressors must be turned off during refueling operations.

4.2.10 ENVIRONMENTAL CONSIDERATIONS

4.2.10.1 Oil systems must be maintained to prevent leakage.

4.2.10.2 If a leak or spill occurs in an oil system, the spill must be cleaned up immediately in accordance with governmental regulations.

4.2.11 FORMS (See Section 13.0)

- **Form 4** Monthly Check List

4.3 BARRICADES

4.3.1 SCOPE

This procedure establishes guidelines for the use and installation of protective and warning barricades.

4.3.2 DEFINITIONS

This procedure contains no unique definitions.

4.3.3 BARRICADES

Barricades are required around excavations, openings in floors, walls, or roof areas, edges of platforms and certain types of overhead work. **Tags will be used to warn personnel of hazardous conditions.** Three types of barricades to be used will be the following:

4.3.3.1 Warning Barricades
These offer no physical protection but serve to alert personnel in the area that a hazard is present. The following are suggested hazard warnings that should be utilized such as signs, tags, permits, tape, etc.

4.3.3.1.1 Warning barricades must be set back 5 feet (1.5 meters) minimum from the hazard.

4.4.3.1.2 If 5 feet (1.5 meters) is not available, a protective barricade must be used.

4.3.3.2 Protective Barricades
These not only warn of a hazard, but provide physical isolation or protection from the hazard. Examples include guardrails or cables set at the proper height around an opening or anchored railroad ties to prevent driving into a culvert.

4.3.3.2.2 Barricade tape will not be used in place of guard rails.

4.3.3.3 Hole Covers

4.3.3.3.1 A hole cover conforming to the following is acceptable:

a) If one dimension of the opening is 18 inches (45.5 centimeters) or less, use plywood at least ¾ inch (2 centimeters) thick.
b) If both dimensions of the opening exceed 18 inches (45.5 centimeters), use two layers of ¾ inch (2 centimeter) plywood or material at least 2 inches (5 centimeters) thick.

4.3.3.3.2 Construct covers over large floor openings to the same loading specification as scaffold decking.

4.3.3.3.3 Secure (cleat, wire, or nail) all covers to prevent displacement.

4.3.3.3.4 Clearly mark all covers with a "Danger – Hole Cover – Do Not Remove" sign.

4.3.4.0 BARRICADE TAPE

4.3.4.1 All barricade tape shall be one of several colors that convey different levels of hazard warning.

4.3.4.1.1 Red and Black or Red and White tape is used to convey "**DANGER – DO NOT ENTER**", which means no one is to enter without the approval of the foreman/craftsman in charge and must wear all required personal protective equipment indicated for the hazard.

4.3.4.1.2 Yellow and Black tape is used to convey "**CAUTION**". Personnel are allowed to enter the barricade only after they have read the tag to understand the purpose of the barricade and are alerted to the hazards within the area.

4.3.4.1.3 Yellow and Magenta tape means that radioactive material is present. Only authorized persons are allowed to enter.

4.3.4.2 Barricade tape requirements must be enforced.

4.3.4.3 All barricade tape must be removed by the supervisor who placed it as soon as the hazard is eliminated.

4.3.5.0 IDENTIFICATION TAGS

4.3.5.1 Tags shall be placed on barricades to indicate:

- Supervisor who placed the barricade tape and contact #/ radio channel #.
- Purpose or reason for the barricade
- What PPE is required to enter
- Date placed

4.5.5.2 Make sure that all writing is legible.

4.3.6 FORMS (See Section 13.0)

- None

4.4 BOOM SUPPORTED ELEVATED WORK PLATFORMS

4.4.1.0 SCOPE

This procedure establishes guidelines for inspecting and safely operating boom-supported elevating work platforms. It also outlines the qualifications for boom-supported elevating work platform operators.

4.4.2.0 DEFINITIONS

This procedure contains no unique definitions.

4.4.3.0 INSPECTION

4.4.3.1 All Lifts must be inspected by a competent person. Upon arrival at the job site.

4.4.3.2 In addition, all Boom-Supported Elevating Work Platforms must be inspected annually by an independent agency.

4.4.3.3 If a Boom-Supported Elevating Work Platform is removed from site and then returned, it shall be re-inspected prior to its use on site.

4.4.3.4 A qualified operator must inspect all controls and safety devices each day prior to use.

4.4.3.4.1 Daily inspections must be documented.

4.4.3.4.2 If any of the controls do not operate properly; they must be repaired before the Boom-Supported Elevating Work Platform is operated.

4.4.3.5 **All manufacturer maintenance requirements shall be met.**

4.4.4.0 OPERATOR QUALIFICATIONS

4.4.4.1 All lift operators shall be trained by a designated competent person. A copy of their field evaluation will be kept in the field office. If the operator has been trained on a previous CPC project, and has current qualifications, he/she will not require training at site. If the previous site's conditions were different, the operator will be required to go thru forklift certification training on the current site.

4.4.4.2 All operators must meet the following minimum requirements:

4.4.4.2.1 They must pass a written/oral test on general Boom-Supported Elevating Work Platform operation at a maximum interval of every two years.

4.4.4.2.2 Only operators trained, qualified and authorized employees are to operate lift.

4.4.4.2.3 Lift operators must be re-qualified annually.

Exception: A supervisor that is trained and qualified to operate a specific piece of equipment, and whose training (and required proficiency testing) is current, may operate that specific piece of equipment.

4.4.4.2.5 Copies of the above documentation will be retained on site.

4.4.5 OPERATION

4.4.5.1 A Boom-Supported Elevating Work Platform operator must always observe the following minimum safety precautions:

4.4.5.1.1 Employees must wear a safety harnesses with lanyard attached to the manufacturer's supplied platform anchorage point. If no anchorage point is supplied, seek guidance from the manufacturer.

4.4.5.1.2 Employees must work while standing on the platform floor, never on the top rail, midrail or toe board; they may not climb out of the platform to an elevated work platform.

a) Exceptions to this are permitted only when it is deemed safer to exit the platform to perform work than it is to use another means of access, and will be written into the JSA.

4.4.5.1.3 Boom and basket limits specified by the manufacturer shall not be exceeded.

4.4.5.1.4 Keep manufacturer's operating instructions with each Boom-Supported Elevating Work Platform. Manufacturer's operating instructions must be available for all rented equipment.

4.4.5.1.5 Trash and debris must not be allowed to accumulate in the basket of the Boom-Supported Elevating Work Platform.

4.4.5.1.6 All small tools and materials shall be secured by tool lanyards or other means while performing any elevated work.

4.4.5.1.7 Supporting equipment, material, or rigging loads from the boom, handrails, or platform is prohibited. Rigging is not allowed from the platform or boom.

4.4.5.1.8 Prior to moving a Boom-Supported Elevating Work Platform into an area, evaluate underground conditions for stability,the possibility of damage to the underground facilities or injury to personnel.

- Do not move a Boom-Supported Elevating Work Platform onto unstable footing.
- Do not operate a Boom-Supported Elevating Work Platform in a way that may cause injury to yourself or others.

4.4.5.1.9 The basket may remain in the raised position to continue the work in progress while the equipment is moving only if the equipment is traveling at low speed on a firm and level surface.

- All body parts must be kept inside the confines of the basket while the platform is in motion.

4.4.5.1.10 The basket must be lowered to the horizontal position and the boom fully retracted and in line with the carriage when the equipment is traveling to a new work location.

4.4.5.1.11 Counterweights that rotate and extend beyond the undercarriage must be barricaded.

4.4.5.1.12 Follow the manufacturer's recommendations for maximum allowable loads and maximum loads and maximum boom lengths.

4.4.5.1.13 Make sure that the equipment is shut down and a fire extinguisher is available during refueling.

4.4.5.2 EMERGENCEY PROCEDURES:

- In the event that an aerial lift is stuck against a structure or foreign object, the operator must cease to try to control or free aerial lift. The operator must cease any further operation of the man lift hydraulic functions and communicate with personnel on ground that the equipment is struck. The personnel on ground will then retrieve another aerial lift and rescue operator from basket and then work to free basket by use of the lower controls.
- In the event that no other means available to retrieve personnel, the operator will get into a crouched position, with head and hands below the top handrail and then personnel on the ground can attempt to get the basket lowered by use of the ground controls.
- In the event that an operator is working alone for an extended period of time, a means of communication shall be established (2 way radio, cell phone) The foreman or designee must check in with the operator at the predetermined periods to make sure that the operator is ok and is coherent.

4.4.6.0 <u>ENVIRONMENTAL CONSIDERATIONS</u>

4.4.6.1 Hydraulic systems must be maintained to prevent leakage.

4.4.6.2 If a leak or spill occurs in a hydraulic system, the spill must be cleaned up immediately in accordance with governmental regulations.

4.4.6.3 Wind speed shall not exceed 35 mph.

4.4.6.4 Do not operate in storms (high winds, electrical, or thunderstorms).

4.4.6.5 JLG's are not to be operated within 25' of live power lines, unless approved by the electrical department. Lifts shall not be operated where any part of the equipment, employees, tools or materials will come any closer to or above any energized electrical line except for qualified electricians using insulated aerial lifts approved for electrical service.

4.4.7.0 <u>FORMS</u> (See Section 13.0)

- **Form 5** Daily Equipment Checklist
- **Form 6** Monthly Equipment Checklist

4.5 CONFINED SPACE ENTRY

4.5.1.0 SCOPE

This procedure outlines the minimum requirements for work inside a Vessel or Confined Space (CONFINED SPACE) as specified in CCR Title 8 Ch 5156 - 5159. This procedure also lists requirements for protecting individuals in a CONFINED SPACE from hazards such as oxygen-deficiency, hazardous materials, moving parts, and blocked escape routes.

4.5.2.0 DEFINITIONS

Attendant – A person who must be in continual visual or hearing contact with personnel inside the CONFINED SPACE. An attendant must be adequately trained to monitor the activities of personnel inside the CONFINED SPACE and who performs all attendants' duties assigned in Contractor's Permit Space Program.

Back-up Attendant – An employee whose primary responsibility is to provide immediate assistance to the attendant. The back-up attendant must remain in contact by verbal contact, two-way radio, or PA system to help the attendant in an emergency.

Entrant – An employee who has been authorized to enter a CONFINED SPACE to perform any activity. The entrant shall be able to demonstrate an understanding of the identified training requirements and proper use of personal protective equipment indicated on the Contractor's entry permit.

Entry – Breaking the plane of the opening with any part of the body.

Entry Supervisor – A designated person responsible for:

- determining if acceptable entry conditions are present at a CONFINED SPACE where entry is planned, confirm that all steps have been completed to reclassify the CONFINED SPACE.
- authorizing entry and overseeing entry operations, and
- terminating entry

Confined Space – Confined space means a space that:

- Is large enough and configured that an employee can bodily enter and perform assigned work, AND
- Has limited or restricted means for entry or exit, AND
- Is not designed for continuous occupancy

4.5.3 GENERAL

4.5.3.1 **Identification-** a list of Site specific CONFINED SPACE and associated hazards shall be generated.

4.5.3.1.1 This list shall be reviewed to indicate changes and newly identified confined spaces.

4.5.3.1.2 This list shall be communicated to employees prior to performing any task in a CONFINED SPACE.

A "Permit-Required" CONFINED SPACE program is required for control of potential hazards and for regulating employee entry when one or more of the following characteristics exist:

- Contains or has the potential to contain a hazardous atmosphere
- Contains a material that has the potential for engulfment
- Has an internal configuration such that an entrant could be trapped or asphyxiated or that tapers downward to a smaller cross section
- Contains job-introduced hazards:
  - Welding, cutting, grinding, hot riveting, burning, heating, or the introduction or sources of ignition within the CONFINED SPACE.
  - The use of flammable or toxic cleaning solutions
- Or contains any other recognized serious safety or health hazard

4.5.3.3. A "Non-permit required confined space" is defined as a confined space that does not contain or with respect to atmospheric hazards have the potential to contain any hazard capable of causing death or serious physical harm.

4.5.3.3.1 Until proven otherwise, all confined spaces are permit required. A permit space can be reclassified to a non-permit confined space by taking the following precautions.

4.5.3.3.2 If atmospheric conditions are within acceptable limits or if they can be brought within limits by ventilation, the space can be reclassified as non-permit required confined space, provided there are no other potential or actual hazards such as mechanical, electrical, pneumatic, hydraulic, thermal, fluid, gaseous energy, the energy of gravity, or other hazards, including engulfment or entrapment hazards.

4.5.3.3.3 These hazards must be dealt with by lockout tagout procedures. Isolate by blinding, line breaking, double block and bleed, or lockout tagout of all energy sources.

4.5.3.3.4 If inert gases are used to lower L.E.L., the oxygen deficient atmosphere created may pose every bit as much hazard as the original L.E.L. problem.

4.5.3.3.5 All confined spaces need to be ventilated if normal ventilation cannot produce an atmosphere that is free of hazards.

4.5.3.3.6 A non-permit confined space certification must be posted at the site of entry.

4.5.3.3.7 If hazards arise within a non-permit space each employee shall leave the space. The space will then be evaluated to determine if it needs to be reclassified as a permit required space.

4.5.3.3.8 In the event that all hazards cannot be eliminated, you are now facing a permit required confined space.

4.5.4 WRITTEN PROGRAM

Prior to allowing employees to enter CONFINED SPACE, CONTRACTOR shall develop a written CONFINED SPACE program in conjunction with the NRG's current site program.

4.5.4.1 The following elements shall be covered in a written program:

4.5.4.1.1 Use locking, chaining, or other physical barriers or barricades as necessary to prevent unauthorized entry of personnel. As a minimum the use of barricade tape will be acceptable.

4.5.4.1.2 Review the work area and CONFINED SPACE identification list prior to working in CONFINED SPACES to determine potential hazards and isolation requirements.

4.5.4.2 If the space is a CONFINED SPACE, implement the following controls**:**

4.5.4.2.1. Specifying acceptable entry conditions, explosibility, toxic levels, physical isolation, etc.

4.5.4.2.2 Isolating the CONFINED SPACE. Identify all disconnect points of process lines, lockout points for additional services, and other requirements. Complete CONFINED SPACE isolation prior to authorizing CONFINED SPACE entry.

4.5.4.2.3 Purging, inerting, flushing, ventilating, or other decontamination to eliminate or minimize hazards.

4.5.4.2.4 Provide pedestrian, vehicle, or other barriers to protect entrants from external hazards (barricading or posting and attendant).

4.5.4.2.5 Monitoring of CONFINED SPACES shall be performed prior to initial entry and shall be repeated as necessary to demonstrate continued compliance with acceptable entry conditions.

4..5.4.2.6 Confined space monitoring shall always measure in this sequence: oxygen content, presence of explosive gases, toxic hazards, and other hazards anticipated in the CONFINED SPACE.

4.5.4.2.7 Continuous monitoring WILL BE USED for CONFINED SPACE entry.

- When work activities in the confined space can generate hazardous atmospheric conditions.
- When other ongoing operations can generate hazardous atmospheric conditions that could impact the CONFINED SPACE
- If existing conditions within the confined space could generate hazardous atmospheric conditions that could impact the confined space.

4.5.4.2.8 Supplied Air Respirators are required whenever the work activity can generate hazardous atmospheric conditions.

4.5.4.3 **Recommended Equipment (ensure proper use through training):**

- Testing and monitoring equipment
- Ventilating equipment
- Communications equipment
- Personal protective equipment where engineering controls are not adequate
- Lighting equipment (12 volt recommended)
- Physical access barriers and shielding
- Appropriate access/ egress equipment
- Rescue and emergency equipment
- Any other equipment as determined by the owner/ employer to protect employees from potentially hazardous atmospheres
- Identify equipment that will signal required emergency evacuation from the CONFINED SPACE
- Review site conditions for any additional requirements

4.5.4.4 **Permit required confined spaces must have an attendant at the point of entry.**

4.5.4.4.1 If multiple spaces are monitored by a single attendant, the permit program shall identify the means and procedures to respond to emergency situations without distracting from the responsibilities of the other permit spaces. (This approach is not recommended without effective training and supporting personnel.)

4.5.4.5 Designate specific active roles and individuals (i.e., authorized entrants, attendants, entry supervisor, and testing or monitoring personnel). Identify specific duties and provide the following training:

4.5.4.5.1 Understanding, knowledge, and skills necessary for the performance of duties.

4.5.4.5.2 Establish proficiency.

4.5.4.5.3 Certify training accomplishments include name, signatures of trainers, dates of training, and content of the training.

4,5,4.6 Review with the entrants and attendants procedures for summoning rescue and emergency services.

4.5.4.6.1 Post the following information on the CONFINED SPACE permit:

- How to contact/ access the rescue team
- How to contact/ access emergency medical and medical transport services

4.5.4.6.2 Only authorized personnel shall be allowed to attempt rescue.

RESCUE PROCEDURES SHALL BE COMMUNICATED TO ALL ENTRANTS

4.5.4.7 Clearly identify the system and responsible person(s) for the permit process:

- Preparation

- Issuance
- Use
- Cancellation
- Retention

4.5.4.8 CPC shall identify the position(s) or person(s) responsible to coordinate entry operations and permitting for the site(s). These people and their responsibilities shall be shown on the CONFINED SPACE list.

4.5.4.9 Review current entry operations whenever a reason exists to believe that Control Measures have not been adequate to protect employees.

4.5.4.9.1 Follow-up by implementing revisions to strengthen the control measures.

4.5.4.10 CPC shall coordinate an annual review of the CONFINED SPACE programs using the canceled CONFINED SPACE entry permits.

4.5.4.10.1 CPC shall revise the program as necessary.

4.5.5.0 **PERMIT REQUIREMENTS**

4.5.5.1 The permit shall document the completion of required HS protective measures prior to authorizing entry.

4.5.5.2 Prior to entry, the Entry Supervisor must sign the entry permit.

4.5.5.3 The completed permit will be made available to all authorized entrants.

4.5.5.4 Limit the duration of the CONFINED SPACE permit to an effective time necessary to complete the assigned task.

4.5.5.5 The entry supervisor shall terminate the entry and cancel the permit when:

- The task is complete,
- A condition that is not allowed arises near or in the CONFINED SPACE, or
- When an unauthorized entry of the CONFINED SPACE occurs.

4.5.5.6 The canceled permit shall be maintained for one year

4.5.5.7 The location or site responsible for the initial work place survey for CONFINED SPACES shall maintain these canceled permits and make them available for the annual review.

4.5.6.0 **TRAINING**

4.5.6.1 CPC shall identify the training required to comply with this procedure and provide training to ensure employees have the necessary understanding, knowledge, and skills to safely perform CONFINED SPACE duties.

4.5.6.2 This training as a minimum shall:

- Address safe work practices,
- Address roles and responsibilities of employees,

- Address the use of applicable safety equipment,
- Effectively communicate work conditions within the CONFINED SPACE and identified potential and corrected hazards
  See also Sections 7.0, 8.0, 9.0, and 10.0

4.5.6.3 The training shall be completed for each affected employee:

4.5.6.3.1 Prior to first assigned duties.

4.5.6.3.2 Before a change in duties.

4.5.6.3.3 Whenever a change in CONFINED SPACE operation presents a hazard that was not previously identified.

4.5.6.3.4 Whenever deviation of the CONFINED SPACE procedures occur or inadequacies of knowledge or use are indicated.

4.5.6.3.5 Annual refresher training

4.5.6.4 The training shall develop qualified employees and shall be continually improved to address changes in the CONFINED SPACE program.

4.5.6.5 CPC shall certify that the training has been accomplished. This shall be accomplished by maintaining training records that include:

- Employee's name
- Trainers name or initials
- Date of training
- Provide certification upon request

4.5.7.0 DUTIES OF AUTHORIZED ENTRANTS

4.5.7.1 Authorized entrants shall be qualified for the activity they are to perform.

4.5.7.2 Authorized Entrants shall be able to demonstrate their understanding of the following:

4.5.7.2.1 Know the hazards faced during entry - including warnings and consequences.

4.5.7.2.2 Proper use of equipment (includes equipment inspection)

4.5.7.2.3 Communicate with the attendants as necessary

4.5.7.2.4 Alert the attendant whenever

- entrant recognizes hazards
- entrant detects prohibited conditions

4.5.7.2.5 Exit the CONFINED SPACE quickly whenever

- ordered to evacuate
- recognizes warning signs
- detects a prohibited condition

- a evacuation alarm is sounded

4.5.8.0 DUTIES OF ATTENDANTS

4.5.8.1 Attendants perform no duties, which will interfere with attendants' primary duty to monitor and protect authorized entrants.

4.5.8.2 Each Attendant:

4.5.8.2.1 Knows the potential hazards of the CONFINED SPACE.

4.5.8.2.2 Is aware of any behavioral symptoms indicating changes in entry conditions. (Review work-generated hazards).

4.5.8.2.3 Continuously maintains accurate count of authorized entrants.

4.5.8.2.4 Remains outside at the point of entry to the CONFINED SPACE during entry operations until properly relieved by a replacement attendant.

4.5.8.2.5 Communicates with authorized entrants as necessary and alerts entrants of a need to evacuate.

4.5.8.2.6 Monitors activity inside and outside CONFINED SPACE to determine safe conditions exist for authorized entrants.

4.5.8.2.7 Orders entrants to evacuate when;

a) detecting a prohibited condition
b) detecting a behavioral effect of a hazard
c) detecting a situation outside the CONFINED SPACE that may endanger the authorized entrants

4.5.8.2.7 Shall summon rescue or emergency services as needed for assistance to escape CONFINED SPACE (but shall not lose visual or verbal contact with entrants in doing so).

4.5.8.2.9 Shall take the following actions when necessary toward unauthorized person in or near a CONFINED SPACE:

a) warn away unauthorized personnel
b) direct the unauthorized persons to immediately exit the CONFINED SPACE
c) inform authorized entrants and entry supervisor of unauthorized entrant to CONFINED SPACE

4.5.8.2.10 Performs non-entry rescues as trained and specified

4.5.9.0 DUTIES OF ENTRY SUPERVISOR

4.5.9.1 The entry supervisor shall ensure each person involved in CONFINED SPACE entry complies with the requirements of this procedure and the permit during the CONFINED SPACE entry.

4.5.9.2 The entry supervisor:

4.5.9.2.1 Assures isolation points are identified and isolation is complete. This includes any Lock, Tag, Try, and Test applications.

4.5.9.2.2 Ensures that necessary permits are complete and posted.

4.5.9.2.3 Knows the potential hazards that may be faced during entry.

4.5.9.2.4 Verifies specified tests have been performed.

4.5.9.2.6 Verifies equipment specified by permit is in place.

4.5.9.2.7 Signs the entry permit authorizing entry.

4.5.9.2.8 Terminates and cancels permit

4.5.9.2.9 Verifies rescue and emergency services are available, notifies and ensures that emergency procedures are known to entrants and attendants.

4.5.9.2.10 Removes unauthorized individuals.

4.5.9.2.11 Determines that entry operations remain consistent with permit requirements and acceptable entry conditions are maintained.

4.5.10.0 RESCUE AND EMERGENCY SERVICES

4..5.10.1 CPC personnel will call the site control room to start process of alerting proper entity for rescue of employees from confined spaces.

4.5.10.2 The following requirements apply to employers who allow their employees or on-site rescue teams to enter CONFINED SPACE and perform rescue services:

4.5.10.2.1 Provide and train personnel on personal protective equipment and rescue equipment necessary for making rescue from CONFINED SPACE.

4.5.10.2.2 Each member shall be trained to provide rescue duties.

4.5.10.2.3 Each member shall be trained in basic first aid and cardiopulmonary resuscitation (CPR).

4.5.10.3 When Outside/Off-site Rescue Services are used, CPC shall:

4.5.10.3.1 Inform rescue services

4.5.10.3.2 Provide rescue services access to CONFINED SPACE areas, where rescue may be necessary, to develop appropriate plans and training.

4.5.10.3.3 Facilitate non-entry rescue by use of retrieval systems in CONFINED SPACE unless it increases overall risk. Retrieval systems shall provide:

a) Each entrant with use of a full body harness as a primary device (a chest harness, leg straps, or wristlets may be used as

an alternative)
b) A mechanical device at the opposite end of the retrieval
c) Identify an alternative to the mechanical device in the event of failure or multiple needs.

4.5.10.3.4 Ensure that the SDS or other information shall be immediately available to rescue and emergency services.

4.5.10.3.5 Annual refresher training shall be conducted at least annually for offsite rescue personnel.

4.5.11.0 FORMS (See Section 13.0)

- **Form 7** Permit Required Confined Space Decision Flow Chart
- **Form 8** Confined Space Entry Permit
- **Form 9** Non Permit – Confined Space Certification Pre-Entry Checklist
- **Form 10** Permit Required Confined Space Entry Pre-Planning Checklist
- **Form 11** Permit Required Confined Space Entry Training

4.6 CONTINUOUS FALL PROTECTION

4.6.1.0 SCOPE

4.6.1.1 This procedure describes a three-step, systematic approach that must be used to protect employees from falls when they are working at heights. At a minimum CAL OSHA Title 8, Article 24 of the Construction Safety Orders will be used.

4.6.1.2 100% Fall Protection is the requirement. Employees shall use fall protection whenever they leave the ground for any reason and are exposed to a fall from more than 4 feet (1.2 meters), provided there are no guardrails or equivalent protection. In most cases, this requires the use of a "double lanyard" system.

4.6.2.0 DEFINITIONS

Anchorage - A secure point of attachment, not part of the work surface, to which lifelines, retractable lifelines, droplines, or lanyards are affixed. An anchorage must be capable of supporting a minimum dead weight of 5,000 pounds (2,270 kilograms) for every person attached to it. An anchorage is often a pipeline, beam, girder, column, or floor.

Anchorage Connector - A component or device that is installed on an anchorage and is specifically intended for attaching a fall-arrest system to the anchorage. An anchorage connector must be capable of supporting a minimum dead weight of 5,000 pounds (2,270 kilograms).

Energy Shock Absorber - A device that limits shock-load forces on the body.

Fall-Arrest System - A system specifically designed to secure, suspend, or assist in retrieving a worker in or from a hazardous work area. A fall-arrest system does not prevent a fall, but rather minimizes the fall distance to prevent or reduce injury. The basic components of a fall-arrest system include an anchorage, anchorage connector, lanyard, shock absorber, harness, and self-locking snap hook.

Fall Elimination - A process for eliminating fall hazards during all phases of work at heights, including access and egress. Examples of fall prevention measures include using complete scaffolds, aerial lifts, and secured ladders.

Full-Body Harness System - A full-body harness system consists of a full-body harness, lanyard, energy shock absorber, and self-locking snap hook.

Harness (Full-body) - A device with straps that can be attached to a fall-arrest system. The straps are fastened around a person's body to contain the torso and distribute fall-arrest forces over at least the upper thighs, pelvis, chest and shoulders.

Horizontal Lifelines - allow horizontal movement while providing protection against falls, provided the equipment is properly installed and used. A horizontal lifeline may serve a mobile fixed point for the attachment of lanyards, lifelines, or retractable lifelines.

Lanyard - A flexible line that secures a person wearing a harness to an anchorage, anchorage connector, lifeline, or dropline. A lanyard must have a nominal breaking strength of 5,000 pounds (2,270 kilograms).

Lifeline - A flexible vertical or horizontal line, secured to an anchorage or between two anchorages, to which a lanyard or harness may be attached.

A **catenary lifeline** is a lifeline used in a horizontal position that is secured between two anchorages.

Positioning Device System - Equipment that allows a person to work with both hands free while standing in such a way that a fall could result. Positioning device systems are often used on framework construction and concrete rebar placement.

Retractable Lifeline - A fall-arrest device that allows free travel without slack rope but locks instantly when a fall begins.

Rope Grabs (Fall-Arrester) - Automatic lifeline devices that act by inertia to grab the lifeline if a fall occurs.

4.6.3.0 SYSTEMATIC APPROACH TO CONTINUOUS FALL PROTECTION

CPC must achieve fall prevention through eliminating fall hazards, minimizing fall exposure, and controlling falls. Eliminating fall hazards is the most desirable of these three, but it is also the most difficult. If fall hazards cannot be entirely eliminated, potential falls must be controlled by using-fall arrest systems. Take a three-step systematic approach to protecting employees from falls.

4.6.3.1 Eliminate Fall Hazards - The first step in this approach is to assess carefully the workplace and the work itself in the earliest engineering and planning stages of the project. The objective is to eliminate all fall hazards. This assessment of the site and the work not only helps eliminate hazards, but also identifies alternative approaches to the work that can measurable enhance productivity.

Addressing fall protection in the early phases of a project means that safety can be designed into the work process, not added as an after thought to an inherently unsafe work procedure. For example, the project can be designed so that the anchorages for securing fall-arrest systems can be provided at strategic locations throughout the plant, thus improving safety and lowering costs.

4.6.3.2 Minimize Fall Exposure - The second step in continuous fall protection also requires assessing the workplace and work processes. If fall hazards cannot be completely eliminated during the first step, try to prevent falls by improving the workplace. Avoid relying on a worker's behavior or fall-arresting equipment to prevent injuries. Early installation of stairs, guardrails, barriers, and travel restriction systems can ensure a safe work environment. Establish proper workplace positioning and help eliminate the fall.

4.6.3.3 Use the Proper Fall-Arrest Equipment - The third step, the last line of defense against falls, is to use fall-arrest equipment. Use fall-arrest equipment, however, ONLY after determining that potential falls cannot be eliminated by changing work procedures or the workplace. Equipment such as harnesses, lanyards, shock absorbers, fall arresters, lifelines, anchorages, and safety nets can reduce the risk of injury if a fall occurs. Carefully assess the workplace and work processes to select the most appropriate equipment and to install and use it correctly.

4.6.4.0 PREPARING WRITTEN FALL-PROTECTION PLANS

4.6.4.1 Prepare fall-protection plans for elevated work if fall hazards exist.

4.6.4.2 If there are any fall hazards, the JSA should reflect the need for fall protection PPE.

4.6.5.0 TRAINING EMPLOYEES

4.6.5.1 CPC has provided a training program for all employees who will be exposed to fall hazards.

4.6.5.2 Personnel must be trained to (1) recognize the hazards of falling from heights and (2) to avoid falls to lower levels through holes or openings in walking/working surfaces and walls. Training programs shall include prevention, control, and fall-arrest systems.

4.6.5.3 Contractors shall ensure that appropriate fall-arrest systems are installed and that employees know how to use them before beginning any work that requires fall control.

4.6.6.0 ELIMINATING FALL HAZARDS AND PREVENTING FALLS

When planning work at heights, CPC shall, as a minimum:

4.6.6.1 Prior to each phase of work, site supervision is responsible for planning fall prevention and fall protection measures to protect employees from fall exposures. They can recommend appropriate fall-protection measures and equipment.

4.6.6.2 Prepare written fall-protection and rescue plans. Especially when roofing, constructing cooling towers, erecting steel structures, or erecting/fabricating tanks and boilers.

4.6.6.3 Require installation of permanent stairs and handrails simultaneous with the steel structure, improving access and egress.

4.6.6.4 Make sure that temporary perimeter protection is effective. Pre-drill holes or weld cable support brackets before erection, during fabrication or while steel is still on the ground

4.6.6.5 Designing holes and/or attachments points for temporary guardrails systems, stanchions, and self retracting lifelines that can be attached on the ground and provide protection for the first person to access elevation.

4.6.6.6 Provide work platforms for cable tray installation and wire pulling, if over 6’

4.6.6.7 Use complete scaffolds and aerial lifts to provide safe work platforms.

4.6.6.8 Construct and install hole covers immediately after creating the holes**.**

4.6.7.0 CONTROLLING FALLS

4.6.7.1 When fall hazards cannot be eliminated, a fall arrest system must be used to control falls.

4.6.7.2 Full-Body Harness Systems

Before using the full-body harness system, the supervisor and/or the user must address the following questions:

4.6.7.2.1 Has user been trained to recognize fall hazards and to use fall-arrest systems properly?

4.6.7.2.2 Are all components of the system compatible according to the manufacturer's instructions?

4.6.7.2.3 Have appropriate anchorage points and attachments been reviewed?

4.6.7.2.4 Will the lanyard be secured to an anchorage point above waist level?

4.6.7.2.5 Has the free-fall distance been considered so that a worker will not strike a lower surface or object before the fall is arrested?

4.6.7.2.6 Have pendulum-swing fall hazards been eliminated?

4.6.7.2.7 Site management must ensure that personnel can be promptly rescued or self-rescue themselves, should a fall occur.

4.6.7.2.8 Has the full-body harness and all its components been inspected both before each use and on a bi-annually basis to determine the general appearance and condition of the sewn connections, rivets, buckles, D-rings, hooks, latches, lanyards and straps for damage such as cuts, broken threads, rotting, burns, etc., and equipped with the metal inspection tag?

4.6.7.2.9 Is any of the equipment, including lanyards, connectors, and lifelines, subject to such problems as welding damage? Chemical corrosion, or sandblasts?

4.6.7.3 Lifeline Installation

4.6.7.3.1 Horizontal and vertical lifelines must be designed and installed only by competent persons.

4.6.7.3.2 A horizontal lifeline must be of wire rope 3/8 -inch in diameter, or its equivalent, and it must be capable of supporting a minimum dead weight of 5,000 pounds (2,270 kilograms) per person.

4.6.7.3.3 No more than one person is allowed to tie-off to a vertical lifeline. A vertical lifeline must have a minimum breaking strength of 5,000 pounds (2,270 kilograms).

4.6.7.3.4 A retractable lifeline shall be used by only one person at a time.

- A properly inspected and maintained retractable lifeline, when correctly installed and used within the fall-arrest system, automatically stops a person's descent in a short distance after the onset of an accidental fall.

- Consider using retractable lifelines when working in areas such as on roofs and scaffolds, or in tanks, towers, vessels, and manholes. Also, consider using retractable lifelines when climbing such equipment as vertical fixed ladders and telescoping derricks.
- Before using a retractable lifeline, the supervisor and/or the user must address the following questions:

  → Has the user been trained to use a retractable lifeline correctly?
  → Is the retractable lifeline being used in conjunction with a complete fall-arrest system?

4.6.8.0 LADDER SAFETY

4.6.8.1 Portable ladders used for access to an elevation to perform a single task do not require retractable lifelines. However, the supervisor and/or the user must address and comply with the following:

4.6.8.1.1 Each user shall be trained to recognize fall hazards, to use fall-arrest systems properly, and to use portable ladders correctly.

4.6.8.1.2 Personnel climbing ladders which are not yet tied off at the top must have another person hold the ladder at the bottom until it can be secured. This includes the last person down after untying the ladder at the top.

4.6.8.1.3 Upon climbing to the elevation where the task is to be performed, the person on the ladder shall properly secure their lanyard before performing any other task. Never secure the lanyard to a portable ladder. Next, the ladder must be tied off before beginning work. Last, when the task is complete, the process is reversed with the lanyard being the last safety device released prior to descent.

4.6.8.1.4 Do not carry anything that will prevent holding on with both hands. Use a hand-line, ½ inch or greater in diameter, to raise and lower tools and equipment.

4.6.9.0 FORMS (See Section 13.0)

- **Form 3** Daily Inspection Checklist
- **Form 4** Monthly Inspection Checklist

4.7 CRANES

4.7.1.0 SCOPE

This procedure establishes guidelines for inspecting and safely operating cranes, including tower cranes and boom trucks. It also outlines the qualifications for crane operators and describes how to assemble and remove lattice booms.

4.7.2.0 DEFINITIONS

Anti-two-blocking Device - An attachment to a crane that prevents the load block or hook assembly from being drawing tightly to the boom point.
Boom Angle - The angle above true horizontal of a line drawn through the boom hinge pin and the center-line of the shaft of the main boom tip sheave.
Operating Radius - The horizontal distance from the axis of rotation to the center of gravity of the freely suspended load.
Qualified Inspector - An experienced craftsperson or engineer, acceptable to the CPC who has demonstrated his or her ability or competency to inspect equipment.
Qualified Signalperson - A person who is proficient in the use of hand signals for a specific crane.

4.7.3.0 INSPECTION

4.7.3.1 A qualified inspector must inspect all cranes prior to their use on site and at least quarterly thereafter.

4.7.3.2 In addition, all cranes must be inspected annually by an independent agency per the Cal-OSHA Regulations.

4.7.3.3 If a crane is removed from site and then returned it shall be re-inspected prior to its use on site.

4.7.3.4 Crane operators must inspect all controls and safety devices each day before beginning work. If any of the controls do not operate properly, they must be repaired before the crane is operated.

4.7.3.5 Before using any crane, the operator must also visually inspect the work location for any unsafe conditions. Unsafe conditions must be reported to supervision and shall be corrected before the crane work is begun.

4.7.3.6 All mechanical and control repairs made to a crane must be performed according to the manufacturers recommendations and approvals.

4.7.3.7 When a mobile crane is relocated from one point to another within a site, the crane set-up in the new location will be inspected by a Qualified Person before the crane is operated. The person should have documentation to verify they have the proper experience for checking the set up. A crane operator certification will meet the requirement.

4.7.4.0 ENVIRONMENTAL CONSIDERATIONS

4.7.4.1 Hydraulic systems must be maintained to prevent leakage.

4.7.4.2 All moving equipment will have containment placed under it when it is not in use, in case of spillage.

4.7.4.3 If a leak or spill occurs in a hydraulic system, the spill must be cleaned up immediately in accordance with governmental regulations.

4.7.5.0 OPERATOR QUALIFICATIONS

4.7.5.1 All operators must meet the NCCCO certification or equivalent for the crane they will operate.

4.7.5.2 Copies of the above documentation must be retained on site

4.7.5.3 Project Safety Manager must review proof of qualification to each operator.

4.7.5.4 Operators must have this proof of qualification with them at all times while operating that equipment.

4.7.6.0 EQUIPMENT REQUIREMENTS

4.7.6.1 Every crane must be equipped with a legible, durable load chart that shows the manufacturer's recommended load configurations and maximum load weights. The chart must be securely attached to the cab and easily visible to operators when they are seated at the control station.

4.7.6.2 A class BC fire extinguisher (of a minimum size of 5 pounds, 2.3 kilograms) must be kept in the crane's cab.

4.7.6.3 Cranes shall be equipped with an anti-two-blocking device. On cranes that are completely hydraulic-driven, the anti-two-blocking device shall function to shut down the mechanical operation of the crane when activated. On cranes that are friction-driven, the anti-two-blocking device may be of the warning type.
NOTE: All cranes, regardless of type, that are used to suspend work platforms must be equipped with anti-two-blocking devices that shut down the mechanical operation of the crane when activated.

4.7.6.4 Every crane should be provided with a means by which the operator can determine current wind speed.

4.7.6.4.1 An anemometer will be available for assessing wind speed. NOTE: Building-mounted instrumentation may not provide reliable wind speed indication for lattice boom cranes, especially those exceeding 150 feet of boom length.

4.7.6.5 Tower Cranes - Plus these additional requirements:

4.7.6.5.1 A safe means of access and egress, including a continuous fall protection system.

4.7.6.5.2 A hook limit-switch that causes the hoist drum to stop when the load hook reaches maximum height.

4.7.6.5.3 Overload-limit switches that cause the hoist drum to stop when the load being hoisted exceeds the maximum rated load for a given radius or jib angle or when the overturning moment exceeds the rated load moment.

4.7.6.5.4 An anemometer mounted on the mast tip to measure wind speed.

4.7.7.0 OPERATION

A crane operator must always observe the following minimum safety precautions:

4.7.7.1 Maintain continuous contact, either visual or vocal, with a qualified signalperson. (If for any reason that contact is lost, the crane operator must stop all operations until full contact is restored).

4.7.7.2 Store items such as tool, lubrication cans, and waste materials in a toolbox. (Do not leave any loose items in cab)

4.7.7.3 Be constantly alert to the effects of dynamic loading when swinging, hoisting, and lowering the load or when moving the crane.

4.7.7.4 Prior to moving a crane into an area, evaluate soil conditions for crane stability and the possibility of damage to the underground facilities or injury to personnel.

4.7.7.5 Make sure the hoist line is vertical and plumb at all times.

4.7.7.6 Barricade the swing radius of the counterweight.

4.7.7.7 Know the radius of the load at all times.

4.7.7.8 Make sure the crane hooks' safety latches are in good working order and are used properly.

4.7.7.9 Follow the manufacturer's instructions for entering and exiting the cab. The only acceptable alternative is using a straight ladder that has been affixed to the crane.

4.7.7.10 Seat belts shall be worn by operators when seated at the controls.

4.7.7.11 Under normal circumstances, telescoping boom cranes must be retracted and lowered when not in use. Unless lattice-boom cranes can safely be left unattended to weather vane, the booms should be pointed downwind
according to the prevailing wind direction with the load block or headache ball lowered to grade and tied off to restrict weather-vaning.

4.7.7.12 Do not operate cranes when sustained wind speeds (as measured by the mast tip anemometer) exceed 35 mph, or less as specified by the manufacturer.

4.7.7.13 Do not operate cranes when wind gusts exceed 35 mph, as measured by the mast tip anemometer, or less as specified by the manufacture.

4.7.7.14 Tower cranes - must be free to weather-vane when winds exceed 40 mph (64 kph).

4.7.7.15.1 In addition, under these wind speed conditions, the hoist trolley must be positioned at minimum radius and the hook raised to its highest position.

4.7.7.15 Lower booms when storms or winds exceed the limits in the manufacturer's recommendations.

4.7.7.16 Use tag lines to control load at all times.

4.7.7.16.1 The tag line shall be long enough to keep people out from underneath the load.

4.7.7.17 Make sure the crane is level to within 1% of grade before operations begin.

4.7.7.18 Make sure that when the crane is loading or unloading trucks, the truck's cab is unoccupied.

4.7.7.19 Do not leave the controls when the load is suspended.

4.7.7.20 Make sure that no one works, or walks under a suspended crane load, and that no one rides the ball or load.

4.7.7.21 Do not allow anyone else on the crane when it is in use.

4.7.7.22 Keep the loading/unloading areas clear of personnel.

4.7.7.23 Keep the swing path clear.

4.7.7.24 Follow the manufacturer's recommendations for maximum allowable loads and maximum loads and maximum boom lengths.

4.7.7.25 Make sure that the equipment is shut down and a fire extinguisher (minimum acceptable is a 5# BC) is available during refueling.

4.7.7.26 When moving a tracked crane, make sure that everyone not directly participating in the move stays far enough away from the base of the crane to avoid contact with moving parts or with pieces thrown out by the tracks.

4.7.8.0 PICK AND CARRY LOADS

If it becomes necessary to operate using pick and carry techniques:

4.7.8.1 Use rough terrain cranes or crawlers.

4.7.8.2 Observe the following minimum safety precautions:

4.7.8.2.1 Use the load chart designated for "on rubber".

4.7.8.2.2 Investigate the route to locate solid and level ground.

4.7.8.2.3 Restrict travel speeds to maintain control of the load.

4.7.8.2.4 Tie the load to the frame of the crane, if practical.

4.7.8.2.5 A tag line or lines is required to control all loads. Under no circumstances should anyone touch the load or wrap tag lines around any part of his or her body.

4.7.8.2.6 Be constantly alert for the effects of the dynamic loading created when moving a crane with a load.

4.7.9.0 CHANGING LATTICE BOOMS

4.7.9.1 Always follow the manufacturer's instructions and recommendations when assembling, changing or removing lattice booms.

4.7.9.2 Minimum requirements for assembling or removing a lattice boom include the following:

4.7.9.2.1 Visually inspect each section of boom for bent lacing and chords, cracked or broken welds, fatigue cracking, or heavily rusted areas.

4.7.9.2.2 Inspect the boom hoist drum for proper cable alignment after any slack rope conditions.

4.7.9.2.3 Inspect the boom to make sure all pins and cotter pins are properly installed.

4.7.9.3 Use a ladder to access the top of the boom.

4.7.9.4 When doing any work from the top of the boom, like removing pins, work from a minimum of two scaffold boards that have been fastened across the top of the boom near the pins.

4.7.9.5 Use continuous fall protection, such as a safety harness and tie-off, while on top of the boom.
Note: It is recommended that rotating elevated work platforms (e.g. JLG lifts) be used when performing work on lattice booms, rather than standing on top of the booms to do the work.

4.7.9.6 Follow the manufacturer's recommendations for lifting cantilevered boom sections

4.7.9.7 No lifting should be done “over” high voltage power lines (220V or greater) regardless of distance.

4.7.9.8 Workers are not allowed under the boom when removing pins.

4.7.10.0 <u>FORMS</u> (See Section 13.0)

- **Form 12** Incoming Crane Inspection Checklist
- **Form 13** Daily Crane Inspection Report (Front)
- **Form 13** Monthly Crane Inspection Report (Back)
- **Form 14** Lifting Plan Worksheet
- **Form 15** Critical Lift Plan
- **Form 16** Critical Lift Permit
- **Form 17** Critical Lift Load Calculation (Reference Only)
- **Form 18** Pre-Lift Checklist
- **Form 19** Annual (By Crane Subcontractor)
- **Form 20** Quad Annual(By Crane Subcontractor)
- **Form 21** Crane Suspended Platform Checklist
- **Form 22** Crane Suspended Platform Permit

4.8 CRANE SUSPENDED WORK PLATFORMS

4.8.1.0 SCOPE

This procedure establishes guidelines for the use of Crane-Suspended Work Platforms. The use of Crane Suspended Work Platforms will not be allowed without the approval of Site Safety Manager,

4.8.2.0 DEFINITIONS

Basket – Another term for a crane-suspended work platform.
Controlled Load Lowering - A system or device on the power train of a crane, other than the load hoist brake, that regulates the lowering speed of the hoist mechanism.
Live Boom – A boom in which the lowering of the boom is controlled by a brake, without aid from other lowering-retarding devices.
Qualified Inspector - An experienced craftsperson or engineer, who has demonstrated his or her ability or competency to inspect equipment.
Two-blocking - The condition in which the load block or hook assembly is drawn tight to the boom point.

4.8.3.0 GENERAL

4.8.3.1 Do not use crane-suspended work platforms to hoist or suspend employees except as a last resort in unique work situations.

4.8.3.2 Use suspended work platforms only if their use results in the least hazardous exposure to employees.

4.8.4.0 RESPONSIBILITIES

4.8.4.1 Site Safety Manager shall develop and implement a program for control and authorization of Crane-Suspended Work Platforms, if required.

4.8.4.2 Site Safety Manager or designee must approve using a crane-suspended work platform and document that other, less-hazardous methods of access are not available or practical.

4.8.4.3 Documentation must be retained on site that verifies that the requirements, such as lift capacity information, outlined in this procedures have been met.

4.8.5.0 DESIGNING AND CONSTRUCTING A PLATFORM

A crane-suspended work platform must have the following minimum safety features.

4.8.5.1 An access gate that swings inward and is equipped with a positive latch.

4.8.5.2 A grab rail around the entire perimeter.

4.8.5.3 The capability of supporting its own weight and at least five times its maximum intended load.

4.8.5.4 An enclosed top that is high enough to allow workers to stand upright, protects them from overhead hazards, and inhibits them from climbing out.

4.8.5.5 Perimeter protection consisting of a top rail approximately 42 inches (1 meter) high, a toe plate at least 4 inches (10 centimeters) high, and a midrail located approximately halfway between the two.

4.8.5.6 The personnel basket must have a guardrail system meeting OSHA requirements and shall be enclosed from the toe board to at least the midrail with either solid material or expanded metal having openings no greater than ½ inch.

4.8.5.7 Provisions for tying off body harness lanyards inside the protected perimeter.

4.8.5.8 A rigid suspension system that minimizes tipping when personnel move. The capacity of suspension systems that use four or more legs must be based on any three of the load-bearing legs.

4.8.5.9 A conspicuous plate or other permanent marking that shows the weight of the empty platform and its rated capacity.

4.8.6.0 RIGGING A PLATFORM

When rigging a platform to a crane, observe the following minimum safety precautions:

4.8.6.1 Attach the platform to a block or hook, not directly to the loadline.

4.8.6.2 Attach a wire rope sling (safety line), capable of supporting the weight of the platform and occupants, from the load line just above the "headache" ball to the eye of the lifting lug on top of the platform. The sling design should include shock load.

4.8.6.3 Use hooks that can be closed and locked (locking hooks or safety latches) for "headache" ball assemblies, lower-load blocks, and other attachment assemblies. These latches eliminate the hook throat opening.

4.8.6.4 When a wire rope bridle connects the platform to the load hook, connect the bridle to the master link or shackle so that the load is evenly divided among the bridle legs.

4.8.6.5 Make sure the wire rope, shackles, rings, master links, and other rigging hardware are capable of supporting at least five times their maximum intended loads.

4.8.6.6 Do not use wire rope clips, wedge sockets, knots, or chains.

4.8.6.7 Slings shall be manufacturer certified and inspected prior to being used.

4.8.6.8 Make sure all eyes in wire rope slings are made with thimbles.

4.8.6.9 Rigging and work platforms used for hoisting personnel shall not be used for any other purpose.

4.8.7.0 TRIAL LIFTS, PROOF TESTS, AND INSPECTIONS

4.8.7.1 Immediately before placing personnel in a platform (at the beginning of a new shift or for the first time at a new location), the operator must perform a trial lift of the unoccupied platform to each location to which the platform will be hoisted and positioned.

4.8.7.2 In addition, before hoisting personnel on the platform, the operator must proof test the platform to 125 percent of its rated capacity by holding it, with the test load evenly distributed on the platform, in a suspended position for two minutes at each location to which the platform will be hoisted. Be sure to follow the intended lift route. (This testing can be done concurrent with the trial lift.)

4.8.7.3 During the trial lift, the operator must determine that all systems, controls, and safety devices are activated and functioning properly, that no interferences exist, and that the equipment can remain under the 50-percent limit of the crane's rated capacity in all configurations necessary to reach the work locations.

4.8.7.4 If any deficiencies are detected, they must be corrected, and then another test performed. Personnel may not be hoisted until the testing requirements are satisfied.

4.8.7.5 A trial lift must be performed after each repositioning of the crane and prior to hoisting personnel.

4.8.7.5.1 Whenever the crane is moved to a new location,

4.8.7.5.2 Whenever the crane is returned to a previous location,

4.8.7.5.3 Each time the lift route is changed, and

4.8.7.5.4 At the beginning of each new shift.

4.8.7.6 Just before hoisting personnel, the platform must be hoisted just a few inches and a qualified inspector must ensure that it is secure and properly balanced. He or she must visually inspect the crane, rigging, personnel platform, and the crane base support or ground to determine if the trail lift has exposed any defect or produced any adverse effect on any component or structure

4.8.7.7 The operator shall make sure the following conditions exist before hoisting any employees on a platform:

4.8.7.7.1 The hoist lines must be free of kinks.

4.8.7.7.2 Multiple-part lines must not be twisted around each other.

4.8.7.7.3 The primary attachment must be centered over the platform.

4.8.7.7.4 All hoist lines must be properly seated on drums and in sheaves.

4.8.8.0 PRE-LIFT MEETING AND PERMITTING

4.8.8.1 Before each trial lift, the crane operator, the signal person(s) (if needed for the lift), personnel to be lifted, and any other personnel responsible for the task, including supervision, must meet to review the requirements of this procedure.

4.8.8.1.1 They must also meet each time new personnel are assigned to the operation.

4.8.8.2 Site Safety Manager shall develop a permit for using crane-suspended work platforms that identifies necessary authorizations and minimum safety requirements.

4.8.9.0 LOADING A PLATFORM

Observe the following minimum safety precautions when loading platforms:

4.8.9.1 Do not load the platform in excess of its rated load capacity.

4.8.9.2 Secure materials and equipment on the platform, making sure their weight is evenly distributed.

4.8.9.3 Load the platform only with the personnel, tools and material required to perform the task.

4.8.9.4 Do not use personnel platforms as material-hoisting platforms.

4.8.10.0 SIGNALING AND COMMUNICATIONS

4.8.10.1 The signalman must be either in the platform or in a position so that he or she can always see the platform and communicate with the operator.

4.8.10.2 If visual hand signals are not possible, other means of positive communication must be used.

4.8.11.0 WORKING IN THE PLATFORM

Personnel working crane-suspended work platforms must observe the following minimum safety precautions:

4.8.11.1 Except over water, always use a body harness system with the lanyard attached to the platform.

4.8.11.2 Wear appropriate PPE.

4.8.11.3 Remain in the platform to work.

4.8.11.4 Never stand on or work from the top rail, midrail, or toe plate.

4.8.11.5 Allow only the number of people in the platform that are needed from the work and that the platform design permits.

4.8.11.6 Keep all extremities within the platform when it is being raised, lowered, or positioned.

4.8.12.0 INSPECTING THE CRANE

4.8.12.1 The operator must inspect the crane immediately before a platform is suspended and at least once daily while the machine is being used to support a platform.

4.8.12.2 The inspection must include a careful review of the wire rope, hook, brakes, boom, and other mechanical and rigging equipment vital to the safety of the operation.

4.8.12.3 Any structural or functional defect that could adversely affect safety must be corrected before a platform can be used.

4.8.12.4 A crane must meet the following minimum safety criteria:

4.8.12.4.1 It must not have a live boom.

4.8.12.4.2 The load line must have controlled load lowering and automatic brakes. The free-fall option must not be used with suspended work platforms.

4.8.12.4.3 A crane with a telescoping boom must be equipment with a device that indicates clearly to the operator, at all times, the boom's extended length. Alternately, the operator must accurately determine the load radius before hoisting personnel on the platform.

4.8.12.4.4 The total weight of the loaded platform and related rigging must not exceed 50 percent of the rated capacity for the radius and configuration of the crane.

4.8.12.4.5 The crane must be uniformly level within one percent of level grade and must be located on firm footing.

4.8.12.4.6 The crane must have a positive-acting device (anti-two-blocking device) that prevents contact between the load block or "headache" ball and the boom tip, boom extension, or jib; or the crane must have a system that deactivates the hoisting action before damage occurs in the event of a two-blocking situation.

4.8.13.0 OPERATING A CRANE

4.8.13.1 The operator of a crane with a suspended work platform must demonstrate his or her ability to operate the crane (see also “Cranes”).

4.8.13.2 In addition, the crane operator must observe the following minimum safety precautions:

4.8.13.2.1 Hoist the platform slowly and cautiously, with no sudden movements or the crane or platform.

4.8.13.2.2 Remain at the controls at all times when the personnel are in the platform.

4.8.13.2.3 Make sure the crane is uniformly level within one percent of level grade and located on firm footing.

4.8.13.2.4 Set and level cranes equipped with outriggers so that the beams and jacks are fully extended with the floats on a stable bearing.

4.8.13.2.5 Ensure that tag lines are always used.

4.8.13.2.6 Never permit the crane to travel when personnel are in a suspended platform.

4.8.13.2.7 Make sure load and boom hoist drum brakes, swing brakes, and locking devices such as pawls or dogs are engaged when the platform has been hoisted to a working position.

4.8.13.2.8 Do not use work platforms in winds that exceed 20 mph (32 kph), electrical storms, snow, ice, sleet, or other adverse weather conditions that could affect the safety of the personnel.

4.8.13.2.9 When personnel are suspended on a platform from one of a cranes loadlines, do not use another loadline from the crane for lifting.

4.8.13.0 CONTINGENCY PLANS

Contingency plans should be addressed at the pre-lift meeting.

4.8.14.0 FORMS(See Section 13.0)

- **Form 21** Crane Suspended Platform Checklist
- **Form 22** Crane Suspended Platform Permit

4.9 CRITICAL LIFTS

4.9.1.0 SCOPE

This procedure outlines the specific planning and execution requirements for lifting critical loads.

4.9.20 DEFINITIONS

"Live process equipment" means equipment that is operating or any non-operating equipment containing liquids and/or gases associated with the process.
"**Proximity**" means any distance within the radius of the combined length of the crane boom and length of the load fully extended horizontally.

4.9.3.0 GENERAL

4.9.3.1 Contractor shall prepare a Critical Lift Plan prior to any lift listed below. The plan shall be available for client review..

4.9.3.2 This Critical Lift Plan will be in possession of the responsible supervisor, or his/her designee.

4.9.4.0 REQUIRED CRITICAL LIFT PLANS

4.9.4.1 Critical Lift Plans are required for all lifts with a mobile crane, where one or more of the following conditions are present:

Level II

4.9.4.1.1 The weight of the item to be lifted exceeds 60,000 pounds and;

4.9.4.1.2 The total load to be lifted exceeds 85% of the chart for the lift configuration of the crane;

OR

Level III

4.9.4.1.3 Requires the use of more than one crane or derrick;

4.9.4.1.4 The total load to be lifted exceeds 85% of the chart for the lift configuration of the crane;

4.9.4.1.5 Any other lift that is deemed as a "critical lift" by Site Safety Manager.

4.9.4.1.6 Engineered lift stamped by California PE structural engineer is required for Type A cranes if gross weight is greater than 90% crane capacity, and Type B crane if gross weight is greater than 97% crane capacity and if the jib is used and the gross weight is greater than 90% crane capacity (Type A cranes are defined as Hydro and Rubber Tires, Type B cranes are defined as Crawlers and lattices).

4.9.4.1.7 Critical lift should be required for 2 or more cranes being used for a single lift..

4.9.4.1.8 The owner will be given the opportunity to review the Critical Lift Plan.

4.9.5.0 ENGINEERED CRITICAL LIFT PLAN COMPONENTS

The Engineered Critical Lift Plan shall include, as a minimum, the following:

4.9.5.1 A completed Engineered Project Critical Lift Permit. See Attachment 1 & 2.

4.9.5.2 An *Elevation View* showing:

4.9.5.2.1 The make and model of the crane with boom, boom length, radius and crane capacity for the configuration used.

4.9.5.2.2 Rigging accessory information to identify and show capacity of sling, shackles, spreader beams, blocks, etc.

4.9.5.2.3 Tabulation of weights of all items that constitute load on the crane boom, lifted load, load lines, load blocks, spreaders, slings, shackles, jib, headache ball, etc.

4.9.5.2.4 Lifted equipment information to include weight, height, diameter, point of support, center of gravity and degree of dress-out.

4.9.5.2.5 Calculation of tailing load.
- A horizontal loading diagram will be drawn to show the initial tailing crane load on the elevation view.
- The equipment center of gravity is to be obtained from the vendor.

4.9.5.2.6 Any obstructions or interferences to the lift from existing equipment, structure, etc.

4.9.5.2.7 Details of the supporting mats or foundation under the lifting crane and tailing crane with notation indication of the bearing capacity of the sub soil and the calculated applied load.

4.9.5.2.8 Ratio of the lifted load of each crane's chart capacity as configured.

4.9.5.2.9 Crane boom to load clearances.

4.9.5.3 The *Plan View* should show, on an overlay of the area plot plan:

4.9.5.3.1 The lift and tailing crane location at the beginning of the lift, any travel and the final location.

4.9.5.3.2 Initial horizontal position of equipment to be lifted.

4.9.5.3.3 Layout and specifics for all required matting.

Note: Crane mats are required whenever the crane outrigger or crawler tracks soil bearing pressure exceeds 2,000 pound/square foot (lb/ft^2).

4.9.5.3.4 The plot layout should show any existing area and any new construction that will be in place when the lift occurs.

4.9.5.3.5 Special note should be made of any underground lines or if the lift will pass over any operating condition, i.e.: pipe rack, equipment, tank, electrical, building, etc.

4.9.5.3.6 Special note should be made if any portion of the lifting configuration will, at any time during the lift, pass within ten (10) feet of any exposed live electrical component.

4.9.5.3.7 The area under the boom's arc that shall be "off-limits" to all personnel not associated with the lift.

4.9.5.4 Attachments to the rigging study should include any item that will make the review more efficient and complete. Required items are:

4.9.5.4.1 Equipment weight information from the Equipment Manufacturer.

4.9.5.4.2 Equipment weight verification - this can be either scale weight tickets or independently calculated weight.

4.9.5.4.3 Cut sheets from the Crane Vendor's capacity chart indicating the appropriate configuration.

4.9.5.4.4 Cut sheets from the manufacturer of the rigging attachments showing capacity and weight.

4.9.5.4.5 Outrigger or crawler track soil bearing pressure chart or calculations.

4.9.6.0 REVIEW MEETINGS

At the option of CPC, a formal rigging review meeting may be scheduled. As a minimum, this meeting shall be attended by CPC site representative, NRG representative, and, where appropriate, the rigging engineer and superintendent for the Heavy Lift Subcontractor.

4.9.7.0 REVIEW REQUIREMENT

No critical lift may proceed without a Critical Lift Permit signed and accepted by CPC Representative.

4.9.8.0 FORMS (See Section 13.0)

- **Form 15** Critical Lift Plan
- **Form 16** Critical Lift Permit
- **Form 17** Critical Lift Load Calculation (Reference Only)

4.10 ELECTRICAL SAFETY

4.10.1.0 PURPOSE

All personnel who work with electricity, electrical conductors and associated equipment are to understand safe work practices relative to their job assignment. Refer to the Lockout/Tagout section for additional information on electrical safety.

4.10.2.0 GENERAL ELECTRICAL SAFETY

Employee Exposure to energized electrical equipment.

4.10.3.0 DE-ENERGIZATION OF ELECTRICITY

- Live electricity and associated live equipment on which an employee may be exposed during work shall be de-energized prior to work. Exceptions are allowed only when de-energizing the electricity introduces additional or increased hazards, or it is infeasible due to design or operational limitations.

- Only qualified employees (electricians) with adequate training and additional personal protective equipment will be permitted to work on or near exposed energized conductors or equipment. “Near” is defined as working within a cabinet, enclosure, or barricaded area inside of which there are exposed energized conductors or within six feet of exposed energized conductors. Documentation of Qualified Electrical Worker (QEW) training will be required on site.

4.10.4.0 WORKING ON ENERGIZED CONDUCTORS

- All work on or near energized equipment requires a written safety plan issued by the contractor’s electrical superintendent and safety representative.

- Only qualified employees may work on or near energized conductors. Unqualified employees (inexperienced, untrained employees, helpers) are not to work on or near exposed energized conductors.

- If exposed energized conductors cannot be de-energized, other safe work practices are to be used to protect exposed employees. This will include grounding, insulation, isolation and additional PPE.

- The Lockout/Tagout program is to be adhered to at all times. Conductors not locked and tagged out are to be treated and worked as energized.

- Overhead Lines- If work is to be performed near overhead lines, the lines are to be de-energized and grounded, or other protective measures taken. Protective measures include grounding, isolating and insulating to prevent employees from contacting overhead lines directly with any part of their body or indirectly through conductive materials, tools, or equipment.

- Mechanical equipment and vehicles- Any vehicle or mechanical equipment capable of having parts of its structure near overhead lines is to be operated to assure a minimum 10 foot clearance. Exceptions to the standard are to be coordinated with the Site Safety Manager.

- Employees may not enter areas with exposed energized conductors unless adequate lighting is provided.

- Portable ladders, when used in an area with exposed energized conductors shall have non conductive side rails.

- Employees are not to perform housekeeping duties close to exposed energized conductors unless specific safe work practices have been implemented to prevent employee contact with the hazard.

Electrical safety interlocks are only to be bypassed by a qualified person with written authorization from their project manager, and then only temporarily while the qualified employee is working on the equipment. The interlock system is to be returned to the operable safe condition when the work is complete.

4.10.5.0 TRAINING

Contractors are required to instruct employees that working on energized conductors is not to be permitted, unless de-energizing introduces a greater hazard than working on the energized conductors. In some cases de-energizing may be infeasible due to design or operational limitations.

If employees must work on or near energized conductors, training by the contractor will include safe work practices to be used to protect the employee from exposure to the electrical hazards. Only trained, qualified employees are to work on or near energized electrical conductors.

Training for employees shall include:

- Lockout/Tagout Program
- Personal Protective Equipment specific to electrical exposure
- Insulating and shielding equipment and tools.
- Approach limits to overhead lines.
- Safety related work practices, including approach limits to exposed energized conductors and potential hazards due to missing of damaged equipment grounding conductors.
- How to identify energized equipment from non-energized equipment using indicators such as panel mounted switches, meters and indicating lights as well as position of operating mechanism handles.
- Determination of nominal voltages and the location of their sources.

Training is also to be job specific, identifying actual potential exposures on the jobsites and methods of exposure prevention and protection. This training is to be documented.

4.10.6.0 ELECTRICAL POWER AND LIGHTING CIRCUITRY

- Load rated switches, circuit breakers and other equipment specifically designed as a means of disconnection is to be used for opening, reversing, or closing circuits under load.

- When a circuit is tripped and de-energized, the cause of the circuit tripping is to be determined prior to energization.

- Over current protection of circuits is not to be modified.

4.10.7.0 SAFEGUARDS AND PERSONAL PROTECTION

- Employees working in areas where there is a potential exposure to electrical hazards must be qualified and shall use tools, handling equipment and additional personal protective equipment.

- Protective equipment is to be maintained in a safe, reliable condition and inspected prior to each use. Certain specific insulating and isolating equipment, such as hot gloves and insulating blankets, must be dielectrically tested to industry regulation and Regulatory standards.

- The following is a list of some common protective devices and equipment, the number and kinds of which will depend on the requirements of each case,

    - Insulating wearing apparel such as rubber gloves, rubber sleeves and headgear.
    - Insulating shields, covers, mats and platforms
    - Insulated tools for handling or testing energized equipment or lines
    - Protective goggles or face shields
    - Employees at work tags, portable danger signs, traffic cones and flashers
    - Line workers body belts, lanyards, and positioning straps
    - Fire extinguishing equipment designed for safe use on energized parts
    - Protective grounding materials and devices
    - Portable lighting equipment

- All Protective devices and equipment shall be inspected or tested to ensure that they are in safe working condition.

4.10.8.0 SIGNS AND BARRICADES

- Employees are to be alerted to electrical hazards by the use of signs and tags. In locations where it is necessary to prevent or limit employee access to work area, barricades are to be used.

4.10.9.0 FORMS (See Section 13.0)

- **Form 3** Daily Inspection Checklist
- **Form 4** Monthly Checklist

4.11 ENERGY ISOLATION PROCEDURE

4.11.1.0 SCOPE

4.11.1.1 This Procedure outlines the minimum requirements for locking, tagging, testing, and clearing equipment and systems to allow work without injuring employees or damaging property.

4.11.1.2 OSHA Lockout/Tagout (LOTO) devices and procedures are used to prevent the unexpected release of energy or hazardous substances while installing, repairing, maintaining, or servicing equipment. The intent is to control potentially hazardous energy sources to assure the safety and health of persons when they are servicing or performing maintenance on machines or equipment in which the unexpected energizing or start-up of the machines or equipment, or release of stored energy could cause injury.

4.11.1.3 The key LOTO principle is that a worker must maintain individual control over the energy isolation devices affecting a process or equipment that the worker is performing maintenance, etc. on.

4.11.1.4 This procedure shall apply to all company and contractor personnel working on construction sites.

4.11.2.0 DEFINITIONS

Affected Employee – A person whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

Authorized Employee – A person who affixes his/her lock or tag, per this LOTO procedure, on machines or equipment so that construction, servicing or maintenance on that machine or equipment may be performed by him/her. An "authorized person" and an "affected person" may be the same person when the affected person's duties also include performing construction, maintenance or service on a machine or equipment which must be locked out or have a tagout system implemented.

Blind Flange – A solid flange manufactured according to the current issue of ANSI/ASME Standard B16.5. Blind flanges may require material matching the piping system or equipment base material. In some cases cCPCon steel blind flanges may be clad with the pipe or equipment base metal.

Craft Superintendent – The senior craft site representative who is responsible for all activity performed by the identified craft.

Slip Blind – A slip blind installed between two flanges. All slip blind must consider the following: the base material, the operating pressure and temperature, and the length of time the isolation blank will be required in service. CCPCon steel slip blinds may not be suitable for isolation in many cases.

Primary Authorized Person - The person who is accountable for the LOTO devices when other personnel are covered by a group lockout. This should be a person knowledgeable of the energy sources associated with the job to be performed. On construction sites, the General

Foreman/Superintendent (the person over multiple foremen) normally fills the role as "Primary Authorized Person."

Qualified Employee – One who is thoroughly knowledgeable in the construction and operation of specific equipment or a specific task and the hazards associated with that equipment or task. Employees and/or contractors who are hired as electricians will be considered "qualified" if they:

- have received the training required under California Code of RegulationsTitle 8, Section 3314
- have demonstrated that they understood and can apply the training, and

Energy Source **– Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, potential, or other energy.**

Lockout Device – A device that uses a positive means such as a lock, to hold an energy isolating device in a safe position and prevent the energizing of a machine or equipment, or the unexpected release of energy or chemicals.

Energy Isolation Device – A mechanical device that physically prevents the transmission or release of energy, such as a circuit breaker, valve, disconnect switch, blind flange, slip blind, cap or plug. Push buttons, selector switches, control circuits, and other control devices are not energy isolating devices.

Personal Lock – Lock specified as a lockout device that is keyed differently from any other lock. Each lock will have only one key. Both the key and lock will remain in the control of the authorized person performing the work while the lock is serving as a lockout device. Each lock shall have a unique identifying number placed on it and on its key. Only locks marked with the issuing organization's identification (e.g. Contractor's name, Contractor's logo) be used as a LOTO lock.

EXCEPTION: In certain specific applications, multiple locks set for only one key ("keyed alike") may be used. There can be only one key for the series. All locks in a "keyed alike" series shall be identified with the same identifying number.

Tagout - The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout Device - A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with a specific established procedure.

Energized - Connected to an energy source or containing residual or stored energy.

Group Lockout Box - A specially designed lockout box that accepts the application of multiple personal locks.

4.11.3.0 REQUIREMENTS FOR EMPLOYEES

4.11.3.1 CPC is responsible for the overall coordination of the LOTO program for his/her work.

4.11.3.2 CPC must ensure that the lockout is performed in accordance with the LOTO program and any specific equipment LOTO plan, and that no employees work beyond the protection of locks and tags.

4.11.3.3 Training – CPC shall establish a program for training its employees on how to lock, tag, and try according to this procedure (see Section 12 of this procedure). The training should include information about the types and degrees of hazards the employee will be exposed to at work.

4.11.3.3.1 CPC must maintain training records that include at least the trainee's name, date, and training content.

4.11.3.4 CPC shall audit their lockout procedures at least once per year for compliance with this procedure and modify their activities accordingly. (see Section 13 of this procedure)

4.11.4.0 GENERAL

4.11.4.1 Hazardous energy may exist as stored energy in several circumstances. Stored energy must be relieved prior to blocking and installing lockout devices. The energy generating mechanism must be defeated to remove the possibility of regeneration. Examples of stored energy are springs, elevated components, capacitors, contained pressure, and flywheels.
NOTE: Capacitors must be discharged, shorted, and grounded in addition to lockout of the source of energy *by a qualified person.*

4.11.4.2 Use lockout locks and LOTO danger tags only to prohibit operation of process and electrical equipment when personal injury or property damage could result from operation. LOTO Danger tags shall be used for no other purpose!

4.11.4.3 Devices with locks or LOTO Danger tags must NOT be operated.

4.11.4.4 Any person who operates a switch or other device that has a LOTO Danger tag and/or LOTO lock attached will be subject to removal from site.
EXCEPTION: The authorized person who attaches the LOTO lock and tag is allowed to "Try" the switch or device to verify that the energy isolation (LOTO) is effective.

4.11.4.5 Any device capable of being locked requires both a lock and a tag.

4.11.4.6 All new equipment used for energy isolation must be capable of accepting a lock to prevent operation of the disconnected device.

4.11.5.0 ENERGY ISOLATION PROCEDURE

4.11.5.1 Isolation

4.11.5.1.1 Process equipment/systems shall be shut down and prepared for mechanical work by the authorized person(s) who has the responsibility for operating that equipment. All energy sources must be identified and energy isolation devices installed.

4.11.5.1.2When work is to be performed inside of equipment such as cooling tower bays, fin-fan coolers, tanks with power mixers, filters, desalters, etc., the electrical circuit to the power equipment shall be verified by a properly trained employee to be de-energized at the breaker, a lock and tag shall be installed on the breaker. The properly trained employee's lock and tag shall stay on the breaker as long as the equipment stays out of service.

4.11.5.1.3After achieving isolation, the authorized persons in conjunction with the affected person who shut down the equipment/system shall install a locking device and tag (DO NOT OPERATE/DO NOT REMOVE) on each energy isolation device. Each locking device shall be recorded in the energy isolation logbook (Attachment 2). In the event a blind, cap, or plug, etc is used as the isolation device and the addition of a lockout device is not possible, the authorized person(s) shall attach a personal numbered tag and record the "tagout" in the energy isolation logbook.

4.11.5.1.4Isolation shall be verified by means such as opening of bleeder valves inside the isolation points and/or trying of local start/stop stations on electrical systems.

4.11.5.1.5When work is to be performed on electrical equipment that has no provisions to accept a lock, the circuit shall be physically disconnected at the breaker and a (DO NOT OPERATE/DO NOT REMOVE) tag shall be securely affixed and shall remain until the circuit is reconnected.

4.11.5.2 <u>Application of Lockout/Tagout Devices</u>

4.11.5.2.1The authorized person must identify the energy sources associated with and the isolation devices/techniques required to achieve isolation for his/her job.

4.11.5.2.2Before starting work on isolated equipment/systems, each authorized person shall install his/her personal lock and/or tag ("DO NOT OPERATE / DO NOT REMOVE", signed and dated) on each isolation device or lockout device that pertains to his/her job. The authorized employee shall:

- Date and sign every tag he/she uses, showing his/her employee identification number and (if applicable) Contractor Company name.
- Securely attach the tag to the equipment LOTO device.
- State the reason for the lockout in the comment section of the tag.
- Protect the tag if it is located where weather or chemicals might damage it. (The tag must remain legible and must remain in place through the duration of the lockout.)

4.11.5.2.3The authorized person must document each LOTO lockout or tagout device (tagout when used with blinds, caps, plugs, etc.) in the isolation logbook. For larger jobs, the isolation logbook may be supplemented by marking the location of the isolation devices on a P&ID.

4.11.5.2.4Prior to starting any work on the equipment/system, the authorized person(s) shall verify that isolation and de-energization has been accomplished.

4.11.5.2.5 The locks and tags which an authorized person installs shall stay in place for the duration of that job or until that authorized person is removed from that job, at which time the authorized person shall remove only the locks and tags that he/she installed.

4.11.5.2.6 If the job extends beyond a single shift, the authorized person must verify that LOTO is in place and effective at the beginning of each shift.

4.11.5.2.6.1 If work is to continue into another shift and involves the employment of another authorized person, the lock of the new authorized person must be on before removing the lock of the relieved authorized person.

4.11.5.2.6.2 As an alternative, an authorized person may transfer ownership of a lock to the relief worker. This is done by:

1. The relieved authorized person signs the lock "back in" without removing the lock from the locked-out equipment.
2. The new authorized person immediately signs the lock "out".
3. The relieved authorized person personally gives the key to the new authorized person.
4. Both authorized persons go to the lock together where the relieved authorized person removes (Single line drawn through name) his/her name from the lockout tag and the new authorized person puts his/her name on the lockout tag.

4.11.5.2.7 No one may install or remove another authorized person's lock or tag. If for any reason an authorized person's lock or tag must be removed in his/her absence, the procedure outlined in 4.11.7.0 (EMERGENCY LOTO REMOVAL) shall be followed.

4.11.5.3 Release From LOTO

4.11.5.3.1 Each authorized person shall remove only the lockout\tagout devices which he/she installed, and document its removal in the isolation logbook.

4.11.5.3.2 An affected person may not remove any lockout/tagout devices. The only exception is for a group lockout. See section 4.11.6.3.1

4.11.6.0 GROUP LOCKOUT/TAGOUT (COMPLEX LOTO)

Elements – The Group LOTO Plan (complex lockout procedure) must include all of the following:

- Manager/Director approval of the specific energy isolation plan (for contracted operations, this would be the Contractor's top site management (or designee))
- Names of those persons responsible for coordinating the overall lockout (primary authorized employee)
- A written, complete lockout plan identifying each lockout point for each specific unit and piece of equipment
- The opportunity for each employee to observe the lockout and agree or disagree with the lockout strategy
- Measure to control locks and keys
- A system to account for all personnel at the beginning and the end of shifts

- Joint removal of the locks when the work is complete.

4.11.6.1 Isolation For Group LOTO

If more than one person is working on the same job, a group LOTO system can be used instead of each individual placing a personal lock or tag on each isolation device. Isolation requirements would be the same as section 5.1.1 through 5.1.5.

4.11.6.2 Application of Group Lockout/Tagout Devices

4.11.6.2.1 Before work is started on isolated equipment/systems, a designated PRIMARY AUTHORIZED PERSON must identify the energy sources associated with the job and the isolation devices/techniques required to achieve isolation for that job.

4.11.6.2.2 The Primary Authorized Person shall install a lock and tag (DO NOT OPERATE / DO NOT REMOVE), signed and dated, on each isolation device needed to perform the job safely. For non-lockable isolation devices, a special two-part group lockout tag shall be used instead of the standard DO NOT OPERATE / DO NOT REMOVE tag. Both parts of this tag will be printed with the same unique identifying number. The Primary Authorized Person must document each LOTO lockout or tagout device in the isolation logbook. An operator should be made available to help locate all isolation points. LOTO locks already installed on isolation devices by an authorized person may be transferred to the Primary Authorized Person. (Don't forget to make the proper entries in the isolation logbook and on the tags when making transfers).

4.11.6.2.3 The Primary Authorized Person must verify that isolation and de-energization has been accomplished. The Primary Authorized Person then puts the keys to all of the locks and the bottom portion of any special group lockout tags pertaining to the job into a "group lockout box". The Primary Authorized Person then attaches a generic tag to identify the lockout box with the job. If the Primary Authorized Person will be doing work on the "group" lockout system, then he/she must also apply his/her personal lock to the group box in addition to the box's identifying tag.

4.11.6.2.4 Prior to starting any work on the equipment/system, each authorized person must apply his/her own personal LOTO lock to the "group lockout box". Each authorized person must maintain personal control over all of the lockout devices. Each authorized person is encouraged to personally verify that isolation and de-energization has been accomplished. Each authorized person must remove his/her lock from the "group lockout box" after finishing his/her job. If the job is not completed at the end of a shift, the authorized person may:

1. Elect to leave the lock on if he/she intends to finish the job on a subsequent day.

2. Transfer his/her personal lock to a "relief" authorized person.

3. Remove the personal lock if he/she will not be returning to complete the job. (Another authorized person will complete the job on another shift.)

4.11.6.3 Release From Group LOTO

4.11.6.3.1 After verification that the job was completed and all personal locks have been removed from the "group lockout box", the Primary Authorized Person and/or the affected person operating the unit may then remove all of the LOTO locks and tags from the isolation devices and document the removal in the isolation log book.

4.11.7.0 EMERGENCY LOTO REMOVAL

4.11.7.1 Authorization

4.11.7.1.1 Locks left on past the specified time period or left unattended after shift change may be cut off in the event of an emergency. Such removal shall require that the operation's director and at least two people knowledgeable in the operation of the equipment be present during the removal (for electrical equipment, this requires at least one person be a "qualified person"). The operation's director shall personally cut the lock. If the lock to be cut belongs to a Contractor's employee, the Contractor's HS representative and the Company's HS representative must agree to the removal before the Contractor's Job Superintendent may cut the lock. (Note: two appropriate craftspersons are required to witness and concur with the lock removal).

4.11.7.1.2 The lock must be cut off and returned to the authorized person who applied the lock. "Notification of Removal" forms shall be posted both at the isolation device where the lock was removed and at the work area protected by the isolation device. A name and phone number to contact must be listed on each posting. (This will usually be the name and phone number of the person cutting the lock.) An entry shall be made in the isolation logbook that the lock was cut off. E.g. Entry = "Cut" by ...

4.11.7.1.3 The "Notification" shall not be removed until the authorized person has been made aware of the lock removal and has initialed the notification. If a permit was issued in conjunction with the lockout, all persons listed on the permit must be made aware of the lock removal and initial the Notification. Only the person who cut the lock may remove the notification forms. The removed notification form is then sent to the appropriate manager (for Construction, this is the CPC Project Manager or his designee). "Notification of Removal" forms are available in the safety department.

4.11.7.1.4 An authorized person may cut off his/her own personal lock if he/she loses the key. The appropriate manager shall be notified of the removal. As in 7.1.2, an entry shall be made in the isolation logbook that the lock was cut off.

4.11.8.0 LOCKOUT/TAGOUT EQUIPMENT

4.11.8.1 Each construction site shall provide a system for having lockout and tag out devices available for the work expected to be performed in that area.

4.11.8.2 Locks and tags used for the purpose of LOTO shall not be used for other purposes.

4.11.8.3 Locks shall be individually keyed, marked LOTO and have only one key available for each lock.

4.11.8.4 Locks shall be one brand of the same size and shape. Locks shall be sequentially numbered without the numbers being repeated. An adequate supply of locks will be maintained in each area.

4.11.8.5 Tags shall be common to the Energy Lockout/Tagout system and shall be of the same print, format, and material and capable of being dated and signed by the installer. Tags shall be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.

4.11.8.6 Special tags shall be used with non-lockable isolation devices. The tag will be of two-part construction, with the same unique number printed on each part.

4.11.8.7 Tags that have been written on shall not be reused. Destroy them after removing them from the lock and/or equipment.

4.11.8.8 Energy Isolation Logbooks shall be commonly formatted and applied uniformly throughout the organization.

4.11.8.9 Blinds used for isolating process lines (streams) shall be individually marked and identified so that they may be recorded in the Energy Isolation Logbook. Identification should be such that it is obvious which part of the operation (or which Contractor) placed the blind.

4.11.9.0 **ELECTRICAL HAZARDS**

Because of the special hazards involved with electrical equipment, the LOTO of any electrical equipment or electrically operated equipment shall involve the participation of a "qualified employee" to ensure isolation of the electrical energy prior to any other crafts proceeding with attaching their LOTO devices and locks in order to begin work.

4.11.9.1 During lockout of electrical systems, exposed personnel must wear appropriate PPE.

4.11.9.2 The lockout of electrical equipment includes the following steps:

4.11.9.2.1 The system or equipment is de-energized and is verified by or demonstrated to the qualified employee, who places his or her tag. NOTE: Lockout procedures for non-electrical hazards may be completed by an authorized employee rather than the qualified employee.

4.11.9.2.2 The qualified employee who is exposed to potential electrical hazards verifies the accuracy of the shutdown by reviewing drawings, identifying labels, and/or visually tracing the power

supply. At this time, the qualified employee must be particularly alert to circuit interlocks.

4.11.9.2.3 Wearing the appropriate flash and electrical shock PPE, the qualified employee opens the door or cover and immediately tests for voltage.
NOTE: The voltage tester must be a single-function device. Proper operation of the voltage tester must be verified on a known source, both before and after the tests.

4.11.9.2.4 The qualified employee must visually observe a physical break in the power conductors. If a visible gap is not observed, the qualified employee must create a physical break by removing the fuses or removing and taping the power conductors.
NOTE: Circuits must be tested "dead" prior to pulling fuses or disconnecting wiring.

4.11.9.2.5 The person responsible for operating the equipment (or qualified employee) tries the system. When working in a remote location, the qualified employee must verify absence of voltage at the remote location.
NOTE: The system may contain back feeds or interlocks. The lockout plan must anticipate this.

4.11.9.2.6 The qualified employee places his or her lock and tag.

4.11.9.2.7 The other mechanics place their locks and tags, as appropriate, and work proceeds as planned.

4.11.9.2.8 When the work is completed, locks and tags are removed in reverse order with the qualified employee removing his or her lock before returning the equipment to service.

4.11.9.3 Electrical equipment such as 120-volt lighting panels and similar equipment must be locked as well as tagged. Some manufacturers currently do not make locking components in this class of equipment. In such instances, when available from the manufacturer or by site fabrication, a locking mechanism shall be installed.

4.11.9.3.1 When a locking mechanism is not available, danger tags shall be clearly and firmly attached to the disconnecting device.

4.11.9.3.2 It is not acceptable to lock the door of the panel.

4.11.10.0 CONSTRUCTION / MAINTENANCE LOTO OF IN-SERVICE PIPING SYSTEMS

The lockout of in-service piping equipment includes the following steps:

4.11.10.1 The system is drained and flushed (if required), locked and tagged by the operating group.

4.11.10.2. The Primary Authorized (construction/maintenance) Employee places his or her lock(s) and tag(s) as needed to isolate the process piping and initiates the Group Lockbox (see section 4.11.6.0).

4.11.10.3 Before construction/maintenance employees physically disconnect the process system or install blanks, the operating group makes the first break of the system to demonstrate that the system is decontaminated and not in service.

4.11.10.4 All construction/maintenance employees working on the system place their locks and tags on the group lockbox.

4.11.10.5 When work is complete, the Primary Authorized Employee verifies that the system is normalized and that all other authorized employees have removed their locks and tags from the lockbox and have cleared the area. Then the authorized employee may remove his or her lock and tag from the lockbox and prepare the unit to return to service by removing all lockout devices placed in step 2 (above).

4.11.10.6 The Primary Authorized Employee (Construction/Maintenance) then returns control of the piping system to operations.

4.11.10.7 The operating group returns the system to service.

4.11.11.0 LOCKOUT OF TEMPORARY CONSTRUCTION SYSTEMS – ELECTRICAL

4.11.11.1 Only qualified electricians may perform work on temporary construction power. A qualified employee verifies that the correct disconnecting device has been opened by reviewing drawings and identification and/or by visually tracing the power source.

4.11.11.2 The qualified employee dons the appropriate flash and electrical shock PPE for testing 600 volt class equipment and opens the door to the disconnect supplying power to the identified unit.

4.11.11.3 The qualified employee immediately tests for voltage. The volt tester must be a single function device that has been verified on a known source before and after the tests are conducted.

4.11.11.4 The qualified employee must visually observe a physical break in the power conductors. If unable to observe a visible gap, the fuses are pulled or disconnected and the power conductors taped.
NOTE: Circuits must be tested "dead" prior to pulling fuses or disconnecting wiring.

4.11.11.5 The qualified employee places his or her lock and tag. Other employees place their locks and tags as appropriate

4.11.11.6 The person responsible for operating the equipment (or qualified employee) tries the system by operating the control devices, paying particular attention to any potential interlock circuits. Interlocks must be satisfied when trying equipment.

4.11.11.7 When the work is completed, locks and tags are removed in reverse order with the qualified employee removing his or her lock before returning the equipment to service.

4.11.12.0 TRAINING

4.11.12.1 Prior to doing any work and where LOTO is to be used, initial training will be provided to enable persons to understand the purpose and use of the OSHA LOCKOUT/TAGOUT PROCEDURE.

4.11.12.2 Retraining shall be provided for all authorized and affected persons whenever there is:

- a change in their job assignments
- a change in machines, equipment, or processes that present a new hazard
- a change in the ENERGY LOCKOUT/TAGOUT PROCEDURE
- an inspection that reveals deviations
- when management has reason to believe that there are inadequacies in the person's knowledge or use of the ENERGY LOCKOUT/TAGOUT PROCEDURE.

4.11.12.3 Annual training will be conducted to ensure that persons involved with ENERGY LOCKOUT/TAGOUT are familiar with their responsibilities.

4.11.13.0 AUDITING AND INSPECTIONS

Authorized\affected persons shall perform periodic audits at least annually to ensure that this energy control procedure continues to be implemented properly and that the persons involved are familiar with their responsibilities under this procedure. The audit must be documented using the periodic lockout audit form (see Attachment 1) or its equivalent.

4.11.14.0 FORMS (See Section 13.0)

- **Form 23** Periodic Lockout/Tag-Out Inspection Form
- **Form 24** Lock Removal Notification Form
- **Form 25** Lockout/Tag-Out Log
- **Form 26** Lockout/Tag-Out Index Sheet
- **Form 27** Lockout/Tag-Out Audit Sheet
- **Form 28** Lockout/Tag-Out Additional Tags
- **Form 29** Lockout/Tag-Out Sign-On Sheet

4.12 FIRE EXTINGUISHERS

4.12.1.0 SCOPE

4.12.1.1 This procedure outlines the minimum requirements for selecting, placing and inspecting portable fire extinguishers for protection during construction operations.

4.12.1.2 This procedure does not cover fire extinguishers installed as part of the finished project.

4.12.2.0 DEFINITIONS

This procedure contains no unique definitions.

4.12.3.0 REQUIREMENTS

4.12.3.1 CPC shall plan for and supply adequate fire extinguishers for all work areas, spaces, floors, locations where flammable materials are being stored, and buildings where burning, welding, cutting or open-flame equipment is used or where smoking is allowed.

4.12.3.2 Each welder, burner, or operator of open-flame equipment shall have an individual fire extinguisher within 50 feet.

4.12.3.3 Fire extinguishers for work on scaffolds shall be readily available to the workers.

4.12.3.4 Fire extinguishers are also required for fueling operations.

4.12.3.5 Each piece of motorized equipment shall be equipped with a fire extinguisher.

4.12.3.6 All flammable materials will be stored in flammable material storage cabinets located in a designated area.

4.12.4.0 INSPECTION

4.12.4.1 Fire extinguishers must be routinely inspected at least monthly by a competent person. Each extinguisher must have a durable tag securely attached, showing the date of the last thorough inspection, maintenance or recharge date and the initials or signature of the person who performs this service.

4.12.4.2 Employees using fire extinguishers must ensure the marking system remains legible between inspections.

4.12.4.3 Fire extinguishers with illegible marking systems shall be considered unsafe and shall be removed from service.

4.12.5.0 TRAINING

4.12.5.1 CPC shall train employees in the proper use of fire extinguishers.

4.12.5.2 All fire watch personnel shall be provided with training for the fire extinguishers they might be expected to use. Training may consist of a video, lecture and demonstration, documentation of training shall be verified by CPC

4.12.6.0 FORMS (See Section 13.0)

- **Form 4** Monthly Checklist

4.13 FLAMMABLE AND HAZARDOUS STORAGE

4.13.1.0 SCOPE

This procedure provides guidelines for storage of flammable and hazardous materials. It is intended to parallel the requirements of NFPA and CAL OSHA TITLE 8.

4.13.2.0 DEFINITIONS

Flash Point – The minimum temperature of a liquid at which it gives off vapors sufficient to form an ignitable mixture with the air near the surface of the liquid.

Flammable Liquid - A fluid with a flash point below 100 degrees F (37.8 C.).

Combustible Liquid - A fluid with a flash point at or above 100 degrees F (37.8 C.).

Hazardous Material - (As defined by DOT 49 CCR Title 8 sections 5192 -5194) Any material appearing on the DOT tables and requiring classification and placarding for transport.

Portable Tank - Tanks with a capacity of 60-600 gallons or more not intended for fixed installation.

4.13.3.0 CLASSIFICATION OF MATERIALS

The "class" of a liquid defines both its storage and handling requirements.

4.13.3.1 **NFPA designates flammable liquids as Class I and further categorized them as follows:**

Class IA - Flash point below 73 degrees F (22.8 C.),
Boiling point below 100 degrees F (37.8 C.);

Class IB - Flash point below 73 degrees F (22.8 C.),
Boiling point at or above 100 degrees F (37.8 C.);

Class IC - Flash point at or above 73 degrees F (22.8 C.), and below 100 degrees F (37.8 C.);

4.13.3.2 **NFPA designates combustible liquids as either:**

Class II - Flash point at or above 100 degrees F (37.8 C) and below 140 degrees F (60 C.); or

Class III - Flash point at or above 140 degrees F (60 C.).

4.13.4.0 SDS INFORMATION

4.13.4.1 The Physical Data section of the SDS will show vapor density (heavier or lighter than air, indicating rising or settling vapors), volatility and evaporation rates.

4.13.4.2 The Fire and Explosions Data Section notes the Upper Explosive Limit (UEL) and the Lower Explosive Limit (LEL), between which points the danger of explosion is real. Flash point information will also help define the flammability and combustibility classification.

4.13.5.0 LABELING

4.13.5.1 All containers holding liquids must be marked with the contents.

4.13.5.2 Labeling shall comply with US-OSHA Hazards Communication Standard unless superseded by local law or regulation.

4.13.6.0 STORAGE OF CONTAINERS

No more than 25 gallons of flammable or combustible liquid will be stored in a room outside of an approved storage cabinet.

4.13.6.1 Inside Storage

Storage of flammable or combustible liquids inside structures under construction (includes structures completed but not yet turned over to the owner) is prohibited.

4.13.6.2 Trailer Storage

4.13.6.2.1 Since most coatings and many other flammable materials emit vapors heavier than air, forced or gravity ventilation is required to remove vapors. The ventilation exhausts should be placed near the floor level at each end of the trailer.

4.13.6.2.2 All aerosols should be stored in a closed metal industrial-type cabinet separated from other flammable liquids since these can explode and spread a fire.

4.13.6.2.3 At least one multipurpose dry chemical hand-held portable fire extinguisher (20 lb) must be placed outside the trailer door.

4.13.6.2.4 Such storage trailers should be located at least 50 feet (15.2 meters) from any important building or property line.

4.13.6.2.5 If electrical lines, receptacles, switches, lighting, etc., are installed in such trailers, they must be rated for Class I Division 1 service.

4.13.6.2.6 Electrical installations and devices within ten feet of the exhaust ventilation discharge from a flammable/combustible liquids storage area must be rated for Class 1 Division 1 service.

4.13.6.2.7 Electrical installations and devices within ten feet of openings in the trailer wall shall be rated for at least Class 1 Division 2 service.

4.13.6.2.8 Placarding or warning signs must be posted on the side of the trailer. All storage areas must be conspicuously marked inside and out with signs: "Flammable--Keep Away--No Smoking";

4.13.6.2.9 The entire storage area shall be kept free from accumulation of unnecessary combustible materials. Weeds and grass shall be kept down and a regular cleanup procedure provided for the inside and outside areas.

4.13.6.3 Outside Storage

4.13.6.3.1 All aerosols should be stored in a closed metal industrial-type cabinet separated from other flammable liquids since these can explode and spread a fire.

4.13.6.3.2 At least one multipurpose dry chemical hand-held portable fire extinguisher (20 lb) must be located no closer than 25 feet and no further than 75 feet from any outside area where flammable materials are stored.

4.13.6.3.3 Such storage areas should be located at least 50 feet (15.2 meters) from any important building or property line;

4.13.6.3.4 A rain shield should be provided to eliminate the accumulation of rain water within the containment area;

4.13.6.3.5 Storage areas must be conspicuously marked inside and out with signs: "Flammable--Keep Away--No Smoking Within 50 Feet";

4.13.6.3.6 Outside flammable/combustible liquids storage areas and a strip ten feet wide around each storage area are designated as Class 1 Division 2 per NEC (NFPA-70).

4.13.6.3.7 The entire storage area shall be kept free from accumulation of unnecessary combustible materials. Weeds and grass shall be kept down and a regular cleanup procedure provided for the inside and outside areas.

4.13.7.0 PORTABLE TANK STORAGE

4.13.7.1 Portable Tanks used to store flammable or combustible liquids must be kept at least 25 feet (7.6 meters) from any building.

4.13.7.2 Tanks with a combined capacity in excess of 2,200 gallons must be separated by a 5-foot-clear (1.5 meter) area.

4.13.7.3 All portable tanks shall be provided with emergency venting.

4.13.7.4 The tanks(s) shall have a spill containment system of sufficient capacity to contain 110% of the total volume of the tank(s).

4.13.8.0 HANDLING OF FLAMMABLE AND COMBUSTIBLE MATERIALS

4.13.8.1 Drawing off such materials from a larger to a smaller container can generate static electricity. A bond must be established between the two, the larger container being always grounded.

4.13.8.1.1 Use #10 AWG two-wire cord or #6 Super-service welding cable with neoprene jacket and appropriate clamps for both bond and ground.

4.13.8.1.2 Screw clamps with sharp points are preferred to spring clamps, which can loose their ability to firmly contact the container over time.

4.13.8.1.3 Grounding shall be provided by using an 8'-long x 5/8" diameter copper rod driven vertically into the ground so that at least seven feet of the rod's length is buried. Alternate grounding methods that are equivalent to this copper rod are acceptable.

4.13.8.2 Due to the danger of static electricity buildup, plastic funnels, pails, etc., must not be used when pouring from one metal container to another. It is essential that the metal funnel be in direct contact with the bonded container.

4.13.8.3 Only an UL-listed metal safety can, complete with flame arrestor and self-closing spout, clearly labeled as to contents and flammability, may be used to transport flammable liquids onsite.

4.13.8.4 Consult the SDS to determine appropriate personal protective equipment (PPE - goggles, gloves, respirator, etc.) when dispensing liquids covered by this procedure.

4.13.9.0 FORMS (See Section 13.0)

- **Form 3** Daily Inspection Checklist

4.14 FORKLIFTS AND POWERED INDUSTRIAL TRUCKS

4.14.1.0 SCOPE AND APPLICATION

4.14.1.1 This procedure applies to all forklifts, tractors, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines. OSHA refers to these as "Powered Industrial Trucks" in its standard Title 8.

4.14.1.2 Where the term "forklift" is used in this procedure, it is to be understood to mean the broad range of powered industrial trucks.

4.14.2.0 PURPOSE

Forklifts are used in various locations on the site. These are used to handle heavy or bulky materials in the various operations. This procedure specifies the expectations around safe forklift operation.

4.14.3.0 OPERATOR QUALIFICATION AND CERTIFICATION

4.14.3.1 Only authorized operators are allowed to operate forklifts on this site.

4.14.3.2 All new forklift operators must attend the Basic Forklift Training course prior to operating a forklift. Each person will be tested on the forklift (Type and attachments) that they will be using.

4.14.3.3 A Forklift Operator's Card will be issued to the person upon successfully completing the training.

4.14.3.3.1 The Forklift Operator's Card will show which Type(s) of forklift and which Attachment(s) the person is certified to use in the work Areas.

4.14.3.3.2 The operator must carry his/her Forklift Operator's Card whenever operating a forklift.

4.14.4.0 TRAINING

4.14.4.1 Initial (Basic) Training

4.14.4.1.1 All employees who are expected to operate a forklift must first receive the appropriate training and become certified. Training will include both classroom and hands on operation of the forklift and attachments the operator will be using.

4.14.4.1.2 Trainees may only operate a forklift for training purposes under the direct supervision of the trainer and then only in an environment which does not endanger any employee.

- Forklift-related topics:
  - Operating instructions, warnings, and precautions for the type(s) of forklift(s) the operator will be authorized to operate;
  - Differences between the forklift and the automobile;

- Forklift controls and instrumentation: where they are located, what they do, and how they work;
- Engine or motor operation;
- Steering and maneuvering;
- Visibility (including restrictions due to loading);
- Fork and attachment adaptation, operation, and use limitations;
- Vehicle capacity;
- Vehicle stability;
- Any vehicle inspection and maintenance that the operator will be required to perform;
- Refueling and/or charging and recharging of batteries;
- Operating limitations;
- Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.

- Workplace-related topics:
  - Surface conditions where the vehicle will be operated;
  - Composition of loads to be carried and load stability;
  - Load manipulation, stacking, and unstacking;
  - Pedestrian traffic in areas where the vehicle will be operated;
  - Narrow aisles and other restricted places where the vehicle will be operated;
  - Hazardous (classified) locations where the vehicle will be operated;
  - Ramps and other sloped surfaces that could affect the vehicle's stability;
  - Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of cCPCon monoxide or diesel exhaust;
  - Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

- The requirements of the OSHA Forklift (Powered Industrial Trucks) standard CAL OSHA.

4.14.4.2 Refresher Training and Evaluation

4.14.4.2.1 An evaluation of each powered industrial forklift operator's performance shall be conducted at least once a year, by the employer.

4.14.4.2.2 Refresher training, including an evaluation of the effectiveness of that training shall be conducted as required below to ensure that each operator has the knowledge and skills needed to operate the forklift safely.

4.14.4.2.3 Refresher training in relevant topics shall be provided to the operator when:

The operator has been observed to operate the vehicle in an unsafe manner;

OR

The operator has been involved in an accident or near-miss incident;

OR

The operator has received an evaluation that reveals that the operator is not operating the forklift safely;

OR

The operator is assigned to drive a different type of forklift;

OR

A condition in the workplace changes in a manner that could affect safe operation of the forklift.

4.14.4.2.4 Upon successful demonstration of understanding of this training (written test) and successful demonstration of competence with the forklift (driving/handling test), The trainee will be issued a card authorizing him/her as an operator for the equipment upon which he/she has been trained and tested. The training will be good for 3 years from the date of training.

4.14.4.3 Training Coordination

Coordination of forklift training will be done through the Contractor's training system.

4.14.4.4 Training Records

Employer will be responsible for maintaining training records.

4.14.5.0 FORKLIFTS IN HAZARDOUS WORK AREAS

4.14.5.1 Forklifts used in areas where ignitable gases may be present will meet safety requirements for a hazardous area classification. As a general rule, these areas require equipment meeting Class 1 Division 2 Group B classification. (NOTE: In rare occasions, certain operations may require a more stringent classification. These operations will be marked at the perimeter of the higher-classified area. Contact the THE OWNER HS Resource for guidance around equipment in these special areas.)

4.14.5.2 The following forklift designations are appropriate for use in Class 1 Division 2 Group B areas;

GS **(gasoline powered)**
ES **(electric powered)**
LPS **(LP-gas powered)**
DS **(diesel powered)**

4.14.6.0 TYPES OF FORKLIFTS

4.14.6.1 Forklift operating details can change among the following "types" of forklifts. Separate certification is required for each type.

All terrain reach lifts
Straight mass forklift
GS **(gasoline powered)**
ES **(electric powered)**
LPS **(LP-gas powered)**
DS **(diesel powered)**

4.14.7.0 FORKLIFT ATTACHMENTS

4.14.7.1 Various forklift attachments are available. Some of these include: drum grabs; fork-mounted jib booms; fork-mounted hoisting hooks; etc.

4.14.7.2 Operator training and certification are required for each different attachment.

4.14.7.3 If attachments are needed, use manufacturer-supplied attachments.

4.14.7.4 Use only attachments that are engineered, designed, and manufactured for the specific forklift on which they are installed.

4.14.7.5 Use attachments only for their designed and intended purpose.

4.14.7.6 Certification documentation shall be kept on-site for all forklift attachments

4.14.8.0 LIGHTING

4.14.8.1 In areas where the general illumination may be less than 2 foot-candles (2 lumens per square foot), forklifts must be equipped with auxiliary directional lighting.

4.14.8.2 Forklifts routinely operated on roadways must be equipped with functional turn signals and brake lights.

4.14.9.0 SAFE OPERATING PROCEDURES

4.14.9.1 Forklift Operations – General

4.14.9.1.1 Forklifts shall not be driven up to anyone standing in front of a bench or other fixed object.

4.14.9.1.2 No person shall be allowed to stand or pass under the elevated portion of any forklift, whether loaded or empty.

4.14.9.1.3 Personnel (other than the operator) shall not be permitted to ride on forklifts.

4.14.9.1.4 Arms or legs shall not be placed between the uprights of the mast.

4.14.9.1.5 Arms or legs shall not be placed outside the running lines of the forklift.

4.14.9.1.6 Where seatbelts are provided, they shall be worn.

4.14.9.1.7 When a forklift is left unattended,

- load-engaging means shall be fully lowered
- controls shall be neutralized
- power shall be shut off, and
- parking brakes shall be set
- Wheels shall be blocked if the forklift is parked on an incline.

NOTE: A forklift is unattended when the operator is 25 ft. or more away from the vehicle, which remains in his view, or whenever the operator leaves the vehicle and it is not in his view.

NOTE: When the operator of a forklift is dismounted and within 25 ft. of the forklift still in his view, the load engaging means shall be fully lowered, controls neutralized, and the brakes set to prevent movement.

4.14.9.1.8 A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock, or platform or freight car.

4.14.9.1.9 Brakes shall be set and wheel blocks shall be in place to prevent movement of trailers or railroad cars while loading or unloading. Fixed jacks may be necessary to support a semi-trailer during loading or unloading when the trailer is not coupled to a tractor.

4.14.9.1.10 The flooring of forklifts, trailers, and railroad cars shall be checked for breaks and weakness before they are driven onto.

4.14.9.1.11 There shall be sufficient headroom under overhead installations, lights, pipes, sprinkler system, etc.

4.14.9.1.12 An overhead guard shall be used as protection against falling objects.

NOTE: An overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application, but not to withstand the impact of a falling capacity load.

4.14.9.1.13 A load backrest extension shall be used whenever necessary to minimize the possibility of the load or part of it from falling rearward.

4.14.9.1.14 Only approved forklifts shall be used in hazardous locations.

4.14.9.1.15 Whenever a forklift is equipped with vertical only, or vertical and horizontal controls elevatable with the lifting carriage/forks for lifting personnel, the following additional precautions shall be taken for the protection of personnel being elevated.

- Use a safety platform firmly secured to the lifting

carriage and/or forks.
- Provide protection from falling objects as indicated necessary by the operating conditions.

4.14.9.1.16 Fire aisles, access to stairways, and fire equipment shall be kept clear.

4.14.9.1.17 If at any time a forklift is found to be in need of repair, defective, or in any way unsafe, the forklift shall be taken out of service until it has been restored to safe operating condition.

4.14.9.1.18 No forklift shall be operated with a leak in the fuel system. The leak must be repaired before the truck is returned to service.

4.14.9.1.19 Open flames shall not be used for checking electrolyte level in storage batteries or gasoline level in fuel tanks.

4.14.9.1.20 Operate forklifts according to manufacturer's instructions.

4.14.9.1.21 Do not use forklifts to elevate or lift personnel, unless the precautions listed in 4.14.9.1.15 are taken.

4.14.9.1.22 Forklifts must be equipped with an automatic audible reverse signal alarm. Such signal alarms must have a sound pressure level of 112 dBA +/- 4 dBA at a distance of 10 feet from the truck.

4.14.9.2 Traveling

4.14.9.2.1 All traffic regulations shall be observed, including authorized plant speed limits.

4.14.9.2.2 A safe distance shall be maintained approximately three forklift lengths from the vehicle ahead.

4.14.9.2.3 The forklift shall be kept under control at all times.

4.14.9.2.4 The right of way shall be yielded to ambulances, fire trucks, or other vehicles in emergency situations.

4.14.9.2.5 Other forklifts traveling in the same direction at intersections, blind spots, or other dangerous locations shall not be passed.

4.14.9.2.6 The driver shall slow down and sound the horn at cross aisles and other locations where vision is obstructed.

4.14.9.2.7 If the load being carried obstructs forward view, the driver shall travel with the load trailing, or have a spotter within line of site.

4.14.9.2.8 Railroad tracks shall be crossed diagonally wherever possible.

4.14.9.2.9 Parking closer than 8 feet from the center of railroad tracks is prohibited.

4.14.9.2.10 The driver shall be required to look in the direction of, and keep a clear view of the path of travel.

- If view is obstructed, driver shall not move the truck until he/she has a spotter (second person) working with him/her.
- There shall be only one spotter per driver and only one driver per spotter.

4.14.9.2.11 Grades shall be ascended or descended slowly.

4.14.9.2.12 Never attempt to turn while ascending or descending grades unless the ramp itself turns.

4.14.9.2.13 When ascending or descending grades in excess of 5 percent, loaded forklifts shall be driven with the load upgrade.

4.14.9.2.14 On all grades the load and load engaging means shall be tilted back if applicable, and raised only as far as necessary to clear the road surface.

4.14.9.2.15 Under all travel conditions the forklift shall be operated at a speed that will permit it to be brought to a stop in a safe manner.

4.14.9.2.16 Under all travel conditions, the load shall be kept as low as possible, taking into consideration both road clearance and avoiding obstacles in the path of travel.

- If it is necessary to raise the load to avoid an obstacle, the load shall be lowered again as soon as the obstacle is cleared.

4.14.9.2.17 Avoid turning the truck when its load is raised more than a few inches (6" –12") above the ground.

- If it is necessary to turn the elevated load, be extremely slow and cautious in doing so, as it is very easy to tip over a truck with an elevated load.

4.14.9.2.18 Stunt driving and horseplay shall not be permitted.

4.14.9.2.19 The driver shall slow down for wet and slippery floors.

4.14.9.2.20 Dock board or bridge plates, shall be properly secured before they are driven over.

- Dock boards or bridge plates shall be driven over carefully and slowly.

4.14.9.2.21 The rated capacities of dock boards and bridge plates shall never be exceeded.

4.14.9.2.22 Elevators shall be approached slowly, and then entered squarely after the elevator car is properly leveled. Once on the elevator, the truck controls shall be neutralized, power shut off, and the brakes set.

4.14.9.2.23 Motorized hand (walk-behind) forklifts must enter elevators or other confined areas with load end forward.

4.14.9.2.24 Running over loose objects on the roadway surface shall be avoided.

4.14.9.2.25 While negotiating turns, speed shall be reduced to a safe level.

4.14.9.2.26 While negotiating turns, turn the steering wheel in a smooth, sweeping motion at a moderate, even rate.

4.14.9.3 Loading and Unloading

4.14.9.3.1 Only stable and securely arranged loads shall be handled. Caution shall be exercised when handling off-center loads that cannot be centered.

4.14.9.3.1.1 Off-center loads shall be cross-tied to the forks before lifting or traveling.

4.14.9.3.1.2 Some loads require securing (tying, banding or strapping down) before transport.

4.14.9.3.1.3 Compressed gas cylinders shall be supported in an approved rack for transport by forklift. Laying the cylinders horizontally across the forks for transport shall not be permitted.

4.14.9.3.2 Only loads within the rated capacity of the forklift shall be handled.

- Check the vehicle's nameplate for capacity information.

4.14.9.3.3 Long or high (including multiple-tiered) loads that may affect capacity shall be adjusted.

4.14.9.3.4 When fork adjustments become necessary to safely pick up a load, only trained/experienced personnel familiar with the equipment shall adjust the width of the forks.

4.14.9.3.5 Forklifts equipped with attachments shall be operated as partially loaded forklifts when not handling a load.

4.14.9.3.6 The forks shall be placed under the load as far as possible; the mast shall be carefully tilted backward to stabilize the load.

4.14.9.3.7 Extreme care shall be used when tilting the load forward or backward, particularly when high tiering. Tilting forward with the load engaging means elevated shall be prohibited except to pick up or deposit a load. An elevated load shall not be tilted forward except when the load is in a deposit position over a rack or stack. When stacking or tiering, only enough backward tilt to stabilize the load shall be used.

4.14.9.3.8 The brakes of highway trucks shall be set and wheel chocks placed under the rear wheels to prevent the trucks from rolling while they are boarded with forklifts.

4.14.9.3.9 Wheel stops or other recognized positive protection shall be provided to prevent railroad cars from moving during loading or unloading operations.

4.14.9.3.10 Fixed jacks may be necessary to support a semi-trailer and prevent upending during the loading or unloading when the trailer is not coupled to a tractor.

4.14.9.3.11 Positive protection shall be provided to prevent railroad cars from being moved while dock boards or bridge plates are in position.

4.14.9.3.12 Slings or other similar devices shall not be used to support loads directly from the forks.

4.14.10.0 FUELING AND RECHARGING

4.14.10.1 FUEL HANDLING AND STORAGE

4.14.10.1.1 The storage and handling of liquid fuels such as gasoline and diesel fuel shall be in accordance with NFPA Flammable and Combustible Liquids Code (NFPA 30).

4.14.10.1.2 The storage and handling of liquefied petroleum gas fuel shall be in accordance with NFPA Storage and Handling of Liquefied Petroleum Gases (NFPA 58).

4.14.10.1.3 Fuel tanks shall not be filled while the engine is running. Spillage shall be avoided.

4.14.11.0 MARKINGS AND LABELS

All Markings, Labels, and Nameplates shall be kept clean, in place, and easily readable.

4.14.12.0 MODIFICATIONS

Modifications or additions which affect capacity and safe operation of the forklift or attachments shall not be performed without the manufacturer's prior written approval. Capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly following the modification.

4.14.13.0 INSPECTIONS

4.14.13.1 **Forklifts will be inspected prior to use.**

4.14.13.1.1 Forklifts used for day-shift-only operations will be inspected before use on that day.

4.14.13.1.2 Forklifts used during shift operations will be inspected at the beginning of each shift prior to use.

4.14.13.1.3 A "Forklift Inspection Checklist" is provided as Attachment 1 of this procedure. This Checklist is to be used for the required "daily" inspections.

4.14.13.2 Documentation of inspection records must be kept. Retention is one (1) year. The person shown as being responsible for ("owning") the forklift should keep records. If it is a rental, the Safety Manager will be responsible for records.

4.14.13.3 A defective forklift shall be tagged out and reported to your supervisor. It shall not be used until it is repaired.

4.14.14.0 MAINTENANCE AND REPAIR

4.14.14.1 Preventative maintenance will be done on a routine basis per manufacture recommendations by either time duration (6 months) or for hours used.

4.14.14.2 All repairs will be coordinated through your supervisor.

4.14.14.3 The forklifts will be maintained per the manufacturer's recommendations.

4.14.14.4 Any forklift not in safe operating condition shall be removed from service.

4.14.14.5 **MAINTENANCE OF FORKLIFTS**

4.14.14.5.1 All repairs shall be made by authorized personnel.

4.14.14.5.2 Repairs shall be make in appropriate locations.

4.14.14.5.3 Those repairs to the fuel and ignition systems of forklifts that involve fire hazards shall be conducted only in locations designated for such repairs.

4.14.14.5.4 Forklifts in need of repairs to the electrical system shall have the battery disconnected prior to such repairs.

4.14.14.5.5 All parts of any forklift requiring replacement shall be replaced only by parts equivalent as to safety with those used in the original design.

4.14.14.5.6 Forklifts shall not be altered so that the relative positions of the various parts are different from what they were when originally received from the manufacturer.

4.14.14.5.7 Forklifts shall not be altered either by the addition of extra parts not provided by the manufacturer or by the elimination of any parts unless approved in writing by the manufacturer.

4.14.14.5.8 Additional counter weights on forklifts shall not be placed unless approved in writing by the forklift manufacturer.

4.14.14.5.9 When the temperature of any part of any forklift is found to be in excess of its normal operating temperature, thus creating a hazardous condition, the vehicle shall be removed from service and

not returned to service until the cause for such overheating has been eliminated.

4.14.14.5.10 Forklifts shall be kept in a clean condition, free of lint, excess oil, and grease. Noncombustible agents should be used for cleaning forklifts.

- Low flash point (below 100 deg. F.) solvents shall not be used.
  - High flash point (at or above 100 deg. F.) solvents may be used.
  - Precautions regarding toxicity, ventilation, and fire hazard shall be consonant with the agent or solvent used.

4.14.15.0 FORMS (See Section 13.0)

- **Form 5** Daily Equipment Checklist

4.15 GROUND FAULT CIRCUIT INTERRUPTERS

All temporary electrical equipment shall be equipped with a Ground Fault Circuit Interrupter (GFCI).

4.15.1.0 SCOPE

This Procedure provides guidelines for using ground fault circuit interrupters in 15- and 20-amp single phase circuits at construction sites.

4.15.2.0 DEFINITIONS

Ground Fault Circuit Interrupter - An electrical device that compares the amount of current flow between the supply and return conductors. When an imbalance of current flow is measured (by comparison) greater than the design intent, the device removes voltage from the tool.

4.15.3.0 EQUIPMENT

4.15.3.1 GFCIs function only on AC voltage. GFCI devices shall not be used on DC circuits.

4.15.3.2 Types of GFCIs

4.15.3.2.1 Receptacle type GFCIs protect only the receptacle and equipment plugged directly into the receptacle.

4.15.3.2.2 Panel circuit-breaker type GFCIs protect an entire circuit. They are installed in the circuit-breaker panel. Protected receptacles should be identified as protected by a GFCI.

4.15.3.2.3 Cord-connected type GFCIs contain several receptacles, each protected by a GFCI.

4.15.3.2.4 In-line GFCIs are molded into extension cords.

4.15.3.2.5 Plug-in model GFCIs can be inserted into normal receptacles, and they protect all equipment plugged into the device.

4.15.3.3 Any repair or modification to a GFCI must be performed by a trained electrician.

4.15.4.0 REQUIRED USE

4.15.4.1 Ground fault circuit protection must be used on all electrical systems, 120 volts receptacle outlets, extension cords and equipment connected by electrical cords and plugs.

4.15.4.2 Distribution panels supplied at the site should incorporate GFCIs for 120 volt usage.

4.15.4.3 GFCI is required for all portable tools for all construction activities.

4.15.4.4 GFCIs must be listed by Underwriters Laboratory (UL) and bear the UL mark or the mark of another government-approved agency.

4.15.4.5 GFCIs should be inserted in the circuit as close to the electrical source as practical.

4.15.4.6 Portable GFCIs should be kept weather proof to eliminate nuisance tripping of the circuit.

4.15.5.0 TESTING

4.15.5.1 All GFCIs have a test button. Every GFCI should be tested, using the test button, every time the GFCI is used.

4.15.6.0 FORMS (See Section 13.0)

- **Form 4** Monthly Inspection Checklist

4.16 HAND AND PORTABLE POWER TOOLS

4.16.1.0 SCOPE

This procedure establishes minimum guidelines necessary to ensure that these tools are serviceable, properly evaluated in accordance with manufacturer's instructions, and are safe for use.

4.16.2.0 DEFINITIONS

This procedure contains no unique definitions.

4.16.3.0 INSPECTION

4.16.3.1 Daily – Tools shall be inspected daily and prior to each use by the user to ensure that they are in proper working order. Damaged or defective tools must be tagged (do not use) and returned to the tool room immediately. Under no circumstances may tools or equipment in need of inspection or repair remain in service**.**

4.16.4.0 PERSONAL PROTECTIVE EQUIPMENT

4.16.4.1 When using tools listed below, each employee must use the additional personal protective equipment specified herein (refer also to "Personal Protective Equipment").

4.16.4.1.1 Jackhammer, Tampers
- Eye Protection
- Hearing Protection
- Face Protection
- Hand Protection
- Foot Protection including metatarsal guards
- Respiratory Protection – if needed

4.16.4.1.2 Chipping Hammers, Impact Wrenches, Reamers
- Eye Protection
- Face Protection
- Hearing Protection
- Hand Protection
- Respiratory Protection – if needed

4.16.4.1.3 Powder- Actuated Tools, Grinders
- Eye Protection
- Hearing Protection
- Face Protection
- Hand Protection
- Respiratory Protection – if needed

4.16.4.1.4 Cutting Torches, Arc Welders
- Eye Protection
- Hand Protection
- Face Protection
- Respiratory Protection – if needed

4.16.4.2 Close Proximity Rule – All employees working within 10 feet of an activity, which requires specific PPE shall also be required to wear that same PPE.

4.16.5.0 ELECTRICAL TOOLS

4.16.5.1 All portable electric tools must be grounded or double insulated.

4.16.5.2 All electric cords and cables must be covered or elevated to protect them from damage and to eliminate tripping hazards.

4.16.5.3 Power saws, grinders and other power tools must have proper guards in place at all times.

4.16.5.4 Power tools are always hoisted or lowered by a hand line, never by the cord or hose.

4.16.5.5 Cords and hoses must be kept out of walkways and off stairs and ladders. They must be placed so as not to create a tripping hazard for employees or to be subject to damage from equipment or materials.

4.16.5.6 Only qualified electricians shall repair the electrical components of construction tools and electrical equipment.

4.16.5.7 When not in use, electric tools shall be unplugged.

4.16.5.8 Protective guards shall not be removed or altered.

4.16.6.0 PNEUMATIC TOOLS

4.16.6.1 An approved safety cutoff valve (excess flow shut-off valve) must be installed at the manifold outlet of each supply line for hand-held pneumatic tools.

4.16.6.2 All Hose connections must be secured to the hose with factory-equivalent bands. "Radiator hose clamps" are not acceptable.

4.16.6.3 All pneumatic hose connections must be secured positively (safety wired or whip checks).

4.16.6.4 Defective air hoses shall be removed from service immediately, and shall not be returned to service until the defects have been properly repaired.

4.16.6.5 Safety clips or retainers must be installed on all pneumatic tools to prevent the accidental expulsion of the tool from the barrel.

4.16.6.6 Protective guards shall not be removed or altered.

4.16.7.0 POWDER-ACTUATED HAND TOOLS

Refer to "Powder-Actuated Hand Tools" for these requirements.

4.16.8.0 FUEL-POWERED TOOLS

4.16.8.1 All fuel-powered tools must be shut down while being refueled.

4.16.8.2 Smoking is prohibited during refueling operations. Other sources of ignition, such as burning and welding, also must be halted during refueling operations**.**

4.16.9.0 HAND TOOLS

4.16.9.1 Impact tools such as chisels, drift pins, and hammer wrenches with mushroomed striking surfaces shall be removed from service until the mushroomed surfaces can be dressed down.

4.16.9.2 Wooden handles of tools such as hammers, picks, etc., shall not be taped or covered in such a way as to hide damage or defects.

4.16.9.3 Cracked or damaged wooden handles of tools shall be replaced immediately upon discovery of the damage.

4.16.9.4 Hand tools shall be used only for its designed purpose**.**

4.16.10.0 OPERATING SAFETY

4.16.10.1 Work pieces shall be held with appropriate clamps, vices, etc. Work pieces shall not be held by hand while grinding, drilling, cutting, etc.

4.16.10.2 Field modifications, inconsistent with manufacturer's recommendations, to hand and portable power tools shall not be allowed.

4.16.11.0 FORMS (See Section 13.0)

- **Form 3** Daily Inspection Checklist
- **Form 4** Monthly Inspection Checklist

4.17 HAZARD COMMUNICATION PROGRAM

4.17.1.0 PURPOSE

This document serves as CPC's Hazard Communication Program. It provides detailed safety guidelines and instructions for receipt, use and storage of chemicals at the jobsite by personnel and subcontractors. The goal is to provide all affected personnel with the tools, knowledge and information necessary to protect themselves and co-workers from hazards encountered in the work place.

4.17.2.0 SCOPE

In general, personnel do not handle hazardous chemicals as part of their normal work routine; however, personnel work in facilities that manufacture, transport and store hazardous chemicals. Thus management has included a Hazard Communication and Chemical Safety Program for the purpose of personnel awareness. Personnel are instructed not to handle potentially hazardous chemicals and to alert proper facility officials in the event that a substance of unknown origin is spotted. In addition to hazardous substance training and "right to know" training, employees receive specific awareness training for Asbestos, Cadmium, and Lead exposure.

4.17.3.0 REGULATORY REFERENCES

This Hazard Communication and Chemical Safety Program is intended to comply with the following Cal OSHA requirements, CCR Title 8 sections 5192 -5194.

4.17.4.0 POLICY

4.17.4.1 A written Hazard Communication Program shall be developed, implemented and maintained at the site. CPC management shall have full authority and responsibility for implementation and execution throughout operations. Project managers shall have full authority and responsibility for implementation and execution within their areas of control shall have full authority and responsibility for implementation and execution within their areas of control.

4.17.4.2 All affected personnel shall receive Hazard Communication and Chemical Safety Program training. In addition, affected personnel shall receive training and information regarding hazardous chemicals and safety precautions specific to their assigned work sites.

4.17.4.3 Personnel shall not handle potentially hazardous chemicals unless they have been properly trained and instructed to do so.

4.17.4.4 Personnel shall immediately alert proper facility officials in the event that a substance of unknown origin is spotted.

4.17.4.5 Personnel shall immediately report all chemical spills, releases or exposures to their immediate supervisor or proper facility official.

4.17.4.6 The job-site shall establish emergency response and evacuation plans per the Emergency Preparedness Program.

4.17.4.7 All containers shall have the appropriate label, tag or marking prominently displayed that indicates the identity, safety and health hazards.

4.17.4.8 CPC shall have a copy of the Safety Data Sheet (SDS) for each hazardous chemical present for the materials within their scope of supply.

4.17.4.9 A Master Chemical information List (CIL) shall be maintained in each SDS book and co-located for ready reference..

4.17.4.10 Non-routine tasks shall be evaluated by the Project Supervisor before the task commences, to determine all hazards present.

4.17.5.0 RESPONSIBILITIES

4.17.5.1 Construction Management

- Managers have full authority and responsibility for the implementation and execution of this Hazard Communication and Chemical Safety Program, within his/her area of control.
- Ensure compliance with this program
- Conduct immediate corrective action for deficiencies found in the program
- Maintain an effective Hazard Communication training program
- Make this plan available to personnel or their designated representative

4.17.5.2 Shipping & Receiving

- Ensure all received containers are properly labeled and that labels are not removed or defaced
- Ensure all shipped containers are properly labeled
- Ensure shipping department employees are properly trained in spill response
- Ensure received Safety Data Sheets (SDS) are properly distributed

4.17.5.3 Purchasing Agent

- Obtain, from the manufacturer, SDS for chemicals purchased from retail sources

4.17.5.4 Site Safety Manager or Designee

- Manager of HS&E has full authority and responsibility for the implementation and execution of this Hazard Communication and Chemical Safety Program, project wide.
- Develop and maintain a list of hazardous chemicals referenced on the SDS
- Monitor the effectiveness of the program
- Conduct annual audit of the program
- Monitor personnel training to ensure effectiveness
- Keep management informed of necessary changes
- Ensure SDSs are available as required
- Monitor jobsites for proper use, storage and labeling of chemicals

4.17.5.5 **Supervisors**

- The site supervisor have full authority and responsibility for the implementation and execution of this Hazard Communication and Chemical Safety Program, within his/her area of control.
- Comply with all specific requirements of the program
- Provide specific chemical safety training for assigned personnel
- Ensure chemicals are properly used stored & labeled
- Ensure only the minimum amount necessary is kept at work stations
- Ensure up to date SDS are readily accessible to all personnel on all shifts

4.17.5.6 Personnel

- Comply with chemical safety requirements of this program
- Report any problems with storage or use of chemicals
- Immediately report spills of suspected spills of chemicals
- Use only those chemicals for which they have been trained
- Use chemicals only for specific assigned tasks in the proper manner

4.17.5.7 Subcontractors

- Comply with all aspects of this program
- Coordinate information with the Project Supervisor
- Ensure Subcontractor personnel are properly trained
- Notify the Project Supervisor before bringing any chemicals into client's property of facilities
- Monitor and ensure proper storage and use of chemicals by subcontractor personnel

4.17.6.0 DEFINITIONS

Chemical - any element, chemical compound or mixture of elements and/or compounds.

Combustible liquid - means any liquid having a flash point at or above 100 deg. F (37.8 deg. C), but below 200 deg. F (93.3 deg. C), except any mixture having components with flash points of 200 deg. F (93.3 deg. C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

Compressed gas - any compound that exhibits:

(i) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 deg. F.
(ii) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 deg. F. regardless of the pressure at 70 deg. F.
(iii) A liquid having a vapor pressure exceeding 40 psi at 100 deg. F.

Container - any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

Employee - a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies.

Explosive - a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

Exposure or exposed - a person is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. incidental or possible) exposure. Subjected in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)

Flammable - a chemical that falls into one of the following categories:

(i) "Aerosol, flammable" means an aerosol that yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening;

(ii) "Gas, flammable" means:

(A) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen (13) percent by volume or less; or

(B) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than twelve (12) percent by volume, regardless of the lower limit;

(iii) "Liquid, flammable" means any liquid having a flash point below 100 deg. F., except any mixture having components with flash points of 100 deg. F. or higher, the total of which make up 99 percent or more of the total volume of the mixture.

(iv) "Solid, flammable" means a solid, other than a blasting agent or explosive as defined in 1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

Flash point - the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite.

Hazardous chemical - any chemical which is a physical hazard or a health hazard.

Hazard warning - any words, pictures, symbols, or combination appearing on a label or other appropriate form of warning which convey the specific physical and health hazard(s), including target organ effects, of the chemical(s) in the container(s). (See the definitions for "physical hazard" and "health hazard" to determine the hazards which must be covered.)

Health hazard - a chemical for which there is evidence that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, and neurotoxins, agents which act on the hematopoietic system and agents which damage the lungs, skin, eyes, or mucous membranes.

Identity - any chemical or common name which is indicated on the Safety Data Sheet (SDS) for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the SDS.

Immediate use - the hazardous chemical shall be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Label - any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

Safety Data Sheet (SDS) - written or printed material concerning a hazardous chemical which is prepared in accordance with CAL OSHA Title 8 Sections 5192 - 5194.

Mixture - any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

Oxidizer - means a chemical other than a blasting agent or explosive as defined in 1910.109(a),that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

Physical hazard - a chemical that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

Pyrophoric - a chemical that will ignite spontaneously in air at a temperature of 130 deg. F. or below.

Specific chemical identity - the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

Unstable (reactive) - a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

Use - to package, handle, react, emit, extract, generate as a byproduct, or transfer.

Water-reactive - a chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

Work area - a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

Workplace - an establishment, job site, or project, at one geographical location containing one or more work areas.

4.17.7.0 HAZARD RECOGNITION

This Hazard Communication and Chemical Safety Program is primarily a hazard recognition program. Elements such as, Product Warning Labels and Safety Data Sheets, detailed in the sections that follow provide useful tools and knowledge enabling employees to identify hazardous chemicals in the work place.

4.17.8.0 GENERAL CHEMICAL SAFETY

Assume all chemicals are hazardous - The number of hazardous chemicals and the number of reactions between them is so large that prior knowledge of all potential hazards cannot be assumed. Use chemicals in as small quantities as possible to minimize exposure and reduce possible harmful effects.

The following general safety rules shall be observed when working with chemicals:

- Read and understand the Safety Data Sheets.
- Keep the work area clean and orderly.
- Use the necessary safety equipment.
- Carefully label every container with the identity of its contents and appropriate hazard warnings.

- Store incompatible chemicals in separate areas.
- Substitute less toxic materials whenever possible.
- Limit the volume of volatile or flammable material to the minimum needed for short operation periods.
- Provide means of containing the material if equipment or containers should break or spill their contents.

4.17.8.1 TASK EVALUATION

Each task that requires the use of chemicals should be evaluated to determine the potential hazards associated with the work. This hazard evaluation or JSA must include the chemical or combination of chemicals that will be used in the work, as well as other materials that will be used near the work.

4.17.8.2 CHEMICAL STORAGE

The separation of chemicals (solids or liquids) during storage is necessary to reduce the possibility of unwanted chemical reactions caused by incidental mixing. Explosives should be stored separately outdoors. Use either distance or barriers (e.g., trays) to isolate chemicals into the following groups:

- **Flammable Liquids** - store in approved flammable storage lockers.
- **Acids** - treat as flammable liquids
- **Bases** - do not store bases with acids or any other material
- **Other liquids** - ensure other liquids are not incompatible with any other chemical in the same storage location.
- **Restraints and Containment** - Lips, strips, or bars are to be installed across the width of storage shelves to restrain the chemicals in case of earthquake or unexpected shock. Chemicals shall not be stored in the same refrigerator used for food storage. Refrigerators used for storing chemicals must be appropriately identified by a label on the door.

4.17.8.3 CONTAINER LABELS

It is extremely important that all containers of chemicals are properly labeled. This includes every type of container from a 5000 gallon storage tank to a spray bottle of degreaser. The following requirements apply:

- All containers shall have the appropriate label, tag or marking prominently displayed that indicates the identity, safety and health hazards. The name and address of the manufacturer or importer must also be provided.
- Portable containers which contain a small amount of chemical need not be labeled if they are used immediately that shift, but must be under the strict control of the employee using the product.
- All warning labels, tags, etc., must be maintained in a legible condition and not be defaced or removed. Facility weekly supervisor inspections shall check for compliance of this rule.
- Incoming chemicals are to be checked for proper labeling. The symbol below is an example of labeling utilized to rate the hazard of products in storage tanks. It is a National Fire Protection Association (NFPA) standard. Each square contains a number based upon the accompanying table.

Rating Summary

Health (Blue)

4 **Danger** May be fatal on short exposure. Specialized protective equipment required
3 **Warning** Corrosive or toxic. Avoid skin contact or inhalation
2 **Warning** May be harmful if inhaled or absorbed
1 **Caution** May be irritating
0 No unusual hazard
F

Flammability (Red)

4 **Danger** Flammable gas or extremely flammable liquid
3 **Warning** Flammable liquid flash point below 100° F
2 **Caution** Combustible liquid flash point of 100° to 200° F
1 Combustible if heated
0 Not combustible

Reactivity (Yellow)

4 **Danger** Explosive material at room temperature
3 **Danger** May be explosive if shocked, heated under confinement or mixed with water
2 **Warning** Unstable or may react violently if mixed with water
1 **Caution** May react if heated or mixed with water but not violently
0 **Stable** Not reactive when mixed with water

Special Notice Key (White)

W Water Reactive
Oxy Oxidizing Agent

4.17.8.4 **EMERGENCIES AND SPILLS**

The job-site shall establish emergency response and evacuation plans per company Emergency Preparedness Program. The required emergency response and evacuation plans shall include the following elements:

4.17.8.4.1 Environmental Response Plan

Each location shall have an Environmental Response Plan that includes the following:

- Instructions on how to report an environmental spill

In case of an emergency, implement the proper Emergency Action Plan:

- Evacuate people from the area
- Isolate the area
- If the material is flammable, turn off ignition and heat sources.
- Only personnel specifically trained in emergency response are permitted to participate in chemical emergency procedures beyond those required to evacuate the area
- Call for Emergency Response Team assistance if required

4.17.8.5.2 Emergency Evacuation Plan (Fires & Other Emergencies)

Each location where personnel occupy a building shall have a Building Emergency Evacuation Plan that indicates the following:

- Instructions on how to report a fire or other emergency.
- A floor plan indicting each room, the available exits, fire extinguisher locations, fire alarms, evacuation route(s).
- A designated assembly point.
- Main electrical disconnects, main gas supply and water shut off valves, and hazardous material storage locations (e.g., solvents, paints, fuels, pesticides - indicate quantities).

Site Evacuation Plan that includes the following:

- Instructions on how to report a fire or other emergency.
- The alarm signal(s) and the all clear signal for the facility and the immediate work area.
- A site plan that indicates a primary and a secondary evacuation route, an assembly point, the location of fire alarms, fire extinguishers, and safety showers.
- Communication network to keep employees and supervising business unit appraised of job site status.

4.17.8.6 Housekeeping – Housekeeping is a fundamental part of all safety programs but caution must be exercised not to create additional or more serious hazards by improperly handling, storing and disposing of chemicals in the interest of housekeeping. The following housekeeping rules shall apply with regard to hazardous chemicals:

- Maintain the smallest possible inventory of chemicals to meet immediate needs.
- Periodically review stock of chemicals on hand.
- Ensure that storage areas, or equipment containing large quantities of chemicals, are secure from incidental spills.
- Recycle unused laboratory chemicals wherever possible.
- **DO NOT** Place hazardous chemicals in salvage or gCPCage receptacles.
- **DO NOT** Pour chemicals onto the ground.
- **DO NOT** Dispose of chemicals through the storm drain system.
- **DO NOT** Dispose of highly toxic, malodorous chemicals down sinks or sewer drains.

4.17.9.0 <u>HAZARD COMMUNICATION PROGRAM AND PROCEDURE</u>

4.17.9.1 Hazard Communication Plan - **This written Hazard Communication Plan** (HAZCOM) has been developed based on the OSHA Hazard Communication Standard and consists of the following elements:

- Written Hazard Communication Program
- Identification of Hazardous Materials
- Product Warning Labels
- Safety Data Sheets (SDS)
- Effective Employee Training

4.17.9.1.1 **Non-Routine Tasks -** Non-routine tasks are defined as working on, near, or with unlabeled piping, unlabeled containers of an unknown substance, confined space entry where a hazardous substance may be present and/or a one-time task using a hazardous substance differently than intended (example: using a solvent to remove stains from tile floors).

Steps for Non-Routine Tasks

Step 1: Hazard Determination
Step 2: Determine Precautions
Step 3: Specific Training & Documentation
Step 4: Perform Task

All non-routine tasks shall be evaluated by the Project Supervisor before the task commences, to determine all hazards present. Once the hazard determination is made, the Project Supervisor shall determine the necessary precautions needed to either remove the hazard, change to a non-hazard, or protect from the hazard (use of personal protective equipment) to safeguard the personnel present. In addition, the Project

Supervisor shall provide specific safety training for personnel present or affected.

4.17.9.1.2 **Subcontractors -** All subcontractors working under our company control are required to follow the requirements of this program. We shall provide subcontractors information concerning:

- Location of SDS
- Precautions to be taken to protect subcontractor employees
- Potential exposure to hazardous substances
- Chemicals used in or stored in areas where they will be working
- Location and availability of Safety Data Sheets
- Recommended Personal Protective Equipment
- Labeling system for chemicals

4.17.9.1.3 **Multiple Employer Worksites –** Industrial contractor company employees will often be assigned to jobsites where personnel from multiple companies are working together or in close proximity. Many of these jobsites may have hazardous materials present.

Either being used by other employers, stored or transported through the area. In these facilities, jobsites or work areas where this company is a subcontractor or does not have total control of the procedures being used, company supervision shall identify and communicate to all employees in his/her area of control the following:

- Methods of supplying or locations of SDS provided by the primary employer or organization in control of the facility or worksite.
- Methods the primary employer or organization in control of the facility or worksite will use to inform other employers and their employees of any precautionary measures required to protect employees during normal operations and emergencies.
- Methods of notification, labeling or warnings used by the primary employer or organization in control of the facility or worksite to inform other employers and their employees of material hazards in the work area.

4.17.9.1.4 **Non-English Speaking Employees –** Where non-English speaking employees are exposed to material hazards, a method or methods shall be employed to communicate hazardous material information to these employees in their own language.

4.17.9.2 Identification of Hazardous Materials

Some chemicals are explosive, corrosive, flammable, or toxic. Other chemicals are relatively safe to use and store but may become dangerous when they interact with other substances. To avoid injury and/or property damage, persons who handle chemicals in any area must understand the hazardous properties of the chemicals. Before using a specific chemical, safe handling methods and health hazards must always be reviewed. Supervisors are responsible for ensuring that the equipment needed to work safely with chemicals is accessible and maintained for all employees on all shifts.

14.17.9.2.1 Chemical Information List/Safety Data Sheets
Chemical Information List (CIL) is the list of all hazardous substances in a specific location. Every substance on the CIL shall have a Safety Data Sheet (SDS) on file at the jobsite or local project/business unit office. Each supervisor is required to maintain a list such as this and forward copies of the added product SDS to the Safety Manager for addition to the master Chemical Information List.

See Site SDS Manual

4.17.9.2.2 **Safety Data Sheet (SDS) Information**
Each job-site shall have a copy of the Safety Data Sheet (SDS) for each hazardous chemical present. A Safety Data Sheet, often referred to by its acronym SDS, is a detailed informational document prepared by the manufacturer or importer of a hazardous chemical which describes the physical and chemical properties of the product. Information included in a Safety Data Sheet aids in the

selection of safe products, helps employers and employees understand the potential health and physical hazards of a chemical and describes how to respond effectively to exposure situations. The employee responsible for the purchase of all hazardous chemicals is also responsible for obtaining the SDS for those chemicals from the supplier and forwarding a copy to the Safety Manager. The Safety Manager shall add the chemical to the hazardous chemical list and forward copies to the onsite supervisors to update the worksite SDS binder. The format of a Safety Data Sheet may vary but there is specific information that must be included in each sheet. It is useful to review this information to increase your ability to use a Safety Data Sheet.

All Safety Data Sheets should include the following information:

1. Identification of the substance or mixture and of the supplier – This section contains the GHS product identifier. It also has contact information for the supplier, recommended use of the chemical and any restrictions, and emergency phone number

2. Hazards identification- This section contains the classification of the substance, the GHS hazard symbol/pictogram, and other hazards that do not result in classification or not covered by the GHS.

3. Composition/ information on ingredients – This section contains information on the chemical identity, any common names or synonyms, product identification numbers (CAS number, EC number, etc), Impurities and stabilizing additives which are themselves classified and which contribute classification of the substance.

4. First aid measures – This section describes the necessary measures for care according to the route of exposure (inhalation, skin and eye contact, and ingestion), most important symptoms/effects. It also indicates when to get immediate medical attention to the victim.

5. Firefighting Measures – This section lets you know the proper extinguishing media, specific hazards arising from the chemical, and any special PPE needed for firefighters.

6. Accidental release measures – This section lets you know how to contain and clean up a spill. It states environmental precautions and lists any special PPE needed for cleanup.

7. Handling and storage – This section contains instructions for safe handling and storage for the material.

8. Exposure controls/ personal protection – This section describes different control parameters of exposure and describes different methods of protection (engineering controls, administrative controls, PPE)

9. Physical and chemical properties - This section describes the chemical's appearance, odor and other characteristics. It says it is an orange to bronze liquid. It is lighter than water and its vapor is heavier than air. It also contains information on the safe temperatures to use the chemical (auto ignition temperature, decomposition temperature, boiling point, flash point, etc)

10. Stability and reactivity – This section contains information on the chemical stability of the material. It informs the user of the possibility of different hazardous reactions, any conditions to avoid (e.g., static discharge, shock or vibration). It also lists incompatible materials.

11. Toxicological information – Briefly describes various health effects related to the material including: information on likely routes of exposure (inhalation, ingestion, skin, and eye contact; symptoms related to the physical, chemical and toxicological characteristics; delayed and immediate effects of exposure

12. Ecological information- This section describes environmental impacts of the material.

13. Disposal considerations – This section gives instructions on how to properly dispose of the chemical

14. Transport information – This section will have specific transport information such as: UN Number, proper shipping name, transport hazard classes, packing group, any special precautions in terms of transport.

15. Regulatory information – This section contains any safety, health and environmental regulations that are specific to the material in question

16. Other information including information on preparation and revision of the SDS

4.17.10.0 TRAINING

All affected personnel shall receive Hazard Communication and Chemical Safety Program training. In addition, employees shall receive training and information regarding hazardous chemicals and safety precautions specific to their assigned work sites.

4.17.10.1 Training Content - All new and affected personnel shall receive safety orientation training covering the elements of the HAZCOM and Chemical Safety Program. This training shall consist of the following:

- Requirements of Cal OSHA's, CCR title 8 sections 5192 -5194.
- Detailed review of the Hazard Communication and Chemical Safety Program
- Location and availability of the written Hazard Communication Program
- Location and availability of the List of Chemicals used in the workplace
- Methods and observation used to detect the presence or release of a hazardous chemical in the workplace.
- The specific physical and health hazard of all chemicals in the workplace
- Specific control measures for protection from physical or health hazards
- Explanation of the chemical labeling system
- Location and use of SDS
- Locations and operations in their work area where hazardous chemicals are present

4.17.10.2 Job Specific Training - Personnel shall receive on the job training from their supervisor. This training shall cover the proper use, inspection and storage of necessary personal protective equipment and chemical safety training for the specific chemicals they will be using or will be working around.

4.17.10.3 Personnel Training – All personnel shall be trained in Hazard Communication and Chemical Safety Awareness.

4.17.10.4 Training Frequency - Hazard Communication and Chemical Safety Program training and re-training shall be provided as following:

- Initially - on hire or upon assignment to tasks or locations where hazardous chemicals are used, stored or may present in some manner.
- Upon changes in the Hazard Communication and Chemical Safety Program.
- Introduction of new hazards - Whenever a new chemical, physical or health hazard is introduced to the work site that has not been effectively covered by previous training.
- Immediate On-the-Spot Training - This training shall be conducted by supervisors for any employee that requests additional information or exhibits a lack of understanding of the safety requirements.

4.17.11.0 REPORTING & RECORDKEEPING

4.17.11.1 Training - All training shall be recorded.

4.17.11.2 Reports – All exposure incidents shall be reported.

4.17.11.2.1 **Incident/Accident Report** - All exposure events resulting in injury, illness or loss of consciousness of an employee shall be recorded.

4.17.11.3 Control & Retention – Records associated with this program shall be handled in the following manner:

4.17.11.3.1 **Custodian** – Site Safety Manager or his designee shall be the custodian of the Master Chemical information List (CIL) required by Cal OSHA, CCR title 8 section 5194.

4.17.11.3.2 **Incident/Accident** - shall be handled per the Incident Reporting and Record Keeping Program.

4.17.11.3.3 **Availability** – A copy of this plan shall be made available, upon request, to all personnel and the required OSHA officials.

4.18 INJURY, ILLNESS AND INCIDENT REPORTING REQUIREMENTS

4.18.1.0 SCOPE

4.18.1.1 This procedure establishes the requirements for reporting injuries, illnesses and incidents.

4.18.1.2 These guidelines address actual and "near miss" incidents. Investigations, reporting, and recording of all accidents, incidents, and illnesses is a key step in detecting trends and establishing measures to prevent recurrence.

4.18.2.0 PURPOSE

This procedure will:

4.18.2.1 Provide a method whereby key learning's can occur from actual incidents, in a timely manner, in order to prevent reoccurrences and heighten safety awareness.

4.18.2.2 Define a consistent, systematic and in-depth approach to formal incident investigations.

4.18.2.3 Outline a standard of communication and responsiveness related to incident investigations.

4.18.3.0 GENERAL

4.18.3.1 CPC is responsible for establishing an injury, illness and incident reporting process to address any internal reporting requirements required, including those of their subcontractors.

4.18.3.2 All personnel shall report to their immediate supervisor any incident that interferes with (or might have interfered with) the orderly progress of work and causes (or might have caused) one or more of the following:

4.18.3.2.1 An adverse effect on the safety or health of personnel, e.g. injury or illness.

4.18.3.2.2 Property damage or work interruption.

4.18.3.2.3 An adverse environmental impact or potential regulatory violation.

4.18.3.2.4 A situation which does or could have an adverse impact on the public.

4.18.4.0 INITIATING THE PROCESS

4.18.4.1 CPC shall notify the client immediately by radio or telephone of any injury, illness, environmental release, or public impact.

4.18.4.2 Once an incident occurs, the SUPERVISOR'S INITIAL INCIDENT REPORT must be completed by the person and supervisor as soon as possible, and in all cases before the end of the work shift in which the incident occurs.

4.18.5.0 INVESTIGATING TEAM ORGANIZATION

4.18.5.1 Should a more detailed investigation be warranted, CPC will appoint an Incident Investigation Team. The function of this team shall be to determine the facts surrounding the subject incident.

4.18.5.2 Incident Investigation Team members shall be selected based upon their ability to contribute to the investigation in a positive fashion. Team members should have demonstrated thoroughness in their approach to technical problems and have the ability to maintain perspective and independence. The accident investigation will be conducted using the Apollo Root Cause Analysis Program.

4.18.5.3 CPC shall appoint a representative to serve as a resource. A member of the CPC's Management team shall be appointed as chairperson.

4.18.5.4 Writing of the report shall be a team leaders' responsibility.

4.18.6.0 FORMS (See Section 13.0)

- Form 30 Accident Incident Investigation Report
- Form 31 Near Miss Report
- Form 32 Witness Statement
- Form 33 Vehicle Accident Report
- Form 34 Supervisor Initial Incident Report
- Form 35 Accident Report Form
- Form 36 Termination Notice

4.18.7.0 DISTRIBUTION OF INFORMATION

4.18.7.1 CPC will distribute Investigation Reports within the company and to the customer/ owner as appropriate.

4.18.7.2 When key learning's are identified that may impact other CONTRACTORS, CPC will also include them in distribution.

4.19 SAFETY RULES

4.19.1.0 INTRODUCTION

4.19.1.1 The following Safety Rules are presented as guidance for employee behavior Conformance to the letter and the spirit of these rules will enable us to maintain a safe, orderly, efficient and enjoyable place to work.

4.19.1.2 Willful or negligent violation of these rules can result in the removal of any person on the first occurrence. All violations will be reviewed case by case and decided upon by the construction management team.

4.19.2.0 SAFETY

Safety in all that we do is one of CPC's most closely held core values. This is because of the nature of the work we do and the possibility of severe consequences for safety shortcomings.

4.19.2.1 It is the responsibility of each employee to learn, understand, keep current on and rigorously follow all applicable safety procedures and safe operating practices.

4.19.2.1.1 Consequences: Personnel can expect that safety violations and failure to promptly report injuries will result in discipline up to and including termination.

4.19.2.2 The following are consider general safety rules:

4.19.2.2.1 Obey posted traffic signs

4.19.2.2.2 Wear seat belts when in moving vehicles and equipment

4.19.2.2.3 Smoking in permitted areas only

4.19.2.2.4 Comply with all safety rules and good construction practice

4.19.2.2.5 No horse play

4.19.2.2.6 Wear serviceable PPE at all times

4.19.2.2.7 Observe and honor barricades and tags

4.19.2.2.8 Adhere to Construction Hazardous Work Permit

4.19.2.2.9 Report all incidents, injuries and accidents immediately

4.19.2.2.10 Eat only in approved areas

4.19.2.3 Further, the following are considered SAFETY RULES and personnel will be reprimanded, suspended, up to and including termination, for infractions on the following policies:

14.19.2.3.1 Lock Out Tag Out (LOTO),

14.19.2.3.2 Confined Space Entry,

14.19.2.3.3 Permit Procedures,

14.19.2.3.4 Hazardous Energy Isolation,

14.19.2.3.5 Fall Protection,

14.19.2.3.6 Personal Protective Equipment,

14.19.2.3.7 Possession of firearms, non job-related knives/tools or explosives on company property,

14.19.2.3.8 Possession of intoxicants on company property.

14.19.2.3.9 Gambling of any form

14.19.2.3.10 Use of cell phone in process plant

14.19.2.3.11 Tampering with plant systems and equipment

14.19.2.3.12 Falsification of reports, records or statements

4.19.3.0 DRUGS AND ALCOHOL (INTOXICANTS)

The abuse and/or use of drugs, alcohol and improper use of certain prescription medicines are a special subset of our safety rules.

4.19.3.1 In alignment with company policy and DOT regulations:

4.19.3.1.1 The use, possession or distribution of prohibited substances or of drug paraphernalia on company property is not allowed.

4.19.3.1.2 Being at work under the influence of prohibited substances is not allowed.

4.19.3.1.3 Positive “random” or “for-cause” tests are violations.

4.19.3.1.4 Consequences: Employees can expect that violations will result in discipline up to and including removal from the job site

4.19.3.2 The following are violations of SAFETY RULES:

4.19.3.2.1 a positive “random” test;

4.19.3.2.2 refusing or evading a drug test;

4.19.3.2.3 positive “for-cause” or “post-accident” tests;

4.19.3.2.4 use, possession or distribution on company premises

4.19.3.2.5 off-site criminal involvement with negative impacts.

4.19.4.0 VALUING ALL PEOPLE

Treating all people with whom we have business contact in a respectful manner is an CPC core value.

4.19.4.1 CPC shall maintain a workplace free of abusive, degrading, malicious, violent, discriminatory or harassing (including sexual harassment) behavior and the like, so that everyone is able to concentrate on their work and contribute to their full potential.

4.19.4.1.1 **Consequences:** Personnel can expect that violations will result in discipline up to and including termination..

4.19.4.2 The following are violations of SAFETY RULES:

4.19.4.2.1 fighting (other than self-defense)

4.19.4.2.2 violent conduct toward another person.

4.20 SAFETY DATA SHEETS (SDS)

CPC management shall provide a summary list of all chemicals/materials used on the project with the attached SDS's to the Site Safety Manager for review. The Site Safety Manager will coordinate the review process as required.

The SDS is one method used for process hazards identification and for personnel hazard communication. Site Safety Manager will provide orientation to personnel as to the characteristics of the materials with which the personnel may be in contact.

The SDS manuals shall be kept in a designated and posted location and shall be made available to all personnel upon their request.

4.21 PERSONAL PROTECTIVE EQUIPMENT

4.21.1.0 SCOPE

This procedure establishes guidelines pertaining to the use of personal protective equipment (ppe), including safety shoes, hard hats, gloves, hearing protection, and eye protection.

4.21.2.0 DEFINITIONS

Adequate Overhead Protection - Head protection equal to or greater than that provided by an approved hard hat.
Approved Hard Hat - A rigid device, held in place by a suitable suspension, that is worn to provide protection for the head against impact, flying particles, or electric shock. Each hard hat must conform to the current issue of ANSI Z89.1 and be identified with that specific approval seal. Metal Hard Hats are not allowed.
Hard Hat Area - Any area within Company's fence line except completed office building complex, control rooms, maintenance shops, parking lots and contractor's office compound.

4.21.3.0 GENERAL

4.21.3.1 All personal protective equipment must meet or exceed all local, state and federal regulations.

4.21.3.2 Close Proximity Rule - All personnel working within 10 feet of an activity, which requires specific PPE shall also be required to wear that same PPE.

4.21.4.0 EYE PROTECTION

4.21.4.1 Basic eye protection shall be required on all construction and maintenance projects and jobsites/work areas where recognized hazards exist.

4.21.4.1.1 As a minimum, safety glasses must be worn in all areas except completed office facilities, compounds, and parking lots.

4.21.4.2 Safety Glasses

4.21.4.2.1 All safety glasses must have side shields and comply with the current issue of ANSI Z87.1.

4.21.4.2.2 Side shields may be permanently attached or detachable. Use only detachable side shields made of rigid material that can be secured to the glasses.

4.21.4.2.3 Lenses of all safety glasses must be marked with the manufacturer's trademark.

4.21.4.2.4 Frames must have "Z87" stamped on the front and both temple pieces.

4.21.4.3 Prescription Glasses

4.21.4.3.1 All prescription glasses worn in lieu of safety glasses must comply with ANSI Z87.1 and must have rigid side shields or the use of over glasses will be required.

4.21.4.3.2 Side shields may be fixed or detachable.

4.21.5.0 FACE PROTECTION

4.21.5.1 All personnel must be equipped with face protection appropriate for the task being performed.

4.21.5.2 Face Shields - Required when performing activities such as the following:

- using powder-actuated tools*
- handling chemicals, corrosives, or molten materials*

*See note in 5.3
Always wear safety glasses under the face shield. Face shields protect only the face and do not meet ANSI Z87.1 requirements for eye protection.

4.21.5.3 Mono Goggles - Required when performing activities such as the following:

- powder-actuated tools*
- handling chemicals, corrosives, or molten materials*

*NOTE: For activities like those with asterisks, BOTH mono-goggles and face shields are required to be used together.

4.21.5.4 Welding Shields - Use an approved welding shield with no less than a #9 filter plate and safety lenses on both sides during all welding operations.

4.21.5.5 Burning Goggles – ANZI-Z87.1 designed burning goggles shall be worn to provide employee protection from injurious light radiations. A number 6 lens shade is considered adequate for routine torch cutting activities.

4.21.6.0 HEAD PROTECTION

4.21.6.1 An approved hard hat shall be worn in all Hard Hat Areas.

4.21.6.1.1 *EXCEPTION:* Hard hats are not required when operating mobile equipment that provides adequate overhead protection.

4.21.6.2 Hard hats must be worn with the brim in the front. No personnel shall wear hard-hats backwards. Unless hard hat suspension is reversed.

4.21.6.2.1 *EXCEPTION:* Hard hats may be worn with the brim in back to accommodate a welding helmet or a face shield or when operating a surveying instrument.

4.21.6.3 Hardhat suspension shall always be mounted with the adjustment (knob) in the back.

4.21.6.4 Personnel are required to inspect head protection prior to use, and ensure the equipment is in safe condition. Equipment that is defective or damaged shall not be used and immediately replaced. Inspect for: Dents, Cracks, Torn, Loose or worn suspension straps.

4.21.7.0 HAND PROTECTION

4.21.7.1 Gloves must be worn at all times when there is potential for exposure to chemicals, hot/cold materials or surfaces, and for protection against cuts and abrasions.

4.21.7.2 Gloves must not be worn when performing tasks where glove use would increase the possibility of injury, such as working on rotating equipment.

4.21.8.0 FOOT PROTECTION

4.21.8.1 Steel or composite toe (meeting ANSI Z-41.1 standards) footwear must:

- Cover the angle
- Be properly laced up (for lace type boots)
- Have a defined heel]
- Be in good condition
- Have no exposed steel or composite on the toes.
- Have no holes or excessive wear on soles or heels

4.21.8.2 Special purpose (crush resistant, chemical, and die-electric) footwear shall be used to provide protection from such hazards.

4.21.8.3 Personnel that perform tasks, which expose them to potential foot and/or leg injury hazards, e.g., work involving jackhammers, ground tampers, etc., shall wear additional foot and leg protection, such as metatarsal and shin guards. Full-bridged metatarsal protection is required for concrete breaking, power tamping and other heavy work.

4.21.9.0 HEARING PROTECTION

4.21.9.1 Hearing Protection shall be worn by personnel exposed to noise levels that exceed 85 dbA, 8-hour time-weighted average.

4.21.9.2 Hearing Protection shall be worn by personnel performing designated high noise level tasks or activities.

4.21.9.2.1 Designated high noise level tasks and activities where hearing protection is required are:

- Front End Loader Operator
- Backhoe Operator
- Dozer Operator
- Compactor Operator
- Bobcat Operator
- Power Tamper Operator
- Pier Drill (Power Auger) Operator
- Grinder Use
- Arc Gouging
- Chipping Gun Use
- Powder Activated Gun Use
- Jack Hammer Use
- Impacting Bolts
- Blow down Operations
- Sandblasting

- Circular/Table/Radial Arm/Chop Saw Use

4.21.9.3 CPC and its subcontractors shall each maintain their own respective Hearing Protection Programs and records.

4.21.10.0 OTHER PROTECTIVE EQUIPMENT

4.21.10.1 Personal Fall Arrest System equipment must be used where specified in "Continuous Fall Protection."

4.21.10.1.1 Fall protection must be inspected prior to use and inspected for any cracks, burns, tears or other forms of deterioration. In the event any is discovered it shall be removed from service and replaced.

4.21.10.2 Respirators must be used where specified in "Respiratory Protection Program." A copy of the Respiratory Protection Program will be available in the job site office and is available upon request.

4.21.10.3 Other Personal Protective Equipment shall be used where specified by supervision/management.

4.21.11.0 FORMS (See Section 13.0)

- **Form 39** Daily Task Assignment (same as Safety Task Assignment) (Back)
- **Form 39** Work Activity Permit (Front)

4.22 PORTABLE LADDERS

4.22.1.0 SCOPE

This procedure outlines general information on specifications, inspections, care, and use of portable ladders.

4.22.2.0 DEFINITIONS

Extension Trestle Ladder - A self-supporting portable ladder, adjustable in length, consisting of a trestle ladder base and a vertically adjustable extensions section, with a suitable means of locking the sections together.
Ladder, Type I - Portable ladder that supports at least 250 pounds (113 kilograms) of weight.
Ladder, Type IA - Portable ladder that supports at least 300 pounds (135 kilograms) of weight.
Trestle Ladder - A self-supporting portable ladder, non-adjustable in length, consisting of two sections hinged at the top to form angles with the base.

4.22.3.0 INSPECTION

4.22.3.1 Periodic

4.22.3.1.1 All ladders shall be visually inspected before use and to identify signs of wear, misuse, abuse, deterioration, etc.

4.22.3.2 Daily

4.22.3.2.1 Before a ladder is used, it shall be inspected carefully for missing cleats, cracked or missing rungs, damaged or missing side rails.

4.22.3.2.2 Ladders with such defects shall be removed from service immediately.

4.22.3.2.3 The use of ladders with broken or missing rungs, broken or split side rails, or other faulty or defective construction is prohibited.

4.22.4.0 EQUIPMENT

4.22.4.1 All ladders must be, at a minimum, Type I construction, 250-pound (113kg) capacity.

4.22.4.2 Purchased ladders must meet the requirements set forth in the ANSI or equivalent local standards.

4.22.4.3 Do not use metal ladders around electrical services or welding. (see also ANSI Standard A14.2). Only non-conductive ladders (wood, fiberglass) may be used near energized electrical lines or equipment.

4.22.4.4 The use of job-made ladders is prohibited. However, if there is a practical need for a job-made ladder, follow the provisions of OSHA CFR 1926.450.

4.22.4.5 Stepladders shall not be used as straight ladders.

4.22.4.6 Ladders & ladder sections shall never be tied or fastened together to provide additional length unless designed to do so.

4.22.4.7 Short ladders must not be spliced together to make longer ladders.

4.22.4.8 Sections of extension ladders shall not be taken apart and used separately.

4.22.4.9 All straight and extension must be equipped with non-skid safety feet.

4.22.4.9.1 Where ladders are to be used on grating (decks), the ladders shall be equipped with extra-wide non-skid safety feet that cannot slip through the spaces in the grating.

4.22.4.10 Always open stepladders fully, set ladder level on all four feet, and lock spreaders in place.

4.22.4.11 Ladders shall not be used horizontally or as makeshift scaffolds.

4.22.5.0 USAGE

4.22.5.1 Two or more employees shall not work from the same ladder unless it is specifically designed for that purpose.

4.22.5.2 All straight and extension ladders must be secured (tied off to a secure anchorage).

4.22.5.2.1 The ladder must be held while being erected until it is securely tied off.

4.22.5.3 Never lean a ladder against unsafe backing such as loose boxes or barrels.

4.22.5.4 Ladders shall be placed so the distance from the foot of the ladder to the base of the wall or other support is approximately one fourth of the working length of the ladder.

4.22.5.5 Portable ladders shall be placed on a substantial level base, and the area around the top and bottom of the ladder shall be kept clear.

4.22.5.6 The top of the ladder must extend at least three feet beyond the transfer point or platform if used to access an elevated work area, or a grab rail must be provided.

4.22.5.7 If a ladder is to be placed where the opening of the door and may be displaced, the door shall be locked or guarded using a barricade.

4.22.5.8 While ascending, descending a ladder, face the ladder and maintain three points of contact at all times, e.g., two feet and one hand. Do not reach any farther than one arm's length from the ladder.

4.22.5.9 Never lean from side to side or away from the ladder. Always keep both feet and at least one shoulder within the rails of the ladder.

4.22.5.10 Move the ladder as work progresses to avoid overreaching.

4.22.5.11 Keep both feet on the ladder rungs or steps.

4.22.5.11.1 Do not place one foot on a line or piece of equipment and the other on a ladder rung or step.

4.22.5.12 Keep ladders free of grease, oil, mud, and similar substances that can create a hazard to users.

4.22.5.13 Do not carry anything that will prevent holding on with both hands. Use a hand line, ½ inch or greater in diameter to raise and lower tools or equipment.

4.22.5.14 Employees shall not work higher than the third rung from the top on a straight or extension ladder.

4.22.5.15 Do not place tools or material on steps. Use a tool container.

4.22.5.16 The following steps are required for work from portable ladders when the worker's feet will be more than six feet (6') above the deck on which the ladder stands.

4.22.5.16.1 The worker, wearing personal fall protection, climbs the ladder to the point at which the ladder is to be tied off.
NOTE: Until the ladder has been tied off, a second worker holding the ladder must brace the ladder securely.

4.22.5.16.2 Upon reaching the ladder tie-off point, the worker shall secure the lanyard from his/her personal fall arrest system to a suitable anchorage.
NOTE: NEVER secure a personal fall arrest system to a portable ladder.

4.22.5.16.3 Next, the worker ties off the ladder.

4.22.5.16.4 Next, the worker hoists up any tools and equipment needed for the job, using a lift (hoist) line.

4.22.5.16.5 When the work has been completed.

4.22.5.16.6 Steps 5.16.1 through 5.15.4 are repeated IN REVERSE ORDER to remove the ladder.
NOTE: The worker's lanyard is the last item to be released before the worker climbs down from the ladder.

4.22.6.0 FORMS (See Section 13.0)

- **Form 3** Daily Inspection Checklist
- **Form 4** Monthly Inspection Checklist

4.23 POWDER-ACTUATED AND PNEUMATIC FASTENING TOOLS

4.23.1.0 SCOPE

This procedure outlines the safety requirements for operating, inspecting, and storing both powder-actuated and pneumatic fastening tools.

4.23.2.0 DEFINITIONS

Indirect-Acting Tool - A type of powder-actuated fastening tool that uses the expanding gas of the powder cartridge to trigger a captive piston that drives the fastener into the material. The fastener is driven by piston inertia. Once free of the piston, the fastener alone has insufficient inertia to produce free flight.
Live Rock - Rock or stone in its natural state, unwrought and unaltered.
Low-Velocity Tool - A type of powder-actuated fastening tool in which the velocity of the fastener is less than 328 feet (100 meters) per second at 6.5 feet (2 meters) from the muzzle.
Powder-Actuated Fastening Tool - A tool that uses an explosive powder charge (load) to drive fasteners into various materials; also known as a stud gun.

4.23.3.0 POWDER-ACTUATED TOOLS

4.23.3.1 General

4.23.3.1.1 Use only indirect-acting, low velocity tools.

4.23.3.1.2 The use of powder-actuated fastening tools must meet ANSI 10.3-1985.

4.23.3.2 Training

4.23.3.2.1 Operators must be thoroughly trained in operating, maintaining, and selecting fasteners for powder-actuated fastening tools. No one is permitted to use any powder-actuated tool unless they have a current operator's license issued by a licensed instructor.

4.23.3.2.2 When operating the tools, operators must carry a card or license stating that they have successfully completed the training course.

- The card or license must specify the model(s) they are qualified to operate.

4.23.3.3 Operations

4.23.3.3.1 Use only fasteners and cartridges in the powder-actuated fastening tools for which they are manufactured.

4.23.3.3.2 Use only tools with all the built in safety features including shields or guards that cannot be removed without making the tool inoperable.

4.23.3.3.3 The operator and workers must wear safety glasses with side shields, full-face shields, and, depending on their location, hearing protection.

4.23.3.3.4 The operator must also wear foot guards if driving fasteners into material that might fall and strike his or her feet.

4.23.3.3.5 Do not use powder-actuated fastening tools to drive fasteners into surface-hardened steel, cast iron, glazed brick, hollow tile, cinder block, marble, granite, live rock, or similar extra-hard, brittle, or fragile materials.

4.23.3.3.6 Do not store or use tools and cartridges in or around explosive or flammable atmospheres.

4.23.3.3.7 Do not load powder-actuated fastening tools until just prior to the intended firing time.

4.23.3.3.8 When not in use, all powder activated tools must be properly stored, in their carrying case. A tool shall never be left unattended in a place where it would be available to unauthorized persons. Never point powder-actuated fastening tools at anyone.

4.23.3.3.9 Post a warning barricade with appropriate signs in plain sight wherever workers might come into the line of fire or when other workers are not wearing protective equipment.

- Signs should be worded similar to the following: "Powder-Actuated Fastening Tool (Stud Gun) in Use."

4.23.3.3.10 Operators should always know what is on the other side of the materials being fastened, particularly if they are driving fasteners near holes or if they might miss the target.

4.23.3.3.11 When blind spots exist, Operators should consider posting warning signs on the opposite side of the material.

4.23.3.4 Maintenance

4.23.3.4.1 CPC shall develop and implement a procedure for issuing and returning unused cartridges.

4.23.3.4.2 In accordance with the manufacturer's recommended procedure test the tools each day prior to use to see that the safety devices are in proper working condition.

4.23.3.4.3 Follow the manufacturer's recommendations concerning maintaining and inspecting powder-actuated fastening tools, including how to replace parts.

4.23.3.5 Storage

4.23.3.5.1 When not in use, lock powder-actuated fastening tools and cartridges in a labeled metal container.

4.23.3.5.2 Store tools in a safe place, away from flame or heat, and where they are accessible only to authorized personnel.

4.23.3.5.3 Keep cartridges of different power levels in separate compartments or containers.

4.23.4.0 PNEUMATIC TOOLS AND EQUIPMENT

4.23.4.1 **Training**

Personnel who will use pneumatic tools as part of their task shall receive training in the proper use of that specific tool.

4.23.4.2 **Operation**

Personnel must follow safe practices for operating pneumatic tools, including the following:

4.23.4.2.1 Before assembling the system check all hoses for cuts, breaks, and loose connections.

4.23.4.2.2 Blow out all hoses before hooking up the equipment. If the connector has a rubber seal, remove it before (and replace it after) blowing.

4.23.4.2.3 When possible run air lines through areas with little traffic. If possible, avoid laying lines across roads. Protect airlines or hoses against trucks and pedestrians either by building runways over the hose or suspending the hose overhead with the lowest part of the hose at least 7 feet (2 meters) above the ground.

4.23.4.2.4 Tighten hammer-joint connections with a hammer. Do not tighten them by hand. Hoses equipped with special connections require special tightening techniques or equipment. One example is hammer-union connections, which must be tightened with a hammer. Another example is spanner-wrench connections, which must be tightened with a spanner wrench. Do not tighten these connections by hand.

4.23.4.2.5 Do not turn on air valves until the hose connections are secure.

4.23.4.2.6 Do not point an open-air hose at anyone.

4.23.4.2.7 Compressed air shall not be used for cleaning purposes except where reduced to less than 30 psi, and then only with effective chip guarding and proper personal protective equipment. It shall never be blown against clothing, and any part of the body or used to clean/dust off personnel.

4.23.4.2.8 Unless the equipment has quick-change connectors (with internal check valves), shut off the air at the air supply valve ahead of the hose before breaking the connection.

4.23.4.3 **Equipment**

At a minimum, pneumatic tools must meet the following standards:

4.23.4.3.1 Hand-held pneumatic tools greater than 1/2 inch (1.3 centimeters) interior diameter must have an approved safety check valve or an excess flow valve installed at the manifold outlet of each supply line.

4.23.4.3.2 All air hose connections over 1 inch (2.5 centimeters) in diameter must be equipped with safety chains that must be secured when the connection is made.

4.23.4.3.3 All connections must be pinned or chained to prevent whipping should a disconnection occur.

4.23.4.3.4 Safety clips or retainers must be installed on all pneumatic tools to prevent the tool's accessory from accidentally discharging from the barrel.

4.23.4.3.5 All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, operating at greater than 100 psi pressure at the tool must have a safety device at the muzzle to prevent the tool from ejecting fasteners, unless the muzzle is in contact with the work surface.

4.23.4.3.6 An internal check valve must be on the regulator side of the pneumatic system to avoid creating a live hose when the regulator is quick disconnected from the hose. Check for the recheck valve.

4.23.4.3.7 For installing air couplings on tools, an 18-inch to 24-inch (45 to 60 centimeter) section of hose should be permanently coupled to the tool. The quick-disconnecting coupling should be installed on the opposite end, creating a permanent hose whip that is attached to the tool.

4.23.4.3.8 The use of pneumatic hoses for hoisting or lowering tools is not permitted.

4.23.5.0 FORMS (See Section 13.0)

- **Form 3** Daily Inspection Checklist

4.24 PROTECTION FROM FALLING MATERIAL GUIDELINE

4.24.1.0 SCOPE

This procedure addresses the minimum requirements to protect employees from material falling from height.

4.24.2.0 DEFINITIONS

This procedure contains no unique definitions.

4.24.3.0 HAZARD ELIMINATION

4.24.3.1 Only as a last resort should personnel work under other personnel in elevated locations.

4.24.3.2 Positive steps such as those listed below shall be taken to protect those employees working below employees in elevated locations.

4.24.4.0 TECHNIQUES TO MINIMIZE EXPOSURE

4.24.4.1 Limit what is taken to elevated locations.

4.24.4.2 Minimize the handling of material by using hand lines, well wheels, cranes, etc. to hoist material to elevated locations versus hand carrying or "handing from employee to employee".

4.24.4.3 Use plywood, chicken wire, orange fencing or similar material along platform or elevated floor railing where material is stored or "staged".

4.24.4.3.1 The material chosen must be strong enough to withstand the force of the piled material falling against it.

4.24.4.4 Secure/contain tools and material that can fall through grating or off platforms or floors.

4.24.4.4.1 Use welding blankets below work areas where small objects are being handled.

4.24.4.5 Where possible, barricade the area below elevated work and keep employees out of the barricaded area.

4.24.4.5.1 Use flag- persons / ground-persons when barricading the area below is not practical.

4.24.4.6 Band/tie/secure material being stored at heights, which can be blown by winds.

4.24.4.7 Use "lanyards" on tools being used over the sides of platforms or floors or over un-protected elevated areas.

4.24.4.8 Don't store/place material on beams or pipes unless it is secured.

4.24.4.9 Use tool belts to hold tools when climbing at heights. Tools should fit securely in and be secured to the tool belt.

4.24.4.9.1 Tools must not be field-modified, even in order to keep them from falling.

4.24.4.10 In addition to the tools being secured by lanyards. CPC shall implement at least one of the following for elevated work:

- Toe boards, screens, or guardrail systems
- Overhead protection such as netting or temporary roof systems
- Barricades of area where a potential of falling tools may exist

4.24.5.0 REQUIRED TRAINING

4.24.5.1 All personnel working in elevated locations must be educated in the above techniques.

4.24.5.2 All personnel working in elevated locations must be trained to recognize and respond to the hazards associated with the handling of tools and materials in elevated locations.

4.25 RADIATION HAZARD CONTROL

4.25.1.0 SCOPE

This procedure describes the controls for sealed-source or x-ray industrial nondestructive testing. It also provides guideline for nuclear alloy analysis.

4.25.2.0 DEFINITIONS

Curie (c) - the activity of a quantity of radioactive material in which 3.7 x 10^{10} atoms are transformed per second. Although used as a unit of quantity, the curie does not relate to the mass or volume of radioactive material; it is a measure of activity. When considering human protection from radiation produced by radioactive activities, a single curie is considered a large amount of activity.

Estimated Radiation Dose - The presumed dose of radiation absorbed by a person, based on the measure radiation in the area

.

Radiation - The emission of atomic particles or electromagnetic radiation from the nucleus of an atom.

Radiation Absorbed Dose (rad) - The basic unit of absorbed dose, expressed in terms of absorbed energy per unit mass of tissue. The term "rad" is still widely used to express radiation dose; however, the newer, universally adopted unit used to express radiation dose is a Gray. 1 Gy = 100 rads.

Roentgen Equivalent Man (rem) - An exposure unit that equals the dose in rads multiplied by the appropriate relative biological effectiveness for the particular radiation. Rem is expressed as "R". 1,000 millirem (mR) = 1R. The number of R indicated on a survey meter is the potential human exposure from the source.

4.25.3.0 BASIC SAFETY CONSIDERATIONS FOR RADIOGRAPHY

4.25.3.1 All phases of industrial radiography, both gamma- and x-ray, must be performed by licensed, trained radiographers and assistant radiographers.

4.25.3.2 The use of radiographic isotopes other than $Cobalt_{60}$ and $Iridium_{192}$ requires special procedures, developed by x-ray contractor and approved by THE OWNER, that increase the frequency of surveys of the source containment for leaks. These procedures shall also outline an emergency response in case of leaks.

4.25.3.3 Radiation workers are allowed a maximum exposure of 1.25 rems in 13 consecutive weeks, (5 rems per year).

4.25.4.0 RADIOGRAPHIC INSTRUMENT SOURCES

4.25.4.1 Check all sources for leaks at least every six months.

4.25.4.2 Use caution to ensure that the radioactive sources in instruments are in the "off" or shielded position prior to allowing employees to work on associated equipment or in vessels.

4.25.5.0 RADIOGRAPHIC CONTRACTORS

CPC shall review the following information for all parties conducting radiographic work:

- a copy of the contractor's license to handle radiographic sources.
- a copy of the contractor's emergency and operating procedures.
- the year-to-date radiation exposure records for employees who perform the radiography and their radiographic training certification records.
- the type of radioactive source to be used for the work and the activity of the source.
- the make and model of survey equipment and their calibration records.
- the type of camera or source-handling facilities to be used and the leak test records on the source and container.

4.25.6.0 COMMUNICATION

Contractor shall communicate daily all plans for radioactive work to CPC and to adjacent contractors whose employees may be affected by the radiography.

4.25.7.0 TRANSPORTATION

Contractor shall ensure the following requirements are met for the handling of radioisotopes within the project site:

- Ensure that carrying containers are properly shielded.
- Properly identify all vehicles used to transport radioisotopes.
- Temporarily store radioisotopes in a vehicle only if the vehicle is locked and radiation warning signs are prominently displayed.
- All personnel who transport radioisotopes must wear radiation monitoring badges.

4.25.8.0 STORAGE

Storage of radioactive source within the project site requires prior written permission of CPC.

4.25.9.0 BARRICADES AND SIGNS

4.25.9.1 Contractor shall erect a perimeter barricade of sufficient size to ensure the estimated radiation doses do not exceed 2 mR per hour above background radiation at any point along the perimeter.

4.25.9.1.1 "Caution - Radiation Area" or "Caution - Radiography in Progress" signs shall be posted on the barricade in conspicuous places and at all probable entrance points. These signs shall have magenta letters and symbols on a yellow background.

4.25.9.2 Inside the perimeter barricade, Contractor must erect a barricade of sufficient size so that the estimated radiation doses do not exceed 5,000 mR per hour.

4.25.9.2.1 “Very High Radiation Area" warning signs must be placed on all sides of the inner barricade.

4.25.9.3 Immediately prior to exposing the radioactive source, the area shall be visually checked to ensure no people are inside the perimeter barricade.

4.25.10.0 OPERATION

4.25.10.1 Entering a Barricaded Area

Personnel who must enter a barricaded area before a source is exposed or after a source is returned to the camera must wear a proper dosimeter and must verify with the radiographer that the source has been returned to the shielded position.

4.25.10.1.1 At all other times, all personnel entering the barricaded area must wear a radiation monitoring badge and a self-reading dosimeter.

4.25.10.1.2 Contractor shall supply appropriate badges and dosimeters and the evaluation of exposed badges and dosimeters by a competent person.

4.25.10.2 Radiation Survey Meters

Contractor shall supply two calibrated radiation survey meters for each work area.

4.25.10.3 Barricade Suitability

Before the radiographic work begins, the 2mR line shall be calculated, and the barricade placed at the calculated distance. The barricade distance must be verified once the source is exposed.

4.25.10.3.1 If, at any time, the estimated radiation dose exceeds 2 mR per hour at the perimeter of the barricade, the source shall be secured and the barricade repositioned to maintain the maximum 2 mR per hour.

4.25.10.3.2 Contractor shall maintain records of these tests of barricade suitability.

4.25.10.4 Operational Checks

Each day, prior to its use, each exposure device is checked for proper operation.

4.25.10.4.1 Contractor shall maintain records of these daily operational checks.

4.25.10.5 Damaged or Malfunctioning Equipment

Contractor shall remove from site any exposure equipment or accessories that are damaged or malfunctioning.

4.25.11.0 SEALED RADIATION SOURCES FOR PROCESS

Sealed sources are used for level gauges, etc. In processes

4.25.11.1 All receipt and storage of sealed sources shall be coordinated with Client's Radiation Safety Officer.

4.25.11.2 If sources are stored on site, secure, separate storage is required.

4.25.11.3 When sources are mounted in place, they must remain sealed.

4.25.11.3.1 Sources may be opened for “As Installed” test and then resealed.

4.26 RESPIRATORY PROTECTION

4.26.1.0 PURPOSE

This section covers the requirements for the selection, use, and maintenance of respirators.

4.26.2.0 RESPONSIBILITIES

All employers shall administer and evaluate their programs to make sure they are being followed:

4.26.3.0 PROGRAM REQUIREMENTS

The following topics must be included in all employer programs:

- Use of equipment approved by NIOSH.
- Employee health evaluation
- Training workers in the use care and limitations of respirators, including instructions on how to fit and test the respirators.
- Written procedures governing selection and use.
- Monitoring of the overall program to assure respirators are used safely.

4.26.4.0 GENERAL REQUIREMENTS

- Respirators must be worn in areas where the atmosphere is contaminated or oxygen deficient.
- Appropriate tests must be conducted when such conditions are suspected. Personnel are to use the appropriate type of respiratory protection provided in accordance with instructions and training.
- Employees will not be assigned to a task requiring the use of a respirator unless it has been determined that they are physically able to perform the work while using the equipment.

Respirator Selection

The following factors will be considered in selecting a respirator:

- Nature of the hazard
- Extent of the hazard
- Contaminants present
- Warning properties of the contaminant
- Concentration of the contaminant
- Characteristics and limitations of the available respirators
- Expected activity of the worker

4.26.5.0 EMERGENCY USE

- In general personnel will not use respirators in emergency situations except for escape. If an emergency arises all personnel will immediately evacuate the area and report to a safe rally point. Respirators will not be used for emergencies without prior approval of the Site Safety Manager.

4.26.6.0 TRAINING

- All personnel that may be required to wear a respirator must be trained in the proper selection, use and maintenance of respiratory protective equipment. A record of training must be maintained on the site.

4.26.7.0 PROGRAM

CPC and its subcontractors shall each maintain their own respective Respiratory Protection Programs and records.

4.27 SAFETY AUDITS (PRO-SAF-0612)

4.27.1.0 SCOPE

This procedure outlines the requirements necessary for effectively auditing a site's safety processes and practices.

In order to use audits to their full potential, written reports from subcontractors' audits need to contain some common information.

The objective of this procedure is to spell out what common information needs to be contained in audit reports. It also contains a few principles and some recommendations, which should be considered by all groups performing audits.

4.27.2.0 DEFINITIONS

This procedure contains no unique definitions.

4.27.3.0 REQUIRED AUDITS

A team comprised of CPC and NRG personnel will audit the project work area at least once weekly.

4.27.4.0 AUDIT PROCESS

The audit process includes instructing the audit team members, designing and conducting the audit then, preparing and issuing a written report for analysis and follow-up as needed.

4.27.5.0 INSTRUCTING THE AUDIT TEAM

Audit team members shall be instructed in the purpose of the audit, observation skills, and how to interact with employees.

4.27.6.0 DESIGNING THE AUDIT

4.27.6.1 Design each audit to look at people; what they are doing and how they are doing it, and what they are not doing that they should be doing; observe the activities of people first and then the work conditions.

4.27.6.2 Give each audit a focus. While all activities are subject to an audit, there should be one item that is given an in-depth review. The focus should be chosen from the items that are causing the most incidents on the given job site. Choosing a focus also helps avoid the natural inclination to focus on the first violation observed. Discuss the focus with the audit team as part of the audit design. A briefing sheet or checklist may be helpful.

4.27.6.3 Plan the areas to be audited and assign responsibilities to the team members. Each audit team should have a designated leader and a scribe.

4.27.6.4 Limit the number of members in each team to six. If there are more, split up into separate teams. Team members should include:

- CPC Site Safety
- CPC Supervisor

- SUBCONTRACTOR(S) representative
- hourly field employee
- NRG designee

4.27.6.5 Management representatives should participate frequently.

4.27.7.0 CONDUCTING THE AUDIT

4.27.7.1 Keep audits short. Audits two hours or less are more effective than longer audits. Use multiple teams if it is necessary to cover large areas or large numbers of people.

4.27.7.2 Audits in any given area should be conducted on different days of the week and at different times of the day.

4.27.7.3 Scan the area before entering it. Observe the activities of people first and work conditions last. Stop and talk with the employees. Ask questions about the work in progress. Consider if there is a better way or if the activity is necessary. Consider the quality of planning and communication.

4.27.7.4 Note and praise safe work practices, good housekeeping, and safe working conditions.

4.27.7.5 When deficiencies are observed, discuss them with the person(s) involved. Always involve the employee's supervisor.

4.27.7.5.1 When unsafe acts are observed use the occasion as an opportunity to guide the employee to an understanding of the desired safe behavior.

4.27.7.5.2 Ask for immediate correction where safety rules are violated or conditions exist which are clearly unsafe.

4.27.8.0 ANALYZING THE RESULTS AND FOLLOWING UP

4.27.8.1 Audits results will be discussed in the weekly meeting.

4.27.8.2 Project management shall develop an action plan that assigns action items with target dates to responsible parties for all items that could not be corrected at the time of audit.

4.27.8.2.1 CPC shall track progress on any and all action plans until closure.

4.27.8.3 All audit results will be shared with all project stakeholders.

4.27.8.4 CPC shall analyze audit data to detect and correct deficiencies in the HS Management System.

4.27.**9.0** **FORMS (See Section 13.0)**

- **Form 3** Daily Inspection Checklist
- **Form 29** Safety Task Assignment

4.28 SCAFFOLDING

4.28.1.0 SCOPE

This procedure establishes guidelines for the erection, inspection, and use of scaffolds.

4.28.2.0 DEFINITIONS

Competent Person - An experienced contractor craftsperson or engineer, acceptable to CPC, who has demonstrated his or her ability or competency to erect and inspect scaffolding.

4.28.3.0 GENERAL

4.28.3.1 Scaffolds are intended to provide safe working platforms at elevations.

4.28.3.2 Scaffolds shall comply with, as a minimum, the provisions of Cal OSHA OSHA, CCR Title 8 Sections 1635 – 1667, and the project's 4 foot fall protection requirement.

4.28.3.3 To eliminate fall exposure, scaffolds must have complete handrails, mid rails, and decking for all work above 4 feet

4.28.3.3.1 Use fall-arrest equipment as a substitute for complete handrails, midrails, and decking only as a last resort.

4.28.4.0 ERECTING, MODIFYING AND DISMANTLING SCAFFOLDS

4.28.4.1 Only trained and qualified workers under the supervision of a competent person may erect, modify, or dismantle scaffolds.

4.28.4.1.1 Unauthorized workmen are subject to disciplinary action for modifying scaffolding.

4.28.4.2 A registered profession engineer must design any scaffolding exceeding 125 feet (38 meters) in height.

4.28.4.3 Fall arrest systems shall be used while erecting, modifying, or dismantling scaffolds.

4.28.4.4 Before erecting and during dismantling, trained scaffold craftsmen shall inspect all scaffold components.

4.28.4.4.1 Scaffold components shall be straight and free from bends, kinks, dents, and severe rusting.

4.28.4.4.2 Components found with defects will be discarded and replaced immediately.

4.28.4.5 The footing or anchorage for all scaffolds shall be sound, rigid, and capable of supporting the loaded scaffold without settling or displacement. Unstable objects such as barrels, boxes, loose bricks, or concrete blocks will not be used to support scaffolds.

4.28.4.5.1 The total load on a scaffold base consists of the sum of the weight of the workers, tools, equipment and materials on a scaffold plus the weight of the scaffold.

4.28.4.5.2 All welded tubular frame scaffolds must be equipped with 6 x 6 inch minimum steel base plates with an internal fixing spigot.

4.28.4.6 Barrels, boxes, kegs and similar unstable objects must never be used as work platforms or to support scaffolds.

4.28.4.7 Install adjusting screws only between the base-plate and the vertical frame section.

4.28.4.7.1 Do not extend adjustment screws beyond 12 inches (30 centimeters).

4.28.4.8 Never use cross braces as substitutes for handrails or midrails.

4.28.4.9 When the height of a scaffold exceeds three times the smallest width of the base, secure it to the building or structure at every other lift and every 30 feet (9 meters) horizontally.

4.28.4.10 Equip scaffold-working platforms with 42-inch (1 meter) high handrails, midrails, and toe boards, all secured rigidly.

4.28.4.10.1 Working platforms should be completely decked with safety planks, manufactured scaffold decking, or laminated wooden planks.

4.28.4.10.2 All scaffolds must be at least two planks wide.

4.28.4.10.3 No employee may work from a single plank

.

4.28.4.10.4 Scaffold planks must be secured from movement using #9 wire or the equivalent.

4.28.4.11 Access ladders must be provided for each scaffold.

4.28.4.11.1 Climbing off the end frames is prohibited unless their design incorporates an approved ladder. To allow access to the working platform in this manner, the ladder built into the end frames may be used if uniform rung spacing between frames can be achieved.

4.28.4.11.2 Tube frames that do not provide uniform rung spacing must be equipped with offset ladders for platform access.

4.28.4.12 When portable straight or extension ladders are used for access to tube-and-coupler scaffolds, the proper 4-to-1 slope shall be maintained to avoid a horizontal tube interfering with the use of the ladder.

4.28.4.12.1 Ladders used for access to a scaffold must also extend at least three feet above the landing.

4.28.4.14 If scaffolds are incomplete (yellow tag), a handhold above the platform elevation must be provided to allow a safe transition from the access ladder to the working platform. Toe-boards do not satisfy this requirement.

4.28.4.15 Do not overload scaffolds. Materials should be brought up as needed.

4.28.4.15.1 Scaffolds must not be loaded in excess of their rated capacity.

4.28.**5.0** ROLLING SCAFFOLDS

4.28.5.1 ALL caster brakes must be locked when the scaffold is not in motion.

4.28.5.2 Remove all loose materials and equipment from the deck before moving scaffold.

4.28.5.3 When moving rolling scaffolds:
- Get help;
- Make certain that the route is clear; and
- Watch for holes and overhead obstructions.

4.28.5.4 No one is allowed to ride rolling scaffolds.

4.28.5.5 Re-level scaffold after each move**.**

4.28.**6.0** SUSPENDED SCAFFOLDS

4.28.6.1 Approved personal fall protection is required for all occupants of a suspended scaffold, and shall be anchored to a fixed safe point of anchorage, which shall be independent of the scaffold, and shall be protected against sharp edges and abrasion. All suspended scaffolds or platforms must be equipped with a separate vertical lifeline anchored independent of the scaffold system.

4.28.6.1.1 Workers must tie off onto this lifeline.

4.28.**7.0** OVERHEAD PROTECTION

4.28.7.1 Overhead protection is required if employees working on scaffolds are exposed to overhead hazards.

4.28.7.1.1 Such protection must be a two-inch (5 cm) plank or the equivalent.

4.28.**8.0** SCAFFOLD INSPECTION

4.28.8.1 Scaffolding shall be inspected after erection or modification by a Competent Person and tagged per the guidelines below.

4.28.8.2 Scaffolding also must be inspected at the beginning of each shift either by the craft supervisor using the scaffolding or by a designated Competent Person.

4.28.8.3 Both the competent person inspection and the daily inspection shall be documented by signing in the spaces provided on the back of the scaffold tag.

4.28.8.4 Inspect, as a minimum, these components:

4.28.8.4.1 Foundation or mudsill for stability.

4.28.8.4.2 Check for missing and/or damaged handrails, midrails, cross bracing, and steel tubing.

4.28.8.4.3 Check weld zones on the scaffold frame for cracks.

4.28.8.4.4 Check the ends of tubing for splits or cracks.

4.28.8.4.5 Manufactured decks for loose bolts or rivet connections and bent, kinked, or dented frames.

4.28.8.4.6 Check plywood surfaces for softening due to rot or wear and for peeling at the edges.

4.28.8.4.7 Safety planks for rot, cracks, cuts, and other external damage.

4.28.8.4.8 Tie rods or bolts and angle iron cleats.

4.28.8.4.9 Cams, springs, threaded connections, toggle pins, or other quick-connecting devices.

4.28.8.4.10 Casters for rough rolling surfaces, "sticky" swivels, and defective locking mechanisms.

4.28.8.4.11 Cups/rings/rosettes, swedge-pins, and other system-scaffold components.

4.28.**9.0** IDENTIFICATION TAGGING

All scaffolds shall be tagged to properly identify their usage and in accordance with the following:

4.28.9.1 Green Tag – Signifies the scaffold was built to meet scaffolding regulations and is complete and safe to use.

4.28.9.2 Yellow Tag – Signifies the scaffold was not built to meet scaffolding standards and fall protection may be required. Deficiencies and controls will be noted on the tag.

4.28.9.3 Red Tag - Signifies the scaffolding is incomplete and/or unsafe. It shall not be used except by scaffold erect/modify/dismantle personnel under the supervision of a Competent Person.

4.28.9.4 No Tag - Signifies the scaffolding is incomplete and/or unsafe. It shall not be used except by scaffold erect/modify/dismantle personnel under the supervision of a Competent Person.

4.28.**10.0** FORMS (See Section 13.0)

- **Form 41** Scaffolding To Be Furnished By Sub-Contractor

4.29 SLINGS AND RIGGING EQUIPMENT

4.29.1.0 SCOPE

This procedure provides minimum requirements for slings and rigging equipment used for hoisting and material handling.

4.29.2.0 DEFINITIONS

This procedure contains no unique definitions.

4.29.3.0 INSPECTIONS

4.29.3.1 Periodic - Slings and rigging equipment shall be inspected bi-weekly by the Qualified Inspector.

4.29.3.1.1 Employees using slings and rigging equipment must ensure the marking system remains legible between inspections.

4.29.3.2 Daily - Slings and rigging equipment shall be inspected daily and prior to each use by the user to ensure that they are in proper working order.

4.29.3.2.1 Damaged or defective slings must be destroyed.

4.29.3.2.2 Damaged or defective rigging equipment must be tagged (do not use) and returned to the tool room immediately.

4.29.3.2.3 Under no circumstances may slings and rigging equipment in need of inspection or repair remain in service.

4.29.4.0 SAFETY FACTOR

4.29.4.1 Slings and manufactured rigging equipment shall not be loaded in excess of their rated capacities.

4.29.4.2 Slings, shackles, and other similar equipment must have a safety factor of five (5).

4.29.4.2.1 Safety Factor = “Nominal failure load” / “Rated working load”

4.29.5.0 APPROVAL AND STAMPS

All spreader bars, eye pads, and other custom lifting devices must be engineered and the design stamped by a Registered Professional Engineer.

4.29.5.1 No makeshift devices are to be used.

4.29.6.0 GENERAL REQUIREMENTS

4.29.6.1 Slings shall not be shortened with knots, bolts or other makeshift devices.

4.29.6.2 Sling legs shall not be kinked.

4.29.6.3 Slings used in a basket hitch shall have the loads balanced to prevent slippage.

4.29.6.4 Slings shall be securely attached to their loads.

4.29.6.5 Slings shall be padded or protected from the sharp edges of their loads.

4.29.6.6 Suspended loads shall be kept clear of all obstruction.

4.29.6.7 All employees shall be kept clear of loads about to be lifted and clear of suspended loads.

4.29.6.8 Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load.

4.29.6.9 Shock loading is prohibited.

4.29.6.10 A sling shall not be pulled from under a load when the load is resting on the sling.

4.29.6.11 Slings with Flemish eye splices with pressed on fittings are preferred.

4.29.6.12 Slings that are damaged or defective shall not be used.

4.29.7.0 FORMS **(See Section 13.0)**

- **Form 3** Daily Inspection Checklist
- **Form 4** Monthly Inspection Checklist

4.30 STEEL ERECTION

4.30.1.0 SCOPE

This procedure provides minimum requirements for steel erection and installation of decking, flooring, and grating.

4.30.2.0 DEFINITIONS

Connector - Employee making the initial connection in the early stages of steel erection.
Leading Edge - The edge of a floor, deck, or grating that changes location as additional floor or deck sections are placed.

4.30.3.0 INTRODUCTION

The potential for serious injury is high for workers engaged in steel erection and the installation and removal of decking, flooring, and grating. Workers falling off structures or through unprotected openings represent the greatest hazards associated with this type of work.

4.30.4.0 GENERAL PRECAUTIONS

4.30.4.1 Evaluate weather conditions before and during decking, grating, and steel erection.

4.30.4.1.1 Gusty winds and/or slippery steel caused by moisture significantly increase the potential for injury and may necessitate stopping work.

4.30.4.1.2 Consider wind effects on cranes. (See "Cranes" procedure.)

4.30.5.0 PLANNING

4.30.5.1 Thorough planning is essential and is required for all steel erection, and for all installation and removal of decking, flooring, and grating.

4.30.5.2 Consider the following factors when planning the work:

- qualifications and training of personnel
- rigging hardware, e.g., slings and shackles
- scheduling (identify responsibility, procedures, and timing for each task)
- equipment, e.g., cranes and boom-supported elevating work platforms
- proper erection sequence to decrease the hazard exposure, i.e., early erection of stair towers to provide access and egress as the steel is erected
- barricades, warning signs, and other protection for personnel and equipment
- availability and location of emergency equipment
- means of access, such as ladders and scaffolds
- tools appropriate to the task
  NOTE: Field-modified tools are not allowed.
- proper PPE
- detailed, specific job and safety instructions for each worker
- harness system, safety nets, and temporary platforms
- overhead obstructions

4.30.6.0 CONNECTING, BOLTING, AND GUYING STEEL

4.30.6.1 Fall Protection

4.30.6.1.1 Always use either decking, safety nets, or a tied-off harness system to protect employees from falls (see also "Continuous Fall Protection").

4.30.6.1.2 Harness systems equipped with two lanyards, when properly used, allow steel workers to tie-off properly.

4.30.6.2 Bolting Requirements

4.30.6.2.1 Permanent floors must be installed as the erection of structural members progresses.

4.30.6.2.2 At no time should there be more than 4 floors or 48 feet (14.6 meters) of unfinished, temporarily bolted or welded structure above the foundation or uppermost permanently secured floor.

4.30.6.3 Column Climbing or Sliding

4.30.6.3.1 Climbing up or sliding down columns is prohibited.

4.30.6.3.2 Use ladders or Boom-Supported Elevating Work Platforms to make connection points.

4.30.6.3.3 To provide access to each level, install stairs equipped with guardrails as each elevation of steel is erected.

4.30.6.4 Preventing Falls

4.30.6.4.1 Straddle (coon) beams when moving laterally.

4.30.6.4.2 Walk on the top of a beam only if it is too large or too small to straddle.

4.30.6.5 Protecting Lower Levels

Do not work directly over another person. This restriction protects employees at lower levels from being struck by falling tools, bolts, nuts, or other debris (see also "Protection From Falling Materials Guideline").

4.30.6.6 Barricades and Signs

4.30.6.6.1 Erect, tag, and maintain barricades on all elevations where employees are exposed to overhead work.

4.30.6.6.2 Use "Danger - Overhead Work" signs in these areas.

4.30.6.7 Trusses

4.30.6.7.1 Securely tie or cross-brace trusses until permanent braces are in place.

4.30.6.7.2 Securely bolt all steel before lines are removed.

4.30.6.8 Multilevel Construction

4.30.6.8.1 On multiple level steel construction, provide ladders, scaffolds, stair towers, or other safe means to the protected floor level immediately below the area of connection.

4.30.6.8.2 All personnel must use this means for safe access and egress to the protected floor or level.

4.30.6.9 Perimeter Protection

4.30.6.9.1 Install perimeter protection as each floor is erected.

4.30.6.9.2 Install a safety railing of 1/2 inch (1.3 centimeter) wire rope or equivalent, approximately 42 inches (1 meter) high with a midrail approximately 21 inches (53.5 centimeters) high around the periphery of all temporary plank or temporary metal floors.

4.30.6.9.3 Install toe-boards as soon as practical (see also "Barricades").

4.30.6.10 Connectors

4.30.6.10.1 When connectors are working together, designate only one person to give signals. That person makes sure that his or her partner, or others working on the job, are in the clear.

4.30.6.10.2 Each person must select a position where he or she cannot be struck by a swinging load.

4.30.6.10.3 When connectors are working at the same connecting point, one end of the structural member must be connected and snugged with a spud wrench before going out to connect the other end.

4.30.6.10.4 Only one connector should go out to connect to the other end.

4.30.6.10.5 Connectors, like all other personnel, must practice Continuous Fall Protection at all times.

4.30.6.10.6 Standing on a spud wrench is not allowed.

4.30.6.11 Connecting Devices

4,30,6,11.1 A wrench or drift pin placed in a hole is not a reliable connecting device.

4.30.6.11.2 A beam must be bolted so that it will not roll before the beam is cut loose from the hook.

4.30.6.12 Precautions During Lifts

4.30.6.12.1 Carefully observe the entire load during the lift to see that nothing gets in the way or fouls the line.

4.30.6.12.2 Stand in the clear when slings are loosened on a load of steel.

4.30.6.12.3 Do not take hold of the hoist rope near the sheave block.

4.30.6.12.4 Securely attach hooks or lashing for plumbing-up before stressing the turnbuckle.

4.30.6.12.5 When a turnbuckle is under stress during plumbing. use a device to keep the turnbuckle from unwinding while under the load.

4.30.6.12.6 To prevent unscrewing, wire the turnbuckles when final alignment is made under tension.

4.30.6.13 Wire Rope Clips

4.30.6.13.1 Properly install and use the correct number and size of heat-treated wire rope clips. Malleable clips are not allowed.

4.30.6.13.2 A minimum of three clips is required on wire rope handrails.

4.30.6.13.3 Because a rope diameter may decrease under tension, inspect wire rope clips at least one hour after installation to make sure they are tight.

4.30.6.13.4 Inspect all wire rope clips weekly.

4.30.6.14 Guys

4.30.6.14.1 If suitable anchors are not available for guys, use properly placed "dead men".

4.30.6.14.2 When lashing is used for guys, make sure the clips are tight and that there is at least one dead turn.

4.30.7.0 DECKING AND GRATING

4.30.7.1 Preliminary Work

4.30.7.1.1 Before starting to install decking or grating, develop a plan that includes installation methods, fall protection, availability of erection drawings, and qualification of personnel performing the work.

4.30.7.1.2 The immediate supervisor must give detailed, specific job and safety instructions to each installer.

4.30.7.2 Fall Protection

4.30.7.2.1 Provide fall protection for employees installing decking or grating and for any other employees authorized to be on the incomplete floor.

4.30.7.2.2 Limit access to the area until decking or grating is in place and fastened.

4.30.7.2.3 Workers constructing "leading edges" must be protected by appropriate fall protection systems.

4.30.7.2.4 Persons who are not performing "leading edge" work but are within 6 feet (1.8 meters) of unprotected sides or edges must also be provided with fall protection.

4.30.7.2.5 Post signs and barricades at stairways to warn of overhead work and incomplete floors and to keep unauthorized personnel out of the work area until decking and/or grating is installed and secured and guardrails and midrails are in place.

4.30.7.2.6 Install permanent handrails and midrails when the decking or grating work has progressed far enough to allow installation to begin. If permanent guardrail material is not on site, use cable or equivalent material.

4.30.7.2.7 If pipe chase or equipment holes and similar openings are in the decking or grating, promptly cover them with identified hole covers or surround them with protective barricades. Do not create "traps" by leaving holes uncovered or leaving out pieces of grating or decking.

4.30.7.3 Recommended Installation Procedure

4.30.7.3.1 Sequence installation to eliminate excessive handling.

4.30.7.3.2 Hoist material to the floor with a forklift or crane. Lift short pieces in bundles.

4.30.7.3.3 Place bundles so that they are stable and secure and pose no hazard to the workers.

4.30.7.3.4 Erect the grating so that work is done from grating/decking and not from the structural steel.

4.30.7.3.5 Follow the sheet placement with the fastening operation.

4.30.7.3.6 Use grating hooks to place grating.

4.30.8.0 SAFE PRACTICES

4.30.8.1 Use tag lines for controlling loads (Minimum 6').

4.30.8.2 Materials shall not be swung over employees nor shall employees be allowed to walk, stand, or work under suspended loads.

4.30.8.3 Accordingly, "treeing", or rigging more than one piece of steel from one crane hook at a time, is not allowed.

4.30.8.4 Crane operators shall sound their horns before swinging of the crane boom.

4.30.8.5 Never ride loads under any circumstance.

4.30.8.6 Use appropriate PPE. Always wear gloves.

4.30.8.7 Do not leave tools, bolts, washers, and drift pins lying on beams and scaffold platforms.

4.30.8.8 Do not throw tools, bolts, washers, or drift pins.

4.30.8.8.1 Place them in bolt baskets or other approved containers (not metal or plastic buckets), and raise or lower them using a hand line.

4.30.8.9 Do not overload bolt baskets.

4.30.8.10 Tie off bolt baskets, water kegs, and other supplies on the steel to prevent falling.

4.30.8.11 When climbing ladders, do not hand-carry any tools or materials.

4.30.8.12 Take care when knocking out drift pins in order to avoid having them fall.

4.30.8.12.1 Leave drift pins in place until you are certain no one is below.

4.30.8.13 When erecting steel, keep hands clear of pinch points.

4.30.8.14 Where possible, use two wire rope slings on structural members over 15 feet (4.6 meters) in length.

4.30.8.14.1 When steel must be tilted to drift it into position, it may be preferable to rig with one sling using a double wrap.

4.30.8.15 Have a firm footing when bolting with a hand or power wrench.

4.30.8.16 Secure tools at all times when at elevation.

4.30.8.17 If working over exposed vertical reinforcing rods, cover or protect the ends of the rods.

4.30.9.0 IMPACT WRENCHES AND COMPRESSED AIR

4.30.9.1 An air flow breaker is always required at the compressor or point of air supply. This excess flow valve shuts off the air supply going through the hose if a sudden volume of air is released from the hose because of hose separation.

4.30.9.2 Make sure that the socket is properly attached to the impact wrench and that the impact wrench is equipped with a locking device to retain the socket.

4.30.9.3 Use only flush-fitting pins to secure the socket of an impact wrench. Nails or protruding wires may injure your hands or body.

- Wrapping the connection between the socket and the wrench helps hold the safety pin in place and avoids loss of the socket.

4.30.10.0 MATERIAL HANDLING, INCLUDING UNLOADING, STORING, AND HANDLING STEEL

4.30.10.1 Store steel on wood or other appropriate dunnage and in a stable position. It is unsafe to place steel beams on loose or sandy soil without blocking them.

4.30.10.2 When steel and grating are delivered by truck, the driver must be out of the truck when unloading. Before the load is lifted, personnel unloading steel must stand clear of the truck.

4.30.10.3 Material on trucks being unloaded should be removed in a manner that the steel cannot shift or be knocked off.

4.30.10.3.1 Some loads will require standards on the trailer bed to prevent steel from falling off.

4.30.10.4 Use a minimum 6' tag line on all loads.

4.30.10.5 When lifting a load of steel, make sure that all remaining steel or other objects will not obstruct the load.

4.30.10.6 When a crane is taking up slack in the lifting slings, keep hands away from the load.

4.30.11.0 STEEL ERECTION REQUIREMENTS

All provisions of Title 8 Article 29 of the Construction Safety Orders shall be complied with.

Exception – "100-percent Fall Protection" is required for all exposures over 4 feet, regardless of circumstances.

A very basic outline of the provisions of Title 8 Article 29 of the Construction Safety Orders, is shown below. Refer to the regulation for detailed information.

4.30.11.1 Purpose

The purpose of this procedure is to ensure that steel erection activities are being performed in accordance with Cal OSHA standard Title 8 Article 29 of the Construction Safety Orders requirements.

4.30.11.1.1 **A**ll contractors associated with steel erection activities, as defined by OSHA, shall develop plans to meet the OSHA requirements as well as specific steel erection requirements set forth in this manual.

4.30.11.2 Fall Protection Requirements

Fall protection requirements, as outlined in this manual, shall be followed. No employee or work operation is exempt from the "4-foot / 100-percent Fall Protection" requirement. This includes connectors, bolt-up operations, decking operations, etc.

4.30.11.2.1 The exemptions set forth in the OSHA standard that allow certain workers and work operations not to use fall protection when exposed to falls greater than 4 feet, ARE NOT recognized or allowed on this project.

4.30.11.3 Steel Erection Program Requirements

The requirements listed below are considered minimum requirements and must be followed for all steel erection activities.

4.30.11.3.1 A steel erection plan must be provided prior to the start of steel erection activities.

4.30.11.3.2 This plan must be prepared by a qualified person, be site-specific, and address all of the following:

- Establish fall protection procedures for the erection process.
- Certify the training of workers involved with the steel erection process.
- Detail the erection sequence.
- Crane selection and placement procedures, as well as inspection procedures for cranes and rigging.
- Site preparation requirements, overhead loads, and critical lifts.
- Describe procedures for steel erection activities, e.g., bracing/guying, connections, decking, roofing, siding, grating, etc.
- Falling object protection procedures.
- Specifically address hazardous non-routine tasks.
- Perimeter fall protection planning and turnover.
- Submit a detailed job hazard analysis (JHA) for the steel erection process.

4.30.11.3.3 The steel erection checklist shall be completed and submitted prior to the start of any steel erection activities.

4.30.11.3.4 The checklist shall be discussed in a specific steel erection meeting.

- All contractors involved in the steel erection process shall be at the steel erection planning meeting and shall comply with the requirements of this section.

4.30.11.4 Perimeter Guardrail Fall Protection Systems

4.30.11.4.1 When steel erection activities near completion, a representative of the erector shall walk the entire perimeter guardrail system and inspect it thoroughly for compliance with guardrail system requirements.

4.30.11.4.2 If there are any deficiencies in the guardrail system, the erector must correct them.

4.31 TEMPORARY ELECTRICAL INSTALLATION REQUIREMENTS

4.31.1.0 **SCOPE**

This procedure outlines the requirements necessary to install and maintain temporary electrical facilities.

4.31.**2.0** **DEFINITIONS**

This procedure contains no unique definitions.

4.31.**3.0** **GENERAL INSTALLATIONS**

4.31.3.1 All National Electric Code (NEC) regulations pertaining to permanent wiring also pertain to temporary wiring, except as altered or modified by Article 305 of the NEC.

4.31.3.2 Temporary electrical power and lighting installations are permitted during construction.

4.31.3.2.1 The temporary wiring must be removed immediately upon completion of the construction or of the purpose for which the wiring was installed.

4.31.3.3 The following general precautions apply to the use of temporary wiring:

4.31.3.3.1 Install temporary electrical systems so that they are not subjected to physical damage.

4.31.3.3.2 Do not use equipment in poor condition for temporary electrical systems.

4.31.3.3.3 Protect flexible cords and cables from accidental damage; avoid sharp corners and projections.

4.31.3.3.4 When suspending temporary wiring use nonconductive material.

4.31.3.3.5 Protect temporary wiring from over current according to the requirements of Article 240 of the NEC or other recognized code.

4.31.**4.0** **SERVICES**

Install electrical services according to the requirements of Article 230 of the NEC or other recognized code.

4.31.**5.0** **EQUIPMENT**

4.31.5.1 All temporary electrical equipment on the jobsite must be Underwriters Laboratories Listed or approved by an internationally-recognized testing laboratory for site application.

4.31.5.2 Distribution panels must be dead-front type with covered hot terminals, properly constructed and grounded.

4.31.5.2.1 Before any work is started, establish fuses and breakers capacity, voltage and frequency of circuits.

4.31.5.3 **Use only explosion proof electrical equipment in flammable or potentially explosive atmospheres such as confined spaces.**

4.31.**6.0** INSPECTION

4.31.6.1 All activities associated with electrical equipment, cables, panels, grounding, tests, etc. must be inspected by a qualified inspector.

4.31.6.2 Only qualified electricians are authorized to issue permits, repair electrical equipments, make electrical connections, etc.

4.31.6.3 Field repairs or tampering with electrical equipment by unauthorized persons will not be tolerated.

4.31.6.4 All electrically operated equipment must be visually checked by the user daily and before each use.

4.31.6.5 All electrical equipment should be formally inspected by a qualified electrician at least quarterly or more often if conditions found during inspections warrant it.

4.31.6.5.1 Such inspection include a continuity test of the grounding conductor (as applicable) and complete examination of the equipment/system to assure good and safe operating conditions.

4.31.6.6 No electrically operated equipment is to be used unless it is in proper and safe operating order.

4.31.6.7 Check all cords to all electrical tools and all cords to electrical equipment to ensure they are serviceable and properly grounded.

4.31.7.0 ELECTRICAL WORK

4.31.7.1 Do not work on electrical equipment if clothing is wet or any part of the body is in contact with water.

4.31.7.2 Water must not be used on electrical equipment fires. Whenever possible, de-energize electrical equipment before fighting fire.

4.31.7.3 Notify all affected personnel when the power is turned off, and again before it is turned on.

4.31.**8.0** LIGHTING

4.31.8.1 Adequate lighting is required for any work after dark. *No Lighting, No Work.*

4.31.8.2 Temporary portable lighting used in damp and/or hazardous locations and confined areas with low ground resistance must be operated at a maximum of 12 volts, unless protected with Ground Fault Circuit Interrupters.

4.31.8.3 Bulbs or lamps must not exceed the allotted wattage for that fixture.

4.31.8.4 Ensure that bulbs are screwed firmly into their sockets.

4.31.8.5 Convenience outlets shall not be installed on any temporary lighting circuits.

4.31.8.6 Temporary lighting must have guards over bulbs.

4.31.9.0 GROUNDING

4.31.9.1 Grounding devices should be engineered and installed for each particular site.

4.31.9.2 Any equipment or structure on which electric charges may accumulate, such as portable generators or storage tanks, must be grounded.

4.31.10.0 CABLES

4.31.10.1 Enclose and protect all uninsulated conductors.

4.31.10.2 High voltage (600 volts or more) must be properly protected and identified using approved signs.

4.31.10.3 Cord sets must have heavy duty insulation, weather and sun resistant with a ground conductor.

4.31.10.4 Cord sets must be free of splices.

4.32 TRENCHING AND EXCAVATIONS

4.32.1.0 PURPOSE

The purpose of this policy is to ensure compliance with state and federal regulations for an excavation, trench or earthwork according to Title 8, California Code of Regulations, Sections 341 and 1504, 1539-1547.

4.32.2.0 SCOPE

This policy and procedures applies of all excavation, trench or earthwork that takes place within the CPC project.

4.32.3.0 STANDARDS

4.32.3.1 Definition of Excavation

Within the scope and applications of this policy and procedure (and because of environmental issues), the definitions apply to excavations made in the earth's surface more than 4 feet in depth or 1 cubic yard of soil. Excavations are defined to include a trench.

4.32.3.2 Excavation Permit

The valid permit for excavation issued by Cal-OSHA according to Title 8, Section 341 must be posted at the job site.

4.32.3.3 Notifications

Notify dig alert prior to excavating.

4.32.3.4 Safety

Contractors shall identify special precautions for employees that are required to work within an excavation or trench, 4 feet or greater in depth, when there is evidence of soil contamination or a potential exists for this type of hazard.

4.32.3.4.1 Excavation, trench or earthwork requires compliance with Title 8, California Code of Regulations, Sections 1504, 1539-1547. A competent person shall be utilized for this type of work within the Project.

4.32.3.4.2 When oxygen deficiency or a hazardous atmosphere exists in an excavation or trench (or could reasonably be expected to exist) which is greater than 4 feet in depth, no employee shall enter without proper personal protective equipment specifically for protecting the person from the atmospheric hazard (see Personal Protective Equipment).

4.32.3.4.3 An excavation, trench or earthwork may meet the definition of a Confined Space. Should this be the case, an Entry Permit shall be required.

4.32.3.5 Competent Person

An excavation, trench or earthwork greater than 4 feet in depth shall have a competent person assigned to the job who shall be provided by the excavation contractor.

4.32.3.5.1 This person shall control the excavation work and be capable of identifying existing and predictable hazards in the surrounding or work area and have the authorization to take prompt corrective measures to eliminate them.

4.32.3.6 Protective Systems

An excavation, trench or earthwork of 5 feet deep and greater shall have a protective system capable of protecting employees from cave-ins from material that could fall or roll from an excavation face or into the excavation, or from the collapse of an adjacent structure.

Note:This protective system shall meet the requirements of Cal-OSHA, Sections 1541-1547, and shall be provided by the excavation contractor.

4.32.3.7 Sloping, Benching or Shoring

4.32.3.7.1 Sloping, benching or shoring for excavations greater than 20 feet deep shall be designed by a California Registered Professional Engineer.

4.32.3.7.2 Sloping or benching for excavation less than 20 feet deep shall meet the requirements of Cal-OSHA, Section 1541.1, Appendix B.

4.32.3.7.3 Timber shoring for trenches less than 20 feet deep shall meet the requirements of Cal-OSHA, Section 1541.1, Appendix C.

4.32.3.7.4 Aluminum hydraulic shoring for trenches less than 20 feet deep shall meet the requirements of Cal-OSHA, Section 1541.1, Appendix D.

Note: Modifications to the design of the protective system beyond the scope provided for in Section 1541.1 Appendices B, C and D shall not be allowed. Contact CPC safety when additional information is required.

4.32.3.8 Soil Classification

4.32.3.8.1 Soil classification for excavations shall be classified by a competent person assigned to the job. When soil conditions change, the soil classification shall be re-evaluated.

4.32.3.8.2 The soil shall be classified as Type A, Type B, or Type C in accordance with the definitions set forth by Cal-OSHA, Section 1541.1, Appendix A.

4.32.3.8.3 Where there is a potential for cave-in, the excavation contractor shall provide adequate protective systems to prevent a cave-in.

NOTE: Contact Health & Safety Department for additional information when required.

4.32.4.0 COMPETENT PERSONS RESPONSIBILITY

The contractor's competent person is the person assigned to control the work as the competent person for an excavation, trench or earthwork.

4.32.4.1 Posting the Cal-OSHA, Title 8, Section 341, permit at the job site for the duration of the work for an excavation or trench that is 5 feet or greater in depth into which an employee shall enter.

4.32.4.2 Controlling the work and identifying existing and predictable hazards in the surrounding work area associated with the work.

4.32.4.3 Taking prompt corrective measures to eliminate any hazards.

4.32.4.4 Controlling only authorized persons to enter the excavation or trench.

4.32.4.5 Complying with the requirements of State of California, Title 8, California Code of Regulations, Construction Safety Orders, Sections 1504, 1539-1547, for excavation, trenches and earthwork, including (but not limited to):

4.32.4.5.1 Protecting open excavations to safeguard employees from falling into an opening.

4.32.4.5.2 Providing access and egress ladders, ramps, or stairways in trench excavations that are 4 feet or more in depth, and no more than 25 feet of lateral travel for an employee.

4.32.4.5.3 Daily inspections of excavations by a competent person prior to the start of work and as needed throughout the shift.

4.32.4.5.4 Providing fall protection where employees or equipment are required to cross over excavations, walkways or bridges with standard guardrail.

4.32.4.5.5 Providing adequate barrier physical protection including reflective and flasher warning during hours of darkness.

4.32.4.5.6 Providing protective systems for employees in excavations for cave-ins by an adequate protective system designed in accordance with Title 7, Section 1541.1(b) (except when excavations are made entirely in stable rock), or excavations are less than 5 feet in depth, and examination of the ground by a competent person provides no indication of a potential cave-in.

4.32.4.5.7 Determining soil classification for sloping or benching systems and timber or aluminum hydraulic shoring when used in accordance with the requirements of Cal-OSHA, Title 8, Section 1541.1(b)(2),

Appendices A through D, as a method to protect employees from cave-in.

4.32.4.6 Complying with Soil Excavation Policy and Procedure and the South Air Quality Management District, Rule 1166, when required.

4.32.4.7 Ensuring no employee enters an excavation or trench greater than 4 feet in depth until an Excavation, Trench and Earthwork Permit is issued..

4.32.4.8 Removing (pumping) any water from the excavation before entering.

- HEALTH AND SAFETY REPRESENTATIVE

  When an excavation or trench is greater than 4 feet in depth where an employee will enter and there is a hazardous atmosphere or potential for a hazardous atmosphere, the Health & Safety Representative shall assist in determining the appropriate personal protection equipment. These conditions shall be determined by evidence of soil contamination, unfavorable natural ventilation, or as determined by the results of the soil excavation requirements.

4.32.**5.0** **FORMS (See Section 13.0)**

- **Form 43** Soil Checklist For Trenching
- **Form 44** Trench Safety Daily Field Report

4.33 WELDING AND BURNING

4.33.1.0 SCOPE

This procedure provides basic guidelines for electrical welding operations and oxy-fuel burning.

4.33.2.0 DEFINITIONS

Flame-Resistant Material - A material that burns slowly or is self-extinguishing after the external source of ignition is removed.

4.33.3.0 QUALIFIED OPERATORS

4.33.3.1 All operators of oxy-fuel equipment must receive training in the proper care, maintenance, and use of oxy-fuel equipment.

4.33.3.1.1 The training should address, as a minimum, compressed gas cylinders, regulators, torches, hoses, flashback arrestors/check valves, PPE, and fire prevention practices.

4.33.4.0 FIRE PREVENTION

4.33.4.1 Before starting to burn or weld, the work area around and below must be inspected to ensure that sparks or molten metal will not fall on workers or combustible materials.

4.33.4.2 Ignitable materials shall be moved out of the line of fire (sparks or molten metal), where possible.

4.33.4.3 Where personnel or ignitable materials cannot be moved out of the line of fire, they shall be protected by the use of fire resistant blanket, tarps, or similar coverings. Fire resistant blankets, tarps, etc. shall be secured (tethered) in place.

4.33.4.4 If welding or cutting is done in an area where sparks or molten metal has the possibility of contacting ignitable materials, a fire-watch shall be posted to watch for any problems from the welding.

4.33.4.4.1 The fire-watch shall be equipped with at least one 30-pound ABC fire extinguisher. The fire-watch shall be trained in the use of the fire extinguisher.

4.33.4.4.2 The fire-watch shall remain on post for at least 30 minutes after the welding/cutting is completed.

4.33.4.5 Welding or burning in a hazardous area shall only be done if an appropriate Permit has been issued for the work.

4.33.4.6 Every employee engaged in welding or burning shall have access to at least one 30-pound ABC fire extinguisher within no more than 25 feet of the operation.

4.33.5.0 WELDING OPERATIONS

4.33.5.1 Leads

4.33.5.1.1 Inspect welding leads prior to use to ensure that the insulation is not damaged and that the conductor is not exposed.

- Repair or discard damaged cord sets.
- Repairs shall be made by a qualified person, using only correct repair materials.

4.33.5.1.2 Only cable free from repair or splices for a minimum distance of 10 feet from the cable end to which the electrode holder is connected shall be used.

4.33.5.1.3 To eliminate the possibility of partially exposing a connection while installing the leads, male and female connectors may need to be taped or otherwise restrained from separating.

4.33.5.1.4 Welding leads shall not be secured to supports with conductive ties (wire, welding rod, etc.)

4.33.5.2 Grounding

4.33.5.2.1 Ground leads for electric arc welding used on rotating equipment shall be located as close to the welding area as possible to minimize secondary arcs.

4.33.5.3 Portable Welding Machines

4.33.5.3.1 Welding machines shall be shut down any time the job is left unattended.

4.33.5.3.2 Welding machines shall be shut down when they are being refueled.

4.33.5.3.3 When a portable welding machine includes a receptacle for convenience power:

- if the voltage is alternating current, the receptacle must be equipped with a ground fault interrupter (GFCI);
- if the voltage is direct current, the receptacle must be removed or otherwise disabled.

4.33.5.4 Personal Protective Equipment

4.33.5.4.1 The arms of welders and welders' helpers shall be protected against sparks and molten metal.

4.33.5.4.2 Gloves appropriate for the work shall be worn.

4.33.5.4.3 "Soft-Cap" welding is not allowed. Hard hats with welding hoods are required.

4.33.5.4.4 Welding hoods shall be equipped with appropriately-shaded filter lenses #9 shade or darker is required.

4.33.5.4.5 Safety glasses shall be worn under all welding hoods.

4.33.**6.0** BURNING OPERATIONS

4.33.6.1 When removing regulators from or attaching regulators to oxygen cylinders, keep all sources of oil and grease (e.g. dirty gloves) away.

4.33.6.2 Check Valves and Flame Arresters are required. Directly attach reverse-flow check valves and flame arresters to the torch and the regulator.

4.33.6.3 Oxygen and acetylene bottles valves must be closed any time the equipment is not actively used.

4.33.6.3.1 Bleed off pressure from torch hoses when the torch is not actively used.

4.33.6.4 Gas hoses must be removed from vessels and other confined spaces anytime the equipment is not actively used.

4.33.6.5 At the end of the shift, or when the work is complete, remove the regulator from the cylinders, replace the protective cylinder caps, and cap the regulator threaded compression nipples to prevent dirt and foreign material from entering the system.

4.33.6.6 Store the torch, hoses, and regulators in a clean, dry, oil-free area and in a manner to protect them from physical damage.

4.33.6.7 The operator must inspect the equipment prior to each use. In particular, the operator should look for leaks, burns, worn areas, and other defects.

4.33.**7.0** WELDING BOXES/ENCLOSURES

4.33.7.1 Where work is performed in hazardous areas and welding sparks and hot slag from welding and burning operations can ignite hazardous materials below or near the work area (and the materials or the work cannot be moved), then welding boxes or similar enclosures shall be built.

4.33.7.2 Requirements include:

4.33.7.2.1 The floors shall be solid, with fire blanket covering the floor.

4.33.7.2.2 All sides shall be covered with fire blanket to a minimum of 42 inches high unless the enclosure has solid non-flammable walls.

4.33.7.2.3 A 30-pound ABC fire extinguisher inside the box.

4.33.7.2.4 The box sealed to the point of no slag or sparks escaping. (I.e., higher walls, a roof, additional layers of fire blanket, etc., installed if required by the work).

4.33.8.0 STORAGE AND HANDLING OF COMPRESSED GAS CYLINDERS

4.33.8.1 The valve protective caps must be kept on all cylinders not in actual use.

4.33.8.2 Move or transport cylinders in the upright position.

4.33.8.2.1 Use racks or cradles to prevent them from tipping, falling, or dropping.

4.33.8.3 Use enclosed cages or carrying cradles to lift cylinders from one level to another.

4.33.8.3.1 Do not use ropes or slings.

4.33.8.4 All cylinders must be stored and used in an upright position and adequately secured to prevent tipping.

4.33.8.5 Oxygen and acetylene (or other fuel gas) cylinders in storage must be separated from each other by 20 feet (6.1 meters) or by a five-foot (1.5 meter) high barrier which has a one-hour fire rating.

4.33.8.6 Cylinders must not be taken into confined spaces.

4.33.8.7 Smoking, spark-producing work, and open flame activities are not allowed within 20 feet (6 meters) of any cylinder storage area containing cylinders of flammable gas.

4.33.8.7.1 Post signs prohibiting these activities in cylinder storage areas.

4.33.8.8 Gas cylinders must not be stored or staged for use inside vessels, tanks, or other confined spaces.

4.33.**9.0** VENTILATION AND PROTECTION

4.33.9.1 Employees welding, cutting or heating metals of toxic significance shall use air-line or other approved filter-type respiratory protection.

4.33.9.2 Welding, burning and heating performed in confined spaces requires general mechanical or local exhaust ventilation to reduce the concentrations of smoke and fumes to acceptable levels.

4.33.9.3 If adequate ventilation cannot be provided, employees must be provided with and required to use proper respiratory protective equipment.

4.33.9.4 When sufficient ventilation cannot be obtained without blocking the means of access, employees must be provided with adequate respiratory protective equipment.

4.33.9.5 Each material's Safety Data Sheet shall be reviewed to determine the appropriate ventilation and respiratory protection required.

4.33.**10.0** ADDITIONAL REQUIREMENTS

4.33.10.1 When arc-welding is being done near other workmen, they must be protected from the arc rays by noncombustible screens or they must wear proper eye protection.

4.33.10.2 Make sure that the equipment is shut down and a fire extinguisher is available during refueling.

4.33.10.3 Do not use matches or cigarette lighters to light torches. Spark igniters must be used.

4.33.10.4 Torches must not be used to light smoking materials.

4.33.10.5 Appropriate fire-resistant gloves must be worn when burning or welding.

4.33.10.6 When a crescent or special wrench is required to operate the acetylene cylinder valve, the wrench must be kept in position on the valve.

4.33.10.7 Keep all welding leads and burning hoses up off floors, walkways and stairways.

4.33.10.8 The use of rebar tie-wire (16 gage) to support leads, hoses and cords is prohibited.

4.33.10.8.1 Use of rope will prevent damaging the leads or hoses.

4.33.**11.0 FORMS (See Section 13.0)**

- **Form 3** Daily Inspection Checklist
- **Form 45** Welding and Cutting Permit

4.34 DROPPED OBJECT PROTECTION

4.34.1 PURPOSE, SCOPE, AND OBJECTIVE

To describe measures to prevent the occurrence of dropped objects.

4.34.1.1 SCOPE

This program is to manage objects that could fall and harm people or damage property during operations on ARB projects.

4.34.1.2 OBJECTIVE

To give guidance to eliminate dropped objects through:

4.34.1.2.1 Identification and understanding of potential dropped object hazards
4.34.1.2.2 Understanding the levels of protection that are needed to prevent dropped objects
4.34.1.2.3 Selecting and supplying the right level of mitigation
4.34.1.2.4 Providing procedure to ensure mitigation steps are in place
4.34.1.2.5 Raise overall awareness of potential of dropped objects

4.34.2 TERMS AND DEFINITIONS

4.34.2.1 Dropped Object- Any object with the potential to cause death, injury or equipment damage that falls from its previous position Examples of dropped objects include:

- Any tools being used at heights
- Any tools/ materials left behind after working at height
- Any operations conducted at height

- Temporary equipment at height
- Personnel working on a level directly below an operation

4.34.2.2 Tether- Means to secure tool or material and could be done by using a tool lanyard for tools or rope for materials.

4.34.2.3 Tool Lanyard- Lanyard designed specifically for securement of tools

4.34.2.4 Work at Heights - Any work that is done above the ground level eg(off of ladder, work on upper level platform)

4.34.3 REQUIREMENTS AND ROLES AND RESPONSIBILITIES

All personnel working at heights must ensure that any tools or materials must be secured at all times while working at heights.

4.34.3.1 Management:

- Set expectations for all personnel on project that all tools and materials will be secured when performing any work at heights.

4.34.3.2 Foreman:

- Make sure that all tools and materials are secured when doing any work at heights.
- Ensure that tool and material securement is part of the daily plan.
- Ensure equipment is available for crew to secure all tools and materials.

4.34.3.3 Craft Worker:

- Make sure to follow direction of foreman and ensure that all tools and materials are secured at heights.
- Make sure that no materials or tools are left at heights where there is potential of the items falling on anyone below.

4.34.3.4 Safety Department:

- Assist crews in making sure that all tools and materials are secured by providing training and assisting in dealing with any obstacles that may make it difficult to secure tools or material.
- Monitor crews for compliance with dropped object prevention plan and provide feedback to management on progress.

4.34.4 STRATEGY

- Create site-specific dropped object prevention group
- Identify and assess problem areas
- Develop and implement an action plan
- Monitor results
- Continually improve

4.34.5 CAUSES OF DROPPED OBJECTS

- Untethered tools used at heights
- Poor housekeeping
- Tools and materials left at heights

- Poor planning
- ineffective control or equipment to bring equipment to work level
- Carrying items in hand while climbing ladders
- Not monitoring for changes in condition while performing work

4.34.6 PREVENTITIVE ACTIONS

- All personnel will be trained on dropped object prevention program
- Ensure that all tools that will be used on site are "tether ready" by having approved attachment point installed on all tools.
- All tools, lanyards and attachment points shall be inspected prior to use.
- Train personnel on how to properly use drop tool prevention equipment
- Make sure to discuss daily in JSA that all tools will be tethered when working at heights and that measures are in place to prevent dropping of any materials from heights
- Perform daily inspections of tools, including drop prevention equipment
- Make sure that any materials that are being installed at heights are secured from falling to lower levels
- Create program to ensure that no tools or materials are left at heights after task is complete
- Hold supervision accountable to ensure that proper procedures are in place at all times to prevent dropped objects from height
- Establish procedure to prevent personnel from working directly under personnel performing work at heights
- Create weekly job safety walk with members of site supervision and craft personnel where dropped objects are one of the items that are being looked for in addition to other site hazards.
- Any dropped object must be reported to safety immediately and an investigation will be done to find methods to prevent reoccurrence.

4.34.5 TRAINING

All personnel will be trained on dropped objective prevention program as part of their project on-boarding orientation. Additional training will be provided as needed .

5.0 EMERGENCY PROCEDURES AND JOBSITE EMERGENCY PLAN – PRO-SAF-0014

For ALL Emergencies the number shall be posted at the jobsite office and bulletin boards.

PROJECT EVACUATION PLAN

At the time of announcement, all non-emergency personnel should proceed to their appropriate Assembly Area(s).

All employees should be familiar with the location of all emergency equipment and the nearest evacuation route. The evacuation areas are dependent upon where the emergency is and the wind condition. In the event one of the Assembly Area(s) is impacted by the emergency, the Incident Commander will provide clear instructions as to where to respond safely. A repeated announcement over the radios will identify safe Assembly Areas to report.

As with any emergency, stay upwind and crosswind of the emergency.

Once everyone has evacuated, then accountability of all personnel shall be initiated by their immediate supervisor.

Medical Incidents:

All injuries regardless of how small must be reported immediately to the Safety Department. If the injury is serious, activate the emergency notification system by calling and report a medical emergency to the project's emergency dispatch. While emergency personnel are responding, have someone stay with the injured and ensure the surrounding area is safe.

5.1 Emergency Plan and Emergency Procedures

Personnel shall be briefed on plant emergencies and emergency reporting procedures during the new employee orientation and at frequent "Tool Box" safety meetings. Emergency procedures and telephone numbers shall be posted at key locations throughout the Project.

5.2 Emergency/ First Responder Calls

All requests for emergency responders must be called into the NRG Control Room (760) 473-3896. **DO NOT CALL 911**

5.3 Reference Documents

- Emergency Action and Severe Weather Safety Plan
- Emergency Contact List

6.0 EDUCATION, TRAINING, AND COMPETENCE (PRO-SAF-0520)

6.0 Education, Training, and Competence - PRO-SAF-0520

This project should establish and implement a documented process that provides employees/contractors with the necessary skills, knowledge, and certification to perform work in a safe and environmentally sound manner. This training includes employee/contractor orientation, regulatory required training and craft skills training. In addition, the process should address contractors by defining a method to communicate applicable site HS information. The level of training required should be based on the degree of inherent risks associated with the site and the complexities of the actions required to control or mitigate the particular risk. Measures should be in place to assess the competency of those trained and determine the effectiveness of the training programs. The system should include processes to effectively maintain training records.

6.1 Safety Recognition

A reward and recognition program is part of the CPC Safe Start Program.

6.2 Orientation, Education And Training

Industry statistics indicate that at risk behaviors or unsafe acts by employees are the cause of 80-90% of the accidents and injuries in construction. This section outlines most of the basic types of information and training all employees, supervisors and Subcontractors need to know prior to the start of work and throughout construction of this project.

6.2.1 Personnel Orientation

All personnel except visitors are required to attend a formal contractors safety orientation. In addition, Orientations for visitors and vendors shall be conducted accordingly. New personnel shall receive an introduction and Site safety orientation to the project. This includes all staff personnel and subcontract personnel, regardless of the number of years worked in the industry. It should cover every person new to the jobsite. The orientation is given when applicants are hired or Subcontractors begin work. The orientation program is site specific.

The safety orientation is presented as part of the overall project orientation. Examples of information and training that should be given includes the following:

- Introduction to the Project
- HS Policy/Goals & Objectives
- Incident/Injury prevention
- Cultural HS management system alignment
- Associated Hazards
- Reporting of Hazards
- Site Safety Handbooks
- Basic personal protective equipment required and their usefulness
- Code of Safe Practices
- Jobsite rules of personal safety and conduct
- Project safety rules and regulations, including smoking regulations Fire prevention
- Confined Space Entry procedures
- Lock-out/Tag-out Procedure
- First-aid and follow-up care procedures
- Tool Box safety meetings

- Employee disciplinary practices
- Education Training
- Substance Abuse Policy
- Safety recognition program
- Hazard Communication

Records shall be kept of all personnel who receive the project orientation.

6.3 Supervisor's Role in Employee's Orientation

Each supervisor is required to take an active interest in the new workers ensuring that the necessary safety information has been provided and that the new worker is adjusting well to the job.

The following action steps are a part of the supervisor's orientation responsibilities to the new workers:

- Describe the new job
- Show worker around work area; point out hazards
- Introduce worker to others
- Describe basic rules
- Give worker a test run on tools and equipment
- Keep an eye on the new worker during the first few days
- Check back to see how the worker is coming along
- Verify compliance with documentation
- Allow for employee feedback on orientation

6.4 Orientation for Vendors, and Visitors

CPC shall provide a specified minimum safety orientation program for vendors and visitors that will visit site regrularly.

6.5 Training Curriculum and Schedule

Task specific training in addition to the general site specific requirements for the job shall be done before the beginning of the task. Depending on the task, this may include confined space safety attendant, fire watch, hazard communication, respiratory protection, fall protection, personal protection equipment, hearing protection, lockout/tagout, man lift and vehicle training.

6.6 FORMS & RECORDS

- **Form 46** Site Orientation Form

7.0 NON-CONFORMANCE, INVESTIGATION, & CORRECTIVE ACTION (SLP-SAF-0600)

7.0 Non-conformances, near misses and incidents will be investigated. Investigations should focus on determining root causes, with the objective of correcting latent deficiencies, preventing recurrence, and broadly sharing lessons learned, in a timely manner.

7.1 **Failure To Comply**

Should THE SUBCONTRACTOR fail to comply with the requirements of this Section and related writings, CPC shall notify Contractor verbally and/or in writing. The subcontractor shall, upon being advised of its non-compliance, immediately take all corrective action to comply. In the event subcontractor fails to initiate prompt corrective action, CPC may take any and all actions provided for in the contract terms and conditions necessary to achieve compliance. CPC may implement disciplinary action as appropriate up to and including removal of any individual who fails to comply with safety requirements.

7.2 **Accident/Incident Reporting - PRO-SAF-0620**

All accidents/incidents incurred by a subcontractor shall be reported to the CPC Site Safety Manager immediately. The CPC Site Safety Manager shall notify CPC and NRG project management upon acknowledgment of any incident or injury on site. CPC encourages all employees to report incidents near misses and injuries, without fear of reprimand. CPC shall communicate this as a job requirement for all personnel.

7.3 **Written Investigation Procedure Involving all Parties**

- CPC shall have a program in place for the investigation of all incidents resulting in an occupational injury or illness of their employee, damage to the environment or loss to property. Every investigation shall require a method to determine the causes with an action plan to prevent reoccurrence and documented per Safety Procedure (see 4.17). The investigations are designed to uncover root causes of safety problems, and to change or modify the existing unsafe circumstance or act.

- Investigations shall include an CPC member and appropriate representatives from its subcontractor. The degree of investigation should be appropriate to the severity of the incident up to and including root cause analysis. This written accident/incident investigation report shall be completed by the involved contractor management.

  - A copy of the report shall be provided to the pertinent CPC member within 24 hours. A copy of the report shall also be provided at the Site Safety Meeting.

7.4 **Near Miss Program**

Personnel must report near misses when they occur. Regardless of how minor they may appear, they should be reported immediately (prior to the end of the shift of occurrence) so that corrective action can be taken and the hazard safe-guarded.

The CPC team encourages personnel to participate in safety & health and view a near miss as a positive contribution to the health and safety of the project. A simple written near miss form is available within this packet or from your CPC Project Management contact or Health and Safety representative (See Section 11). Near miss analysis are not meant to place blame but by using the information gained and lessons learned can possibly prevent a more disastrous accident from occurring.

7.0 NON-CONFORMANCE, INVESTIGATION, & CORRECTIVE ACTION (SLP-SAF-0600)

CPC expects the employee, or the immediate supervisor of the employee, to ensure closure of a reported near miss as soon as possible and where practical. A copy of a written near miss shall be provided at the CPC Safety Meeting to share those lessons learned.

8.0 COMMUNICATIONS

8.0 The communication of safety and health matters are disseminated to the employees through toolbox meetings and JSA's and daily task analysis

8.1 **Toolbox Safety Meeting**

Good Loss Prevention requires that we establish frequent employee safety education and training programs. The method of complying with this requirement is to conduct toolbox safety meeting with all employees at least every week. This provides a written communication tool to disseminate information such as safety trends & upcoming tasks to all project personnel. Employee involvement (suggestions and discussions) in these meetings is a must and should be encouraged.

Daily pre-work (tool-box) safety meetings:

All crews shall hold a daily "Task Analysis" safety meeting for each employee work group; this meeting shall be at least 5-10 minutes in duration. These topics may include:

- CPC selected topics
- Topics initiated by THE OWNER representatives and deemed timely by subject matter or events
- A topic emphasizing safety, health, & environment,
- Review daily work schedule, potential hazards, safe work practices, required PPE, etc.

This applies to all subcontractors.

A record of each task analysis safety meeting should be kept and retained in the jobsite safety files. CPC should present a form that shows the attendance, subjects discussed, recommendations, and remarks during the meeting.

- All members of the crew must attend.
- Review recent injuries or accidents in the work areas, why they happened, and what is to be done to prevent recurrence.
- Encourage employee suggestions and discussion.
- Discuss follow-up of safety action item
- Inform employees of hazardous substances and review SDS's for each subcontractor.
  Note: Contractors must provide a copy of SDS's to client for all hazardous products brought to work site.

8.2.1 **Weekly Safety Meeting**

- A project wide weekly safety meeting will be held for all employees working at the site. This meeting is scheduled each Monday at the start of the shift and shall include a topic emphasizing health, safety, or the environment.
- This meeting shall be documented and the meeting minutes shall contain the subject matter, attendees, and questions & answers regarding the subject.

8.2 **Site Wide Communication System**

CPC should develop site wide communication system utilizing applicable hardware such as two-way radios, walkie-talkies, and pagers etc.

8.3 Audits

The CPC project should establish and maintain a documented procedure for auditing compliance with its legal requirements and standards of construction. The program should include all levels of contractors and subcontractors on site including client interface where there exists potential HS impacts. In addition, periodic audits of the project HS management system should be performed to verify that the HS management system is understood and has been properly implemented.

8.3.1 Management Walkarounds

CPC Construction Manager and other personnel should perform weekly walk-through safety inspections of the site to observe at risk behaviors and conditions to help assist in maintaining a safe working environment for everyone. Unabated safety concerns will be assigned to one individual to follow-up and bring to a conclusion.

9.0 SAFE PLAN OF ACTION (PRO-SAF-0511)

9.0 PURPOSE AND SCOPE

This project will be using the Job Safety Analysis and the associated Task Safety Awareness (TSA) procedure.

JSA's and TSAs shall be used for any task that could reasonably present a risk of injury, illness, or environmental damage. Specifically, they should be used before proceeding with any field task.

9.1 Responsibilities

Contractor Supervision has the responsibilities for this program.

9.2 Procedure

9.2.1 Job Safety Analysis (PRO-SAF-1511)

The JSA is a planning procedure conducted for each task to help the workgroup and its supervisor to collaboratively ensure proper HS planning before beginning work. The JSA will identify the:

- Steps involved in performing a task
- Hazards caused by completing the steps in the wrong order
- Physical and potential chemical hazards associated with a task
- Hazards associated with adjacent work or processes
- Hazards associated by co-occupancy of the same work area by others
- Controls for the hazards identified
- Appropriate personal protective equipment (PPE)
- Necessary resources (tools, equipment, permits, etc.) to efficiently complete the task without incident.

9.2.1 Benefits

The JSA process focuses on prevention of unsafe acts and the elimination of unsafe conditions by involving employees in developing the safe work plan. Benefits include the following:

- The steps of each task can be re-sequenced to eliminate hazards and improve productivity.
- The JSA is modified where necessary to eliminate or control additional hazards identified during the work.
- Everyone is made aware of potential HS hazards and the plans to deal with them before the job begins.
- It serves as a training tool as well as a work tool.
- The JSA serves as a documented hazard assessment plan.
- The JSA serves as a reference document for similar future work.

Team members sign the completed JSA form to indicate their participation, understanding, and agreement to follow the plan.

When signed by the supervisor, the JSA becomes a documented hazard assessment plan, which satisfies regulatory requirements in some geographic locations.

Completion of the JSA process and form is performed in the following manner:

Write the name of the job or task in the space provided.
Conduct a walk-through survey of the work area.

- Write the steps of the task in a safe sequence
- List all possible hazards involved in each step
- In the Safe Plan column, state actions that will be taken to control the hazards and prevent injury from reaction to failure.
- In the final column, list the necessary resources (time, tools, equipment, materials.

Work shall stop when conditions change, the job changes, or a deficiency in the plan is discovered, and the current JSA will be modified or a new JSA created.
Subcontractors are required to follow this same procedure.

9.3 TSAs

Task Safety Awareness (TSA) is a collaborative review of the JSA by the entire crew and supervisor performing the task. TSAs are conducted:

- At the beginning of the work shift.
- After any change in personnel.
- When there is a change of task, hazards, or work conditions.

9.4 Training

All subcontractor supervision shall be trained on the procedure.

10.0 HEAT STRESS POLICY (PRO-SAF-0028)

10.0 PURPOSE

The purpose of this standard is to provide all company employees with general knowledge of the measures to be taken to avoid heat stress related illnesses, injuries and disorders.

SCOPE

This program applies to all company, affiliated companies and subcontractor personnel.

10.1 Definitions

10.1.1 Hydration (fluid replacement) – This is critical to controlling heat stress. Under severe work conditions the body can use in excess of 1 quart of fluid per hour through perspiration and respiration. Hydration should include Pre-Hydration - the drinking of fluids prior to their loss. Consumption of at least 1 quart of fluid per hour of scheduled work is recommended to ensure adequate hydration. Liquids that may be used include: commercial Electrolyte-replacing preparations such as water, Gatorade®, Powerade®, Squencher®, etc. Avoid liquids containing alcohol, caffeine, or high sugar content. Liquids containing alcohol are PROHIBITED on site at all times.

10.1.2 Heat Stress - The condition caused by any combination of air temperature, thermal radiation, humidity, air flow, workload, clothing and other PPE that may adversely effect an individual's physiological capacity to regulate body temperature. Heat Stress Disorders are divided into the following categories:

- **HEAT STROKE** - the most serious health problem for workers in a hot environment, is caused by the body's failure to regulate its core temperature. Sweating stops and the body can no longer release excess heat. Victims of heat stroke usually die unless treated promptly.

- **HEAT EXHAUSTION** results from loss of fluid through sweating and from not drinking enough replacement fluids. The worker still sweats but experiences extreme weakness or fatigue, giddiness, nausea, or headache. The skin is clammy and moist, while the body temperatures are normal or slightly elevated.

- **HEAT CRAMP -** Muscle cramps or spasms resulting from an electrolyte imbalance in the body. Typically due to a lack of fluid (water), but may also occur when consuming large quantities of fluids during periods of heavy sweating.

- **HEAT SYNCOPE (FAINTING) -**To loose consciousness because of a temporary decrease in the blood supply to the brain due to over-exposure to hot environments. Fainting poses a threat primarily from resultant falls, therefore, may be extremely dangerous if the affected individual is prevented from reclining or sitting. Recovery from the faint itself is usually prompt, but the possibility of other heat stress disorders exists.

- **HEAT RASH -** Also called prickly heat. Occurs when sweat is not removed and skin remains wet, resulting in plugged sweat ducts. Skin infections can result.

  *** Note: In all cases victim should be moved to a cool and shaded area.**

10.2.4 Recovery Area - An area identified for personnel to use during Recovery Period. Should be away from Heat Stress environment and have drinking water, or other suitable drinking supply.

10.2.5 *Shade - means blockage of direct sunlight. Canopies, umbrellas and other temporary structures or devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning.

10.2.6 Recovery Period - An estimate of time needed to adequately recover from a Heat Stress environment.

10.2.7 Stay Time - An estimate of the time a person may be exposed to a given Heat Stress work environment before approaching possibility of risk of Heat Stress illness.

10.3 Requirements

Excessive exposure to heat can adversely affect an individual's mental and physical capabilities, and may lead to serious physiological disorders or even death. Also, chances of accidents and errors increase substantially with excessive heat exposure. Therefore, all personnel should maintain adequate body hydration, as well as be wary of the signs and symptoms of heat stress. Heat Stress issues must be addressed in the JSA and discussed with employees before a job begins. Should a heat related event occur to the extent that first aid action under these guidelines must be taken, the matter must be reported as any other injury would be reported.

Employees in heat stress environments shall be trained in the signs, symptoms, controls, and treatments of heat related illnesses.

10.3.1 General

10.3.2 Adequate body hydration should be maintained at all times.

At least 2 gallons of drinking water per employee per 8 hour work shift shall be provided

Consumption of 6 to 8 ounces of fluid every 15 to 20 minutes is recommended in Heat Stress environments.

Thirst alone is not an adequate indication of when to drink water. Maintain adequate hydration by drinking water regularly.

Water supply location should be identified prior to beginning work.

10.3.3 Provision of drinking water to personnel working in a heat stress environment as follows:

The Supervision will bring as many drinking water containers as are needed to the site, so that at least 2 quarts of water per employee are available at the start of the shift.

The supervision will bring enough paper cone rims or bags of disposable cups and the necessary cup dispensers to assure that enough sanitary disposable cups are available to each worker on site. Trash receptacles will be provided for the used disposable cups.
As part of the Supervision Effective Replenishment Procedure, the Supervision will check the water level of all containers every 2 hours and more frequently when the temperature exceeds 80

degrees F. When the water level within the container drops below acceptable levels, the container will be refilled with cool water. To accomplish this task the supervision may carry extra containers of water.

Drinking water will be placed as close to work area as practicable. If it is not possible to place water close to the workers individual water bottles will be provided.

Supervision is responsible for ensuring the water containers are cleaned and kept in a sanitary manner.

When the temperature is equal to or exceeds 95 degrees F. or during a heat wave, the Supervision will increase the number of water breaks and will remind workers throughout the work shift to drink more water

10.3.4 Cooling devices such as fans, cooling garments, and other engineering aids, can extend stay times in high heat environments.

Avoid staying in one position for long periods of time, especially squatting or sitting.

Pace work and activity, avoiding sudden jerky motions.

Wear 100% cotton clothing beneath PPE.

10.3.5 Recovery area shall be available to personnel working in a Heat Stress environment of 80 degrees or higher. . Recovery Area requirements include the following:

Each Supervisor shall ensure that sure that there is a shade source that is capable to accommodate at least the number of employees on recovery or rest periods, so they can sit in a normal posture fully in the shade without having to be in physical contact with each other.

The supervision will ensure that the shade structures are opened and placed as close as practical to the workers when the temperature equals or exceeds 80 degrees F or upon request of employees.

When the temperature is less than 80 degrees F. the shade structures will be brought to the site but will be opened and set in place upon the workers request.

Employees shall be allowed and encouraged to take a preventative cool-down rest in the shade when they feel the need to do so to protect themselves from overheating. Such access to shade shall be permitted at all times. An individual employee who takes a preventative cool-down rest

A. Shall be monitored and asked if he or she is experiencing symptoms of heat illness;
B. Shall be encouraged to remain in the shade
C. Shall not be ordered back to work until any signs or symptoms of heat illness have abated, but in no event less than 5 minutes in addition to the time needed to access the shade.

If an employee exhibits signs or reports symptoms of heat illness while taking a preventative cool-down rest or during a preventative cool-down rest period, first aid or emergency response shall be provided.

The interior of a vehicle may not be used as shade unless it is air conditioned and the air conditioner is on.

In situations where it is not safe to provide shade such as when high winds are a factor, the supervision will document how this determination was made and how shade will be provided upon request

Provisions should be made to keep the employee from coming into direct contact with bare soil, such as chairs, benches, sheets, towels or any other thing that would prevent direct contact with dirt. When shade is provided on a lawn these items are not required.

Removed from Heat Stress environment (out of direct sun, away from any heat source, etc.)

Adequate ventilation to allow for residual sweat to evaporate but prevent personnel from becoming chilled.

Mobile equipment such as trailers, tractors or anything else that exposes employees to other hazards, will not be used to provide a recovery area.

Exception: If it can be demonstrated that it is infeasible or unsafe to have a shade structure, or otherwise to have shade present on a continuous basis, the employer may utilize alternative procedures for providing access to shade if the alternative procedures provide equivalent protection

WARNING - Stay times and recovery times are based on normal safe working limits for personnel who are in average physical condition. Excessive heat stress environments can result in severe injury, or death! Above all, rely on the HS&E Department for situations not covered by this procedure.

10.3.6 Stay Times and Recovery Periods recommended by Supervision and/or Safety and documented in the JSA are to be observed at all times.

10.3.7 Work area requirements often restrict availability and location of a water supply and recovery area, as well as contribute to Heat Stress factors (i.e., protective suits). These limitations must be recognized when planning and performing work activities in a heat stress environment.

10.3.8 The following conditions can affect susceptibility to Heat Stress related disorders. Personnel should advise Supervision if there are any concerns about their ability to tolerate Heat Stress exposure. Which might include the following::

- Age
- Physical condition
- Fatigue or lack of sleep
- Acute or chronic infection
- Record of prior Heat Stroke
- Skin trauma (e.g., sunburn, or rash)
- Recent alcohol consumption within (12 hours)
- Dehydration, diarrhea or other digestive problems
- Recent or chronic use of any drugs, especially diuretics
- Recent medical conditions (e.g., blood donation, surgery)
- Caffeine or sugar consumption (coffee, tea, soda, chocolate, candy, etc.)

10.3.9 Personnel shall monitor themselves and others for symptoms of Heat Stress (see Attachment 1 for Symptoms and First Aid).

10.3.10 Personnel experiencing indications of Heat Stress shall immediately notify supervision or co-worker and exit hot environment.

10.3.11 Personnel observing Heat Stress symptoms in others shall immediately notify afflicted person(s) and Supervision/co-worker and assist in removing afflicted person(s) from the hot environment.

10.3.12 When working in extreme Heat Stress environment (stay times less than 30 minutes), personnel should work in teams and remain in visual proximity of one another.

10.4.0 Cooling Garments - A variety of cooling garments, such as Ice Pack Vests, are available for use by personnel working in hot environments.

10.4.1 The following characteristics of cooling garments shall be considered:

- Advantages:
  A. Limits rise in body core temperature
  B. Increases stay times
  C. Helps maintain alertness, productivity, and reduces chances of accidents by reducing heat stress
- Disadvantages:
  A. Risk of frostbite, particularly if worn next to skin
  B. Adds to work load due to weight of cooling vest
  C. Acts as another layer of insulation
  D. Creates a false sense of security concerning extended stay times and heat tolerance

10.4.2 Manufacturers' directions and other applicable instructions shall be observed when utilizing cooling garments.

- Users shall be observant of limitation and capabilities of cooling garments and shall exit heat stress area immediately if cooling garment appears to malfunction or reaches service life.

10.4.3 Supervision is responsible for evaluating the need for, and ensuring proper use of cooling garments.

10.5.0 **High-heat procedures:** Project supervision shall implement high-heat procedures when the temperature equals or exceeds 95 degrees Fahrenheit. These procedures shall include the following to the extent practicable: The preventative cool-down rest period may be provided concurrently with any other meal or rest period required by Industrial Welfare Commission Order No. 14 (8 CCR 11140) if the timing of the preventative cool-down rest period coincides with a required meal or rest period thus resulting in no additional preventative cool-down rest period required in an eight hour workday. If the workday will extend beyond eight hours, then an additional preventative cool-down rest period will be required at the conclusion of the eighth hour of work; and if the workday extends beyond ten hours, then another preventative cool-down rest period will be required at the conclusion of the tenth hour and so on.

10.5.1 Emergency Response Procedures. The Supervisor shall implement effective emergency response procedures including:

1) Ensuring that effective communication by voice, observation, or electronic means is maintained so that employees at the work site can contact a supervisor or emergency medical services when necessary. An electronic device, such as a cell phone or text messaging device, may be used for this purpose only if reception in the area is reliable. If an electronic device will not furnish reliable communication in the work area, the employer will ensure a means of summoning emergency medical services.

2) If a supervisor observes, or any employee reports any signs or symptoms of heat illness (such as, but not limited to, decreased level of consciousness, staggering, vomiting, disorientation, irrational behavior or convulsion), the supervisor shall take immediate action commensurate with the severity of the illness. This may include first aid measures or emergency medical services.
3) An employee exhibiting signs or symptoms of heat illness shall be monitored and shall not be left alone or sent home without being offered onsite first aid and/or being provided with emergency medical services in accordance with the employer's procedures.
4) The supervisor shall endure that, in the event of an emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders.

10.5.2 When the temperature is equal to or exceeds 95 degrees F. or during a heat wave, the Supervision will increase the number of water breaks and will remind workers throughout the work shift to drink more water

10.6.0 Procedure for Monitoring Weather Conditions

10.6.1 Prior to each work day the Supervision will review the forecasted temperature and humidity for the work site and compare it to the Heat Index to evaluate the risk level for heat illness. If modified work schedules are required to protect the employees the supervision is required to do so. Modifications may include working at night or cooler times of the day, more frequent water breaks or stopping work early.

10.6.2 The Supervision is responsible for monitoring the temperature on site throughout the day to ensure that once the temperature is equal to or greater than 80 degrees F. the shade structures are opened and accessible to the employees and when the temperature is equal to or exceeds 95 degrees F. the High Heat Procedure is put into effect.

10.7.0 Procedure for Acclimatization

10.7.1 CPC will monitor the weather. Especially for sudden increases in temperature to which, employees have not been exposed for several weeks or greater. All employees shall be closely observed by a supervisor or designee during a heat wave. “Heat wave” means any day in which the predicted high temperature for the day will be at least 80 degrees Fahrenheit and at least ten degrees Fahrenheit higher than the average high daily temperature in the preceding five days.

10.7.2 For new employees and employees who are newly assigned to a high heat area, the supervision will closely observe the employee and find ways to lessen the intensity of work during a 2 week break in period. For example: less strenuous or slower paced work should be performed during peak hours of the heat and the more physically demanding work should be performed in the morning and early evening when it is cooler.

10.7.3 The supervision will be extra vigilant with new employees to monitor for signs or symptoms of heat illness.

10.7.4 **T**he supervision may assign an experienced worker as a “Buddy” to work with the new employee.

10.8.0 Training

10.8.1 Employee training. Training in the following topics shall be provided to all supervisory and non-supervisory employees.

a. The environmental and personal risk factors for heat illness;

b. The employer's procedures for identifying, evaluating, and controlling exposures to the environmental and personal risk factors for heat illness;

c. The importance of frequent consumption of small quantities of water, up to 4 cups per hour under extreme conditions of work and heat;

d. The importance of acclimatization;

e. The different types of heat illness and the common signs and symptoms of heat illness;

f. The importance of immediately reporting to the employer, directly or through the employee's supervisor, symptoms or signs of heat illness in themselves, or in co-workers;

g. The employer's procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary;

h. Procedures for contacting emergency medical services, and if necessary, for transporting employees to a point where they can be reached by an emergency medical service provider;

i. How to provide clear and precise directions to the work site.

10.8.2 Supervisor training. Prior to assignment to supervision of employees working in the heat, training on the following topics shall be provided:

a. The information required to be provided by the section above.

b. The procedures the supervisor is to follow to implement the applicable provisions in this section.

c. The procedures the supervisor is to follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures.

d. How to monitor weather reports and how to respond to hot weather advisories.

11.0 ENVIRONMENTAL MANAGEMENT- *(SEE THE ENVIROMENTAL PROTECTION PLAN (EPP) FOR COMPLETE PROGRAM)*

ENVIRONMENTAL CONCERNS (CONSTRUCTION WASTE MANAGEMENT)

RESPONSIBILITIES

CPC will be responsible for all wastes generated by CPC as part of the Carlsbad Energy Center Project. This includes both non-hazardous and hazardous wastes as well as special wastes destined for recycling (used oil, drained used oil filters, used welding rods, etc.). The Owner will retain responsibility for providing an EPA hazardous waste generator ID number, and approving hazardous waste profiles and manifests. The Owner will retain responsibility for any existing wastes above or below ground at the project site as well as any wastes generated as part of operational activities.

The CPC superintendent will have overall responsibility for construction waste management activities at the project site including:

- Visual inspections of all waste storage areas
- Identification/classification of wastes generated
- Maintenance of storage areas
- Arranging for and coordinating the offsite transport of wastes
- Record keeping of inspections and waste transport/disposal/recycling activities.

NON-HAZARDOUS WASTE MANAGEMENT

The CPC will conduct the classification for waste generated by CPC and if any its subcontractors.

CPC will haul off all excess non-hazardous solid waste materials to a local licensed disposal company.

CPC and each subcontractor will ensure that their solid waste stream meets the following typical criteria established for acceptable wastes at a non-hazardous waste landfill.

Typical Acceptable Non-Hazardous materials;

- Household type waste (food waste, plastic etc.)
- Earthen materials (soil, clay, sand, and gravel etc.)
- Structural steel
- Hardened concrete/cement (no large pieces)
- Bricks & blocks
- Lumber (treated and untreated)
- Plaster & plasterboard
- Insulation material
- Shingles & Roofing materials
- Floor, wall, & ceiling tile
- Glass
- Poly fiberglass
- Mirrors
- Hardened/cured asphalt (no tar sealant)

Typical Non-Hazardous Unacceptable Wastes for Disposal

- Tires
- Tree stumps, limbs, brush, yard waste

- Large pieces of concrete/cement
- Fuel containers (must be profiled separately)
- Propane tanks (must be profiled separately)
- Welding rods
- Fluorescent Light Bulbs Waste Oil (hydraulic, crankcase oil)
- Solvents, Degreasing Agents
- Paints, Thinners, Finishes
- Batteries
- Aerosol Cans (undrained)

CPC will implement and maintain "good housekeeping" practices at their work locations and solid waste storage areas. These include providing the appropriate type, size, and number of containers to store all waste generated and to keep it from scattering due to animals and wind.

CPC will monitor solid waste collection/management on site to ensure that only acceptable wastes are deposited for disposal and that sufficient containers are available and maintained in accordance with "good housekeeping" practices.

HAZARDOUS WASTE MANAGEMENT

All wastes in the solid waste stream, which are identified as hazardous or potentially hazardous, must be segregated and managed separately from other non-hazardous wastes. Hazardous wastes must be managed in accordance with all applicable laws and regulations and must follow the specific site procedures as contained in the following sections.

Common hazardous wastes, which may be generated on site during the course of construction, are as follows:

These wastes will be managed in accordance with the applicable local regulations:

- Tires
- Tree stumps, limbs, brush, yard waste
- Large pieces of concrete/cement
- Fuel containers (must be profiled separately)
- Propane tanks (must be profiled separately)
- Welding rods
- Fluorescent Light Bulbs Waste Oil (hydraulic, crankcase oil)
- Solvents, Degreasing Agents
- Paints, Thinners, Finishes
- Batteries
- Aerosol Cans (undrained)

CPC-GENERATED WASTES

CPC-generated hazardous wastes will be managed in accordance with the procedures described in the following sections

HAZARDOUS WASTE STORAGE AREA

11.0 ENVIRONMENTAL MANAGEMENT

CPC will establish an onsite Hazardous Waste Storage Area (HWSA) to temporarily store all hazardous wastes generated for the Carlsbad Energy Center Project.. No other locations will be used as hazardous waste storage areas unless approved in writing by NRG.

CONTAINER TYPE/LABELING

Containers used to store hazardous wastes in the HWSA will meet the following criteria:

- Containers will remain closed during storage, except to add or remove waste.
- Containers will be in "good" condition with no visible defects, which could result in leaking or spilling of wastes.
- Liquid wastes must be stored in leak-proof sealed containers (e.g., steel drums with fixed lids).
- Non-liquid wastes may be stored in containers with removable tops (e.g., steel drums with removable heads secured with a steel band and gasket).

Each waste container in the HWSA will be permanently labeled with the following information at all times:

- HAZARDOUS WASTE – Federal law prohibits improper disposal
- Name of the Waste (e.g., waste oil, solvents)
- EPA Hazardous Waste Number: (Later)
- Facility Name and Address:
- Date of Waste Start: (date when waste is placed in drum).

Only authorized personnel will have access to the HWSA.

CPC will conduct a visual inspection of all waste containers in the HWSA at least weekly to monitor the type and volumes of waste contained in the areas and to minimize the potential for releases of hazardous wastes to the environment.

RECYCLABLE WASTES

CPC is evolved in a hazardous material-recycling program for its used waste. This waste which would be classified as "hazardous" if they were intended to be disposed of through a treatment, storage, and disposal facility. In accordance with waste reduction efforts, CPC segregates from the waste stream and offer for off site transport and recycling the following waste materials:

- Used oil (uncontaminated)
- Drained Used Oil Filters
- Antifreezes
- Metals

Used Oil (uncontaminated)

Used oil from motor vehicle and construction equipment maintenance will be managed as hazardous waste while temporarily stored on site in the HWSA. All containers of waste oil will be labeled in accordance with the following:

HAZARDOUS WASTE – REGULATED RECYCLED PRODUCT (Waste Oil Only)
- Name of the Waste (e.g., waste oil, solvents)
- Type of Hazard (e.g., ignitable)
- Facility Name and Address:
- Date of Waste start: (date when waste is place in drum)

All containers of used oil in the HWSA will be manifested and transported off site by a licensed transporter to an approved recycling facility within 90 days of the waste accumulation date.

The CPC Superintendent will monitor the accumulation dates and will arrange for the manifesting and transport of the used oil prior to the 90-day storage limit.

Used Oil Filters

Used oil filters will be drained of all free-flowing liquids to the extent possible ("free-flowing" is defined as a continuous stream when filter is inverted and not incidental drop-by-drop flow) and segregated from other wastes in a separate container. If required, filters will be punctured and/or crushed to release accumulated oil, which does not drain.

All containers of drained used oil filters will be labeled as:

- Non-Hazardous Waste: Drained Used Oil Filters

Drums containing drained used oil filters will be stored in the HWSA prior to being transported offsite by a licensed transporter to an approved scrap metal recycling facility. The CPC Superintendent will obtain and file a copy of the bill of lading used by the transporter indicating the following information:

- Generator name/address/telephone number
- Transporter name/address/telephone number
- Receiving company name/address/telephone number
- Quantity/size of used oil filter container
- Date of Transfer

The bill of lading for the offsite transport and recycling of used oil filters must be kept on file.

OFFSITE TRANSPORT AND DISPOSAL

CPC will contract an approved transporter and Disposal Company to handle the offsite transport and disposal of recyclable wastes and non-recyclable hazardous waste.

RECORD KEEPING

CPC will retain receipts and manifests of hazardous wastes shipped and records of waste analysis in the Project-site.

SUBCONTRACTOR-GENERATED WASTES

Any subcontractor to CPC will be responsible for the proper identification, containerization, labeling, manifesting, storage and transport of any and all hazardous materials used, and hazardous wastes generated, in the course of their construction activities at the Project site.

LIST OF HAZARDOUS MATERIALS AND WASTE

Subcontractor must provide a list (and SDS if applicable) of those hazardous materials and wastes they anticipate using or generating at the Project site to the CPC superintendent. Examples would be items or products containing:

- Fuel and lubricating oils (including hydraulic oil)
- Antifreeze (e.g., ethylene glycol)
- Oil-based paints

- Petroleum solvents
- Chlorinated solvents
- Acids
- Caustics
- Used batteries (lead/acid)

Updates to this initial list of hazardous materials and wastes will be made by the subcontractors whenever substances/waste are brought to, or generated on the site which were not identified in their initial listing. The subcontractor will review each listing at least quarterly while at the Project site.

CONTAINER TYPE/LABELING

Each subcontractor will provide proper containers (e.g., covered metal drums) for the storage of their hazardous materials and hazardous wastes. These containers will:

- Remain closed during storage, except to add or remove waste.
- Be in "good" condition with no visible defects, which could result in leaking or spilling of wastes.
- Be leak-proof if they are to contain liquid wastes. (E.g., steel drums with fixed lids). Non-liquid wastes may be stored in containers with removable tops (e.g., steel drums with removable heads secured with a steel band and gasket).

Each waste container used by subcontractors will be permanently labeled with the following information at all times;

- HAZARDOUS WASTE – Federal law prohibits improper disposal OR
- HAZARDOUS WASTE – Regulated Recycled Produce (for waste oil only)
- Name of the Waste (e.g., waste oil, solvents)
- Type of Hazard (e.g., toxic, ignitable)
- EPA Hazardous Waste Number: (valid number assigned by EPA to the subcontractor)
- Facility Name and Address
- Date of Waste Accumulation

Subcontractors will be responsible for monitoring the volume of hazardous wastes collected in their JSA's. When the volume of waste at the SCA reaches 55 gallons, the waste container must be removed from the site by a licensed transporter within 3 days.

OFFSITE TRANSPORT AND DISPOSAL

CPC will be responsible for the proper transport and disposal of all hazardous wastes generated while performing work at the Project site. Subcontractors are required by contract, as well as federal and local laws and regulations, to only use licensed transporter and disposal facilities for the management of their hazardous waste. CPC will require subcontractors to provide documentation to CPC such as copies of valid permits (noting EPA ID numbers), contracts with licensed transporters and disposal companies, and possibly hazardous waste manifests to allow CPC to adequate check the status of the subcontractors hazardous waste management program.

SANITARY WASTE

Sanitary waste during construction will be collected within portable toilet/sewage holding tanks and will be regularly emptied by a contracted licensed sanitary waste service for offsite disposal.

WASTE MINIMIZATION AND RECYCLING

11.0 ENVIRONMENTAL MANAGEMENT

CPC and their subcontractors will implement and work to actively practice waste minimization/recycling efforts to reduce the volume and toxicity of all wastes generated during construction activities. CPC and their subcontractors will practice the following waste minimization options: Segregating useable products from the waste stream for reuse, recycling or reclamation (e.g., plastic, glass and scrap metal from "trash")

- Selecting non-hazardous alternatives to hazardous substances, and
- Procuring and storing onsite only the required amount of materials to perform the task.

12.0 SITE SPECIFIC SAFETY PLAN

SITE SPECIFIC SAFETY PLAN

MISSION STATEMENT

It is our vision and policy to provide an injury free environment for our employees, subcontractors and other third party employees. It is our belief that accidents and injuries are preventable. Our goal is zero accidents/zero injuries for our employees as well as others working on company projects/ facilities

CPC is committed to the health and safety of all employees. Every effort shall be made to ensure that the number one priority is the safety of all employees. Each of us has the individual responsibility as an employee, supervisor and Manager to make sure the safety of coworkers and ourselves is the foremost consideration in everything we do. No business objective is so important that it will be pursued at the sacrifice of safety.

The CPC Project Safety Manual has been developed to insure that all work activates are performed safely. Project supervision will ensure that safety plans and procedures are planned into the work and that they become part of each days work activities and by doing OSHA compliance is achievable.

I. PROJECT SCOPE of WORK

Project Location: Carlsbad Energy Center Carlsbad, CA

The plant consists of the following

5EA GE LMS100's W/ SCR's, intercoolers and HTIC Secondary Coolers
4EA Gas Compressors, Separate enclosures for each compressor
Warehouse/Maintenance Building
Control/Admin Building
Raw Water Tank
Demin Water Tank

All the associated auxiliary equipment to support the main power blocks:
pumps, MMC's, stacks, Deaerator, GSU's, new fire water loop, and all balance of plant piping and equipment.
CPC is the general contractor for the job and will self perform or directly subcontract all construction activities up to start up support.

Scope of work consists of

- Design and engineering of project scope
- Procurement of equipment and materials
- Installation of foundations
- Erection of structural steel
- Erection and setting of equipment
- Fabrication and installation of piping
- Installation of electrical equipment, conduit, cable tray and cable
- Installation of controls and instrumentation
- Installation of coatings
- Installation of insulation
- Final grading and site surfacing

12.0 SITE SPECIFIC SAFETY PLAN

Between CPC and its subcontractors this project is budgeted to require over 300 Craft personnel on site at peak

The project is scheduled to commence initial groundwork in January 2016.

Customer Contact::
NRG FCM: Chuck Hicklin 925 427 3544
NRG Construction Safety Manager: TBD

Mobilization

The site bulletin board will be in this office facility. OSHA required posters, Worker Compensation posters and other posted notices will be on this bulletin board. This office building or annex will be the depository for the Hazard Communication Manual, Project

Written Safety Plan, the Project Safety, Health and Environmental Program Manual, and other manuals, inspections, and other materials related to the safety performance of this project.

Site Layout

The site layout plan is to include the following:

- Temporary facility locations and schedule for arrival and set-up
- Common work areas for tradespersons
- Installation of construction temporary power
- CPC offices will be on project property
- Laydown yards will be on NRG Encinas Property

II. PROJECT SUPERVISION

Project Manager:	Gil Martinez	Mobile: 619 778 5196
Site Safety Manager:	Sean Moyna	Mobile: 661 201-3532

The Site Safety Manager or his designate will be onsite 100% of the time during construction activities.

Roles and Responsibilities

- **Project Manager of Construction:** is responsible for the overall safety of the project. He is responsible for cost controls, scheduling and performance of the contract. He is also responsible to make sure that all safety monitoring and hazard assessment is being conducted by the designated Safety Manager
- **Project Construction Manager:** is responsible for the production of the project. He is responsible for the day to day construction activities, planning and assigning the work. He is also responsible for the safety of the project by selecting supervision to conduct daily tailgate safety meetings in the field to insure daily tasks and hazard recognition are being performed.
- **Project Safety Manager:** is responsible for the management of the Project Safety Program. He is responsible for conducting inspections, records violations, recommends corrective actions and documents all safety monitoring activities. Investigates all incidents on the project and forwards all reports to the Construction Manager
- **Employees:** are responsible for performing all work activities in a safe manner. To follow all regulatory requirements and comply with all CPC safety practices and procedure. To report all

unsafe acts or conditions immediately to supervision or project Safety Manager. Report all incidents or accident immediately.

III. **SITE HAZARD ANALYSIS** Potential hazards have been identified during the pre-job health, safety and environmental planning process. Other hazards may be identified during the course of the project through CPC weekly auditing process. Such incidental hazards will be identified on each employee's Risk Management Process Task Hazard Analysis or Job Safety Analysis (JSA), the hazard either eliminated or controlled.

The identified hazards are as follows:

1. Work activities will be conducted around operation of heavy equipment (i.e. Cranes, earth moving equipment (excavators, loaders, backhoes, etc) JLGs, Man lifts, Grade-alls, Forklifts etc. as well as adjacent to an operating power plant.
2. Exposure to fall hazards
3. Chemical exposures (**Refer to CPC's Hazard communication program) (SDS's will be maintained and chemicals inventoried)**
4. Eye and face hazards
5. Hearing/high noise exposure
6. Demolition work
7. Electrical hazards
8. Blood borne Pathogens
9. Hand Safety
10. Hand Tool Safety
11. Fire hazards
12. Pinch Points
13. Safe Lifting In Special Situations
14. Vehicle Operations
15. Attitude, Behavior, and Control Safety
16. Fall protection: Working in elevated areas around other contractors
17. Pouring Concrete

Site Specific Prevention/Mitigation Procedures for Hazardous Work.

CPC considers the following as High Risk Work Activities.

- **Confined spaces**
- **Hazardous Atmospheres**
- **Excavations**
- **Cranes Lifts and Critical Rigging**
- **Radiation**
- **Initial energy**
- **Pressurized Systems**
- **Lockout/ Tagout**
- **Pressure testing**

Commissioning, Fall Protection and Temporary Power.

CPC will be using a JSA/ Permitting form To Identify all hazards associated with work activities. The form will also be used to identify activities considered High Risk. As hazards are identified CPC will follow all established CPC and NRG procedures to prevent or mitigate the hazards, and insure that all hazards are communicated to all employees and project personnel who may be affected by hazardous work activities.

IV GENERAL SAFETY REQUIREMENTS

- **Job Safety Analysis**

CPC has developed Job Hazard Analysis (JHA) to be used as a guideline to plan and execute work. JSA's Identify the work activity, hazards involved in performing the activity and the actions to be taken to eliminate the hazard or the personal protective equipment required to perform the work safely. Additional JSA's shall be developed when site specific conditions change and Hazards are identified that need to be addressed and mitigated prior to the start of work activities.

- **Safety Task Assignments**

Safety Task Assignments (STA's) shall be used by each Supervisor and employee to identify site specific Safety Hazards and safety precautions that pertain to his or her job. The Supervisor shall give an explanation to all employees before they begin a task. Employees shall be instructed to report any unsafe conditions or act to Supervision in a timely matter so the act or condition can be corrected

- **Assessment and Monitoring program**

The monitoring and inspection of equipment and tools is essential to the prevention of accidents. Tools and equipment shall be inspected on a monthly bases and prior to each use. Tools inspected on a monthly basis are but not limited to Extension cords, ladders, fire extinguishers, fall protection, power tools and rigging. All inspections shall be documented and on file in the project office

- **Permitting**

The permitting of hazardous work activities shall be accomplished by using a JSA /Permitting form. This will be a two sided form. The front side will be a Safety Task Assignment the back side a permit form that will identify high risk activities.

- Site Specific prevention/mitigation procedures for hazardous work All Practices and procedures referenced in this Site Specific Safety Plan can be found in the CPC Code of Safe Practices and the CPC Health and Safety Manual

V EMERGENCY COMMUNICATIONS: **Refer to section 9.0**

Emergency Phone Numbers:	NRG Control Room	760-268-4062
Plant Emergency:	NRG Control Room	760-268-4062
First Aid Emergency:	Axiom Medical Claims	877 502 9466
Project Manager:	Gil Martinez	Mobile: 619-778-5196
Project Site Safety Manager:	Sean Moyna	Mobile: 661 201 3532

Local clinic for drug screening and medical services

Work Partners Occupational Health **760-681-5222**
2122 El Camino Real
Oceanside, CA 92054

VI EMERGENCY EVACUATION

In the event of a release of contaminants into the atmosphere or a plant emergency in which evacuation signals are sounded, project personnel will evacuate according to the site evacuation plan, traveling cross and up wind to the designated assembly points. In the event that unit alarms should fail to sound when conditions exist that require evacuation, employees will use whatever means of communication available, i.e. radios, to alert coworkers of the present dangers and evacuate according to the unit evacuation plan. It is important that the established plan be followed so that an accurate head count can be made, eliminating possible unnecessary search and rescue operations. In the event that the unit evacuation routes pose hazards that prevent usage, employees will evacuate cross and up wind from the hazard or contaminated area, and will utilize whatever means of communications available to notify project supervision as soon as possible of their location and status. If the designated assembly points are unsafe due to extreme hazards, and personnel leave the site in the best interests of their personal safety, **The evacuation assembly area will be determined at a later date**

VII PERSONNEL HIRE-IN PROCESS (PRO-SAF-0520 Employee Education, Training, and Competence Procedure, FORM-SAF-0520 Employee Training Record)

- Prior to working in the Carlsbad Energy Center, all employees will be drug tested.
- Site Specific Safety Training will be given at the CPC Safety Trailer, and will be approximately 3 hours. Also, all employees will attend a 1 hour NRG Site Orientation prior to working on site.
- Craft personnel dispatched to work on this project will be at the following levels. Journeyman, Apprentice, Helper Non craft personnel will be laborers.

Training Schedule (FORM-SAF-0523-CPC-Weekly Training Schedule)

Each CPC employee receives new employee Safety Training covering the CPC Code of Safe Practices. Additional training is provided for tasks in which training was not provided. Specialized training will be provided as required. Refresher training is conducted on an annual basis. Equipment training is done in accordance with regulatory requirements

A summary of all employees training will be kept on file and updated as employees training and status change. The summary will show all employees on site with their current qualifications and renewal dates.

VIII SAFETY COMMUNICATIONS

Continued safety training and communication of hazards identified on the job will be done by means of daily safety meetings. The project superintendent will conduct regular meetings with the foremen and general foreman on the project to keep them updated of safety planning and strategies. The project superintendent will attend the corporate superintendent's meeting on a monthly basis. CPC will be using the Safe Start and CPC's BBS system of performing observations in the field. These Observations will be performed by crafts personnel as well as Supervision. The results of these observations will be tracked to identify developing patterns, any unsafe acts or conditions will be immediately communicated to supervision and a corrective action initiated. CPC Safety Managers will conduct daily safety and weekly safety audits.

Tracking

CPC will track and record all safety related data and submit this information NRG Project Management on weekly and monthly schedule. The following information will be submitted on a tracking form.

- Daily/weekly safety audits
- Daily/weekly/monthly/yearly inspection documents
- Daily/weekly behavior based observations
- First Aids
- Recordables

- Lost Time
- Near miss

IX EDUCATION, TRAINING, AND AWARENESS (PRO-SAF-0520)

Scheduled Project Required Training

All project personnel will be required to attend the following prior to performing work activities on site

- CPC Site specific Safety Orientation

The training topics utilized in the safety/training meetings are chosen to address hazards identified in the Site Hazard Analysis section of the Safety Activity Plan, as well as to fulfill the requirements of the Occupational Safety and Health Administration and this company.

Visitor requirements

CPC recognizes that there will be visitors to the site. Visitors are defined as individuals that will not be performing work. Visitors are not required to meet the minimum CPC requirements if they will be onsite less than two days. If a visitor is to be onsite for more than two days they will have to meet all CPC requirements. Visitors who will be onsite for more than two days will also have to attend all site specific training prior to going out in the field. NRG must be given at least 24 hour notice of any vendors and/or visitors to be on site. All visitors and/ or visitors must be escorted by the person requesting visitor access at all times.

X SUBCONTRACTORS

Subcontracted scopes of work:

- Site Survey
- Reinforcing steel fabrication
- Security Services
- Electrical and instrumentation
- Scaffolding
- Refractory
- Painting
- Insulation
- Centerline equipment alignment/calibration
- Heavy Haul
- Preheat and PWHT
- NDT

Subcontractors on this project will be required to participate in the **CPC** Safety Program. Each subcontracting company will be required to submit a safety activity plan outlining the hazards of their specific job scope and the means too eliminate or control them. Each subcontractor will be required to furnish documentation as necessary to communicate their hazard communication program to personnel involved on this work site and will be required to conduct their own safety meetings or attend this company ‘s safety meetings. Subcontractors will be responsible for correcting unsafe conditions on their job sites immediately upon discovery. All accidents, incidents, and near misses will be reported to the project superintendent/project safety director identified in this Safety Activity Plan. Subcontractors must coordinate their work plans and safety strategy with the project superintendent and safety director.

XI ZERO TOLERANCE POLICY

Personnel shall be held accountable for their actions in accordance with the company and NRG's "Zero Tolerance Policy", a violation of any Zero Tolerance violation will result in immediate dismissal from the project. Zero tolerance violations include:

- Falling to follow fall protection policy
- Violation of Lockout/Tagout policy
- Violation of hot work permit requirements
- Failure to comply with confined space rules.
- Bypassing a safety device.
- Use of defective rigging (inspect rigging daily).
- Continuation of work after notification of an unsafe act or condition.
- Vandalism or theft.
- Workplace violence
- Reckless driving
- Smoking outside of designated areas.
- Use of cell phone or radio while operating machinery.
- Leaving equipment unattended with a suspended load.
- Failure to comply with station's sign in/sign out policy.
- The sale or use of alcoholic beverages, illegal drugs or firearms.
- The unauthorized removal of scaffolding or other shields established for safety.
- Failure to report a dropped tool, part, or other foreign or other foreign material into an open component.

For violations of safety policies that are not covered under the Zero Tolerance Policy, these are four basic classifications of disciplinary action:

1. Employee counseling or oral reprimand - The employee is counseled by the supervisor following an offense in an effort to eliminate possible misunderstandings and to explain what constitutes proper conduct.
2. Written Reprimand - Employee receives written notice of discipline following intentional or repeated offenses. The purpose of this written reprimand is to make certain that the employee is fully aware of the misconduct he/she has committed and what is expected thereby enabling the employee to avoid a reoccurrence of the incident.
3. Suspension - In the interest of good discipline a supervisor may suspend an employee with or without pay. The purpose of a suspension is to make certain that the employee understands the seriousness of the misconduct and that further misconduct will most likely result in dismissal.
4. Dismissal - The employee is dismissed as the result of an offense or repeated offenses.

Anytime that any or all of the basic classifications of disciplinary actions are taken the employee's file may be noted. Written reprimands and suspensions may be cleared out of an employees' file after a five (5) year period.

XII HEALTH, SAFETY AND ENVIRONMENTAL PROCESSES

A. Access To Employee Exposure and Medical Records

Employees will be trained regarding their rights to access their exposure and medical records at the time of hire-in and annually thereafter in accordance with the **CPC Safety Manual**" Access to Employee Exposure and Medical Records" located in the Project Safety, Health, and Environmental Program**.**

B. Accident/Incident Investigation (PRO-SAF-0620)

All accidents and incidents shall be investigated in accordance with the **CPC Safety Program**. Initial reports will be turned in by 10:00a.m. the following work day in regards to any incident and/or accident. Final report will be submitted within three working days after the investigation. CPC will use the following forms to document incidents and accidents. **CPC Employee Injury Report Form, Property Damage Form.** In addition to accident investigation and documentation, a root cause analysis shall be conducted and submitted for review to the NRG FCM

Inspection policies and procedures

It is the policy of CPC. to permit inspections by a representative of the Occupational Safety and Health Agency (OSHA). Such Inspection shall be accomplished in accordance with the following procedure

1. Upon arrival to the project the OSHA inspector shall be directed to report to the Project Safety Manager and the NRG Project Safety Manager will be notified.
2. The inspector is to wait for the company's Key person
3. If the company's key person is not on site or available within 60 minutes the inspector shall be informed that an inspection cannot take place unless that person is onsite although the company does not require an inspection warrant
4. Reference: the OSHA Inspection Policies and Procedure document located in the Site Safety Manual

C. Blood borne Pathogens Exposure Control Plan (PRO-SAF-0005)

All potential exposure or contact with human blood, fecal matter, and body fluids shall be managed in accordance with the **CPC** "Blood borne Pathogens Exposure Control Plan" in the Project Safety Health and Environmental Program. This plan will be kept in the jobsite office and will be made available if needed or upon request.

D. Catastrophic Event Action Plan

Site supervision shall familiarize themselves with the contents of the safety process "Catastrophic Event Action Plan" of the Project Safety, Health and Environmental Program. Should there be an occurrence that affects the personnel of this project, the On Site Emergency Coordinator or designee shall immediately report the event to the Corporate Safety Manager. The Off site evacuation and muster point has not been determined and will be determined and Identified prior to the start of construction activities as a point to receive calls from employees and concerned family members and to disseminate information**.** This plan will be kept in the jobsite and any other location where the Job Site Emergency Action Plan is kept.

E. Compressed Gas Cylinders

Compressed gas cylinders shall be handled in accordance with the CPC Safe practices:

1. Cylinders shall be kept away from radiators and other sources of heat.
2. Inside of buildings, cylinder shall be kept in a well ventilated, well-protected, dry location, at least 20 feet from highly combustible materials.
3. Assigned storage spaces shall be located where cylinders will not be knocked over or damaged by passing or falling objects, or subject to tampering by unauthorized personnel.
4. Empty cylinders shall have their valves closed.
5. Valve protection caps, where applicable, shall always be in place except when bottles are in use.
6. Inside a building, fuel-gas cylinders, except those in use or attached ready for use, shall be limited to a total gas capacity of 2,000 cubic feet or 300 pounds of liquefied petroleum gas.
7. Acetylene cylinders shall be stored valve end up.

8. Oxygen cylinders shall not be stored near highly combustible material, especially oil and grease, or near reserve stocks of carbide and acetylene or other fuel gas cylinders, or near any other substance likely to cause or accelerate fire.
9. Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials a minimum distance of 20 feet, or by a noncombustible barrier at least five feet high having a fire resistance rating of at least one-half hour.
10. Compressed Gases typically found onsite will include but not limited to, **Oxygen, Acetylene, Nitrogen, Argon, and Propane.**

F. Confined Space Program (PRO-SAF-0007)

All areas meeting the criteria of a confined space shall be managed in accordance with the CPC Safe Practices. In our effort to provide a safe and healthful workplace, this procedure has been developed to address the hazards associated with work activities in confined spaces. When entering confined spaces, all personnel shall comply with the established confined space entry procedure set forth by that customer or owner.

Confined space means a space that:

1. Is large enough and so configured that an employee can bodily enter and perform assigned work; and
2. Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry,); and
3. not designed for continuous employee occupancy.

Potential Confined Spaces: The following confined spaces have been identified

- HRSG
- Additional Confined spaces may be identified during the project

Hazard assessments shall be performed prior to entry of any confined space to determine the following:

- Hazard atmospheres-air content-lower explosive limit-Co-H2S
- Work procedures
- Ventilation
- Welding activities
- Respiratory requirements
- Fall hazards

G. Drug and Substance Abuse Program

The management of illegal drugs and alcohol, pre-employment drug testing, random drug screening, post-incident drug testing and probable cause drug testing shall be done in accordance with the CPC "Drug and Substance Abuse Program" of the Project Safety, Health and Environmental Program. All pre-employment drug testing, random drug testing, post-incident drug testing and probable cause drug testing shall also be in compliance with the Drug Integrity Security Administration (DISA).

H. Electrical Safety Program

General electrical work shall be conducted in accordance with the **CPC Safety Program**. Only qualified personnel shall work on energized parts and equipment that are familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools.

All portable electric tools and equipment shall be inspected on monthly bases. Portable electrical equipment shall also be handled in a manner which will not cause damage. They shall be visually inspected before each use to assure safe working condition. Unsafe or damaged items shall be removed from service, tagged and returned to the tool room for repair.

Personnel working in areas where there is the potential of electrical shock hazard shall use electrical protective equipment that is appropriate for the specific parts of the body to be protected and the work to be performed.

I. Equipment Operator Certification Program

Only trained Operators current Operators Engineers Card shall be allowed to operate machinery. The Crane Certification is a site requirement and shall be adhered to. All training, testing and evaluation shall be in accordance with the **CPC Safety** "Equipment Operator Certification Program..

J. Excavation and Trenching Program

All open pits, trenches and excavations shall be managed in accordance with the **CPC Safety Manual** "Excavations and Trenching Program or Customer/site Safety Standards". All entry into trenches and excavations shall be under the oversight of a competent person. Competent persons shall have successfully completed a training course.

K. Fire Prevention Program

The management of flammable and combustible materials fire prevention measures shall be in accordance with the Safety Process "Fire Prevention Program. In our attempt to provide a safe and healthful work place and reduce the possibility of the development of an uncontrolled fire, a fire extinguisher, rated not less than 2A, shall be provided for each 3,000 feet of the protected building area. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet. A fire extinguisher, rated not less than 10B, shall be provided within 50 feet of all welding operations and wherever more than five gallons or five pounds of flammable gas is being used on the jobsite. Personnel shall also be trained in the proper and effective use of the fire extinguisher. Working together as a team, we can assure a safe and healthful workplace**.**

L Fuel and Flammable Liquid Storage

All fuel and flammable liquid storage shall be in accordance with the **CPC Safety Program**. In our attempt to provide a safe and healthful work place and reduce the possibility of the development of an uncontrolled fire, a fire extinguisher, rated not less than 2A, shall be provided for each 3,000 feet of the protected building area. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet. A fire extinguisher, rated not less than 10B, shall be provided within 50 feet of all welding operations and wherever more than five gallons or five pounds of flammable gas is being used on the job-site. Personnel shall also be trained in the proper and effective use of the fire extinguisher. Working together as a team, we can assure a safe and healthful workplace. The storage of fuel to facilitate field operations shall be in approved containers and above ground tanks located in isolated areas, at least 25 feet from other operations, which have been approved by the customer Owner Representative or designee. The following key requirements shall be met to assure proper handling of this combustible liquid.

All fuel tanks shall be made of steel and meet the design requirements of the American Petroleum Institute, American Society of Mechanical Engineers, or the Underwriters' Laboratory.

All storage areas must be identified with company name and contents with "No Smoking" signs posted in the fuel storage area.

At least one portable fire extinguisher having a rating of not less than 20-B:C shall be located not less than 25 feet, nor more than 75 feet from any flammable storage area.

The motors of all equipment being fueled shall be shut off during the fueling operations.

All containers used for transporting or transferring gasoline or fuel must be labeled properly, have flame arresters and self closing caps/lids.

Fuel containers must be bonded or grounded when transferring fuel to reduce the possibility of spark or static electricity. Flammable or combustible liquids such as fuel, oils, cleaners, Liquid Storage paints, thinners, solvents, etc., shall be kept in approved containers, properly identified or labeled, and stored clear of work areas.

Fuel Storage Plan

CPC proposes to have a 500 Gallon fuel cell on site. The proposed fuel will be placed inside secondary containment with appropriate containment capacity. Fuel storage containments must meet all regulatory requirements. Spill containments kits shall be maintained on site in the event there is a spill. All signage shall be in place to identify hazards associated with storage or dispensing of fuel. Welding rigs on the site may have a truck mounted drag up fuel tank. These tanks can contain up to 100 gallons. These welding rigs shall be required to have and maintain a spill kit and fire extinguisher on each truck. The location of the fuel cell will be determined at a later date. It has not been determined where welding rigs will be and will have to be addressed on a daily basis

Fueling Procedure

Fuel storage facility shall be equipped with a locking dispenser/shut off switch to prevent unauthorized access to fuel. An attendant will be responsible for the dispensing of fuel. Locking fuel nozzles will not be allowed at the fuel cell. All vehicles and equipment being fueled will be grounded to prevent static electricity discharge.

M. Guardrail Specifications

Guardrails shall be installed and maintained in accordance with the **CPC** Safety Practices. Guardrail systems are designed to create a barrier to prevent employees from falling to lower levels. They shall be installed along all open sides and ends of elevated platforms serving as work areas for employees. The standard guardrail system shall consist of a toprail, midrail, toeboard, posts and perhaps a screen.

N. Hazard Communication Program (PRO-SAF-0023)

An inventory of hazardous substances/materials located on site shall be maintained and shared with Owner and subcontractors. SDS's shall be available in the "Hazard Communication Program" manual located in the Project Superintendent's office. All containers shall be labeled and employees shall receive training in accordance with our "Hazard Communication Program.

O. Hearing Conservation Program (PRO-SAF-0027)

All employees who could potentially be exposed to environmental noise levels at or above the permissible exposure limit shall be included in the hearing conservation program. Single hearing protection will be worn around high noise levels of 85dba are greater. Double hearing protection will be worn as needed.

P. Heat Stress Program (PRO-SAF-0028)

Due to the high temperatures in our work environment and the vigorous work activities required to perform work, heat stress and related illnesses are of utmost importance.

Maintain cardiovascular fitness through proper excise and diet.

Work in shady areas, if possible, with plenty of ventilation.

Rest often in cool areas.

Drink fluids at regular intervals, such as every 20 minutes, starting at the beginning of the work shift.

Share the work load with another worker when possible.

If possible, do the hardest work early in the day when it's cooler.

Q. Housekeeping (PRO-SAF-0031)

All work, office and dining areas shall be maintained in a clean and safe manner, and shall be conducted in accordance with the **CPC Safety Manual** "Housekeeping" in the Project Safety, Health and Environmental Program.

R. Severe Weather Guidelines

All Field Superintendents will make sure all jobs they are assigned are secured.

When conditions are favorable for severe weather such as High winds, heavy rain, lightening etc severe weather procedures will be reviewed and implemented.

When a project is in danger of activity and there is ample time to shut down and secure the site, the following actions shall be attempted.

1. Secure all loose objects and material, i.e., ladders, pallets, drums, trash in dumpsters, etc.
2. Close all window glass.
3. Set brakes and check all mobile equipment.
4. Crane booms lowered down and secured.
5. De-energize all unnecessary electrical power.
6. Appropriate material should be available and stored on site to facilitate the securing of project property, materials, and equipment, i.e., rope, wire, boards/plywood.
7. Employees not at the project should listen to the radio and contact the Project Manager or Employment Office for information as to when to return to work or other instructions.

S. Individual Responsibility

In order to achieve an accident and injury free workplace, each employee is expected to work in a safe and craftsman like manner, become familiar with federal, state and local safety requirements, and to obey company and customer safety rules and procedures. All personnel shall be familiarized with the key requirements of the Safety Process "Individual Responsibility" in the Project Safety, Health and Environmental Program.

T. Lockout Tagout Procedure (PRO-SAF-0037)

Personnel working on systems with potential stored energy shall be trained on the **CPC** lockout/tagout safety procedure. The lockout tagout rules will be followed precisely. Non compliance with this procedure is a serious offense and will bring immediate disciplinary action as defined in our Zero Tolerance Policy**.**

CPC and subcontractor employee will be required to be trained in their companies Lockout/tagout policy and comply with the requirements **NRG**

U. Personal Protective Equipment & PPE Hazard Assessment (PRO-SAF-0039)

Personal protective equipment shall be made available to personnel based on an assessment of the hazards associated with the job/task. This hazard assessment is comprised of recommendations or requirements noted on bid specifications, from site rules and regulations regarding the area or processes near the work site, from a site hazard analysis conducted by site supervision and safety personnel prior to the job, and by recommendations from employees regarding equipment that they need to protect them from hazards on the job. Company minimum PPE requirements and assessments are contained in the **CPC Safety Manual** "Personal Protective Equipment and PPE Hazard Assessment" in the Project Safety, Health and Environmental Program, which can obtained from the safety manager or from the job site office.

V. Process Safety Management (PRO-SAF-0040)

Site supervision shall verify that trained and qualified personnel are utilized to accomplish the specific tasks of this project. This shall be accomplished by reviewing the employee work history and skills assessment to determine each individual's level of skill. Site supervision shall verify that personnel receive proper continuing training to enhance their hazard recognition abilities. Also, site supervision shall ensure that the hazards of the processes or systems where work activities are being conducted are made available and are effectively communicated to the personnel involved in the work. All personnel shall be trained on the flow of the safety processes through the process safety flow diagrams. Personnel may communicate unique or unusual hazards which may be associated with the owner company by using the Unsafe Condition Report as described in the **CPC Safety Program**" Unsafe Condition Reporting". All work activities shall be conducted in accordance with the **CPC Safety Manual**"Process Safety Management" of the Project Safety, Health and Environmental Program.

W. Recordkeeping and Documentation Processes

The required records such as the OSHA FORM 300, job site inspections, and equipment inspections and personnel records shall be kept in a location designated by the site superintendent. Record keeping responsibilities and procedures shall be in compliance with the Project "Recordkeeping" section of the Project Safety, Health and Environmental Program.

X. Respirator Protection Program (PRO-SAF-0041)

The hazard assessment process has determined that no tasks should have airborne contaminates at or in excess of the permissible exposure limit. Should conditions arise through the course of this job that requires respirator protection, the "Respiratory Protection Program:" of the Project Safety, Health and Environmental Program shall be reviewed and appropriate protective actions shall be taken. The site safety director shall be responsible for maintaining compliance with the Respirator Protection Program. The plan will be available at the Site Safety office.

Y. Slings

Slings shall be inspected before each use. Slings with damage that meets the requirements for removal from service shall be so removed immediately. Slings shall have an identification tag attached. This number shall not be duplicated, and the identification number for removed slings shall be retired and not used again. Documented inspections of all slings on the job shall be done on a regular basis, with the inspection records becoming a part of the job site inspections in accordance with the recordkeeping and documentation section of this Safety Activity Plan. The management of slings shall be in accordance with the Safety Process "Slings" of the Project Safety, Health and Environmental Program**.**

Z. Spill Cleanup Procedure (PRO-SAF-0043)

Spill containment, reporting, clean-up and disposal shall be conducted in accordance with the established customer procedure.

The designated contact or Owner Representative shall be given the following information:

- What was spilled
- How much was spilled
- Where
- When
- Your name, location and phone number.

A spill kits consisting of a small container with absorb-all, diapers, and plastic will placed in strategic locations throughout the site with signs to notify personnel of location.

AA. Vehicle & Traffic Safety (PRO-SAF-0059)

Only designated personnel shall be allowed to drive company vehicles. Job site supervision shall verify that the designated drivers on their job site have the necessary background checks and clearances to drive company vehicles. All vehicle operations and traffic safety shall be in accordance with **the CPC Safety Program**.

BB. Lead and Asbestos Abatement Program (PRO-SAF-0035)

Under no circumstances shall lead containing material be handled by untrained personnel. All work activities that result in airborne lead particles shall be coordinated with the project safety director prior to commencement. All activities involving the potential for airborne lead particles shall be in compliance with **CPC** safety policies.

Under no circumstances shall asbestos material be handled by untrained personnel. Only Class II activities such as removal of asbestos gaskets will be conducted on this project. Only trained personnel using proper removal tactics may conduct these activities. Conditions may cause the materials to fragment and become airborne. Should this condition be recognized the job shall be referred to asbestos specialist. All work activities conducted on or near asbestos containing materials shall be coordinated with the project safety director. All Lead and asbestos removal activates as well as any hazardous waste activities shall be performed by the appropriate sub contractor who is licensed and certified to perform those work activities.

CPC Safety Goals for this project is:

1. .00 - total recordable incident rate
2. .00 - days away from work incident rate.
3. A minimum of one safety audit will be conducted daily.

Gil Martinez
Project Manager _____
Signature

Sean Moyna
Project Safety Manager _____

12.0 SITE SPECIFIC SAFETY PLAN

Signature

13.0 RFERENCE FORMS

13.0 TABLE OF CONTENTS

Project Safety Meeting Record **Page 1 of ___**

PERSON CONDUCTING MEETING		DATE	DEPARTMENT/AREA
		TIME AM PM	NUMBER ATTENDING
☐ DAILY MEETING	☐ WEEKLY MEETING	LENGTH OF MEETING	

	PRINT NAME	SIGNATURE
A		
T		
T		
E		
N		
D		
A		
N		
C		
E		

	WHAT WAS THE TOPIC?
C	GIVE A BRIEF OUTLINE OF DISCUSSION
O	
N	SAFETY RECOMMENDATIONS
T	
E	ACTIONS TAKEN
N	
T	MATERIALS DISTRIBUTED AND VISUAL AIDS USED?
	WHAT SIGNIFICANT QUESTIONS OR CONCERNS WERE EXPRESSED?

Page 2 of ___

13.0 RFERENCE FORMS

SIGN-IN SHEET

Date:

Job Number:

Superintendent:

Foreman:

Employee Name		Employee Signature	Were you injured this week? (Emp. Initials)		
				YES	NO

CPC
Near Miss Report

1.0 PURPOSE

The purpose for a minor near miss report is to provide a reporting system for an employee/contractor in documenting a minor near miss in a condensed, simple, written format and to encourage immediate appropriate corrective actions by the involved employee to eliminate the near miss from reoccurring.

Instructions: This report can be used by an employee/contractor to report a near miss. A "near miss" is an event which under slightly different circumstances could have resulted in harm to people, damage to property, loss of process, or harm to the environment.

2.0 EMPLOYEE SECTION Date of Occurrence: _____

Harm to People Environmental Property/Equipment Reliability Other: _____

(1) Name (Print) _____ (2) Phone # _____

(3) Supervisor's Name _____ (4) Unit/Area_____

(5) Description of Near Miss: (Describe how the incident occurred. Attach additional pages if needed).
_____
_____
_____

(6) Basic Cause (In your opinion, write down the basic reason this near miss happened):
_____
_____

(7) Corrective Action to Prevent Reoccurrence (In your opinion, write down what you or others did to prevent this from happening again):
_____
_____

3.0 SUPERVISOR SECTION

Action Plan to Prevent Reoccurrence: (Discuss with employee if changes in policy, procedures, or equipment are recommended. Provide a completion date and who will initiate an action and when finding is corrected or abated.

(1) Describe Action(s):
_____
_____

(2) CORRECTIVE ACTION COMPLETE Yes □ No □ Date: _____

(3) Supervisor's Signature: _____ Date: _____
(4) Supervisor's Instructions: Submit completed report to CPC Contact / Representative by the end of shift.

cc: CPC, H&S Department

CPC
Accident/Incident Investigation Report

Date of Accident/Incident:_____ Time of Incident:_____ Company:_____

Date of Investigation:_____ Project Number:_____ Client:_____

Location of Accident/Incident:_____

Did injury result? Yes/No _____, If yes, provide Employee Name(s):_____

S.S. No.:_____ Skill:_____Yrs. in this Skill:_____Yrs. with Company:_____

Describe Type of Injury:_____

Was property damaged ? Yes/No ____, Describe damage/owner:_____

_____

Is damaged property secured/maintained? Yes/No_____, Person Maintaining_____

Names of Witnesses/Coworkers (With Social Security No.):_____

_____

Weather / Wind Conditions:_____

List/Describe all personal protective equipment (PPE) in use by person exposed or injured:_____

_____

If Chemicals Involved:

Name(s) of Chemical(s) Encountered:_____

_____

Form of Chemicals (Solid, Liquid, Gas, Vapor, Dust, Mist Fume):_____

Describe Radiological Materials (if any):_____

Volume or Quantity Released:_____

Description of Accident/Incident:_____

_____

_____

_____

Contributing Factors:_____

_____

CPC
Accident/Incident Investigation Report

What **corrective actions** are being taken to prevent recurrence? Also list the person responsible for implementing and the target completion date for each item.

_____

_____

_____

Was an SPA/JSA developed for the task being performed? Yes/No____, If yes, attach a copy.

Was a permit issued? Yes/No _____, If yes, attach a copy of the permit in effect at time of the incident.

Indirect cause: **Lack of**: Training____, Resources____, Belief____ (*explain)

_____

Basic cause: **Failure to**: Plan____, Direct____, Organize____, Control____(*explain)

_____

INVESTIGATION TEAM MEMBERS:

Injured / Involved:	_____ Name	_____ Signature	
Supervisor:	_____ Name	_____ Signature	
Site/Office Manager:	_____ Name	_____ Signature	
HS Professional:	_____ Name	_____ Signature	
_____ Name (Others)	_____ Title	_____ Signature	
_____ Name (Others)	_____ Title	_____ Signature	

Client Representative(s) Contacted:_____

Agency Representative(s) Contacted:_____

* Attach additional sheets and supplemental data & information as necessary.
** Distribution: Original must be filed on-site; 1 copy must be sent promptly to the Corporate Health and Safety Department.

CPC
Witness Statement

Please print or type

Name:_____ Title:_____

Social Security Number:_____Date:_____ Time:_____

Temporary Address:_____ Phone No._____

_____

Permanent Address:_____ Phone No._____

_____

Location at Time of Accident:_____

Describe, to the best of your knowledge, what happened just before, during, and just after the accident:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

CPC
Vehicle Accident Report

Claim Reporting
Claims Department Toll Free: 800.622.2699 ext. 114 Fax: 949.595.5544

Company Name _____
Date of Accident _____Time of Accident _____
Location of Accident _____
Project No. _____ Vehicle No. _____

Company Vehicle
Driver _____ Date of Birth _____
Work Address: _____
Home Address: _____
Work Phone No. _____ Home Phone No. _____
Supervisor Name/Phone _____
Vehicle Owner _____ Make and Model _____
License No. _____ Vehicle Identification No. _____
Name(s) of Passengers: _____

Other Vehicle
Driver _____
Home Address of Driver _____
Work Phone No. _____ Home Phone No. _____
Driver's License No. (Including State) _____
Vehicle Owner _____ Make and Model_____
Relation of Driver to Owner _____
Insurance Company _____

Insurance Agent _____ Policy No. _____

Description of Accident

_____
_____

Description of Damage To Vehicle

Company Vehicle: _____
Est. Repair Cost $_____ Where Vehicle Can Be Seen:_____

Other Vehicle: _____
Est. Repair Cost $_____ Where Vehicle Can Be Seen _____
_____

Injuries/Witnesses

Company Vehicle: Name and Age of Injured □ Witnesses □ _____
_____
Relation to Driver of Company Vehicle _____

_____
Name of Investigating Officer: _____
Badge No. _____Police Report Number _____Citations_____

Other Property Damage
Owner's Name, Address, and Phone No.
_____
_____

Describe Damage _____

Report submitted by _____ Date _____

Diagram of Accident

CPC
Supervisor's Initial Incident Report

This form must be completed by the supervisor and submitted during the shift that the incident is reported

Type of Incident: ☐ **Injury** ☐ **Near Miss** ☐ **Fire** ☐ **Environmental** ☐ **Other**

Contractor (Company Name) _____

Incident Location (Area)_____ (Unit)_____

Incident Date_____ Incident Time_____

Personnel Involved	Job Classification

Supervisors Name_____ Contact Number _____

_

Job Description

Incident Description (What Happened)

Description of Injury and Treatment

Witness

Supervisors Signature	Date

Employee Signature	Date

CPC
ACCIDENT REPORT FORM

Date: _____

Contractor Name:	THE OWNER Representative:	
Street Address:	City-State-ZIP Code	
Employee's Name:	Social Security Number:	Home Phone No.:
Street Address:	City-State-ZIP Code	
Birth Date:	Date of Employment:	
Job Classification:	Supervisor's Name:	Contractor's Phone Number:

Date of injury or date of initial diagnosis of occupational illness: _____ AM ___ PM _____	Did accident happen on THE OWNER premises? ☐ Yes ☐ No	Did employee die? ☐ Yes ☐ No
Date employer notified of injury: _____ AM ___ PM _	Did employee lose time from work? ☐ Yes ☐ No	Date lost time began: _____

Place of accident or exposure_____

Describe in detail what employee was doing when injured and circumstances causing injury _____

_____

_____

_____

Describe illness or injury in detail _____

_____

Name and address of hospital _____

Name and address of doctor _____

Probable Period of Disability: _____	Date Employee Returned to Work: _____ Has Not Returned Yet ☐	Does salary continue if lost time? ☐ Yes ☐ No
Report Prepared by: (print or type) Name: _____ Telephone Number: _____	Signature of Employee: _____	

Employment Status:

Hours Worked Per Day	Days per Week	Wage Rate $

Witness to accident	Address
Witness to accident	Address

Contributing cause(s) of injury or illness:

- ☐ A. Automobile Accident
- ☐ B. Industrial Vehicle
- ☐ C. Falls - one level to another
- ☐ D. Falls - slipping/tripping
- ☐ E. Lifting
- ☐ F. Struck by falling or projected object
- ☐ G. Equipment failure
- ☐ H. Improper planning/tool/equipment
- ☐ I. Deadly weapon
- ☐ J. Overexertion
- ☐ K. Exposure to elements
- ☐ L. Poor Housekeeping
- ☐ M. Inattention/horseplay
- ☐ N. Fellow employee
- ☐ P. Insect/animal
- ☐ Q. Fire
- ☐ R. Explosion
- ☐ S. Electricity
- ☐ T. Robbery/burglary
- ☐ U. Exposure to noise, dust, fumes
- ☐ Other _____

Primary cause of injury or illness_____

What has been done to prevent similar incident?_____

_____
Signature of Supervisor

Site Safety Contacts

Last Name	First Name	Phone	Cell Phone	Email	Position

CPC Pre-Lift Checklist

		Yes	No
1.	Crane Operator meets company qualification requirements?	☐	☐
2.	Lift calculations and rigging plan completed?	☐	☐
3.	Are all required approvals/permits signed?	☐	☐
4.	Crane inspections up to date (Annual/Monthly/Daily)?	☐	☐
5.	Weather conditions and wind speed acceptable?	☐	☐
6.	Has the stability of the ground been assured?	☐	☐
7.	Matting and/or outrigger pads inspected and approved?	☐	☐
8.	Electrical equipment and power lines at required distance?	☐	☐
9.	Rigging Inspected for defects?	☐	☐
10.	Engineered lifting lugs fabricated and installed correctly?	☐	☐
11.	Connecting/disconnecting means been developed?	☐	☐
12.	Have the safety precautions been reviewed?	☐	☐
13.	Is survey equipment required?	☐	☐
14.	Signal person(s) assigned?	☐	☐
15.	Pre-Lift Meeting/Task Safety Awareness Meeting (TSA) held?	☐	☐
16.	Hoist area & load path cleared of non-essential personnel?	☐	☐
17.	Crane set up per the lift plan (radius, configuration, etc)?	☐	☐
18.	Rigging equipment and tag line(s) installed per plan?	☐	☐

Person Completing Check List: _____

Signature: Date:

CPC CRITICAL LIFT FORM

Lift Plan

Lift # _____
Date _____

Load Description _____
_____
Source weights _____

Condition of load: New ☐ Good ☐ Old ☐ Bad ☐

Crane:
Manufacturer _____
Model _____
Boom configuration _____
Counter weights _____
Parts of load line _____ (min)
Line Size _____
Capacity of line @ parts 0 _____ lbs

LOAD

Weight of piece being lifted		lbs
Weight Contingency 5%		lbs
Load Line		lbs
Load Block		lbs
Rigging		lbs
Jib Erected		lbs
Jib Stowed		lbs
Headache Ball *		lbs
Whip line		lbs
TOTAL LOAD	0	lbs

LIFT SET-UP

Max. load radius		ft
Length of Boom		ft
Angle of boom at pick		deg
Angle of boom at set		deg
Jib to be used	Yes____	No
Jib length		ft
Jib angle		deg
Capacity of Crane this lift		lbs

PERCENT CAPACITY THIS LIFT #DIV/0!

RIGGING

Sling Size		Shackle size	
Sling Length		Pin diameter	
Angle of slings		Load on Shackle	lbs
Dim. from sling to CG of load		Shackle Capacity	lbs
Configuration of sling use(choked, etc.)		Lift lug size	
		Load on lift lug	lbs
Load on Sling		Lift lug capacity	
Capacity of Sling in Configuration used			

LIFT AUTHORIZATION CHECK LIST:

Equip. and Maintenance logs up to date	_____
Crane is operating correctly	_____
Load is rigged according to lift plan	_____
Crane position is according to lift plan	_____
Proper matting or foundation in place	_____
Weather and wind acceptable	_____
(Max. wind speed for this lift 15 mph)	
Tag line attached	_____
Specified communications in place	_____
Shackles, slings, turnbuckles inspected	_____
Swivel hook unlocked or locked	_____
Pre-lift huddle conducted	_____
Unit operations notified and OK'D	_____

LIFT AUTHORIZATION

Lift plan prepared by	_____
CPC. Superintendent	_____
CPC Rigging Forman	_____
Crane Operator	_____
	_____
	_____

Comments: _____

Lockout/Tagout Inspection Form

DIVISION	
UNIT/LOCATION	
EQUIPMENT/MACHINE	

AUTHORIZED EMPLOYEE: _____ INSPECTORS: _____

_____ _____

_____ _____

_____ _____

Date of Inspection:

	YES	NO	N/A
1. Were locks and lockouts properly installed to prevent the unexpected release of energy?			
2. Was ownership of the locks and keys in accordance with both Technology procedures and approved written unit procedures?			
3. Were tags used and properly filled out in accordance with both Technology procedures and approved written unit procedures?			
4. Was the isolation logbook properly kept and up to date?			
5. Was the transfer of ownership of locks, tags, and keys properly handled during shift change; i.e., in accordance with both Technology procedures and approved written unit procedures			

(If any errors in following the Safety lockout procedures were detected, the area fails, i.e. any "no" answer to the above questions constitutes a failure.)

The subject area was inspected as required by Title 8 and:

PASSED **FAILED**

If failed, retraining was completed on: _____ By:_____

For:_____ _____

_____ _____

Heat Stress Disorders - Prevention, Recognition & First Aid

The majority of Heat Stress disorders can be prevented by actively practicing preventive measures and by early recognition. Key preventive measures include the following:

- Pace work and use common sense about work load/effort.
- Drink water prior to beginning work, during work breaks, and after work to ensure adequate hydration.
- Observe Supervisory and/or Safety Department instructions concerning cooling garments, Stay Times and recovery Periods

Heat Rash (Prickly Heat)

Symptoms Include:	First Aid / Action
• Rash on skin	• Rest in a cool place during work breaks
• Profuse Sweating	• Bathe and thoroughly dry skin daily
	Consult a physician if symptoms recur (may be causes other than heat stress)

Heat Cramps

Symptoms Include:	First Aid / Action
• Profuse sweating	• Move to a cool area and lie or sit down
• Leg or abdominal muscle spasms	• Remove PPE
	• Loosen clothing
	• Drink water or non-cCPConated, non-alcoholic fluids (salt or electrolyte replacement may help consult a physician). Eat a banana for potassium.
	• Massage cramped muscles
	Consult a physician if symptoms recur (may be causes other than heat stress)

Heat Exhaustion

Symptoms Include:	First Aid / Action
• Profuse sweating	• Move victim to a cool area
• Nausea, weakness	• Remove PPE and loosen clothing
• Shortness of breath	• Elevate legs and loosen clothing (to facilitate blood flow)
• Clammy, moist skin	• Give water or non-cCPConated, non-alcoholic fluids
• Headache, dizziness	• Cool victim by sprinkling with water and/or fanning
• Tingling sensation in extremities	• Call the local emergency number (911) for medical attention
• Complexion can be pale or flushed	Consult a physician if symptoms recur (may be causes other than heat stress)

Heat Stress Disorders - Prevention, Recognition & First Aid

Heat Syncope (fainting)

Symptoms Include:	First Aid / Action
• Light-headedness, especially when rising after squatting or sitting	• Move victim to a cool area
• Weakness or fatigue	• Remove PPE and loosen clothing
• Profuse sweating	• Have victim recline with feet elevated or sit with head between knees (to improve blood flow to head)
• Blurred vision	• Give moderate amounts of cool water
• Chills	• Call the local emergency number (911) for medical attention
	Consult a physician if symptoms recur (may be causes other than heat stress)

Heat Stroke

A failure of the body's cooling system. Requires immediate medical attention!!!

Symptoms Include:	First Aid / Action
• Loss of consciousness	• Start first aid immediately; do not wait for medical personnel to arrive
• Convulsions, delirium	• Move victim to a cool area
• Violent attitude shifts	• Remove PPE and as much clothing as possible
• Skin overheated and usually dry, red, or spotted	• Drench victim thoroughly with water and fan vigorously.
• Death is possible without proper medical attention	• Lowering body temperature as soon as possible is essential
	Call the local emergency number (911) for medical attention

Written Injury and Illness Prevention Program

ARB

WRITTEN INJURY AND ILLNESS PREVENTION PROGRAM

I. Employer Information

Organization/Entity: ARB, Inc
Address: 26000 Commercentre Dr.
Phone Number. 949-598-9242
Type of Business: General Engineering Construction
Main Activities: Heavy Construction

City: Lake Forest
State: CA
Zip Code: 92630

II. Person(s) With Authority And Responsibility For Implementing This Employer's Injury And Illness Prevention Program

Name/Title: Darryl Oscars, Corporate Safety Director

Description of Authority and Responsibility: Implementation of the injury and illness program, employee training, inspection and investigations.

III. (A) ARB's System For Identifying, Evaluating, And Preventing Occupational Safety And Health Hazards Includes The Following:

- Review of applicable General Industry Safety Orders and other Safety Orders that apply to the operation.
- Review of industry and general information (including Material Safety Data Sheets) for chemicals used on potential occupational safety and health hazards.
- Investigation of all accidents, injuries, illnesses, and unusual events that have occurred at this location.
- Periodic and scheduled inspections of general work areas and specific work stations.
- Evaluation of information provided by employees.
- Identifying and evaluating hazards in general and specific work areas and developing methods to eliminate, reduce and control them.
- Hazard Correction – Unsafe or unhealthy work conditions, practices or procedures shall be corrected in a timely manner based on the severity of the hazards. Hazards shall be corrected according the following procedures:

    1. When observed or discovered;
    2. When an inminent hazard exists which cannot be immediately abated without endangering employee(s) and/or property, we will remove all exposed workers form the

area except those necessary to correct the existing condition. Workers necessary to correct the hazardous condition shall be provided with the necessary protection; and

3. All such actions taken and dates they are completed shall be documented on the appropriate forms.

III. (B) Hazard Evaluations Have Been Conducted For The Following General And Specific Work Stations (Job Safety Classes):

NAME		Description Of General Area	Job Safety Classes
1.	Mechanical Division	Refineries, Breweries	Welder, Fitter, Laborer, Operator, Apprentice
2.	Pipeline	Farm Land, Streets, Plants	Welder, Fitter, Laborer, Operator, Truck Driver
3.	Civil	Refineries, Plants, Schools	Carpenter, Laborer
4.	Structural Steel	Refineries, Breweries, Office Bldgs.	Ironworker
5.	Gas Distribution	Public Streets	Fitter, Laborer, Teamster, Laborer
6.	Fabrication Shop	Fab Shop	Welder, Fitter, Metal Trades
7.	Water Lining	Public Streets	Fitter, Laborer, Operator
8.	Directional Drilling	Rivers, Canals, Highways	Operator, Laborer, Welder
9.	Power and Communications	Public Streets	Teamster, Operator, Laborer

III. (C) The Occupational Safety and Health Hazard Evaluations Have Been Conducted For The Following General And Specific Work Stations (Job Safety Classes):

- Hazard evaluation conducted for general work areas and specific Job Safety Classes are maintained at the Corporate Safety Office.

III. (D) Safe Working Conditions, Work Practices And Protective Equipment Requirements Are Documented And Communicated In The Following Manner:

- Codes of Safe Practices have been developed for general and /or specific job safety classes or work stations which all ARB, Inc. employees receive training in and documented with name and person trained, items trained in, trainers name and date of retraining. Records are at the Corporate Safety Office.

I. Inspections Are Conducted To Verify Compliance With Codes Of Safe Practices And Protective Equipment Requirements Are Documented And Communicated In The Following Manner:

Area/Job Safety Classess		Frequency of Scheduled Inspections	Person(s) Responsible
1.	Administrative/Office	Every 6 Months	Safety Manager/Supervisor
2.	Light Mechanic Shop	Monthly	Safety Manager
3.	Equipment/Fabrication Shop	Monthly	Safety Manager
4.	Field Job Sites	Monthly	Safety Manager

- Documentation of Inspections

Periodic scheduled inspections are documented on Observation Reports which include unsafe acts, conditions observed, correction needed for hazard identified, date correction will take place, name of person observing area and the name of the immediate supervisor. These forms are maintained at the Corporate Safety Office. Inspections shall also be documented anytime new substances, processes, procedures, enter the work environment and whenever the company is made aware of a new previously unrecognized hazard.

Other forms of documentation (describe): Foreman Supervisor Inspection Checklist

- Accident and Injury/Illness Investigation

Inspections (investigations) are conducted as soon as possible after an accident, occupational injury or illness, or hazardous unusual occurrence is reported. These investigations are documented on Employee Accident Reports. These forms are maintained at the Corporate Safety Office.

V. Employee Safety Training Is Provided Initially Or In The Following Circumstances:

- New employees are provided initial training upon hiring prior to assignment.
- Employees are provided training when assigned to a new task for which training has not been received.
- Supervisors are trained on hazards and safe practices in their area of responsibility.
- Training includes general area safety and specific assignment or job safety class training and the potential occupational safety and health hazards and the Code of Safe Practices.
- Documentation of training is maintained on Training Forms for individual training. This documentation is at the Corporate Safety Office.
- Refresher training is provided Annually.
- Additional training is provide whenever new substances ("See Hazardous Material Training for ARB, Inc. Handbook") process, procedures, or equipment are introduced into the workplace, and whenever ARB is made aware of a previously unrecognized hazard.

VI. Effective Communications With The Employees Have Been Established Which Include The Following Methods To Meet The Standard's Requirement's

- Communication of safe working conditions, work practices, and required personal protection equipment is included in initial and all subsequent training.

  Other forms of employer-to-employee communications on safety topics include notices, newsletters, bulletin boards and meetings.

  Employees have been advised by Initial Training that safe work conditions, safe work practices, and required personal protective equipment are mandatory and will be enforced by the following:

- Recognition for compliance/good safety record: Award Programs
- Discipline for non-compliance including: Reprimand, Suspension, Termination. Documented on Employee Warning Notice and Notice of Termination.
- ARB's method to solicit safety related information from employees includes, reports to supervisors and anonymously by written forms placed in Safety Suggestion Box.
- Employees have been advised there will be no reprisals or other job discrimination for expressing any concern, comment, suggestion, or complaint about safety-related matters.

VII. Record keeping Requirements Of 8ccr #3205(D) Will Be Adhered To Including:

- Records documenting implementation of the IIPP will be maintained by the person responsible for the program. The following records will be maintained for the period indicated, at a minimum:
- The Written IIPP .....Indefinitely
- OSHA Log 300 Forms .....5 years
- Inspection Forms .....1 year
- Investigation Forms .....1 year (if a Log 300 Injury, 5 years)
- Employee Training Forms:
  Personnel Records .....Duration of Employment
  Training Sign-up Sheets..... .....1 year
- Records Relating to Employee Communication and Enforcement:
  Safety Meeting Sign-up Sheets .....3 years
  Employee Suggestion/Question and Responses .....3 years
  Disciplinary Actions .....3 years
- All other Safety Records Other than Those Subject to the Access Standard .....3 years
- Medical and Employee Exposure Records Subject to the Access Standard .....Duration of employment plus 30 years

Postering Policy: It is the policy of this employer that all posters required by federal and state occupational safety and health and labor laws and regulations will be posted in the workplace.

VIII. Review and Approval

Responsible Person(s): Signature indicates that a copy of the program has been provided and responsibility to implement the program ~s understood.

Signature (Management Official)

February 2003
Date

DIRECTOR OF SAFETY
Title

Darryl Oscars
Management Official

CORPORATE SAFETY DIRECTOR
Title

E-mail Correspondence City of Carlsbad Fire Department, January 6, 2016

Seipel, Scott

From: Mike Lopez <Mike.Lopez@carlsbadca.gov>
Sent: Wednesday, January 06, 2016 12:08 PM
To: Seipel, Scott
Cc: Sisk, Tim; Haque, Ahmed
Subject: RE: Carlsbad Energy Center

Greetings Everyone!

Hope all of you are well….My apologies for the delay in this review. Per our Fire Marshal:

The Safety Plan appears to be very comprehensive and cover a large variety of potential hazards that could be encountered on the job site. This includes issues related to House Keeping, Fire Safety, refueling processes for generators, and the proper storage, use and handling or flammable and combustible liquids.

Specials detail was given to the section regarding confined space entry. It appears that this section of the report is in compliance with OSHA requirements regarding necessary permits and site supervision, safety protocols, and air monitoring. I find this section to be comprehensive and have no recommendations that will enhance the safety plan in this section.

I find the overall plan to be very concise and comprehensive. Conformance with this plan, in conjunction with on-site safety meetings as outlined in the plan, should lead to a very safe work environment for this job site. I have no further comments and recommend that we receive and file the plan from NRG, making comment back to them that we have no additional comments or changes.

If any of you have any questions, please do not hesitate to contact me. In addition, I would like to set up a meeting so that we can all meet and greet.

Have a Happy and Healthy New Year!

Mike

City of Carlsbad
Fire Department

Mike A. Lopez
Division Chief
Carlsbad Fire Department
2560 Orion Way
Carlsbad, CA 92010
www.CarlsbadFire.org

o: 760.931.2123| c: 760.212.2569 | mike.lopez@carlsbadca.gov

Facebook | Twitter | You Tube | Flickr | Pinterest | Enews

From: Seipel, Scott [mailto:Scott.Seipel@nrg.com]
Sent: Tuesday, December 22, 2015 9:23 AM
To: Mike Lopez <Mike.Lopez@carlsbadca.gov>
Cc: Sisk, Tim <Tim.Sisk@nrg.com>; Haque, Ahmed <Ahmed.Haque@nrg.com>
Subject: Carlsbad Energy Center

Chief Lopez,

Hope your holidays are going well.

I am following up on any comments you may have on the health and safety plan for the Carlsbad Energy Center Project. I can always follow up directly with whoever is reviewing the document. I am in Carlsbad today and tomorrow if you need to stop by the City offices. I seem to remember last time we e-mailed comments back and forth too. Otherwise Tim Sisk will be around December 28-30 and could stop by as needed.

Thanks again for your time and comments.

nrg
The power to change life.
The energy to make it happen

Scott Seipel
Manager, Environmental Business
NRG Energy, West Region
Etiwanda Generating Station
Rancho Cucamonga, CA 91739
909-648-5008