Bay City Boiler & Engineering

SAFETY REFERENCE MANUAL

April 2024

Revision 2.0

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1.0 BACK INJURY PREVENTION POLICY

A. Purpose

This policy is designed to establish effective preventive measures that will minimize the risk of back injuries.

B. Roles and Responsibility

Supervisors are those employees that are responsible for providing daily oversight and management of personnel that work under their direction.

Supervisors are responsible to ensure all employees are informed of the risk factors for back injuries and effective steps in how to prevent them.

C. Procedure

1. Excessive twisting or bending must always be avoided.
2. If a load exceeds 50 pounds, employees should utilize either mechanical help or seek help from other employees.
3. Proper lifting Techniques:
    a. Examine the object to be lifted to check if it has cutting edges, rough or slippery surfaces, or is too heavy.
    b. Make sure your path is clear. Strains can be caused by lifting around unexpected obstacles.
    c. Wear protective gloves when lifting objects with sharp corners or edges.
    d. Never lift anything if your hands are wet or slippery.
    e. Test the weight of the load before lifting by pushing the load along its resting surface.
    f. Face the load.
    g. Position your feet 6”-12” apart with one foot slightly in front of the other.
    h. Bend at your knees keeping your back straight, assume a squatting position, and tuck your chin.
    i. Tilt your head forward, grasp the load with both hands, and get a secure grip. Never over-reach.
    j. Lift gradually by straightening your legs in order to put the weight on your stronger leg muscles. Avoid abrupt movements.
    k. If you have to lift a load shoulder high or above your head, first lift it waist high, rest it on a support if possible and change your grip. Then bend your knees in order to get added power for the big upward push.
    l. When moving a load, be sure that you can see where you are going. Never try to change the position of a load while you are carrying it. If necessary, rest the load upon an object and then re-adjust your grip.
    m. If you must change direction while lifting or carrying the load, pivot your feet and turn your entire body. Do not twist at the waist.

n. Reverse lifting procedure and lower the load slowly without twisting your body. Remember to keep your back straight as you set a load down.

D. Training and Documentation

1. All employees will be trained on an as needed basis.
2. Training records must be retained through employment.
3. All medical related records must be retained for a minimum of 30 years after employment ends.

2.0 BLOODBORNE PATHOGEN EXPOSURE CONTROL & FIRST AID POLICY

A. Purpose

This policy is designed to establish minimum requirements for providing First Aid in the absence of medical responders and identifying Universal Precautions that must be observed in an effort to prevent contact with blood or other potentially infectious materials. This plan limits the risk to employees from exposure to blood or other potentially infectious material during first aid treatment of injured coworkers or during cleanup at the scene of a job-related injury.

B. Roles and Responsibility

Management is responsible for ensuring employees are First Aid/CPR/AED trained in alignment with the requirements of the American Red Cross and recertified as required. In addition, management must ensure employees are trained in the content of this policy, must follow this policy, and must provide the necessary PPE at no cost to employees. Employees are responsible for complying with this policy.

C. Procedure

1. Definitions
   a. **Blood** means human blood, human blood components, and products made from human blood.
   b. **Bloodborne Pathogens** means pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, Hepatitis B (HBV), and Human Immune Deficiency Virus (HIV or AIDS).
   c. **Contaminated** means the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.
   d. **Decontamination** means the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item, to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.
   e. **Exposure Incident** means a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious material that results from the performance of an employee's collateral first aid or cleanup duties.
   f. **Other Potentially Infectious Materials** means, for the purpose of this procedure, any fluid excreted from the human body.
   g. **Personal Protective Equipment** means specialized clothing or equipment (gloves, masks, goggles, etc.), worn by an employee for protection from a hazard.
   h. **Universal Precautions** means an approach to infection control. According to the concept of Universal Precautions, all human body fluids are treated as if they are known to be infectious for Hepatitis B, HIV, or other bloodborne pathogens.
2. First Aid Treatment
   a. Always seek professional medical services for all injuries that exceed basic first aid treatment capabilities by calling 911 and continue to provide first aid services as your training and confidence allows, until professional medical responders arrive.

b. No employee shall provide first aid treatment where there is the potential for exposure to blood or other potentially infectious material unless the proper personal protective equipment is worn. Required PPE will be provided at no cost.

c. Immediately after first aid treatment is rendered, the first aid provider shall thoroughly wash his/her hands and any other skin exposed with soap and running water. In the absence of soap and running water, the employee shall use an antiseptic hand cleaner in conjunction with a clean cloth, paper towel, or antiseptic towelettes to clean hands and other exposed areas of the body. Washing with soap and running water shall be done as soon as feasible.

d. Immediately after use, contaminated gloves, gauze, sponges, etc., shall be placed in the bio-hazard disposal bags that are located in the office first aid kit.

e. Immediately after the treatment of any injury that involved blood or other potentially infectious material, the provider of first aid shall notify site management. It is mandatory that this notification be made within the same work shift as the occurrence. The first aid provider shall also complete and forward immediately to management, an Incident Investigation Report, which will include a list of employees involved in an exposure incident, the exposure route, the circumstances surrounding the incident, and control measures taken to prevent further exposure.

3. First Aid Kits

a. All first aid kits will be available on vehicles and equipped with the appropriate supplies (per Title 8 CSO §1512. Emergency Medical Services) and personal protective equipment (latex gloves, masks, etc.) necessary to protect employees from the hazards associated with bloodborne pathogens.

b. All materials used for the treatment of injuries shall be replaced in the first aid kits as soon as possible.

c. It is the responsibility of the site supervisor to ensure monthly inventory inspection of the first aid kit to ensure that it is adequately stocked.

d. Eye Wash kits will be provided in areas where corrosive materials are handled.

4. Housekeeping

a. All materials used in the treatment of an injury, which are contaminated with blood or other potentially infectious material, shall not be disposed of in trash receptacles. This material (latex gloves, contaminated sponges, etc.) shall be placed in bio-medical disposal bags. These bags shall be handled as medical waste for disposal.

b. Tools, clothing, counter tops, or any area contaminated by blood or other potentially infectious material shall be thoroughly cleaned with a 1:10 solution of bleach, and then washed with soap and water. Materials contaminated by this cleanup process shall be placed in bio-medical bags for disposal.

c. Any employee involved in the cleanup following an accident involving blood or other potentially infectious material shall wear, at a minimum, latex gloves as a protection from bloodborne pathogens.

5. Post Exposure

a. Upon receipt of notification that, through the treatment of an injured employee, a possible exposure to blood or other potentially infectious material has occurred, the site management shall:

(1) Determine if an exposure to blood or other potentially infectious materials has occurred.

(2) Offer the exposed employee, if not vaccinated, a Hepatitis B inoculation within 24 hours of the exposure.

(3) Obtain a copy of the exposure Incident Investigation Report form and maintain it on file.

(4) If the exposed employee chooses not to avail himself/herself of an inoculation, he/she shall be required to sign a form (Decline Hepatitis Vaccine form), waiving this treatment. The signed declaration form shall be maintained on file with the exposure notification.

D. Training and Documentation

1. All employees who may provide first aid treatment to injured coworkers shall receive training in Universal Precautions according to OSHA's Bloodborne Pathogens standard, at new hire orientation.
2. Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training. Training records will be maintained a minimum of 3 years.
3. Any signed treatment waivers which will be kept on file per the medical records policy and maintained for the duration of employment plus 30 years.
4. Bloodborne Pathogen Training Statement must include the following:
   a. I have been instructed on the modes of transmission of both the Human Immunodeficiency Virus (HIV) and the Hepatitis B Virus (HBV).
   b. It is my understanding that all blood, blood products, body fluids, and tissues must be considered potentially infectious and capable of transmitting diseases and that Universal Precautions must be carried out routinely when contact with blood and body fluids is likely.
   c. I have been instructed on the use of protective barriers and how to use them properly and how to handle, decontaminate, and dispose of according to policy.
   d. I know the corrective action to take in the event of spills or personal exposure to fluids or tissue and the correct reporting procedure. I understand that an "Incident/Accident Report" must be completed and the exposure report to my immediate supervisor so that appropriate follow-up may be initiated.
   e. I have been instructed on Universal Precautions and understand all that has been told and shown to me. I understand that failure to comply may result in exposure and corrective action.
   f. I have been made aware of my right to receive, at no cost, post-exposure inoculations of the Hepatitis B vaccine. I have the right to decline this inoculation and must then sign a treatment waiver which will be kept on file.

Hepatitis B Vaccine Treatment Waiver, Decline Statement

Employee _____

(Print Full Name)

I understand that Bay City Boiler has offered the Hepatitis B Vaccination at NO COST TO ME.

I understand that due to my occupational exposure to blood and other potentially infectious materials, I may be at risk of acquiring Hepatitis B Virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B Virus (HBV) vaccination, at no charge to myself; however, I decline Hepatitis B Vaccination at this time.

I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood and other infectious material and I want to be vaccinated with the Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

_____ _____

Signature of Employee Date

3.0 SAFE CHEMICAL USE POLICY

A. Purpose

This policy is designed to establish minimum guidelines for the safe use and handling of chemicals in an effort to prevent chemical exposures in the workplace.

B. Roles and Responsibility

Project Managers, Supervisors, Work Leads are required to:

1. Ensure safe chemical use is incorporated into all aspects of project planning, execution and closeout operations, for all work performed.
2. Inform employees, contractors, and visitors regarding safe chemical handling procedures.
3. Identify all chemical hazards present in the work area and establish the necessary controls.
4. Ensure that a Job Hazard Analysis (JHA) is completed for all high-risk work activities.
5. Ensure all employees are adequately trained in safe work methods for each chemical they are exposed to and the associated work tasks they are instructed to perform.
6. Ensure that exposure assessments are performed to identify chemical hazards and that appropriate engineering controls and Personal Protective equipment (PPE) are in place.
7. Re-evaluate PPE requirements whenever the work or the physical layout changes.
8. Ensure that equipment and chemical containers are adequately labeled.
9. Delineate hazardous work areas from the general construction population as required and post hazard warning signage to warn others of the chemical hazards in the area.
10. Substitute chemicals and materials with less hazardous types or those that will reduce potential exposures whenever possible.
11. Limit the amount of hazardous materials procured, used, and stored to the minimum required**.**
12. Maintain SDS forms to ensure there are readily available for any chemicals used on site.
13. Adhere to any special transportation requirements regarding moving and transporting hazardous materials.
14. Investigate incidents and near-misses involving hazardous materials.
15. Ensure that corrective actions identified from incident investigations are implemented.
16. Ensure that hazardous waste is handled in accordance with safe practices and in compliance with applicable laws and regulations.

Employees

1. All employees are required to:
   a. Work safely by observing safety standards, guidelines, and procedures, and by using good judgment based on training and expertise.
   b. Know and comply with the Personal Protective Equipment (PPE) requirements.
   c. Immediately report unsafe conditions.
   d. Be familiar with and follow emergency procedures.

2. All employees have the right to:
    a. Be notified of measured or suspected exposures to harmful substances at or above personal exposure limits (PELS).
    b. Request medical consultations and access their workplace medical and exposure records.
    c. Refuse to work in unsafe conditions or to perform work that could create a hazard to themselves or other workers.

C. Work Planning

All work that requires the use of chemicals shall be planned to minimize employee exposure to hazards by utilizing chemical substitution, engineering controls, administrative controls, personal protective equipment, work practice controls, and emergency procedures.

All employees are required to wear eye protection and chemically resistant gloves when handling hazardous chemicals. Operations that may generate airborne gases, vapors, dusts, fumes, and smoke shall be done in a well-ventilated area and may require the use of respirators. In addition, specific controls for the following classes of hazardous materials require special controls:

- Acids and Bases
- SDS Classified Hazardous Substances
- Carcinogens
- Reproductive Toxins
- Flammable and Combustible Liquids
- Water Reactive Materials
- Pyrophoric Materials
- Chemicals with Explosive or Unstable Properties

D. Training and Documentation

Supervisors are required to ensure all employees working with or around hazardous materials have received the required training and that all training is properly documented, before allowing employees to begin work.

All employee training records must be documented and maintained for the duration of their employment.

Typical training may consist of all or a combination of the following topics:

1. The requirements of the Hazard Communication Program
2. Health and physical hazards
3. Safe work methods for handling hazardous materials
4. Applicable health standards (e.g., OSHA PELs and ACGIH TLVs)
5. Use and location of Safety Data Sheets or GHS Sheets
6. Labeling requirements
7. Purpose and use of control measures (work practices, substitution, engineering, administrative and PPE)

8. The warning properties of chemical releases (e.g., odors, eye irritation, etc.)
9. The signs and symptoms of exposure
10. Exposure monitoring and medical surveillance
11. Spill response and emergency procedures
12. Possible non-routine tasks
13. Hazards of unlabeled pipes, wastes, etc.

4.0 COMPRESSED AIR & USE OF COMPRESSED AIR POLICY

A. Purpose

This policy is designed to establish minimum requirements for safely inspecting and operating air compressors.

B. Roles and Responsibility

All air compressors shall be inspected before initial service or returning to service. User shall inspect the compressor before each use.

C. Procedure

1. Air compressors shall not be modified without prior written authorization from the manufacturer.
2. Couplings shall be checked before use. Use only couplings designed for compressed air services. All hose couplings shall be provided with a positive locking device.
3. Hoses shall be checked before use. When using compressed air, use only hoses designed for compressed air service.
4. All hoses shall be checked for cuts, breaks, and loose connections before assembling the system.
5. Hoses shall not be crimped, coupled, or uncoupled while pressurized.
6. Unless the equipment has quick-change connectors (with internal check valves), air shall be shut off at the air supply valve ahead of the hose before breaking the connection.
7. When possible, airlines and hoses shall be routed through areas with little or no pedestrian traffic.
8. All hoses exceeding 1/2 inch inside diameter shall have a safety device (an excess flow valve) at the source of supply or branch line to reduce pressure in case of hose failure. All air hose connections over 1 inch in diameter shall be equipped with safety chains or an equivalent restraint that is secured when the connection is made.
9. Hoses equipped with special connections require special tightening techniques or equipment. One example is hammer union connection, which shall be tightened with a hammer. Another example is spanner wrench connections, which shall be tightened with a spanner wrench. Do not tighten these or similar connections by hand.
10. Hose connections shall be secured before turning on air valves.
11. Air hoses shall not be directed at personnel.
12. Air hose connections that are designed to accept a pin shall be securely pinned in the holes provided to prevent disconnection.
13. When hanging an air hose in the vertical position, hose connections shall be supported above and below the connections to prevent the weight of the hose from pulling the connection apart or pulling the connection out of the hose.
14. Compressed air for cleaning shall not exceed 30 psi. Use safety glasses and a face shield over the safety glasses when cleaning with compressed air. Compressed air shall not be used to clean harmful dust or fibers that could be dispersed such as lead or asbestos.

15. Each compressor shall be equipped with a properly sized relief valve maintained according to local, state, and federal regulations.
16. Hearing protection shall be provided and worn if the air compressor and/or the compressed air create a noise level over 90 decibels.
17. Each air compressor receiver shall be equipped with a pressure indicating gauge at all times.
18. All pressure relief safety valves will be tested per manufacturers' recommendations.
19. All air compressor receivers shall be drained frequently to remove water condensation from collecting in the bottom.

D. Compliance Documentation

All new employees who are required to use compressed air shall receive awareness training and an annual review.

5.0 COMPRESSED GAS CYLINDERS POLICY

A. Purpose

This policy is designed to establish minimum safe work practices for handling and storing compressed gas cylinders.

B. Roles and Responsibility

All employees shall be trained in the proper use, handling, and storage of compressed gas cylinders. Project Management shall ensure periodical inspections occur of all compressed gas cylinders stored on their project to order to establish compliance to this policy. Inspection shall verify the condition of the cylinders and validate required testing.

C. Procedure

1. Requirements

a. Compressed gas cylinders shall not be accepted from the distributor or supplier unless the cylinder is clearly identified with a visible and proper manufacturer's label.

b. Defective cylinders shall be tagged and identified as defective and shall be segregated from other cylinders.

c. Cylinders shall be moved or stored in the upright position. Racks or cradles shall be used to prevent them from tipping, falling, or dropping. Enclosed cages or carrying cradles shall be used to lift cylinders from one level to another. Rope or chain slings shall not be used. When transporting cylinders on trucks or trailers, cylinders shall be stored and secured upright in a cage or cradle.

d. The valves on compressed gas cylinders shall always remain closed unless the cylinder is in use.

2. Storage and Use

a. Compressed gas cylinders shall be stored and used in the upright position. Cylinders shall be secured with a noncombustible material to provide maximum stability and prevent them from falling. Cylinders shall not be secured by their valves or collars.

b. Segregate cylinders by the type and amount of their contents. Full and empty cylinders should be stored separately. Cylinders of oxygen or other oxidizing gases shall be stored separate from fuel-gas cylinders and other flammable materials by a minimum of 20 feet (6 meters), unless a suitable, ½-hour rated, flame-resistant partition is provided.

c. Cylinders shall be kept away from radiators and other sources of heat. Smoking, spark-producing work and open flame are not permitted within 20 feet (6 meters) of any cylinder

storage area containing cylinders of flammable gas. Signs shall be posted prohibiting these activities in cylinder storage areas.

d. Cylinders shall not be placed where they can become part of an electrical circuit.

e. Cylinders stored inside buildings shall be stored in a well-ventilated and protected location. Cylinders shall not be kept in unventilated enclosures such as lockers and cupboards.

f. The bulk storage facility shall be a minimum of 20 feet (15 meters) from adjacent buildings.

g. While in use, cylinders shall be placed or shielded to prevent contact with hot sparks or slag.

D. Compliance Documentation

1. All new employees shall receive training in this procedure.
2. Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training.

6.0 CONFINED SPACE POLICY

A. Purpose

This policy is designed to establish minimum requirements for controlling the risks associated with working in and around confined spaces. This procedure describes the preparation, issuing and managing of permits for entry into and for returning the permit space to service.

B. Roles and Responsibility

1. Site Management

a. To ensure all employees who need to enter Permit Required Confined Spaces (PRCS) have received the appropriate training, provide employees with all equipment and PPE necessary, ensure that all equipment is available, well maintained and used properly, and shall ensure entrants are authorized to perform the work assigned.

b. Ensure the entry permit for all required entries are archived according to this site process.

c. Ensure that this site Confined Space Entry Program is maintained and reviewed annually so that it meets or exceeds the legal requirements.

d. Ensure that confined spaces and potential PRCS relating to the specific design of equipment are identified and communicated.

2. Duties of Entry Supervisors

a. Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

b. Verify, by checking that the appropriate entries have been made on the permit, that all tests specified on the permit have been conducted and that all procedures and equipment specified on the permit are in place, before endorsing the permit and allowing entry to begin.

c. Ensure that MSDS/GHS information for all chemicals known to be present or encountered is available and has been reviewed by the entry team prior to entry.

d. Terminate the entry and cancel the permit when the entry operation has been completed or when a prohibited condition arises in or near the permit space.

e. Verify that rescue services are available and that the means for summoning them are operable.

f. Remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations.

g. Determine, when responsibility for a PRCS entry operation is transferred and at intervals dictated by hazards and operations, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

h. Ensure that the entry team is trained, qualified, and equipped according to site Confined Space requirements and this document, prior to allowing the entry to begin.

3. Duties of Authorized Entrants

a. Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

b. Properly use any protective and/or rescue equipment necessary for safe entry into and rescue from permit spaces.
c. Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert them of the need to evacuate the space.
d. Alert the attendant when the entrant recognizes any warning sign or symptom of exposure to a dangerous condition or when the entrant detects a prohibited condition.
e. Exit from the permit space as quickly as possible whenever the attendant or entry supervisor orders evacuation or whenever the authorized entrant recognizes any warning sign or symptom of exposure to a hazardous substance or whenever the entrant detects a prohibited condition or whenever an evacuation alarm is activated.

4. Duties of Attendants

a. Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
b. To be aware of possible behavioral effects of hazard exposure on authorized entrants.
c. Maintain a continuous accurate count of all authorized entrants in the PRCS and to ensure that the means used to identify authorized entrants accurately identifies who is in the space.
d. Monitor only one confined space at a time.
e. Remain outside the permit space during entry operations until another authorized attendant relieves them.
f. Maintain communication at all times with entrants to monitor entrant status and to alert authorized entrants of the need to evacuate the space.
g. Monitor activities inside and outside the permit space to determine if it is safe for entrants to remain in the space.
h. Order authorized entrants to exit the permit space as quickly as possible whenever the attendant detects a prohibited condition, behavioral effects of hazard exposure in an authorized entrant, or a situation outside the space that could endanger the authorized entrants, or whenever the attendant, for any reason, can no longer perform the duties required in this section.
i. Execute the rescue protocol required by the entry permit and the site emergency rescue procedures as soon as it is determined that emergency exit from the space is necessary.
j. Take the following actions when unauthorized persons approach or enter a permit space while entry is underway:
    i. Warn the unauthorized persons that they must stay out of the permit space;
    ii. Advise the unauthorized persons that they must exit immediately if they have entered the permit space; and
    iii. Inform the authorized entrants and any other persons specified by the employer if unauthorized persons have entered the permit space.
k. Perform no duties that might interfere with the primary duty to monitor and protect the authorized entrants.

5. Contractor Coordination

a. Contractors shall be informed that the workplace contains confined spaces and that entry is allowed only through compliance with this confined space program.

b. Contractors shall be notified of the hazards identified, with the space and any precautions or procedures implemented for the protection of employees in or near confined spaces where contractor personnel will be working.

c. When contractors and employees are working simultaneously as authorized entrants in a confined space, steps must be taken to coordinate entry operations so that employees of one employer do not endanger the employees of any other employer.

d. Contractors shall be debriefed at the conclusion of PRCS work regarding issues and hazards confronted or created in a PRCS during operations.

e. Contractors must comply with the confined space requirements mandated by this confined space program.

f. Contractors shall obtain any necessary information regarding hazards and entry operations from site management.

g. Contractors shall coordinate entry operations with site management when contractor personnel will be working in or near PRCS.

h. Contractor shall agree to follow the PRCS program during the entry operation through a debriefing.

i. Take immediate actions when unauthorized persons approach or enter a permit space while entry is underway.

j. Perform no duties that might interfere with the primary duty to monitor and protect the authorized entrants.

C. Procedures

1. The workplace shall be evaluated to determine if any Confined Spaces exist.
2. A space is defined as a “confined space” if it has all three **(3)** of the following characteristics:
   a. Is large enough and so configured that an individual can bodily enter and perform assigned work; and
   b. Has limited or restricted means for entry or exit; and
   c. Is not designed for continuous human occupancy.
3. Identified confined spaces must be communicated to employees with access to those spaces of their existence, location, and danger.
4. All identified Confined Spaces must then be further evaluated to determine if they are Permit-required Confined Spaces (refer to flowchart in Appendix B).
5. A confined space is designated as permit-required confined space (PRCS) if it possesses one or more of the following characteristics:
   a. Contains or has the potential to contain a hazardous atmosphere, or
   b. Contains a material that has the potential for engulfing an entrant, or

c. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section, or

d. Contains any other recognized serious safety or health hazard.

6. Confined spaces found to have none of the hazards defined above at the time of entry, may be treated as a non-permit confined space (NPRCS). However Non-permit spaces must be upgraded to Permit-required upon the introduction of any serious safety or health hazard.

7. All Confined Spaces must be labeled as Non-permit or as Permit-required. At a minimum permanently identified Permit-required spaces shall be labeled identifying the space utilizing Danger signs or any equally effective means. (Note: A sign reading “Danger-Permit-required Confined Space, Do Not Enter” or using similar language will satisfy the requirement for a sign.)

8. Non-permit confined spaces shall be labeled as such with the content of the label being at the discretion of the site management.

9. If the only hazard posed by a PRCS is an actual or potential hazardous atmosphere and monitoring and inspection data supports that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry and an assessment of the space hazards and conditions can be performed without entering the space, the space may be entered according to the following requirements:

   a. Classification and determination data for the space shall be documented and made available to any employee who enters the space under alternate entry procedures.

   b. Any conditions making it unsafe to remove an entrance cover shall be eliminated before the cover is removed.

   c. When entrance covers are removed, the opening shall be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.

   d. Before an employee enters or re-enters the space, the internal atmosphere shall be tested, with a calibrated direct-reading instrument, for the following conditions in order: {1} Oxygen content, {2} Flammable gases and vapors and {3} Potential toxic air contaminants.

   e. If a hazardous atmosphere develops within the space, persons in the space shall exit immediately. The space shall be evaluated to determine how the hazardous atmosphere developed and re-entered if necessary, following the requirements in Section 11.

   f. Entry is prohibited until forced air ventilation has controlled any hazardous atmosphere.

   g. The forced air ventilation shall ventilate the immediate employee work area, shall continue until all employees have left the space, and shall be from a clean source.

   h. The atmosphere within the space shall be periodically tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere.

   i. If entering a space using the practices in this section, a written permit shall be used to verify that the space is safe for entry and that the pre-entry measures have been conducted. The certification shall contain the date, the location of the space, and the signature of the person

providing the certification. The certification shall be made before entry and shall be made available to each employee entering the space.

j. The space shall be reevaluated, and reclassified if necessary, in the event that changes in the use or configuration have increased hazards to the occupants.

10. A PRCS may be reclassified as an NPRCS according to the following requirements:
    a. If the PRCS poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated without entry into the space, it may be reclassified as a NPRCS for as long as the non-atmospheric hazards remain eliminated.
    b. If it is necessary to enter the PRCS to eliminate hazards, such entry shall be performed according to PRCS permit requirements.
    c. If entering a space using the practices in this section, a written certification shall be used to verify that the space is safe for entry and that the pre-entry measures have been conducted. The certification shall contain the date, the location of the space, and the signature of the person providing the certification. The certification shall be made before entry and shall be made available to each employee entering the space.
    d. If a hazardous atmosphere develops within the space, persons in the space shall exit immediately. The space shall be evaluated to determine how the hazardous atmosphere developed and re-entered if necessary, following the requirements of the PRCS permit.
11. Permit-Required Confined Spaces Rules (PRCS)
    a. Unauthorized access to PRCS shall be prohibited.
    b. The PRCS hazards shall be identified and evaluated immediately prior to personnel entry.
    c. A PRCS shall not be entered unless oxygen levels have been determined to be between 19.5% and 23.5%, flammable gas or vapor levels are less than 10% of the LEL for that gas or vapor and any recognized potential toxic compound level is below the Threshold Limit (ITL). Entrants should understand the reason for any significant atmospheric deviations from normal atmospheric conditions.
    d. PRCS's shall be tested or monitored for oxygen, then for combustible gases and vapors, then for toxic gases and vapors, and then for any other recognized hazard (i.e. temperature or radiation) to determine if acceptable entry conditions are being maintained during the course of entry operations. Employees or their representatives are entitled to request additional monitoring at any time.
    e. Hazardous energy sources shall be isolated in accordance with the Control of Hazardous Energies Guidelines.
    f. The space shall be purged and ventilated prior to entry if a hazardous atmosphere exists.
    g. The entrance to the PRCS shall be barricaded if entrants face a substantial risk of injury due to unauthorized entry, due to objects falling into the space or due to any internal or external hazards, hazards from other personnel, equipment, or vehicular hazards.
    h. Pre-entry atmospheric testing shall be performed to ensure that acceptable entry conditions are present. Where feasible, continuous atmospheric monitoring and regular inspection shall be performed throughout the duration of entry operations.

i. Any equipment necessary for safe entry into and rescue from permit spaces shall be maintained in operating condition and provided when necessary.

j. An attendant shall be stationed outside a PRCS into which entry is authorized for the duration of entry operations.

k. Management is responsible for ensuring employees who have active roles in entry operations, identify their expected duties, and provide such employees.

L. Management is responsible for maintaining all confined space entries, including specific policies and procedures for summoning rescue and emergency services and for preventing unauthorized rescue.

m. Entry procedures shall be evaluated annually, or after an unforeseen issue that arises from a confined space entry, to ensure that the permit program remains effective in its intent to protect the health and safety of entrants. This document must be revised responding to issues identified by the evaluation before any subsequent entry is authorized.

12. Permit System
    a. Prior to PRCS entry, all requirements shall be documented on the entry permit.
    b. The entry supervisor shall be identified by name and by signature prior to PRCS entry.
    c. The completed permit shall be posted at the entry portal, so that the entrants can confirm that performance of all necessary pre-entry measures have been conducted.
    d. The duration of a permit shall not exceed the lesser of the time required to complete the assigned task or one shift.
    e. The entry supervisor shall terminate the entry and cancel the permit when the entry operation has been completed or when a prohibited condition arises in or near the permit space.
    f. Canceled entry permits shall be retained for at least 1 year to facilitate the annual review of the permit space program. Any problems encountered during an entry operation shall be noted on the permit so that appropriate revisions to the PRCS program can be made.
    g. Prior to entry into any Permit-Required Confined Space a rescue plan shall be developed by the entry team that will ensure proper, timely rescue for all entrants based upon the likely hazards to be encountered. Reference the site Emergency Action Plan for details in developing your PRCS plan.
13. The PRCS entry permits shall contain the following information:
    a. The PRCS to be entered.
    b. The purpose of the PRCS entry.
    c. The date and the authorized duration of the entry.
    d. A listing of the authorized entrants by name.
    e. The name of the current attendant.
    f. The name of the current entry supervisor and the signature of the entry supervisor who authorized entry.
    g. A listing of the hazards of the PRCS to be entered.
    h. A list of the specific measures to be used for isolating the PRCS and for eliminating or controlling hazards before entry, may be the COHE/LOTO document.

i. A list of the acceptable entry conditions for the PRCS.

j. The results of initial and periodic tests performed with the names or initials of the testers and an indication of when the tests were performed.

k. The rescue and emergency services that can be summoned and the means for summoning those services.

l. A list of the communication procedures to be used by attendants and authorized entrants during entry.

m. A list of equipment to be provided for compliance with the PRCS standard, including PPE, testing equipment, communications equipment, alarm systems, rescue equipment, and other equipment.

n. Any other information on permits whose inclusion is necessary, given the circumstances of the PRCS, in order to ensure employee safety.

14. Rescue and Emergency Services

a. Prior to entry into any Permit-Required Confined Space a rescue plan shall be developed by the entry team that will ensure proper, timely rescue for all entrants based upon the likely hazards to be encountered.

b. Non-Entry Rescue provisions shall be applied to all Permit-Required Confined Space entries unless it can be demonstrated that those provisions increase the overall risk of entry.

c. Authorized entrants shall wear a full body harness with retrieval line at the center of the entrant's back, near shoulder level, or above the entrant's head so that the entrant will present the smallest possible profile during any necessary removal.

d. Authorized attendant must be trained and familiar with the use of all non-entry rescue equipment.

e. Wristlets may be used in lieu of the full body harness if the use of a full body harness is infeasible or creates a greater hazard and the use of wristlets is the safest and most effective alternative.

f. The other end of the retrieval line shall be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary.

g. A mechanical device is required for vertical permit spaces more than 5 feet deep.

h. If entry rescue is deemed necessary; a contracted rescue service will be utilized.

i. The determination of whether this service is brought in to “stand-by” at the point of entry or whether the service is “on-call” is to be based upon the most likely potential hazard that would warrant an emergency exit situation. The entry team is responsible for making this determination prior to the entry and shall include the details within the written permit.

j. If an injured entrant is exposed to a substance for which a Safety Data Sheet (SDS/GHS) or other similar written information is required to be kept at the worksite, that SDS/GHS or written

information shall be made available to the first responders and the medical facility treating the exposed entrant.

k. Site Supervisor must inform the service of all known hazards they may confront.

l. Site Supervisor will provide the rescue service access to any and all spaces from which they may be called out to perform rescue.

D. Training & Documentation

1. Employees that need to enter a PRCS, potential PRCS or perform attendant or entry supervisor duties shall receive training giving them the understanding, knowledge, and skills necessary, before conducting any confined space work, which allows for the safe performance of duties and 100% compliance with the requirements of this program.
2. Training is required for the:
   a. Entrant
   b. Attendant c. Supervisor
   d. Rescue services
3. Training shall be provided when:
   a. The employee is first assigned or given new duties covered in this guideline; or
   b. There is a change in Confined Space programs; or
   c. There are deviations from the Confined Space entry procedures or inadequacies in the employee's knowledge or use of these procedures.
4. Training shall establish employee proficiency in their duties.
5. Documentation must contain employee's name and signature, the name and signature of the trainers, and the dates of training.
6. This Confined Space Program shall be review annually to ensure it is effective and revise as necessary.
7. PRCS permits shall be audited at least every 12 months to ensure procedures are being followed and people are being protected from hazards.

Appendices

Appendix A - Definitions
Appendix B - Confined Space Decision Flow Chart
Appendix C - Rescue Services Scenario Tool
Appendix D - Rescue Services Evaluation Tool

Appendix A - Definitions

Acceptable entry conditions mean the conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required space entry can safely enter into and work within the space.

Attendant means an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program.

Authorized entrant means an employee who is authorized by the employer to enter a permit space.

Blanking or blinding means the absolute closure of a pipe, line or duct by fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line or duct with no leakage beyond the plate.

Checklist refers to a written document that is developed as part of the safe work practice that lists items or actions which must be completed prior to entering a non-permit-required confined space.

Confined space means a space that: (1) Is large enough and so configured that an employee can bodily enter and perform assigned work; (2) Has limited or restricted means for entry or exit; and (3) Is not designed for continuous employee occupancy.

Confined space program means the employer's overall program for controlling and, where appropriate, for protecting employees from, confined space hazards and for regulating entry into permit spaces.

Double block and bleed means the closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

Elevated High Angle Rescue means specific techniques used to package and transport injured employees from spaces greater than 4 feet in depth.

Emergency means any occurrence or event internal or external to the permit space that could endanger entrants.

Engulfment means that surrounding and effective capture of a person by a liquid or finely divided solid substance that can be aspired to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

Entry means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuring work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

Entry permit means the written or printed document that is provided by the employer to allow and control entry into a permit space and that contains the information specified. Refer to Appendix C.

Entry supervisor means the person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required.

Hazardous atmosphere means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness for one or more of the following causes:

1. Flammable gas, vapor, or mist in excess of 10 percent of its lower explosive limit (LEL).
2. Airborne combustible dust at a concentration that meets or exceeds its LEL.
3. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent.
4. Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in 29 CFR 1910 could result in employee exposure in excess of that dose or limit.
5. Any other atmospheric condition that is immediately dangerous to life or health (IDLH).

Hot work permit means the employer's written authorization to perform operations capable of providing a source of ignition.

Immediately dangerous to life or health (IDLH) means any condition that poses as immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.

Inerting means the displacement of the atmosphere in a permit space by a noncombustible gas to such extent that the resulting atmosphere is noncombustible.

Isolation means the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.

Line breaking means the intentional opening of a pipe, line, or duct that is or has been carrying flammable corrosive or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

Non-permit confined space means 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.

Oxygen deficient atmosphere means an atmosphere containing less than 19.5 percent oxygen by volume.

Oxygen enriched atmosphere means an atmosphere containing more than 23.5 percent oxygen by volume.

Permit-required confined space (**PRCS**) means a confined space that has one or more of the following characteristics: (1) Contains or has the potential to contain a hazardous atmosphere, (2) Contains a material that has the potential for engulfing an entrant; (3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; (4) Contains any other recognized serious safety or health hazard. An example permit is shown in Appendix C.

Permit-system means the employer's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.

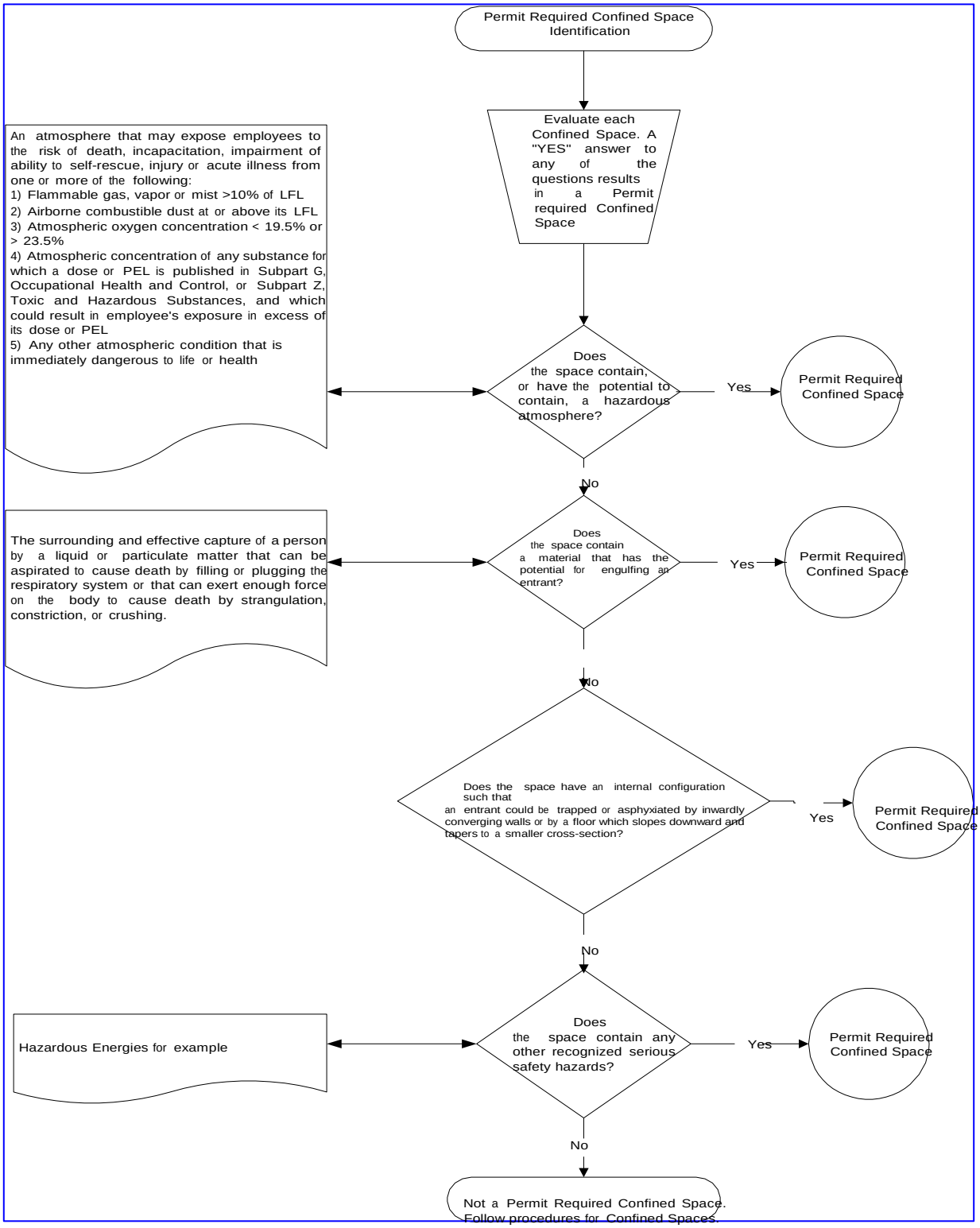
Prohibited condition means any condition in a permit space that is not allowed by the permit during the period when entry is authorized.

Rescue service means the personnel designated to rescue employees from permit spaces.

Retrieval system means the equipment used for non-entry rescue of persons from permit spaces.

Testing means the process by which the hazards that may confront entrants of a permit space are identified and evaluated; either through atmospheric monitoring or chemical sampling analysis.

Appendix B- Confined Space Decision Flow Chart



Appendix C- Rescue Services Scenario Tool

This Appendix is to be used as a guideline tool for assisting PRCS entry teams in determining the need for "Stand-By" Entry Rescue Services.

Non-Entry rescue provisions must be applied to all PRCS entries unless it can be demonstrated that it increases the overall risk of entry. Also, a process must be in place for the summoning of "On-Call" Entry-rescue resources as potential back up to the Non-Entry provisions. However, in some cases based upon potential hazard, probability of this hazard and effectiveness of non-entry provisions; a "Stand-By" entry-rescue service may need to be available at the immediate location of the space entry. The following scenarios are generally deemed to require a "Stand-By" entry rescue plan; the list is not all-inclusive. The final decision upon the appropriate rescue plan should be made by the Entry Supervisor in conjunction with EHS.

Potential "Stand-By" Entry Rescue Scenarios:

1. Performing work in a PRCS where an IDLH atmosphere exists or is likely to occur.
2. Performing work in a PRCS where Non-entry rescue provisions are infeasible due to space configuration.
3. Performing work in a PRCS where Non-entry rescue provisions are infeasible due to the number of entrants within the space.
4. Performing work in a PRCS with a past history of serious safety related events.
5. Any entry where Non-entry provisions are not applied.

Appendix D- Rescue Services Evaluation Tool

Any rescue service designated by this PRCS program must be evaluated to ensure competency and ability to perform the needed services. This Appendix is designed to be a tool to assist in this evaluation process of prospective Entry-rescue services.

1. What are the needs of the employer with regard to response time (time for the rescue service to receive notification, arrive at the scene, and set up and be ready for entry)? For example, if entry is to be made into an IDLH atmosphere, or into a space that can quickly develop an IDLH atmosphere (if ventilation fails or for other reasons), the rescue team or service would need to be standing by at the permit space. On the other hand, if the danger to entrants is restricted to mechanical hazards that would cause injuries (e.g., broken bones, abrasions) a response time of 10 or 15 minutes might be adequate.
2. How quickly can the rescue team or service get from its location to the permit spaces from which rescue may be necessary? Relevant factors to consider would include: the location of the rescue team or service relative to the employer's workplace, the quality of roads and highways to be traveled, potential bottlenecks or traffic congestion that might be encountered in transit, the reliability of the rescuer's vehicles, and the training and skill of its drivers.
3. What is the availability of the rescue service? Is it unavailable at certain times of the day or in certain situations? What is the likelihood that key personnel of the rescue service might be unavailable at times? If the rescue service becomes unavailable while an entry is underway, does it have the capability of notifying the employer so that the employer can instruct the attendant to abort the entry immediately?
4. Does the rescue service meet all the requirements of this Confined Space Guideline? If not, has it developed a plan that will enable it to meet those requirements in the future? If so, how soon can the plan be implemented?
5. For off-site services, is the service willing to perform rescues at the employer's workplace? (An employer may not rely on a rescuer who declines, for whatever reason, to provide rescue services.)
6. Is an adequate method for communications between the attendant, employer and prospective rescuer available so that a rescue request can be transmitted to the rescuer without delay? How soon after notification can a prospective rescuer dispatch a rescue team to the entry site?
7. For rescues into spaces that may pose significant atmospheric hazards and from which rescue entry, patient packaging and retrieval cannot be safely accomplished in a relatively short time (15-20 minutes), employers should consider using airline respirators (with escape bottles) for the rescuers and to supply rescue air to the patient. If the employer decides to use SCBA, does the prospective rescue service have an ample supply of replacement cylinders and procedures for rescuers to enter and exit (or be retrieved) well within the SCBA's air supply limits?
8. If the space has a vertical entry over 5 feet in depth, can the prospective rescue service properly perform entry rescues? Does the service have the technical knowledge and equipment to perform rope work or elevated rescue, if needed?
9. Does the rescue service have the necessary skills in medical evaluation, patient packaging and emergency response?
10. Does the rescue service have the necessary equipment to perform rescues, or must the equipment be provided by the employer or another source?

7.0 CONTROL OF HAZARDOUS ENERGIES (Lockout/Tagout or LOTO) POLICY

A. Purpose

This policy is designed to establish minimum requirements for the control of hazardous energy sources that could cause harm or injury or death if suddenly or unexpectedly released. Bay City Boiler requires that all forms of hazardous energy be identified and controlled before work can begin.

B. Roles and Responsibility

Project Managers and Supervisors are responsible for implementing and maintaining this program.

C. Procedure

1. Hazardous energy is defined as any energy that could cause harm or injury if it were suddenly, unexpectedly or inadvertently released such as electrical, steam, hydraulic, tension, gravity, etc.
2. A hazard assessment shall be conducted for each Lock out. Energy Control Procedures (ECP) shall be developed which identifies the hazardous energy sources and their approximate magnitude, e.g. voltage, pressure, temperature, motion and other physical characteristics of hazardous energy. The ECP shall note the location of the energy isolation devices and the sequence in which isolation is to be performed.
3. ECP shall identify procedure for shutting down equipment, any possible residual or stored energy accumulation, document isolation points and methods to verify isolation is effective.
4. Periodic inspections of the energy control procedure must be conducted and documented at least annually to ensure procedures and requirements are followed.
5. All equipment shall be considered energized until all energies have been controlled and verified as zero energy present.
6. An employee is in a danger zone when any body part would be affected in the event of a sudden release of hazardous energy.
7. The initial or primary hazardous energy isolation shall be adequately secured with a lock and identification tag. If the isolation device is not capable of being locked out, a tag will be used along with additional safety measures that will ensure the integrity of the isolation is equal to the same isolation with a lock in place.
8. Non-Hazardous energy: Vents and drains may be considered non-hazardous in some instances if they are part of the isolation plan and they are opened deliberately as part of preparing a piece of equipment for repair, alteration or maintenance activities. However, they shall be tagged to indicate that they are not in their normal operating position during these activities.
9. Energy isolation device: An energy isolation device is any mechanical device that physically prevents the operation of a system and controls the potential release of hazardous energy. Push buttons, selector switches, and other control circuit type devices are not energy isolation devices.
10. In addition to hazardous energy, a secondary isolation may be needed to safely secure hazardous energy prior to opening a system. Example: An initial hazardous energy isolation and secondary isolation along with an open bleed, vent or drain (double block and bleed) is required prior to performing a first break into a process system that contains hazardous energy sources.
11. Potentially hazardous work such as confined entry or field welding on a line with hazardous or flammable chemicals shall require additional isolation in addition to the hazardous energy and

secondary isolations. A physical disconnect (preferred) or a slip blind (acceptable alternate) shall be used to ensure no re-accumulation of materials exists inside the line once it has been isolated and de-energized.

12. Site management shall ensure that a means is established for employees to effectively verify isolation on systems they work on which contain hazardous energy sources.
13. An Authorized person shall verify isolation by attempting to start or energize the equipment prior to working on it. Electrical systems will be tested with a meter.
14. A combination of locks and/or tags can be used to control hazardous energy sources and secondary isolations. Locks and tags used for lock-out/tag-out shall be used only for lock-out/tag-out service at a facility.
15. If a piece of equipment is manufactured or constructed in such a way that it is not physically possible to positively lock out hazardous energy sources, it is considered “not capable of being locked out.” A specific written plan shall be developed to address these situations.
16. To remove lockout, follow e Lockout/tagout or energy control procedure.
17. Ensure that any safety devices are engaged e.g. interlocks, valves, guards, covers, sensors, etc.
18. Work on energized equipment such as hot tapping, testing of electrical circuits, and work on in-service equipment where energization of the equipment is required to perform necessary vital adjustments, specific procedures must be developed before performing work.
19. **Working on energized electrical systems or equipment is never allowed by e personnel or on e projects.**
20. When working under overhead lines clearance distance must be provided or lines shall be deenergized and grounded
21. Only Qualified Personnel are allowed to work on any electrical system or component.
22. Vehicular and mechanical equipment shall be operated so that a clearance of a minimum of 10 ft. is maintained from energized overhead lines.
23. Personnel are required to maintain a minimum distance of 6 ft. from energized power lines.
24. When more than one employee is involved in LOTO, responsibility shall be given to an authorized employee designated to coordinate affected work forces and ensure continuity of protection.

D Training and Documentation

1. Training shall be provided when the employee is first assigned or given new duties covered in this guideline; or whenever there is a change in Control of Hazardous Energy program; or whenever there are deviations from the Control of Hazardous Energy programs or inadequacies in the employee's knowledge or use of this program.
2. Training shall establish employee proficiency of Control of Hazardous Energy program on an annual basis and document employee's name and signature; the name and signature of the trainers, and the dates of training.

Appendix 6.0

Lockout / Tagout Procedure

ITEM: _____ LOCATION:

Ensure machine process is shut-down and any auxiliary systems turned off**.**

MACHINE OR EQUIPMENT SHUTDOWN / ISOLATION

Sources of Energy:	Single	Multiple	Location(s)
Electrical			
Air / Pneumatic			
Hydraulic			
Steam			
Mechanical			
Other: (list)			

LOTO DEVICE APPLICATION

To lock energy source out, refer to the information on the table below for each hazard

Sources of Energy:	CODE	METHOD OF ISOLATION CODES
Electrical		(A) Turn Isolating Switch to OFF or GREEN Position
Air / Pneumatic		(B) Turn valve to off position-safely relieve pressure
Hydraulic		(C) Apply Isolating Device and lock-safely relieve remaining Pressure
Steam		(D) Block using the device provided and secure in place, relieve pressure and let cool
Mechanical		(E) Isolate, relieve pressure, install pipe blank or blind; or double block and open bleed between valves
Other: (list)		(F) Other (list out)

- Lock is to be placed in the hole provided to ensure the source cannot be energized.
- Isolate all sources of stored energy, bleed hydraulic and air lines and block as appropriate.
- Install a Lockout Tag and fill it out, sign and attached to the lock.
- Once locked, remove the key and secure only under your control.
- Only the person applying the lock is allowed to remove it.

STORED ENERGY ISOLATION / VERIFICATION: Try to operate the machine by the start button to ensure it won't start. If condition is found to be safe, proceed with the assigned work. If not, contact your supervisor.

Appendix 6.1

LOCK REMOVAL FORM

Lock Removal Form			
Date:	**Yes**	**No**	**NA**
1. Supervisor - has tried to locate owner of lock?			
2. Supervisor - has tried to contact owner of lock?			
Called Home?			
Called Cell? (if applicable)			
3. Has the machine/equipment/device been reviewed by a competent person and deemed safe to energize?			
4. Is the machine/equipment/device in Safe operational condition?			
IF ANY "NO" LOCK CANNOT BE REMOVED			
IF ALL "YES" LOCK CAN BE REMOVED			
Verification Supervisor (print name and sign here):			
Has reviewed all aspects on this checklist and based on the information provided believe that the machinery/equipment/device is in Safe Operational condition			
Evaluation Personnel - Signature:			
Evaluation Personnel – Printed Name and Title:			
To the best of my knowledge I believe that this equipment/device has been placed into a Safe Operational condition.			
Signature:			
5. REMOVE LOCK			
6. Supervisor must make a copy of this completed checklist and ensure that the correct process to remove this lock has been followed.			
Additional Comments:			

Appendix 6.2: Energy Control Work Procedure

Use this form to document specific energy control procedures to identify critical energy isolation points and types of control devices for machines and equipment.

Department: _____

Equipment: _____

Equipment manufacturer: _____

Equipment serial number or other identifier: _____

Contact person: _____

Authorized employee(s): _____

Special Concerns: _____

Notify all affected employees before this procedure is used.

Lockout steps	Verification steps	Return to service steps
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.
5.	5.	5.
6.	6.	6.

Notify all affected employees after work is complete and locks & tags have been removed.

8.0 CRANES, HOISTING AND RIGGING POLICY

A. Purpose

This policy is designed to establish minimum performance requirements for the use of cranes, hoisting and rigging equipment.

B. Roles and Responsibility

1. Supervisors and Foreman

a. Ensure that personnel know how to safely operate cranes and hoists, and how to move objects safely.
b. Ensure that only formally trained and certified employees may operate a crane or hoist.
c. Enforce the use of safe lifting techniques.
d. Maintain lifting equipment in good mechanical and operating condition.
e. Ensures all manufacturer procedures applicable to the operational function of equipment are complied with.

2. Crane Operators

a. Maintain training and medical qualification.
b. Safely operate cranes.
c. Possess a valid Crane Operator's License – Certificate of Competency for the crane they are operating.
d. Are certified by an independent certification agency as competent and qualified operators of mobile cranes a minimum of every 5 years.
e. Follows all established safety regulations related to safe lifting and handling techniques.

3. Riggers

a. Must receive Qualified Person rigger certification that is equal to the functions and equipment that they are required to perform and use.
b. The level of certification is dependent upon the individual's training, knowledge, skill base, and ability to perform functions related to the selection, inspection, and proper use of rigging equipment.
c. Certifications must be renewed a minimum of every 5 years.

C. Procedure

1. Persons involved in crane or hoist operations must:
   a. Be aware of the hazards related to the equipment and the load.
   b. Know the methods for controlling those hazards.
   c. Follow the proper operating procedures applicable to the type of lift and equipment.
2. The designated operator must be qualified and authorized to use specific equipment. Crane, hoist, and rigging equipment must be properly inspected before each shift and tested and maintained per manufacturer's recommendations.

3. The following rules apply to all use of crane and hoist operations.
    a. Whoever needs to move a load must:
        i. Determine if the load needs to be moved by a crane
        ii. Determine who can operate the crane
    b. Loads meeting the definition of critical lift (over 80% of rated capacity), near power lines or occupied buildings or in any other condition where safety concerns are raised require the completion of a critical lift plan prior to the lift.
    c. Operators must be authorized by their management to operate cranes.
    d. Rigging shall never be loaded in excess of its rated safe working load capacity.
    e. Rigging shall be removed from the work are when not in use.
    f. Procedures applicable to the operation of the crane must be readily available in the cab at all times.
    g. Cranes must not be used unless ground conditions are able to support the equipment and any supporting materials per the manufacturer's specifications.
    h. Manufacturer instructions and prohibitions must be followed when assembling and/or disassembling equipment.
    i. All safety devices must be in proper working order before any crane operation begins.
    j. Operators must be qualified in & certified to use the type of crane they intend to use.
    k. Monthly inspections of equipment by a competent person must be documented and made available upon request.
    l. Operators must plan each lift, taking into account the path of travel to avoid contact with personnel and objects.
    m. The boundaries of the crane swing radius must be barricaded with warning lines, railings or similar barriers to prevent damage and/or injury inside the swing radius.
    n. Suspended loads shall be kept clear of all obstructions and any personnel shall be required to stay clear of all lifts and the travel of live loads.
    o. A pre-operation hazard assessment will be performed to identify the work zone and determine if any part of the crane lift and/or equipment could reach closer than 20 feet to a power line. Measures must be implemented to prevent contact with or to encroach within the designated safe working distance as calculated by the voltage present.
    p. No modifications or additions that may affect the capacity or safe operation of the equipment can be made without written approval from the manufacturer or approval from a registered professional engineer.
    q. Personnel shall keep all fingers clear of pinch points during the initial lifting of loads.
    r. Slings shall be set to avoid slippage, shall be padded to prevent damage from sharp edges from loads and shall not be pulled while under the weight of a load.
    s. Operators must inspect the crane and associated rigging prior to using the crane.
    t. Only competent and/or qualified personnel are allowed to assemble or disassemble any and all crane related equipment and a competent person must inspect all equipment and rigging prior to each shift and as necessary during use.

u. Chain or wire rope shall not be kinked or shortened with knots or bolts.

v. Cranes and rigging found to be deficient must be taken out of service and cannot be used unless repaired and recertified.

w. Hooks and shackles shall be inspected by a qualified person and used in accordance with manufacturer's recommendations. All hooks for which no applicable manufacturer's recommendations are available shall be tested to twice the intended safe working load before they are initially put into use.

x. Slings and shackles shall have permanently affixed, and legible identification markings as prescribed by the manufacturer, that indicate the recommended safe working load and shall not be used if markings are not present or legible.

y. Cranes and rigging must be rated to lift the intended load; no load (including rigging, devices, and lifting fixtures) may exceed the limits of the crane and rigging. If an employee is unsure of the weight of a load, or if the load weight exceeds 75% of the crane's capacity, the lift shall not proceed until all critical info is obtained and authorization to proceed is given.

z. Operators are responsible for ensuring that the load is properly rigged and balanced, such as in a basket hitch, to avoid shifting during the lift. Test lifts of less than one foot from the ground to check for load shifting are permitted.

aa. Any operator has the authority to stop a lift whenever they have a safety concern.

bb. Shock loading is not allowed at any time.

cc. Wrought iron chains in constant use shall be annealed or normalized at intervals not exceeding 6 months, when recommended by the manufacturer and annealing or normalizing shall be done only in accordance with the chain manufacturer's specifications.

dd. Deformed hooks or rings shall be replaced or repaired and reshaped under proper metallurgical control and proof tested before returned to service.

ee. Proof coil steel chain shall not be used for hoisting at any time.

ff. Sturdy work gloves must be worn when handling wire rope or loads with rough or sharp edges.

gg. Special custom design grabs, hooks, clamps, or other lifting accessories for such units as modular panels, prefabricated structures and similar materials, shall be marked to indicate the safe working loads and shall be proof-tested to 125 percent of the rated load prior to use.

hh. A signal person must be provided if the operator's view is obstructed, if site specific safety concerns require it, or if the operator determines that it is necessary.

ii. Tag lines are required on all live loads.

jj. Riggers and receivers are never allowed under a live load.

kk. Latches will be in place on all hooks, eliminating the hook throat opening.

D. Training and Documentation

1. Supervisors shall request training records and certifications for all contract personnel operating cranes and rigging operations to ensure compliance to the California Code of Regulations, Title 8.
2. e employees shall be trained and maintain certifications as required by this policy.

9.0 DEMOLITION POLICY

A. Purpose

This policy is designed to establish minimum performance expectations during demolition activities that at a minimum, comply with all regulatory requirements in an effort to ensure all work is performed in a safe and healthful manner.

B. Roles and Responsibility

It is the responsibility of every employee working on or near a project with demolition in progress to remain constantly aware of their surroundings by looking for hazards and reporting any unsafe conditions or deviations to the demolition plan.

C. Procedures

1. Develop a detailed demolition plan that at a minimum, address the following:
    a. Identify and locate underground services and their points of entry to and exit from the site.
    b. Identify retaining structures providing support to adjoining properties.
    c. Determine the location, nature, and condition of any hazardous substances identified in the Hazardous Substances Assessment.
    d. Determine most suitable points of egress from the site for
        i. site personnel; and
        ii. demolition equipment and routes for removal of demolished materials.
    e. Determine the need for, and the extent of, any required security fencing, or overhead protection for travel paths.
    f. Develop a level-by-level procedure for stripping, breaking-up, and removal of stripped and demolished materials.

D. Training and Compliance Documentation

1. Ensure all personnel are properly trained and authorized to perform scope of work.
2. List all required safety training and ensure training records are maintained by the Site Supervisor.
3. Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training.

10. ELECTRICAL SAFETY AND ENERGIZED ELECTRICAL WORK POLICY (NFPA 70E)

A. Purpose

This policy is designed to establish minimum performance requirements for the safe use of electrical equipment, tools, and to reference NFPA 70E requirements that are located in the NFPA 70E standard.

e policy is to create an electrically safe work condition as the primary means of protection for employees. In alignment with NFPA 70E and OSHA, working on energized circuits is prohibited, with few exceptions that are outlined in NFPA 70E 130.2(A).

NFPA 70E recognizes the following 4 situations where energized electrical work (EEW) is permitted:

1. De-energizing introduces additional hazards or increased risk.
2. Shutdown is infeasible due to equipment design or operational limitations.
3. Energized electrical conductors and circuit parts operate at less than 50 volts.
4. Normal operation of electric equipment where all of the following conditions are satisfied:
   a. The equipment is properly installed.
   b. The equipment is properly maintained.
   c. The equipment doors are closed and secured. d.
   All equipment covers are in place and secured. e.
   There is no evidence of impending failure.

NFPA 70E further defines work that might be performed because of infeasibility due to equipment design or operational limitations to include:

1. Performing diagnostics and testing (i.e. start-up or troubleshooting) of electrical circuits that can only be performed with the circuit energized.
2. Work on circuits that form an integral part of a continuous process that would otherwise need to be completely shut down in order to permit work on one circuit or piece of equipment. (Note: The NEC provides context for exemptions due to continuous industrial processes. It is intended to be used in situations where the orderly shutdown of integrated processes and equipment would result in additional or increased hazard.

NFPA 70E also provides examples of work that might be performed due to additional hazards or increased risk. These include but are not limited to interruption of life-support equipment, deactivation of emergency alarm systems, and shutdown of hazardous location ventilation equipment.

B. Roles and Responsibilities

1. This program applies to all e employees, temporary employees, and contractors. When work is performed on a non-owned or operated site, the operator's program

shall take precedence, however, this document covers e employees and contractors when an operator's program doesn't exist or is less stringent.

2. Operations Managers and Supervisors are responsible for ensuring that only qualified employees and or qualified contractors perform electrical repairs or installations.
3. Employees are responsible to use electrical equipment, tools, and appliances according to this program, for attending required training sessions when directed to do so and to immediately report unsafe conditions to their supervisor.
4. Only qualified employees may work on electric circuit parts or equipment that has not been de-energized. A Qualified Person is defined by NFPA 70E as "one who has demonstrated skills and knowledge related to the construction and operation of electrical equipment and installations and has received safety training to identify and avoid the hazards involved."
5. A Qualified Person "shall be familiar with the proper use of special precautionary techniques, applicable electrical policies, and procedures, PPE, insulating and shielding materials, and insulated tools and test equipment."
6. A Qualified Electrical Worker permitted to work within the limited or restricted approach boundary requires training in the following:
    a. Skills and techniques necessary to distinguish exposed energized electrical conductors and circuit parts from other parts of electrical equipment.
    b. Skills and techniques necessary to determine the nominal voltage of exposed energized electrical conductors and circuit parts.
    c. Training on the approach distances specified in NFPA 70E Table 130.4(D)(a) and Table 130.4(D)(b) and the corresponding voltages to which the qualified person will be exposed.
    d. Decision-making process necessary to be able to do the following:
        i. Perform the job safety planning
        ii. Identify electrical hazards
        iii. Assess the associated risk
        iv. Select the appropriate risk control methods from the hierarchy of controls identified in NFPA 70E 110.1(G), including personal protective equipment.
7. Unqualified persons shall not be permitted to enter spaces that are required to be accessible to qualified employees only, unless, the electric conductors and equipment involved are in an electrically safe work condition.

C. Procedure Overview

1. NFPA 70E defines (2) distances from the energized work area for the protection of the qualified and unqualified person(s).
    a. The *Limited Approach Boundary*
    b. The *Restricted Approach Boundary*
2. The distance from an energized part to each of these boundaries increases as voltage increases. Moving closer to exposed energized parts requires increased levels of qualifications, protective equipment, and permits.

3. Approach distances are listed in NFPA 70E Table 130.4(D)(a) for *AC systems* & Table 130.4(D)(b) for *DC systems*. Approach boundaries are for shock protection only.
4. The Limited Approach Boundary is established to keep unqualified person(s) safe from electrical shock hazards.
   a. An unqualified person can only be inside the limited approach boundary when accompanied by a qualified person, wearing the same level of protective equipment
   b. Furthest boundary from exposed energized electrical conductors or circuit parts
   c. Barricades/cones and red danger tape, or restricted access are all acceptable means of demarcating this boundary.
5. The Restricted Approach Boundary may be accessed by qualified personnel only.
   a. Insulated tools are required when crossing the restricted approach boundary of exposed energized electrical conductors or circuit parts where tools or handling equipment might make accidental contact.
   b. An energized electrical work permit is required when work is performed within the Restricted Approach Boundary.
   c. Qualified personnel may cross (or take any conductive object into) the restricted approach boundary of exposed conductors/circuit parts if one of more of the following 3 conditions applies:
      i. The qualified person is insulated or guarded from the energized electrical conductors or circuit parts operating at 50 volts or more. Insulating gloves or insulating gloves and sleeves are considered insulation only with regard to the energized parts upon which work is being performed.
         - If there is a need for an uninsulated part of the qualified person's body to contact exposed energized electrical conductors or circuit parts, a combination of the 3 conditions shall be used to protect the uninsulated body parts.
      ii. The energized electrical conductors or circuit part operating at 50 volts or more are insulated from the qualified person and from any other conductive object at a different potential.
      iii. The qualified person is insulated from any other conductive object.
6. The Arc Flash Boundary is the distance at which the amount of heat energy available to burn you during an arc flash (incident energy) is equal to 1.2 calories per centimeter squared (cal/cm^2).
   a. This is the energy level where an unprotected worker will receive a 2^{nd} degree burn.
   b. In most instances, arc flash boundary is the outermost of all approach boundaries.
   c. Provide barricading & hazard signage to keep unauthorized personnel out.
7. Incident energy level of an arc flash depends on:
   a. Available current
   b. How quickly the current can be shut off
   c. How far away a worker is from the arc source

8. The Arc flash PPE Categories Method listed in NFPA 70E may be used to determine applicable PPE requirements if equipment parameters match the listed criteria.
    a. Reference NFPA 70E Table 130.7(C)(15) (A)(b) for AC systems
    b. Reference NFPA 70E Table 130.7(C)(15) (B) for DC systems
9. NFPA 70E also provides various methods for calculating incident energy level & arc flash boundary provided in NFPA 70E Annex D.
    a. If incident energy is calculated, you cannot use NFPA 70E Arc-Flash Hazard PPE Categories Tables
    b. PPE is selected once incident energy calculated using NFPA 70E Table H.3(b)
10. Arc flash PPE must be worn by anyone crossing the arc flash boundary.
11. Employees shall not reach blindly into areas that might contain exposed live parts.
12. Employees shall not enter spaces containing live parts unless illumination is provided that allows the work to be performed safely.
13. Conductive articles of jewelry and clothing (such as watchbands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, metal headgear, or metal frame glasses) shall not be worn where they present an electrical contact hazard with exposed live parts.
14. Conductive materials, tools, and equipment that are in contact with any part of an employee's body shall be handled in a manner that prevents accidental contact with live parts. Such materials and equipment include, but are not limited to, long conductive objects such as ducts, pipes, tubes, conductive hose and rope, metal-lined rules and scales, steel tapes, pulling lines, metal scaffold parts, structural members, and chains.
15. Inspections
    a. Electrical equipment, tools, and appliances must be inspected prior to each use.
    b. Where required the use of a hard fixed GFCI or a portable GFCI adapter shall be used with all portable hand tools, electric extension cords, drop lights and all 110-volt equipment.
    c. Faulty equipment, tools, or appliances shall be removed from service immediately and tagged "Out of Service", dated and signed by the employee applying the tag.
16. Equipment
    a. Test instruments, equipment, and their accessories shall meet the requirements of ANSI/ISA-61010-1 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use Part 1 General Requirements, for rating and design requirements for voltage measurement and test instruments intended for use on electrical systems 1000 Volts and below.
    b. When test instruments are used for the testing for the absence of voltage on conductors or circuit parts operating at 50 volts or more, the operation of the test instrument shall be verified before and after an absence of voltage test is performed. Inductance testers may not be used as the sole means for verifying zero voltage.

17. Personal Protective Equipment
    a. All insulating PPE must be inspected before each day's use and immediately following any incident that can reasonably be suspected of having caused damage. Insulating gloves shall be given an air test, along with the visual inspection.
    b. Maximum test intervals for rubber insulating personal protective equipment shall include:
        i. Blankets every 12 months
        ii. Gloves every 6 months
        iii. Sleeves every 12 months
        iv. Covers and line hose shall be tested if insulating value is suspect or found to be damaged.
18. Energized Electrical Work Permit
    a. Work on energized electrical conductors or circuit parts that are not placed in an electrically safe work condition shall be considered energized electrical work and shall be performed by written permit only.
19. Lighting
    a. Employees shall not enter spaces containing electrical hazards unless illumination is provided that enables employees to perform the work safely. Where lack of illumination or an obstruction precludes observation of the work to be performed employees shall not perform any task within the Limited Approach Boundary of energized electrical conductors or circuit parts operating at 50 volts or more or where an electrical hazard exists.
20. Extension Cords
    a. Use only three-wire, grounded, extension cords and cables that conform to a hard service rating of 14 amperes or higher, and grounding of the tools or equipment being supplied.
    b. Only commercial or industrial rated-grounded extension cords may be used in shops and outdoors.
    c. Cords for use other than indoor appliances must have a rating of at least 14 amps.
    d. Cords must have suitable strain relief provisions at both the plug the receptacle ends.
    e. Work lamps (drop light) used to power electrical tools must have a 3 wire, grounded outlet, unless powering insulated tools.
    f. Adapters that allow 3-wire, grounded prongs, connected to two wire non-grounded outlets are strictly prohibited.
    g. Cords must have a service rating for hard or extra-hard service and have S, AJ, ST, SO, SJO, SJT, STO, or SJTO printed on the cord.
    h. Cords may not be run through doorways, under mats or carpets, across walkways or aisles, concealed behind walls, ceilings or floors, or run through holes in walls, or anywhere where they can become a tripping hazard.
    i. High current equipment or appliances should be plugged directly into a wall outlet whenever possible.

j. All extension cords shall be plugged into one of the following:
   i. A GFCI outlet;
   ii. A GFCI built into the cord;
   iii. A GFCI adapter used between the wall outlet and cord plug.

k. All extension cords and or electrical cords shall be inspected daily or before each use, for breaks, plug condition and ground lugs, possible internal breaks, and any other damage. If damage is found, the extension cord or electrical cord shall be removed from service and repaired or replaced.

l. Extension cords shall not be used on compressor skid to operate heat tapes or any other type of equipment on a temporary basis. Heat tapes or other equipment shall be hard wired per applicable electrical codes.

21. Outlets
   a. Outlets connected to circuits with different voltages must use a design such that the attachment plugs on the circuits are not interchangeable.

22. Multiple Outlet Boxes
   a. Multiple outlet boxes must be plugged into a wall receptacle.
   b. Multiple outlet boxes must not be used to provide power to microwave ovens, toasters, space heaters, hot plates, coffeepots, or other high-current loads.

23. Double Insulated Tools
   a. Double insulated tools must have the factory label intact indicating the tool has been approved to be used without a three-wire grounded supply cord connection.
   b. Double insulated tools must not be altered in any way, which would negate the factory rating.

24. Switches, Circuit Breakers, and Disconnects
   a. All electrical equipment and tools must have an on and off switch and may not be turned on or off by plugging or unplugging the supply cord at the power outlet.
   b. Circuit breaker panel boxes and disconnects must be labeled with the voltage rating.
   c. Each breaker within a breaker panel must be labeled for the service it provides.
   d. Disconnect switches providing power for individual equipment must be labeled accordingly.

25. Energized and Overhead High Voltage Power Lines & Equipment
   a. A minimum clearance of 10 feet from high voltage lines must be maintained when operating vehicular and mechanical equipment such as forklifts, cranes, winch trucks, and other similar equipment.
   b. When possible, power lines shall be de-energized and grounded or other protective measures shall be provided before work is started.
   c. Minimum approach distance to energized high power voltages lines for unqualified employees is 10 feet.

26. Confined or Enclosed Work Spaces
    a. When an employee works in a confined or enclosed space that contains exposed energized parts, the employee shall isolate the energy source and turn off the source and lock and tag out the energy source (Only qualified electricians can work on an exposed energy source).
    b. Protective shields, protective barriers or insulating materials as necessary shall be provided.
27. Enclosures, Breaker Panels, and Distribution Rooms
    a. A clear working space must be maintained in the front, back and on each side of all electrical enclosures and around electrical equipment for a safe operation and to permit access for maintenance and alteration.
    b. A minimum three-foot working floor space in front of panels shall be maintained at all times.
    c. Employees may not enter spaces containing exposed energized parts unless illumination is provided that enables the employees to work safely.
    d. Housekeeping in distribution rooms must receive high priority to provide a safe working and walking area in front of panels and to keep combustible materials to the minimum required to perform maintenance operations.
    e. All enclosures and distribution rooms must have “Danger: High Voltage – Authorized Personnel Only” posted on the front panel and on entrance doors.
    f. Flammable materials are strictly prohibited inside distribution rooms (boxes, rags, cleaning fluids, etc.).
28. Control of Hazardous Electrical Energy/Lock-Out/Tag-Out
    a. No work shall be performed on (or near enough to them for employees to be exposed due to the dangers of tools or other equipment coming into contact with the live parts) live parts and the hazards they present.
    b. If any employee is exposed to contact with parts of fixed electric equipment or circuits which have been de-energized, the circuits energizing the parts shall be locked out or tagged or both.
    c. Conductors and parts of electrical equipment that have been de-energized but not been locked or tagged out shall be treated as live parts.
    d. Approved and authorized energized electrical outsourced work will be performed only by qualified and licensed electrical contractors who are familiar with the use of special precautionary techniques, PPE, insulating and shielding materials and insulated tools. Any equipment being made ready for maintenance will be locked out using the Bay City Boiler Control of Hazardous Energy – Lock-Out/Tag-Out Program. Lockouts are performed by the Operations Supervisor or his authorized designee. Designated employees will be trained by local management in proper Lock-Out/Tag-Out methodologies and processes. Energized work can only be performed with the knowledge and approval of management.

e. Only authorized personnel may perform lock out/tag out work on electrical equipment and will follow e Control of Hazardous Energy – Lock-Out/Tag-Out Program.

f. Authorized personnel will be trained in lock out/tag out procedures.

g. Affected personnel will be notified when lock out/tag out activities are being performed in their work area.

29. Contractors

a. Only approved, authorized, electrical workers may perform electrical construction and service work on e projects.

b. It is the Supervisor's responsibility to verify the contractor's certification.

30. Fire Extinguishers

a. Approved fire extinguishers must be provided near electrical breaker panels and distribution centers.

31. Electric Welders

a. A means for disconnecting shall be provided in the supply circuit for each motor-generator arc welder, and for each AC transformer and DC rectifier arc welder which is not equipped with a disconnect mounted as an integral part of the welder.

b. A switch or circuit breaker shall be provided by which each resistance welder and its control equipment can be isolated from the supply circuit. The ampere rating of this disconnecting means may not be less than the supply conductor amperage capacity.

32. Equipment Grounding

a. All gas compressors, air compressors, separators, vessels, etc. shall be grounded by means of using a lug and ground strap, nominal in size to a ½" bolt or larger, attached to a ground rod six feet or longer.

b. Equipment bonding jumpers shall be of copper or other corrosion-resistance material.

c. The transfer of hazardous or flammable material from a metal or plastic container with a flash point of 100 degrees F or less shall have a ground strap from the container and attached to the skid or a ground rod placed in the ground.

D. Training and Documentation

1. Employees shall be trained in electrical safety related work practices that pertain to their respective job assignments.
2. Documentation shall be made when the employee demonstrates proficiency, be maintained for the duration of the employee's employment, and contain each employee's name and date of training.

11.0 EMPLOYEE COMMUNICATION OF ENVIRONMENTAL, HEALTH & SAFETY REQUIREMENTS POLICY

A. Purpose

This program is designed to ensure all employees receive the required hazard recognition training, safety and health awareness training and job specific hazard identification and mitigation training in an effort to prevent workplace injuries and illnesses.

B. Roles and Responsibility

Management is responsible for the content of its Environmental, Health & Safety program and effectively communicating its contents to employees.

Management, employees and contractors are required to comply with all policies, programs and procedures contained in the Bay City Boiler Injury & Illness Prevention Program and this Safety Manual.

C. Procedures

1. **Safety Meetings**

Safety meetings will be conducted weekly to discuss safety topics in an effort to increase the awareness of known and possible safety hazards that could be present in the workplace.

Typical safety meeting topics will be related to workplace hazards and may include, but are not limited to:

a. Company safety policies and procedures.
b. OSHA Regulations and ANSI Standards.
c. Hazard recognition and mitigation techniques.
d. Safe Work Practices.
e. SDS/GHS requirements in compliance with the Hazard Communication Standard. f. Review of injuries and incidents and methods to prevent recurrence.
g. Discussion of near-miss incidents and preventative measures.
h. General safety topics related to both home and workplace safety.

Safety meetings will be documented and retained for a minimum of one year at the Facility Office.

2. **Safety Committee & Employee Suggestions / Feedback**

Company utilizes a safety committee that is comprised of employees from all levels in the organization and includes field, supervision and management representatives. Safety committee reports are posted on the bulletin board at all facilities. Employees are encouraged to participate on the committee and to contact their safety committee representative with any safety issues or concerns. Every employee is empowered to stop unsafe work and to not perform any job that they feel jeopardizes their personal safety or the safety of their co-workers.

3. **Safety Memo / Communication Posting**

   Posting of safety related items shall be done on the company's safety bulletin boards. Posting may include yet are not limited to:

   a. Safety Items and Issues
   b. Codes of Safe Practices
   c. Cal/OSHA 300 log (as required in Title 8, California Code of Regulations)
   d. Other safety & health related topics

4. **Training**

   Company has safety training programs designed to instruct employees on safe work practices and procedures. A list of all required safety training and records of that training are maintained in the main office.

5. **Stop Work Authority**

   a. Employees are trained that they have 100% right to refuse to perform any work that they believe to be unsafe or unhealthy. Anytime an employee feels that their safety may be compromised, or sufficient controls are not in place to mitigate known hazards, they are authorized to stop work, warn others in the area of the hazard, and contact their supervisor, ensure all hazards are corrected, before resuming work. If their supervisor does not remedy the situation to their satisfaction, they are authorized to contact senior management.
   b. Employees shall not face any reprimand for reporting unsafe conditions or acts.
   c. Employees shall not resume work until all safety issues and concerns have been addressed.
   d. Management is responsible to enforce this Stop Work Authority and Employees are required to comply in an effort to provide a safe and healthful work environment.
   e. All Stop Work interventions shall be documented and reviewed by a supervisor and followed up on my management to ensure the process worked as designed.

D. Compliance Documentation

Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training.

12.0 EMERGENCY ACTION PLAN

A. Emergency Evacuation Procedures

These guidelines have been prepared for emergency management and the potential evacuation from the jobsite. These procedures will apply not only to fire but in the event of explosion, chemical release, earthquake, or bomb/terrorist threat as well. Any adjustments or amendments will be communicated to site personnel through weekly tailgate meetings.

B. Pre-Emergency Planning

During the initial site indoctrination, training and periodic site briefings all e employees and their subcontractors will be trained in and reminded of provisions of these emergency response/evacuation procedures, the communication system and evacuation routes and meeting place. The plan will be reviewed and revised as needed in order to ensure that it is adequate and up-to-date with the prevailing site conditions. Drills may be used to ensure timing and proper procedures are carried out.

C. Lines of Authority

1. The e Supervisor and/or the Project Manager have the primary responsibility for responding to and correcting emergency situations. This includes taking appropriate action including activating the e Evacuation procedures and notifying the construction personnel of the potential need for their involvement to ensure the safety of the site personnel and the public.

2. The e Supervisor and/or Project Manager will be responsible for ensuring that corrective measures have been implemented, appropriate authorities notified, and follow- up reports completed.

D. Evacuation Routes and Procedures

In the event of an emergency that necessitates an evacuation of the site, the following alarm procedures will be implemented and followed:

1. Portable air horns or vehicle horns will be used to alert all site personnel of an evacuation emergency. Two long blasts followed by one short blast will notify all personnel to exit the buildings to the designated meeting area. A head count will be completed by the foreman and/or Supervisor at the meeting area and further directions or response discussions coordinated at that point. Radio and telephone communication will also be utilized to begin an evacuation of the site as well. After a head count is completed, the foreman and/or supervisor will communicate to their Supervisor or Management that all personnel are present and accounted for.
2. Supervisor or Foremen will contact the local authorities required for the emergency. He/she will give the exact location of the emergency and what type of emergency exists.

E. Assembly Areas

1. Once notice has been given to evacuate the site, all work will cease, and equipment will be turned off. All personnel will proceed to the designated assembly area using the safest route possible. The assembly area for this project is located at a pre-determined location decided upon by Management.
2. Supervisor and Project Management personnel will be instructed not to leave the site. If personnel are missing, supervisors will advise emergency services responding to the site as to the status of these individuals.
3. At no time will anyone re-enter the evacuated area until the emergency services have communicated to.
4. Supervisor that the jobsite and process is “ALL CLEAR”.
5. When an emergency situation occurs, it is imperative that personnel stay calm and remember: Never move an injured employee unless he/she is exposed to further injury. (Always support the head, neck and spine).

F. Mitigation Actions

1. **Fires**

   a. Corrective action may only be attempted if personnel are adequately trained and it can be accomplished safely. Portable fire extinguishers of sufficient number and appropriate types for potential fires will be kept on site and maintained according to applicable regulations and codes. At a minimum, a portable extinguisher must be placed within 50 feet of any flammable liquid storage or dispensing area and all burning operations. When burning operations are underway, a designated fire watch will be utilized to ensure, no sparks or fires are initiated.

   b. Small fires: A small fire is defined as a fire that can be extinguished with the available 5-pound type ABC fire extinguisher. In the event of a small fire, site personnel will take the following action:

      (1) Evacuate all unnecessary personnel from the area, if possible to an upwind location and call 911.

      (2) Attempt to extinguish fire using portable fire extinguishers, water hose or by smothering.

      (3) Request emergency response assistance (ambulance, fire, hospital, poison control

      (4) center, etc.) as needed for any injuries or exposure to hazardous chemicals.

   c. Large fires: In the event of a large fire or small fire which cannot be extinguished, the following actions will be taken:

      (1) Evacuate all personnel utilizing the protocol as defined in these procedures. Notify the

      (2) Fire Department immediately by calling 911.

      (3) Upon arrival of the fire department, the Supervisor will advise the fire commander of the location, nature, and identification of the hazardous materials and/or hazardous situations on site.

2. **Chemical Release & Spills**

Should a spill of hazardous waste occur, the site-specific health and safety plan for the project

outlines the proper procedures that must be followed for containment of the spill and appropriate clean up procedures to be utilized. Only trained personnel will respond to spills.

3. **Earthquakes**

   The actual earth movement of an earthquake is seldom the direct cause of injury or death. Most casualties are caused by falling debris from collapsing buildings and other structures, and by fires caused by broken gas mains, etc.

   a. Stop, drop, and cover until shaking stops.
   b. Evacuate to the designated assembly area.

4. **Explosion & Bomb Threats**

   a. The purpose of this procedure is to provide guidance to all Supervision in order to plan an appropriate reaction to bomb threats. There are three types of bomb threats, as follows:

      (1) **Actual Warning:** In which a bomb has been placed and a humanitarian notice has been given.

      (2) **Harassment:** In which the goal is to disrupt project operations and/or impose economic hardship. In cases of harassment, the instigator may be a disgruntled former employee or one with political, economic, or ideological beliefs different from those of the project.

      (3) **Hoax:** In which the instigator derives a sense of power from the confusion and excitement created. In other cases, the motivation frequently is the desire for paid time off from work.

   b. The receipt of a bomb threat at the project will require a quick assessment as to whether the threat is an actual warning, harassment or a hoax, and the appropriate call to action by management. Regardless of what type of threat it is, all personnel will be evacuated as outlined in these procedures. Supervisors' will contact the local authorities. All personnel will follow the local authorities' direction and plan of action.

G. Training

1. These procedures will be reviewed regularly. When and if changes are made, training to all personnel will be conducted. Changes will be distributed to onsite contractors, as appropriate. The evacuation procedures must be reviewed with all e employees and subcontractors prior to the start of the project. The review and training will be conducted by the e Supervisor and/or Project Manager.
2. When new employees arrive onsite, these evacuation procedures along with designated evacuation routes and meeting places will be reviewed by the site supervisors and documented for recordkeeping purposes.
3. **Emergency phone numbers should be posted near all telephones.**

SITE SPECIFIC EVACUATION PROCEDURES

Name of Project: _____

Address of Project: _____

Project Manager Name: _____

Work phone: _____ Cell phone: _____

General Supervisor Name _____

Work phone: _____ Cell phone: _____

Supervisor Name: _____

Work phone: _____ Cell phone: _____

Designated Assembly Areas:

Primary: _____

Secondary: _____

Supervisors have primary responsibility for responding to and correcting emergency situations. This includes activating the Bay City Boiler evacuation procedures and notifying senior management of the potential need for their involvement. Prior to the start of a project, Supervisors will decide on a primary and secondary location for the designated assembly areas to evacuate to. All personnel onsite will be instructed and trained on what constitutes an emergency evacuation. This training will be documented. Emergency phone numbers will be posted with the local numbers other than 911.

EMERGENCY CONTACT NUMBERS

Police: 911 or [Local Numbers Here]

Ambulance: 911 or [Local Numbers Here]

Hospital: 911 or [Local Numbers Here]

Fire Department: 911 or [Local Numbers Here]

Cal-OSHA: (877) 922-7233

13.0 FALL PROTECTION POLICY

A. Purpose

This policy is designed to establish minimum requirements for any employee working at heights that exceed 6 feet from a lower level and to comply with Title 8, §1670. “Personal Fall Arrest Systems, Personal Fall Restraint Systems and Positioning Devices” and ANSI Z359.1 “American National Standard Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components.”

B. Roles and Responsibility

Although all supervisory personnel will control and enforce the Fall Protection Program policy and procedures, it is each employee’s duty and responsibility to ensure that he/she is following the Fall Protection Program without exception. Failure to comply with the Fall Protection Program will result in disciplinary action, up to and including dismissal or termination of employment.

1. Authorized Person

a. Has a thorough understanding of this Fall Protection Policy and is confident in their ability to effectively select, inspect, wear, and maintain proper fall protection equipment at all times when working at heights.

b. Maintains demonstrated knowledge and has attended documented fall protection training necessary to properly wear, effectively connect to a rated anchorage point and properly care for their fall-protection equipment.

c. Follows all fall protection hazard controls developed by a Competent Person.

2. Competent Person

a. Has a thorough understanding of the Fall Protection Policy and is confident in their ability to effectively oversee the implementation of the Fall Protection Policy.

b. Is authorized by to develop project fall protection programs and oversee authorized personnel while they are wearing fall protective equipment.

c. Authorized to immediately implement corrective measures to eliminate or mitigate fall hazards.

d. Is knowledgeable and experienced in the application and use of fall protection equipment and is able to identify fall hazards by conducting fall hazard analysis.

e. Supervises selection and use of fall protection equipment.

f. Verifies equipment is compliant.

g. Verifies workers are trained.

h. Conducts equipment inspections and removes damaged equipment from service.

3. Qualified Person

a. Supervises the design, selection, installation, and inspection of fall protection equipment.

b. Participates in incident investigations after a fall, near miss or serious incident.

c. Has specialized training (to fulfill requirements such as those for registered professional engineers), has extensive knowledge and experience in fall protection, and has successfully demonstrated an ability to solve problems related to fall protection.

d. Is responsible for designing specialized fall protection systems and equipment, and for evaluating and approving anchorage points.

e. Works with the Competent Person to ensure Fall Protection Policy is up to date and effective in the prevention of workplace falls from heights.

C. General Requirements

1. A Qualified Person is required for writing site or task specific Fall Protection Plans (FPP) which may be required for specialized or task specific fall protection systems. In addition, each FPP is required to have a fall protection rescue procedure that outlines how you will perform rescue operations for each location fall protection is used. The use of all fall protection, fall prevention, and rescue equipment must comply with the manufacturer's recommendations.
2. Fall protection requirements cover any walking or working surface that is 6 feet or more above a lower level or the ground and includes flat working surfaces, stairways, and roof or floor openings.
3. Whenever possible, fall protection should be provided by the use of guardrail systems, or engineering controls.
4. When guardrails cannot be used, the use of personal fall protection systems consisting of an anchorage point, a lanyard, and a harness will be used if possible.
5. Employees must be protected from falling through holes in any walking or working surface that is 6 feet or more above a lower level or the ground in California. A hole is considered to be any opening that is at least 2 inches wide by 2 inches long.
6. All holes meeting the definition above must be covered. The cover must be secured to the surface and must be labeled **"OPEN HOLE - Do Not Remove."** Larger holes, such as those created from roof mounted HVAC units, elevator shafts, etc., can be protected by the use of guardrail systems, although floor covers can be used as long as they meet the strength requirements, and are property marked.
7. Hole covers must be made of a material that will support the weight of any person, intended equipment or item that may have to pass over it.
8. Skylights pose a unique hazard to workers on roofs. While working near skylights, employees must ensure that protective measures have been taken to prevent the possibility of falling through the skylight.
9. When leading edges or floor openings are above dangerous equipment, guardrails or a personal fall restraint system must be used regardless of the height of the fall potential.
10. Whenever personnel are working on a higher floor near a floor opening, or on a scaffold, or wherever pedestrian or vehicle traffic must pass under the work area, toe boards and/or screens must be installed to protect workers and pedestrians below. Protection for the workers and pedestrians can also be accomplished by barricading the area below the opening or

leading edge and prohibiting personnel in the area.

11. When working on ladders employees must use personal fall protection if the work requires them to be above adjacent guardrails or wall openings.

Fall Protection Systems include:

1. Passive Fall Protection Systems

A "Passive Fall-Protection System" (PFPS) means that the fall hazard is controlled by means other than the wearing of personal protective equipment (PPE). Examples are guardrails, safety nets, warning lines, etc. All passive fall protection systems require vigilance, whether through pre-work inspections, group instructions, or other means of communication.

A hazard evaluation may determine that a personal fall protection system or other protective means may be required for the worker's protection even though working from a ladder or scaffold does not normally require fall protection. For example, if the task requires working from a step stool, or a level above the working surface next to the guardrail, the guardrail is no longer 42 inches above the "new" working surface and fall protection will be required to perform the work.

a. **Guardrails**

(1) The most common passive fall protection system is a guardrail. The height of the top rail of a guardrail system must be 42 inches (plus or minus 3 inches) above the walking/working surface. When conditions warrant, the height may exceed a height of 45 inches if all other criteria are met.

(2) Midrails, screens, mesh, or intermediate vertical members must be installed midway between the top rail and the walking/working surface, unless a parapet wall of 21 inches or higher has been installed.

(3) Top rails must be a minimum of a 1/4-inch in diameter (preferably a 3/8-inch cable) or a suitable thickness to meet the strength and rigidity requirements. If wire rope is used, it must be flagged at 6-foot intervals with high-visibility material.

(4) Many roof activities, such as repairs and servicing, are done on a semiannual or as-needed basis. If the activity does not warrant the installation of a permanent guardrail, temporary guardrail systems are available. Personal fall arrest systems may also be used, but the walking/working area must be surveyed by a Competent Person, and approved anchorages must be designated either by a Competent Person or a Qualified Person.

b. **Safety Nets.** Safety nets are an option in certain cases and a Qualified Person must be involved in providing oversight for their selection and installation.

(1) Where the elevation is 25 feet or more above the ground, water surface, or continuous floor level below, and when the use of personal fall arrest systems, personal fall restraint systems, positioning device systems or more conventional types of protection are clearly

impractical, the exterior and/or interior perimeter of the structure shall be provided with an approved safety net extending at least 8 feet horizontally from such perimeter and being positioned at a distance not to exceed 10 feet vertically below where such hazards exist, or equivalent protection provided safety nets shall extend outward from the outermost projection of the work surface as follows:

Vertical distance from working level to horizontal plane of net.	**Minimum required horizontal distance of outer edge of net**
Up to 5 feet	8 Feet
More than 5 feet up to 10 feet	10 Feet
More than 10 feet but not to exceed 30 feet	13 feet

(2) Nets shall be hung with sufficient clearance to prevent user's contact with the surfaces or structures below. Such clearances shall be determined by impact load testing.

c. **Warning Line Systems-Controlled Access Zones**

(1) **Roofers**

a) A warning line must be erected not less than 6 feet from the roof edge.

b) No worker is allowed in the area between the warning line and the roof edge without active fall protection or a safety net.

c) The warning line must meet or exceed the requirements in Title 8 which requires that the warning line: (1) be constructed of rope, wire, or chain and flagged at intervals no greater than 6 feet; (2) be rigged and supported in such a way that its lowest point (including sag) is no less than 34 inches above the walking/working surface and its highest point is no more than 39 inches above the walking/working surface; (3) be capable of resisting a knock-over force of at least 16 pounds applied horizontally against the stanchion at 30 inches above the walking/working surface perpendicular to the warning line and in the direction of the floor, roof, or platform edge; (4) have a minimum tensile strength of 500 pounds; and (5) be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.

(2) **Non-roofing Operations**

a) The warning line must be erected not less than 15 feet from the roof edge.

b) No employee is allowed in the area between the warning line and the roof edge without active fall protection. There are no exceptions.

c) The warning line must meet or exceed the requirements in Title 8 which requires warning line (1) constructed of rope, wire, or chain and flagged at intervals no greater than 6 feet; (2) rigged and supported in such a way that its lowest point (including sag) is no less than 34 inches above the walking/working surface and its highest point is no more than 39 inches above the walking/working surface; (3) capable of resisting a

knock-over force of at least 16 pounds applied horizontally against the stanchion at 30 inches above the walking/working surface, perpendicular to the warning line, and in the direction of the floor, roof, or platform edge; (4) having a minimum tensile strength of 500 pounds; and (5) attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.

(3) **Hole Opening Covers**

a) The following must be covered: any gap or void 2 inches or more in its least dimension in a floor, roof, or other walking/working surface, and any gap or void in a wall or partition 30 inches or more in height and 18 inches or more in width through which a person may fall.

b) Hole opening covers in roofs, floors, and other walking/working surfaces must be secured in place and capable of supporting the weight of any load that may be imposed at any one time. All hole opening covers must have “DANGER – “HOLE” or “COVER” clearly written in RED on the cover to provide warning of the hazard.

c) Temporary covers for roadway holes are to be steel street plates capable of supporting twice the axle weight of the heaviest vehicle expected to cross the cover.

(4) **Ladder Wells/Cages.**

a) Design criteria for ladder wells and cages vary greatly depending on the type, height, and/or use of the ladder.

(5) **Safety Monitors**

a) A safety monitor is a trained and authorized worker who must be competent in recognizing fall hazards. A safety monitor’s only job on a roof is to ensure that previously trained roofers are warned when moving too close (within 6 feet) to a dangerous edge. He or she must be positioned on the same level of all workers being monitored and must be within vocal distance of them. Constant vigilance is required, because lateral and backward movement of 4 to 5 feet per second is not uncommon.

b) Safety monitors are not permitted to work on roofs of a pitch greater than 4 in 12 or that have equipment that obstructs vision or has a noise level that prevents any worker from immediately hearing a verbal warning of danger. Duties of the safety monitor include:

i. Warning the worker when it appears that the worker is unaware of a fall hazard or is acting in an unsafe manner

ii. Remaining on the same walking/working surface and within sighting distance of the worker being monitored

iii. Remaining close enough to communicate verbally with the worker

iv. Having no other responsibilities other than serving as a safety monitor

v. Monitoring not more than six employees in a controlled work zone (area between the warning line and the roof edge).

2. Active Fall Protection Systems

An active fall protection system or personal fall arrest system (PFAS) requires the use of specialized fall protection equipment that must be fitted to the user and worn to control fall hazards. In other words, a user is secured to an anchorage point at all times, even while moving from point to point. Fall protection systems and equipment are used for personnel protection only.

a. **Active Systems** may include the following:
   i. Positioning devices
   ii. Lifeline systems (standard and self-retracting)
   iii. Rope grabs
   iv. Retrieval systems
   v. Full body harnesses
   vi. Body belts (note: body belts are not to be used for fall arrest)
   vii. Connectors viii. Lanyards
   viii. Snap hooks
   ix. Ladder safety devices
   x. Anchorages

b. **Fall Dynamics.** The following elements combine to make a fall hazardous:
   i. Lanyard length
   ii. Free-fall distance
   iii. Shock absorption at impact
   iv. Body weight
   v. Swing
   vi. Suspension trauma

c. **Lanyard Length.**

(1) The lanyard length must be selected to allow freedom of movement to do the work yet be short enough to minimize the fall distance. The maximum length of the lanyard and shock absorber combination is 6 feet. The minimum total vertical distance from the anchor point with a 6-foot lanyard is 18.5 feet, allowing a 3-foot safety factor.

d. **Free Fall Distance**

(1) If the trigger height for fall protection is 6 feet above the walking/working surface, a 6-foot lanyard does not offer effective protection if the anchor point of the lanyard is connected at head height. To be effective, the anchor point is required to be as high as practicably possible above the user's head without interfering with the work being done.

(2) The D-ring on the harness moves from the back at shoulder blade height to a position at the head when supporting full body weight. A 6-foot fall can result in forces exceeding 10 times body weight. A worker weighing 200 pounds can

experience more than 2,000 pounds of dynamic force from the harness unless the user has a shock-absorbing lanyard. A 2,000- pound force is capable of causing heart damage, a severe internal injury, and possibly a fatal injury.

(3) Serious consideration must be given to the equipment being approved for each situation evaluated based on the total fall distance and impact forces that could be encountered. A good rule of thumb is to limit the free-fall to 2 feet whenever possible, by using a minimum lanyard length and/or raising the anchor point. Consider using self-retracting lanyards, some of which can activate within 1-2 feet.

(4) Use the following formula as a guide to calculate **Minimum Anchorage Point Height (MAPH)**:

MAPH = (6′ + L) - H + D + S + C

6′ = Harness D-ring height

L = Lanyard length (typically shock absorbing lanyard length is 6 feet)

H = Anchorage point height (positive if below D-ring)

D = Deceleration or shock absorbing distance (typically is 3.5 feet)

S = Harness stretch (typically 1 foot)

C = Min. required clearance to lower level (3 feet)

(5) **Shock Absorption at Impact.** Even a relatively short free-fall distance of 6 feet on a solid lanyard, or cable can create serious impact problems, as described above. Shock absorption devices stretch by more than 3 feet 6 inches depending on the type of unit.

(6) **Body Weight.** Body weight adds to the impact load on the body of a worker and on the fall arrest system. How the harness is worn and the tightness of the straps, if adjusted for comfort, can create harmful stress and abrasions on the body during a fall arrest. The correct size harness must be worn, and all harness straps are to be adjusted for a snug fit.

(7) **Swing.** If a fall is not a direct drop, pendulum action will come into play. The worker may be relatively uninjured from the fall due to the fall-protection system, but then could swing into another object and become impaled or forcibly strike a solid object. Use the shortest lanyard practical for the task to minimize swing effect.

(8) **Suspension Trauma.** A person suspended immobile in a harness may experience suspension trauma leading to death in as little as 5 minutes. Whenever a worker is suspended for longer than 5 minutes in an upright posture with legs relaxed straight beneath the body, gravity pulls blood into the lower legs, which have a very large storage capacity. Enough blood eventually accumulates so that return blood flow to the right chamber of the heart is reduced and the heart's output begins to fall. The harness leg straps compound the problem by restricting the flow of blood up to the heart. To minimize the effects of Suspension Trauma, the worker should be trained to try to move the legs in the harness, push against any object, and, if possible, raise the legs to a horizontal position. For prolonged suspension,

a harness with a seat rather than straps alone should be used to help position the upper legs (and lower legs if conscious) horizontally.

3. **Active Fall Protection System Components**

Note: All components must be from one manufacturer unless the Qualified Person determines mixed components are safe to use in writing with supporting calculations and must meet or exceed ANSI Z359.1 “American National Standard Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components.”

a. **Full Body Harness**

(1) The full body harness has been designed to distribute arresting forces over the buttocks and shoulders. Typically, newer harnesses can be worn by men and women alike. The chest strap serves a retainer function and should be worn high on the chest, but under the collarbone.

(2) D-ring locations may vary, so make sure the harness is the correct one for your task.

(3) Most harnesses have the D-ring on the upper back, but for ladder climbing systems the D-ring is located on the chest or rib area. D-rings on the hips are for work positioning and on the shoulders are for retrieval. Long hair may be caught in the D-ring, so the hair must be worn under the hardhat.

(4) The most common misuse of the harness involves failure to connect the leg straps. This is also the most dangerous practice, as slipping through and out of the harness when the actual arresting action takes place is a very real possibility if the leg straps are not connected. The common practice of having loose leg straps is also dangerous, as it can lead to severe contusions to the upper thighs and groin area.

(5) Body belts are not to be used for fall arrest.

(6) Body belts are NOT fall arrest devices! Body belts, waist belts, or safety belts, as they are sometimes called, are only to be used as work positioning supports, that is, when the worker is standing, leaning out, and needs support to hold a position—thus the term “work positioning.”

(7) A single D-ring on the body belt should be positioned in the middle of the waist in front of the body. More commonly, the body belt will have two D-rings to be connected to two lanyards, one from each side, similar to that used for a window washer. Body belts have either a tongue buckle or a friction buckle, both, if worn properly, will support the weight of a worker.

b. **Connectors.**

(1) Two shock-absorbing lanyards, at least one of which is always attached to a secure anchorage, are required for foot travel beyond the limits of a single lanyard when exposed to a fall greater than 6 feet. The use of a positioning device and an additional shock-absorbing lanyard while climbing is also acceptable.

c. **Lanyards**

(1) A lanyard is a short, flexible rope or strap webbing that connects a worker's body harness to an anchorage point or the grabbing device on a lifeline. There is no limit to the length of a lanyard, but lengths of 2, 4 and 6 feet are common to help limit falling beyond a maximum free-fall of 6 feet. The lanyard should be as short as possible, without restricting movement. An adjustable lanyard provides workers with the flexibility to adjust the length of their lanyard to suit any fall arrest application. The design of the adjustable lanyard must allow the user to easily identify the length of the adjustment at a glance through a "tape measure" feature or similar design.

(2) The minimum attachment height should be at or above the D-ring height to ensure the free-fall distance will be less than 6 feet.

(3) Unlike basic cable, web, or rope lanyards, shock-absorbing lanyards not only significantly reduce arresting forces on the body, but also provide a means to determine in-service use. Obvious deformation makes it evident that they have been stressed. All lanyards are to be destroyed and replaced after having been shock loaded.

d. **Y-Lanyards**

(1) A Y-lanyard is two or three lanyards, generally shock-absorption types, connected to a center ring or snap hook that allows workers to move horizontally from one anchorage point to another.

(2) The user must be trained in the use of the Y-lanyard and constantly be aware of the location of both lanyards. There have been several instances of the lanyards becoming entangled or actually causing a fall when they have snagged on an obstruction and thrown a worker off balance.

(3) Do not connect the lanyard to an unauthorized anchorage as travel progresses. Consider a horizontal lifeline system as an alternate solution.

e. **Snap Hooks**

(1) Snap hooks must be of a self-closing and self-locking type. The self-locking gate meets the 3600-pound breakage strength requirements and must not be directly connected to: webbing, rope, or wire rope; horizontal lifelines (a separate ring or carabineer should ride on the horizontal lifeline); or to any object whose shape or dimensions are incompatible with the snap hook such that unintentional disengagement (e.g., roll-out) could occur. A snap hook must not be connected directly to another snap hook.

(2) Snap hooks may only be used with compatible components. Snap hooks are not to be attached directly to cables, ropes, chains, or the lanyard itself—as in looping the lanyard over a pipe and hooking the snap hook on the lanyard—unless approved by the manufacturer. Only approved anchor points must be used to connect to the lanyard snap hook.

4. **Retractable Lifelines**
   a. **Self-retracting (Yoyo) Lanyards (Locking):** Self-retracting lanyards with locking devices are designed to arrest free falls within inches by eliminating the slack inherent in fixed-length lanyards. The Competent Person will determine the free fall distance. One main consideration is that for self-retracting lanyards to be effective overhead installation is required. A major advantage is that arresting forces can be kept to the 650-pound range, almost one-third of that associated with a 6-foot free fall. This system is especially attractive when working near the edge on roofs and when frequent ladder climbs are required. Always be aware when using these devices of the Pendulum Effect. The Pendulum Effect happens when you travel with self-retracting lanyard along a leading edge, away from your anchorage point. Traveling horizontally, away from your anchorage point, can increase your lanyards payout, possibly farther than your calculated fall distance. In this case a lifeline system may be a safer system to utilize.

5. **Lifeline Systems**
   a. Lifeline systems provide a means for connecting components of a personal fall-arrest system to an anchorage. They consist of either:
      (1) A flexible line to hang vertically (vertical lifeline) for connecting to an anchorage at one end
      (2) A flexible line to stretch horizontally (horizontal lifeline) for connecting to anchorages at both ends.
   b. For all lifeline systems, vertical or horizontal, a Qualified Person must approve the anchorages and the selection of the type of lifeline to ensure proper design of the system and must be rated to support a minimum of 5,000 pounds.

6. **Vertical Lifeline Systems**
   a. A vertical lifeline allows the worker to move up and down the entire height of the line rather than having to disconnect and find a new tie-off point on the tower or ladder being climbed. Workers connect to the lifeline by a "rope grab" deceleration device that travels along with the worker as he or she moves higher or lower.
   b. The diameter and composition of the line may vary, but it must have a 5,000-pound breaking strength. Although polypropylene rope is a popular tool, its stretch factor must be taken into account.
   c. The rope grab is a deceleration device that travels on a lifeline and automatically, by friction, engages and locks the lifeline to arrest the fall of the user. A rope grab usually employs the principle of inertial locking, cam/level locking, or both. Rope grabs can be either manual or mobile and must be suited to the lifeline fabric. Squeezing and releasing a locking cam operates the manual grabs. The grab should be located above shoulder height and a short (3-foot) lanyard is recommended to prevent exceeding the 6-foot free fall requirement.

7. **Ladder Safety Devices.**
   a. Ladder safety devices are similar to vertical lifeline systems with the exception that they attach to the front harness D-ring with a 9-inch maximum connector and are limited to 2-foot free falls.

8. **Horizontal Lifeline Systems**

   a. A horizontal lifeline is a flexible line rigged in a horizontal plane and secured at each end to an anchorage. It provides fall protection for work requiring horizontal mobility along elevated surfaces. A worker connects to the line using a personal fall arrest system that moves with the worker between the two anchorages. By providing a sliding connection along the entire walkway, the anchorage is kept overhead, reducing the hazard of dangerous swing falls that can occur if the worker moves to a location where the anchorage is no longer directly overhead.

   b. Horizontal lifeline systems are common in work areas lacking overhead anchor points available for personnel tie-off. In its simplest form, the horizontal lifeline consists of a cable attached to two or more anchor points on a rooftop, crane runway, bridge, outdoor construction site, or any other elevated work area that poses a fall risk to personnel. When used in combination with personal protective equipment, a horizontal lifeline can arrest a fall, limiting the amount of force that is transferred to both the worker and the fall arrest system.

   c. Horizontal lifelines must be designed, installed, and used under the supervision of a Qualified Person, and be part of a complete personal fall arrest system that maintains a safety factor of at least two. Although installing a horizontal lifeline may appear to be as simple as stringing a line between two supports, determining the loads applied to the anchorages and the clearance required below the working surface in the event of a fall can be extremely complicated. In this respect, horizontal lifelines are among the most complex types of fall protection equipment.

9. **Anchorages**

   a. Personal fall protection systems are dependent on an adequate anchor point. Without it, harnesses, lanyards, and shock absorption are useless.

   b. **ONLY ANCHORAGE POINTS IDENTIFIED BY A QUALIFIED OR COMPETENT PERSON ARE TO BE USED**.

   c. Guardrails, handrails, fire sprinkler piping, and roof ducting are NOT acceptable anchorage points. Questions on anchorages should be directed to a Fall Protection Program Competent Person.

   d. Anchorages are to be:

      (1) Independent from the work object whenever possible

      (2) Clearly marked if permanent and identified as approved by a Qualified Person.

      (3) Located at suitable attachment heights

      (4) Of sufficient strength for its intended purpose v.Inspected regularly and before each use

   e. Connecting devices (e.g., shock absorbing lanyards) should be secured above the point of operation to an anchorage or structural member capable of supporting a minimum dead weight of 5,000 pounds per worker and limiting the fall distance to 6 feet or less.

   f. Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds per employee attached, or shall be designed, installed, and used as part of an

engineered personal fall arrest system which maintains a safety factor of at least two; and is performed under the supervision of a qualified person.

10. **Work Planning**
    a. Written work plan is required when a Personal Fall Protection System (PFPS) is to be used. A Competent Person selects the appropriate PFPS equipment for the fall scenario and ensures that it properly fits each user. General work planning guidelines are as follows and are carried out by the Competent Person:
        (1) Determine whether an engineered fall protection system is required. In collaboration with the Qualified Person ensure it is satisfactory (for example, determine whether guardrails or cages are necessary). If an engineered fall protection system is not required, list each fall scenario that workers will be exposed to.
        (2) For each fall scenario, analyze the fall hazards and determine the PFPS components that will be needed.
        (3) Maintain and inspect the PFPS components needed to ensure that equipment is available when needed.
        (4) Determine the worker's vertical and horizontal movement requirements in each scenario.
        (5) Plan the anchoring system. Identify and evaluate the strength of all anchor points.
        (6) Select and obtain the appropriate equipment (e.g., harness, lanyard, or self-retracting lifeline).
        (7) Confirm training status of all users.
        (8) Review the planned work with workers to ensure their understanding of the requirements and approach to the job.
        (9) Review the planned method of a prompt rescue and/or self-rescue system, anticipated time of hanging in the harness, and actions required to minimize suspension trauma.
        (10) All fall arresting, descent control, and rescue equipment shall be approved and used in accordance with the manufacturer's recommendations.

11. **Training and Compliance Documentation**
    a. Where required, Bay City Boiler will utilize safety training programs designed to instruct employees on safe work practices and procedures pertaining to the recognition and elimination of fall hazards. A list of all required safety training and records of that training are maintained by HR Manager. Documentation shall contain employee's name and signature; trainer's name and signature, and dates of training.
    b. Disciplinary actions and retraining will be required when personnel are noted to not understand or not following the requirements in the procedure.

12. **Barricading Work Areas**

All work areas where a risk of falling hazards exist, shall be properly barricaded to prevent personnel

from entering an unsafe area. Barricading tape shall state “Danger” and shall include a sign that states the nature of the overhead hazards and a number to contact for more information.

13. **Fall Protective Systems Shall:**
    a. Limit maximum arresting force on an employee to 1,800 pounds when used with a body harness;
    b. Be rigged such that an employee can neither free fall more than 6 feet, nor contact any lower level, and, where practicable, the anchor end of the lanyard shall be secured at a level not lower than the employee's waist;
    c. Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet; and
    d. Have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of 6 feet, or the free fall distance permitted by the system, whichever is less.

14. **Fall Protection Plan**:
    a. This section applies to all construction operations when it can be shown that the use of conventional fall protection is impractical or creates a greater hazard.
    b. The fall protection plan shall be prepared by a qualified person and developed specifically for the site where the construction work is being performed and the plan must be maintained up to date. The plan shall document the identity of the qualified person. Only one plan needs to be developed where the construction operations are essentially identical.
    c. Any changes to the fall protection plan shall be approved by a qualified person. The identity of the qualified person shall be documented.
    d. A copy of the fall protection plan with all approved changes shall be maintained at the job site.
    e. The implementation of the fall protection plan shall be under the supervision of a competent person.
    f. The plan shall document the identity of the competent person.
    g. The fall protection plan shall document the reasons why the use of conventional fall protection systems (guardrails, personal fall arrest systems, or safety nets) are infeasible or why their use would create a greater hazard.
    h. The fall protection plan shall include a written discussion of other measures that will be taken to reduce or eliminate the fall hazard for workers who cannot be provided with protection provided by conventional fall protection systems. For example, the employer shall discuss the extent to which scaffolds, ladders, or vehicle mounted work platforms can be used to provide a safer working surface and thereby reduce the hazard of falling.
    i. The fall protection plan shall identify each location where conventional fall protection methods cannot be used. These locations shall then be classified as controlled access zones and the employer must comply with the criteria in Section 1671.2(a).
    j. Where no other alternative measure (i.e. scaffolds, ladders, vehicle mounted work platforms, etc.) has been implemented, the employer shall implement a safety monitoring system in conformance with Section 1671.2(b)

k. The fall protection plan must include a statement which provides the name or other method of identification for each employee (i.e., job title) who is designated to work in controlled access zones. No other employees may enter controlled access zones.

l. In the event an employee falls, or some other related, serious incident occurs (e.g., a near miss), the employer shall investigate the circumstances of the fall or other incident to determine if the fall protection plan needs to be changed (e.g., new practices, procedures, or training) and shall implement those changes to prevent similar types of falls or incidents.

15. **Positioning Devices**

a. Positioning devices shall be rigged such that an employee cannot free fall more than 2 feet.

b. Positioning device systems shall be inspected prior to each use for wear, damage, and other deterioration and defective components shall be removed from service.

c. The use of non-locking snap hooks shall be prohibited after January 1, 1998.

d. Anchorage points for positioning device systems shall be capable of supporting two times the intended load or 3,000 pounds, whichever is greater.

14.0 FIRE PREVENTION AND PROTECTIVE SYSTEMS

A. Purpose

This program summarizes the National Fire Protection Association (NFPA), International Fire Code (IFC), International Building Code (IBC) and Cal-OSHA requirements. Any area not specifically covered in this document must be referenced in one of the above standards and will apply as necessary.

B. Roles and Responsibility

Project Management is responsible for implementing and ensuring operation of these preventive and protective systems.

Employees and contractors are required to comply with this program due to the danger of injury or death from fire or fire-related emergencies.

C. Procedure

1. Definitions

a. Area of Refuge - Any area, room or section of a building, which by virtue of its construction will provide a safe area for persons to enter during a fire situation until rescue is made.

b. Authority Having Jurisdiction (AHJ) - Federal, state, or other department having statutory authority.

c. Approved - Used to reference that a procedure, product or equipment has met the safety requirements of a recognized local, state, federal or national safety standard.

d. Automatic - Equipment that functions without human intervention, including automatic detection or suppression systems, automatic alarms, and emergency shutdown devices.

e. Combustible Material - Solid material capable of igniting and burning.

f. Combustible Liquid - Liquids with a flash point of 140º Fahrenheit or above, which are capable of ignition and require a higher degree of heat to produce a fire.

g. Exit - The portion of a means of egress that is separated from all other spaces of the building to provide a protected way of travel to the exit discharge.

h. Exit Discharge - That portion of a means of egress that is separated between the termination of an exit and a public way.

i. Emergency Device - Any type of emergency safety device or equipment, including fire alarm pull stations, fire extinguishers, fire alarms, smoke detectors, fire hydrants, fire department connections, etc.

j. Fire Compartment - A space within a building enclosed on all sides by fire barriers, including the ceiling and floor, able to withstand the passage of fire and/or smoke for a limited time.

k. Flammable Liquid - Liquids that have a flash point of less than 140º Fahrenheit, which will ignite at a low temperature and continue to burn.

l. Hazardous Products/Area - A flammable, combustible, toxic, corrosive, noxious heat-producing product or appliance which could cause ill affects to humans if released in an

uncontrolled amount or manner. A hazardous area is any room or structure in which these products are processed, stored or used.

m. Means of Egress - The direction or way a person would evacuate a building in an emergency.

n. Occupant Load - The maximum number of people who can occupy any given space with sufficient room to move about, complete a function, and/or safely evacuate the building.

o. Self-closing - A device that ensures a door or required enclosure will, when opened, return to the closed and latched position without human intervention, when opened.

p. Special Event - Any event or activity that would not be considered of normal nature to the particular type of business within the facility.

q. Surge Protector - An approved multi-plug extension cord device, which incorporates an on/off switch, built-in fuse, and is Underwriter's Laboratory (UL) or Factory Mutual (FM) tested.

2. General Guidelines

a. Employees must all work together to prevent conditions and situations that may cause fires to start.

b. The best way to avoid a fire is to be knowledgeable in the recognition and prevention of fire hazards.

c. Each employee that is required to extinguish incipient fires shall attend fire extinguisher initial response awareness training at least once each calendar year.

d. Smoking is allowed only in designated smoking areas.

e. Work on electrical wiring or electrical equipment is permitted only by a qualified person.

f. Extension cords are permitted to be used:

   i. For temporary use only, i.e. 90 days or less;

   ii. On non-heat producing devices;

   iii. In one continuous length, i.e. Cords may not be connected, “piggy backed” or spliced together;

   iv. As temporary wiring for holiday displays, artwork or vendors at special events provided they meet the requirements above.

g. Extension Cords are NOT permitted to be used:

   i. As permanent wiring;

   ii. For use on heat producing or high voltage devices such as heaters, coffee pots, high wattage lamps, refrigerators, microwave ovens, etc.;

   iii. When the use will cause a tripping hazard for normal traffic or emergency evacuation;

   iv. When fire barriers or fire rated walls are breached to run the wiring, unless the hole is properly fire-stopped and the wire properly enclosed in the appropriate conduit;

   v. When the cord shows signs of wear, defects, bulging, exposed wire or other damage; and/or

   vi. In corrosive areas or near any substance which would deteriorate the cord

h. Electrical Panels MUST:

   i. Be unobstructed for 36” in front of and in all directions around the panel for access;

ii. Have the panel cover and panel door securely in place and closed;
iii. Have all breakers and main switches clearly marked as to the equipment/area they control; and/or
iv. Be identifiable as an electrical panel. Do not cover or paint electrical panels to match the wall, etc.

i. Electrical Panels MUST NOT:
   i. Have the breakers taped or otherwise secured in the "on" position;
   ii. Have any work performed on the panel unless the work is approved and monitored by a qualified electrician

j. Outlets Must:
   i. Have the cover plate securely fastened to the outlet box;
   ii. Be replaced when broken;
   iii. Have an approved cover;
   iv. Be clear of combustible items such as trashcans, boxes of papers, etc., kept at least two (2) feet from either side of the outlet

k. General Storage
   i. Is designated as any room used for the general storage of ordinary combustibles for temporary, long-term, or permanent storage.
   ii. Combustible materials must be separated from more hazardous materials such as flammables, corrosives, explosives, oxidizers, etc.
   iii. Stored materials must be kept at least three (3) feet from any heat source.
   iv. Aisles in any room used for storage must have a minimum two (2)-foot width to allow for evacuation and for firefighters to gain access to the most remote area of the room.
   v. Storage must not block fire extinguishers, fire alarm pull stations, emergency or exit lighting, access to evacuation routes, exit doors, emergency equipment, or entry of emergency personnel.
   vi. Storage under stairwells serving as a component of the fire exit is not permitted.
   vii. Doors to storage rooms must remain closed except when entering or leaving the room.

l. Flammable Storage Requirements
   i. Flammable materials must be stored in approved cabinets.
   ii. Never store anything but approved flammable materials in flammable storage cabinets.

m. Hazardous Materials Storage
   i. Because hazardous materials may produce toxic vapors as well as react with other materials in a fire to create a fast moving or explosive situation, storage must be strictly controlled and meet all federal, state and local regulatory requirements.

3. Fire Detection, Alarms, & Suppression Systems

a. Management shall ensure that all installed fire detection/suppression systems are in good functional working condition.

b. All employees must be aware of the type of fire alarm systems present in the building.
c. Employees working on site will be trained how to appropriately react to alarm conditions.
d. Installed systems will not be tampered with in any way. Tampering is considered a criminal act by NFPA standards under state laws.
e. No part of the system may be obstructed at any time. Obstruction includes:
    i. Fire alarm pull stations must have a two (2)-foot clearance in all directions
    ii. Fire alarm bells/horns/strobes may not be visually blocked or muffled
    iii. Smoke/heat/beam detectors may not be covered unless specifically permitted
    iv. Storage may not come within 18" of sprinkler heads
    v. Renovations that affect the operation of any system must be approved by management
    vi. Nothing may be hung from or wrapped around any system device or piping;
    vii. Fire department connections must not be obstructed at any time
f. False Alarm (accidental activation) – Any operation that would/could activate the system must be identified and preventive measures taken to prevent false alarms. Such operations include but are not restricted to:
    i. Welding or other heat producing work around sprinklers and/or heat detectors;
    ii. Sanding or other work around smoke detectors that would create a dust;
    iii. Use of smoke producing devices that could set off smoke detectors;
    iv. Steam cleaning or spray painting that could set off detectors; and/or
    v. Use of open flames near any heat or smoke-sensing device
g. Only authorized and designated contractors may conduct testing, maintenance or repair of Fire/Life systems.

4. Parking, Fire Lanes and Emergency Access

a. Fire Lanes – Fire lanes must not be blocked at any time.
b. Parking – Vehicles must not park in front of any facility in such a way that it will prevent emergency responders from reaching the building. Gasoline or diesel fuel fired vehicles of any kind or size are prohibited inside any building.
c. Emergency Access – Fire hydrants, fire department connections, or other emergency equipment must not be obstructed at any time. Parking is prohibited within 15 feet of a fire hydrant or other fire department connection.
d. Emergency Vehicle Response – All vehicles will, when an emergency vehicle approaches from any direction, immediately pull over to the right side of the road to allow the vehicle to pass.

5. Fire and Smoke Rated Doors

a. Fire and Smoke Rated Doors are equipped with a self-closing device installed to keep fire from spreading throughout a building.

b. Blocking doors – Blocking fire doors open allows smoke and fire with an uncontrolled avenue through the building.
c. Fire/smoke rated doors will not be blocked open.
d. The self-closing devices may not be disconnected or rendered inoperable.
e. "Door chocks" or "foot stops" may not be installed on any fire rated door.
f. Furniture, appliances, etc. may not be used to block the door open.
g. Obstructions that will prohibit fire/smoke rated doors from closing and latching without human intervention are not permitted.

6. Corridors, Egress Routes, Exit Doors

a. In an emergency, the safe evacuation of personnel from a building or facility is the primary purpose of emergency alarms, corridors, egress routes and exit doors. To accommodate the safe evacuation of personnel, all corridors, hallways and exits are designed and constructed to allow people to leave the building in the safest and quickest way possible.
b. Obstructions
    i. No corridor, aisle way or component of a means of egress may be obstructed.
    ii. Furniture in lobbies must not obstruct the minimum width of egress and must be arranged so there is a direct path through the lobby to the exit.
    iii. Wires, cables or extension cords may not be laid across corridors, aisles or pathways.
    iv. Exit doors must remain unlocked during hours in which the building is occupied.
c. Minimum widths (which must be increased accordingly with the number of occupants) range from 18” between desks to 44” for corridors to several feet wide for buildings with large crowds.
d. Furniture, artwork, wall hangings, statues, etc., which protrude from the walls may not obstruct the minimum width nor present a tripping or other safety hazard.
e. Minimum aisle widths must be maintained at all times.
f. Minimum ceiling height in exit passageways is 7’6”.
g. Lights, decorations, signs or any other item hung from the ceiling generally may not be lower than 6’8”.
h. Wires or cables hung from the ceiling must not present a safety hazard, such as snagging equipment being transported through the corridor.
i. Items NOT permitted in corridors:
    i. Flammable storage cabinets of any size;
    ii. Compressed gas bottles of any size;
    iii. Carts, cabinets, shelves or other items on which combustibles or flammables are likely to be stored;
    iv. Chemicals, munitions, pyrotechnics or any other hazardous material;
    v. Any item that will impede on the normal or emergency flow of traffic or will obstruct any emergency device;
    vi. Portable heaters, coffee pots, food warmers, or other devices that may present a hazard;
    vii. Unprotected high voltage, any electrical or gas-powered equipment.

7. Fire Extinguishers

a. The type of extinguishers (A, B, C, D) size and locations in the facility will be determined by using the following factors:
   i. The type of hazard (combustibles, flammables, electrical hazards, chemicals, etc.).
   ii. The amount of combustibles and/or flammables in the area.
   iii. The best agent to be used on the hazard(s) (i.e., water, dry chemical, carbon dioxide, or other agent).

b. The extinguisher will be located at or near the exits in the normal path of travel to the exit.

c. The travel distance to reach an extinguisher will be no further than 75 feet.

d. The extinguisher will normally be clearly visible and identifiable. When this is not possible, appropriate signage will be posted directing the occupant to the location.

e. The extinguisher must remain located in its designated location.

f. Never remove a fire extinguisher for use as a doorstop, to cover a welding operation, for a barbecue, etc. Procure an additional extinguisher when need arises.

g. The extinguisher must not be hung higher than five (5) feet from the floor or lower than four (4) inches off the floor.

h. Inspection - each extinguisher visually at least once per month to include:
   i. Ensuring the extinguisher is at its designated location;
   ii. Checking the pressure on the gauge (tamper seal on C02 extinguishers);
   iii. Checking to see that the safety pin is in place and sealed;
   iv. Checking the extinguisher for any obvious physical damage;
   v. Document the inspections.

i. Maintenance will ensure periodic maintenance and testing of all fire extinguishers to include:
   i. Annual inspection;
   ii. Hydrostatic testing on a periodic basis (5-12 year cycles);
   iii. Repair of damaged extinguishers;
   iv. Recharging of extinguishers; and/or
   v. Replacement of unusable extinguishers.

j. Operation of extinguishers (training is required). There are four basic steps to using an extinguisher. The acronym PASS is used:
   i. Pull - the safety pin from the handle. Break the plastic seal.
   ii. Aim - the extinguisher at the base of the flame.
   iii. Squeeze - the handle all the way down to release the agent.
   iv. Sweep - the agent across the fire with a side-to-side motion.

8. Post Extinguisher Use

a. Never put an extinguisher back in its place after activating or extinguishing a fire. If an extinguisher has been discharged (even for only a few seconds), if the seal has been broken,

or if it is damaged in any way, immediately report the extinguisher's location to management.

9. Firefighting

a. There is no code, standard, policy, state law or other legal document that states that a person discovering a fire is legally bound to attempt to extinguish it. However, in most cases, when a fire is discovered, it is usually in its incipient stage and can be easily extinguished. It is highly recommended that this be considered when a fire is discovered. The following is a brief way to decide when to attempt extinguishment. The key to this is proper training.

b. **Fight the fire IF:**

i. The building occupants have already been notified to evacuate
ii. Fire Department has been notified of the emergency (by calling 911);
iii. The fire is small enough to be extinguished with a portable extinguisher;
iv. You have a clear path to the exit;
v. Someone knows you are attempting to extinguish the fire;
vi. You have been trained in the use of a fire extinguisher.

c. **Do not fight the fire IF:**

i. The fire appears to be too large to extinguish with one attempt;
ii. You must pass through the smoke to reach the fire;
iii. You must shield yourself to reach the fire;
iv. The fire could cut off your path of egress;
v. You think there may be explosive, reactive or toxic products burning;
vi. You have not been properly trained to extinguish the fire.

End of Shift- After Hours

It is important to ensure that when you leave for the day or shift, no potential fire hazard is left behind. The following is a short list of common items that should be checked before leaving the facility.

a. Unplug all heat-producing devices such as coffee pots, toasters, heaters, etc.
b. Turn off all electrical equipment that does not require continuous power.
c. Turn off all unnecessary lighting. If lighting is required for security, ensure that no combustibles are stored near or attached to the lighting.
d. Ensure that all trashcans are emptied regularly.

D. Training and Documentation

1. Training in the use of fire extinguishers shall be provided when the employee is first assigned or given new duties covered in this guideline or upon detection of inadequacies in the employee's knowledge or use of this program.
2. Training shall establish employee proficiency on an annual basis.
3. Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates training occurred.

15.0 FITNESS FOR WORK

A. Purpose

This program seeks to ensure that employees are physically capable to perform the tasks required to work at any facility or work site.

B. Roles and Responsibility

All employees including management are expected to comply with this policy in order to perform their tasks in a reliable manner, not under the influence of any substance, legal or illegal, that may impair their ability to safely perform their duties.

C. Procedure

1. Employees are expected to report for work without physical or mental impairment that may endanger themselves or their fellow workers.
2. Bay City Boiler requires a Drug and Alcohol-free workplace at all times.
3. Employees may be subject to drug and alcohol screening based on suspicion or after a serious injury or incident.
4. Employees must notify their supervisor if they are taking prescription or over-the-counter medication that may impair his/her ability to work safely or operate equipment in a safe manner.
5. Employees are expected to maintain themselves in safe and healthful condition throughout their work shift. To ensure a safe worksite, Supervisors are required to monitor employee behavior on a routine basis.
6. If an employee is observed to be acting in an impaired or otherwise unsafe manner, the circumstances should be reported to a supervisor as soon as possible.
7. If a supervisor is observed acting in an impaired or otherwise unsafe manner, the circumstances should be reported to your supervisor, or management if it is your supervisor.
8. Following any incident, if an employee went to a medical facility or hospital for treatment, a return to work order from the treating physician is required.
9. If any employee presents a return to work doctor's order which includes any modified duty requirements, contact management for further direction.
10. If any employee presents a return to work doctor's order from a non-work related incident which includes any modified duty requirements, contact management for further direction.
11. Employees are required to notify their supervisor if they are fatigued to the point of not being able to perform their duties safely.

D. Training and Documentation

1. All new employees shall receive training in this policy.
2. This policy shall be reviewed annually.
3. Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training.

16.0 HAZARDOUS MATERIALS EXPOSURE CONTROL – REGULATED CHEMICALS

A. Purpose

This program establishes an employee hazardous materials exposure control program applicable to all facilities and worksites.

B. Roles and Responsibility

1. Site Management is responsible for this written exposure control plan for the specific hazards at each site.
2. Site management shall implement effective engineering controls to eliminate or reduce exposure to the chemicals listed to levels that are as low as reasonably achievable. At a minimum, management shall assure that no employee is exposed to concentrations greater than the Cal-OSHA required Permissible Exposure Limit (PEL).
3. When feasible engineering controls are not effective for exposure control, employees will be provided appropriate Personal Protective Equipment (PPE) and respiratory protection equipment provided by the company at no charge.
4. All employees shall be made aware of and comply with the proper procedures for regulated chemicals exposure control.

C. Procedure

Each regulated material exposure control plan shall include:

1. Employee Information and Training
2. Contaminant Specific Hazard Communication
3. Exposure Assessment
4. Monitoring Observation Procedures
5. Engineering and Work Practice Controls
6. Respiratory Protection
7. Protective Work Clothing and Equipment
8. Housekeeping
9. Hygiene Facilities and Practices
10. Medical Surveillance

D. Training and Documentation

1. New chemicals introduced to the site will be evaluated by project management for the applicability and necessity of an exposure control plan according to this procedure.
2. Training shall be provided when the employee is first assigned or given new duties covered in this plan or when there are deviations from the plan.
3. Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training.

17.0 HAZCOM - HAZARD COMMUNICATION PROGRAM - GHS COMPLIANCE

A. Purpose

This program describes how all employees will be informed about the hazardous chemicals to which they are, or may be, exposed at the site. This standard is commonly known as the "Right to Know Law." Compliance is accomplished through training, updating existing MSDS with SDS's and providing a Safety Data Sheet, or SDS's, for reference on the safe handling and use of all chemicals, the use of labels on containers, known hazardous chemical inventories, and employee training programs.

B. Roles and Responsibility

Site Supervisor is responsible for implementing and maintaining this program and ensuring employees are trained in proper mitigations and PPE use for all chemical hazards that they are exposed to, on all projects.

C. Procedure

1. All SDS must contain the minimum requirements as outlined in the GHS requirements of the Hazard Communication Standard, and include:

   Information in the SDS should be presented using the following 16 headings in the order given below:

   a. Chemical identification
   b. Hazard(s) identification
   c. Composition/information on ingredients
   d. First-aid measures
   e. Fire-fighting measures
   f. Accidental release measures
   g. Handling and Storage
   h. Exposure controls/personal protection
   i. Physical and chemical properties
   j. Stability and reactivity
   k. Toxicological information
   l. Ecological information
   m. Disposal considerations
   n. Transport information
   o. Regulatory information
   p. Other information
2. All SDS are maintained on file in the office or vehicle for all employees to access.
3. An SDS shall be requested and received from any manufacturer or distributor when ordering a chemical product.
4. When an SDS arrives on site, the SDS shall be reviewed to ensure that it is the most recent issue. The SDS shall be marked with the date that the material was received. A copy of all SDS shall be maintained in the master SDS file.

5. Chemicals shall not be brought into the workplace until the accompanying SDS has been received.
6. Any new hazardous materials brought onto the site must be reviewed by the site supervisor for potential employee exposure to hazardous substances, especially carcinogenic and extremely hazardous chemicals, and conduct routine audits to ensure labeling compliance.
7. All hazardous materials brought onsite must be labeled to include:
   a. **Signal words**

      A word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. Signal words used in GHS are “Danger” and “Warning.” Danger is for the more severe hazard categories. Signal words are assigned to each hazard category.

   b. **Hazard Statements**

      A phrase assigned to a hazard class and category that describes the nature of the hazards of a hazardous product, including when appropriate, the degree of the hazard.

   c. **Precautionary statements**

      Phrase and/or pictogram that describes the recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous product. GHS label should include appropriate precautionary information, the choice of which belongs to the labeler or competent authority.

   d. **Product Identifier**

      Product identifier must match product identifier used on the SDS. If mixture is covered by UN Model regulations for transport of Dangerous goods, UN proper shipping name should also appear on package and include the chemical identity of the substance. For mixtures and alloys, label should include chemical identities of all ingredients or alloying elements that contribute to acute toxicity, skin corrosion or serious eye damage, germ cell mutagenicity, carcinogenicity, reproductive toxicity, skin or respiratory sensitization, or specific target organ toxicity (STOT).

   e. **Supplier identification**

      Name, address and telephone number of the manufacturer or supplier of the substance or mixture should be provided on the label.

8. Employees, and their designated representatives, shall be informed of the requirements of this hazard communication standard and a copy made available to them and/or their representatives, including:
   a. A listing of chemicals and SDS for the hazardous chemicals to which they may be exposed prior to starting tasks,
   b. Methods and observations that may be used to detect the presence or release of a chemical in the workplace,
   c. Physical and health hazards of the chemicals in the work area,
   d. Measures employees can take to protect themselves from chemical hazards including specific procedures implemented to protect employees from exposure to hazardous chemicals,
   e. Labeling information and how to use the appropriate hazard information to protect them from chemical exposure,
   f. Preventing exposure for non-routine tasks.

D. Training and Documentation

1. Training shall be provided to all new employees or newly assigned employees and annually thereafter.
2. Training shall be provided whenever inadequacies in the employee's knowledge or use of this program are identified or when new chemicals or hazards are introduced.
3. Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training.

18.0 HEARING CONSERVATION PROGRAM (HCP)

A. Purpose

This program established minimum requirements for employee hearing protection and applies to any employee who is exposed to an 8-hour time-weighted average (TWA) of 85 decibels (dba) or greater, in accordance with Title 8, Subchapter 7, General Industry Safety Orders, Group 15. Occupational Noise, Article 105.

B. Roles and Responsibility

Project management is responsible for implementing and maintaining this Hearing Conservation Program.

C. Procedure

1. A complete and up-to-date noise survey must be on file.
2. Hearing protectors must be made available at no cost to all employees exposed to 85 dba TWA or greater.
3. Use of hearing protectors is mandatory in all designated work areas.
4. Employees should be given the opportunity to select their hearing protectors from a variety of suitable types provided by the Company.
5. Employee must receive training in the care and use of the hearing protectors.
6. The employer must ensure proper fitting and correct use.
7. Hearing protectors must adequately reduce the workplace noise exposure of each employee.
8. Project Management shall perform evaluations on hearing protection equipment which is in use by employees. Effectiveness, fit and comfort shall be evaluated annually.
9. Monitoring must be repeated whenever there is a change in the processes, equipment or controls which affects the hearing conservation program or hearing protection policies.
10. Employees must be informed of the results of any noise monitoring conducted using standard industrial hygiene methods.
11. If required, audiometric testing must be provided at no cost to employees.
12. If required for the work performed, a baseline audiometric testing, conducted after 14 hours of quiet, must be obtained within 60 days of hire.
13. Employees in the HCP must be tested at least annually thereafter.
14. Each employee's audiogram must be compared to their own baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred.
15. If the annual audiogram shows a standard threshold shift, the following actions are required:
    a. Counsel and inform the employee in writing of the threshold shift in writing within 21 days of receipt of the report.
    b. If the employee is currently wearing protection that does not offer adequate protection, then different protective devices with greater noise reduction must be provided.

D. Training and Documentation

1. Records of employee exposure measurements must be maintained for at least two years.
2. Audiometric test records must be maintained for the duration of the affected employee's employment.
3. Appropriate records of testing and follow-up must be retained.
4. Records must be provided upon request to current and former employees, representatives designated by the employee, and any OSHA representative.
5. Employee audiograms must include the following:
   a. Employee name and job classification.
   b. Date of the audiogram.
   c. The examiner's name.
   d. Date of the audiometer calibration.
   e. Employee's most recent noise exposure assessment.
6. Annual Hearing Conservation Training includes:
   a. The effects of noise on hearing.
   b. The purpose of hearing protectors.
   c. The advantages, disadvantages, and attenuation of various types of hearing protectors.
   d. Instructions on hearing protector selection, fitting, care, and use.
   e. The purpose of audiometric testing, with an explanation of the test procedures.
7. Records must be provided upon request to current and former employees, representatives designated by the employee, and any OSHA representative.

19.0 HEAT ILLNESS PREVENTION PROGRAM (HIPP)

A. Purpose

This program is intended to reduce and control the hazards associated with temperature extremes in the workplace, preventing heat related illnesses and ensuring employees plan for working outdoors in elevated temperatures.

B. Roles and Responsibility

1. The direct supervising employee, (Manager, Supervisor, Lead, Supervisor, Foreman) is responsible for implementing this program in the field.
2. Management is responsible for ensuring this program is kept up to date, implemented as required, employees are trained in its contents, and all employees comply with the contents of this program.

C. General Procedures

1. Employees shall be trained in awareness of the early warning signs of heat related illnesses such as heat rash, heat cramps, heat exhaustion and heat stroke.
2. Supervisors shall observe employees to ensure fitness to work in elevated heat conditions that exceed 80 degrees Fahrenheit. Conditions to observe include consideration of age, weight, physical fitness, metabolism, alcohol or prescription drug use, work hours, general medical conditions including medical restrictions.
3. An adequate supply of suitably cool water, which at a minimum is one quart of water per person, per hour, will be made available to employees, by their supervisor, on each project. Each project supervisor is responsible to maintain an adequate supply of drinking water to ensure a minimum of 1 quart of water, per hour, per employee, is always available and in close proximity to the working area.
4. Supervisors are required to remind employees to drink plenty of water throughout the work shift.
5. Water shall be fresh, pure, suitably cool, and provided to employees free of charge, and located as close as practicable to the areas where employees are working, in order to encourage workers to drink water often and avoid interrupting their work in order to do so. To ensure that water is fresh, pure, and suitably cool, Cal/OSHA advises employers and supervisors to visually examine the water and pour some on their skin.
6. Ensuring adequate drinking water supplies are available for all personnel is the responsibility of each project's supervisor.
7. Supervisors must take inventory of available drinking water and ice daily, before the crews are dispatched, to ensure adequate supplies are available for the entire team to complete that days' work.
8. A pallet that contains 40, 40 bottle cases of water is always available at the Bay City Boiler Dispatch Office, where work is dispatched from daily. A large ice machine, with plastic bags, is also available in order to provide adequate ice to properly cool drinking water.
9. Supervisors and the Construction Assistant carry spare cases of water in their vehicles at all times and check-in with each crew to replenishment supplies as needed. In addition, any supervisor, crew leader or employee can call dispatch to have more water and ice delivered to the site as needed.

10. Supervisors are required to check with dispatch every morning to verify expected temperatures for the area(s) they will be working that day.
11. Dispatch personnel will contact the National Weather Service (www.nws.noaa.gov) the day before to determine forecasted highs for every location personnel are working the next day.
12. Any work conducted in a region where weather is expected to reach 80 degrees will trigger the requirements outlined in this HIPP. Forecast of temperatures that reach or exceed 95 degrees will trigger the high heat requirements in this HIPP.
13. Electrolyte replacement drinks should be made available on site when temperatures exceed 95 degrees Fahrenheit.
14. Acclimatization to elevated heat conditions must be considered for new employees to ensure their body's adaptation to the heat occurs gradually over a period between four to fourteen days.
15. When working near sources of radiant heat, shields or barriers of radiant-reflective or heat-absorbent should be placed between the source and the employee as a mechanism to reduce heat exposure.
16. When possible, a heat source shall be isolated by turning it off.
17. During high heat episodes, the substitution of mechanical means to perform a specific job application shall be incorporated whenever possible.
18. When the outdoor temperature in the work area exceeds 80 degrees Fahrenheit, the supervisor shall have and maintain one or more areas with shade at all times while employees are present that are either open to the air or provided with ventilation or cooling. The amount of shade present shall be at least enough to accommodate the number of employees on recovery or rest periods, so that they can sit in a normal posture fully in the shade without having to be in physical contact with each other. The shaded area shall be located as close as practicable to the areas where employees are working.
19. Employees may request shade when temperatures are below 80 degrees and that shade shall be provided as requested.
20. Employees shall be allowed and encouraged to take a cool-down rest in the shade for a period of no less than five minutes at a time when they feel the need to do so to protect themselves from overheating. Access to shade shall be permitted at all times.
21. 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, the supervisor shall provide for appropriate first aid and/or emergency response actions.
22. Employees shall be educated in and encouraged to use breathable layers of clothing.
23. Should job tasks require the use of impermeable protective clothing, such as Tyvek, the use of auxiliary cooling systems may be required.
24. When conditions allow and conditions warrant, physical work activities should be scheduled in the early morning hours.
25. A work/rest regime may be required in situations where engineering and other controls are not adequate and will require the monitoring of the ambient temperature and the employees' physical condition, including heart rate.
26. **High-Heat Procedures.** Supervisors shall implement high-heat procedures when the temperature equals or exceeds 95 degrees Fahrenheit. These procedures shall include the following to the extent practicable:

a. Conduct a daily pre-shift meeting with employees to discuss high-heat procedures that are designed to prevent heat illness and to document communication of heat illness prevention techniques that must be followed.
b. Designating one or more employees on each worksite as authorized to call for emergency medical services and allowing other employees to call for emergency services when no designated employee is available.
c. Reminding employees throughout the work shift to drink plenty of water.
d. Ensuring that effective communication by voice, observation, or electronic means is maintained so that employees at the work site can contact a supervisor 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.
e. Observing employees for alertness and signs or symptoms of heat illness.
f. Reminding employees throughout the work shift to drink plenty of water.
g. Close supervision of a new employee by a supervisor or designee for the first 14 days of the employee's employment, unless the employee indicates at the time of hire that he or she has been doing similar outdoor work for at least 10 of the past 30 days for 4 or more hours per day.

D. Training and Documentation

1. **Employee Training**. Effective training shall be provided to each supervisory and non-supervisory employee before they begin any work scope that would reasonably be anticipated to result in exposure to the risk of heat illness.
2. Re-training shall be provided whenever inadequacies in the employee's knowledge or use of this program are identified.
3. Documentation shall contain employee's name and signature; the name and signature of the trainer, and the dates of training.
4. Training shall include:
   - The contents of this HIPP.
   - The environmental and personal risk factors for heat illness, as well as the added burden of heat load on the body caused by exertion, clothing, and personal protective equipment.
   - The importance of frequent consumption of water.
   - The importance of acclimatization.
   - The different types of heat illness and the common signs and symptoms of heat illness.
   - The importance to employees of immediately reporting symptoms or signs of heat illness in themselves, or in co-workers.
   - Procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary.
   - 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.

E. Supervisory Training.

1. The contents of this HIPP.
2. The procedures the supervisor is to follow to implement the applicable provisions in this section.
3. The procedures the supervisor is to follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures.
4. How to monitor weather reports and how to respond to hot weather advisories.
5. The environmental and personal risk factors for heat illness, as well as the added burden of heat load on the body caused by exertion, clothing, and personal protective equipment.
6. The importance of frequent consumption of water.
7. The importance of acclimatization.
8. The different types of heat illness and the common signs and symptoms of heat illness.
9. The importance to employees 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.
10. Procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary.
11. 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.

Specific Heat Illness Procedures:

F. Procedures for Responding to Heat Illness Symptoms.

1. When a victim experiences symptoms of heat illness the supervisor must be immediately notified. If an employee exhibits or complains of any sign or symptom of heat illness, first-aid procedures should be initiated without delay.
2. Progression to more serious illness can be rapid, and can include altered coordination and speech, mental confusion, unusual behavior, nausea, vomiting, hot dry skin, unusually profuse sweating, loss of consciousness, and seizures.
3. The affected employee may be unable to self-diagnose these problems. If heat illness is suspected, emergency medical personnel should be contacted immediately.
4. No employee with signs or symptoms of heat illness should be left unattended or sent home without being offered on-site first aid or provided emergency medical services.

G. Heat Related Illnesses and Required Response:

Sunburn - Symptoms of sunburn usually include redness and pain. In severe cases there may be swelling of skin, blisters, fever and headaches. Response and treatment include:

1. Use ointment for mild cases of blisters.
2. If the blisters break one should apply dry sterile dressing.
3. A physician should be seen for extensive cases.

H. Heat Rash

This form of heat illness is one of the most common problems in hot work environments. Symptoms generally include red clusters of pimples or small blisters on the neck and upper chest.

1. Keep the affected area dry.
2. Avoid using ointments or creams- they may make the condition worse.

I. Heat Cramps

The victim will feel muscle pains or spasms, usually in the abdomen, arms or legs.

1. Stop all activity and sit in an air-conditioned or shaded area.
2. Drink cool water, clear juices or sports drinks.
3. Seek medical attention if cramps continue.

J. Heat Exhaustion

Symptoms of heat exhaustion may include heavy sweating and weakness, a fast and weak pulse rate, nausea, fainting or vomiting.

1. Stop all activity and get into an air-conditioned or shaded area.
2. Lie down and loosen clothing.
3. Drink cool, not iced, water or sports drinks.
4. Cool the person by spraying or sponging him or her with cool water and fanning.
5. Monitor the person carefully. Heat exhaustion can quickly become heatstroke. If fever greater than 102° F, fainting, confusion or seizures occur, call 911 for emergency medical assistance.

K. Heatstroke or Sunstroke – Symptoms

Symptoms of heatstroke may include high body temperature (106°F or higher), hot dry skin, unconsciousness or convulsions.

1. Stop all activity and get victim into an air-conditioned or shaded area.
2. Call for 911 for emergency medical assistance and assign responsibility of an individual to meet responders and guide them to the victim.
3. Do not give anything by mouth (even water).
4. Cool the person by spraying or sponging him or her with cool water and fanning.
5. Standby until emergency medical assistance arrives.
6. If the victim is hospitalized the supervisor must immediately notify Cal-OSHA.

L. Post Heat Illness Incident Procedure

1. Once the employee has been treated, the supervisor should conduct refresher training on Heat Illness Prevention for all employees on site and document all employees understand the cause and effect of heat illness, before allowing work to restart.
2. The supervisor must ensure that other employees are not at risk of heat illness before allowing work to restart.
3. The supervisor must immediately contact management to conduct an incident investigation to understand how the heat illness occurred and develop measures to prevent recurrence.

M. Water Requirements

1. Fresh and pure, suitably cool water must be fit to drink (i.e., potable) and free from odors that would discourage workers from drinking the water.
2. If an employer supplies individual water containers, the containers must be clean, and a source of potable water must be readily available.
3. Water from non-approved or non-tested water sources (e.g., untested wells) is not acceptable.
4. If hoses or connections are used, they must be governmentally approved for potable drinking water systems, as shown on the manufacturer's label.
5. **Suitably Cool:** The water must be cooler than the ambient temperature but not so cool as to cause discomfort.

N. Shade Requirements

1. The trigger temperature for shade being present is 80 degrees Fahrenheit. When temperatures exceed 80 degrees, shade structures must be erected if no other shade is readily available. Even if temperatures do not exceed 80 degrees, shade must still be available in case an employee requests it.
2. Shade shall be present when the temperature exceeds 80 degrees Fahrenheit. When the outdoor temperature in the work area exceeds 80 degrees Fahrenheit, the supervisor shall have and maintain one or more areas with shade at all times, while employees are present, that are either open to the air or provided with ventilation or cooling.
3. The amount of shade present shall be at least enough to accommodate the number of employees on recovery or rest periods, so that they can sit in a normal posture fully in the shade without having to be in physical contact with each other.
4. The shade shall be located as close as practicable to the areas where employees are working.
5. The amount of shade present during meal periods shall be at least enough to accommodate the number of employees on the meal period who remain onsite.
6. Recovery and rest periods are required under Industrial Welfare Commission wage orders and enough shade must be provided that will accommodate all of the employees who are on such a break at any point in time.
7. Supervisors must rotate the breaks among employees to ensure all employees get rest and recovery breaks out of the sun.
8. Supervisors may need to rotate employees in and out of meal periods, as with recovery and rest periods, in order to meet the requirements of this policy.
9. An employee may opt to take a "preventative cool-down rest" in the shade to help the body relieve excess heat. It is crucial that employees not be rushed while taking the cool-down rest.

O. High Heat Specific Procedures

1. During periods of high heat, it is crucial that employees be monitored for early signs and symptoms of heat illness.
   a. When the temperature equals or exceeds 95 degrees, supervisors must provide one 10-minute "preventative cool-down rest period" every 2 hours. During the first 8 hours of a shift, the cool-

down periods may be provided at the same time as the rest periods already required by Industrial Welfare Commission Order No. 14.

b. If employees work longer than 8 hours, the supervisor must provide an additional 10-minute cool-down rest period every 2 hours.

c. Supervisors must ensure that employees actually take the cool-down rest periods required under this section. Merely offering the opportunity for a break is not enough.

2. When employees work in small groups of no more than 20 workers, direct observation by a supervisor or designee may be sufficient.

   a. When there are too many employees to allow direct observation, the employer may use the buddy system and pair up employees.

   b. With the buddy system, the supervisor is responsible to require the employees to stay in contact, observe each other throughout the day, and immediately report any signs or symptoms of heat illness.

   c. For employees who are required to work alone, the supervisor must ensure communication with the employee by radio, text or cell phone in locations where there is adequate coverage. The employee must be contacted regularly and as frequently as possible throughout the day, since an employee in distress may not be able to summon help on his or her own.

   d. Whatever method is used, the supervisor must be able to ascertain the condition of employees at regular intervals and provide emergency services when an employee reports symptoms of heat illness or is unable to respond.

   e. Pre-shift meetings are required when temperatures are expected to reach or exceed 95 degrees Fahrenheit. Pre-Shift meetings are required to briefly remind supervisors and employees to review high-heat procedures.

   f. Topics that should be covered in high-heat pre-shift meetings include staying hydrated, taking preventative cool-down rests, water location and supply, physical location of job to give to emergency responders, identifying phone numbers to call and who is responsible for calling emergency medical services if heat illness is suspected.

P. Emergency Response Procedures

1. Emergency medical services must be provided as quickly as possible if an employee suffers from or is suspected of suffering from heat illness. Pre-established emergency response procedures will be required at any remote work sites or at work sites where access is difficult or new with a non-established (Internet based maps) physical address.
2. If employees cannot reach emergency medical services directly (because cell phone coverage is inadequate, for example), the employer must designate a person who can immediately contact emergency services on behalf of the employees. The employees must be able to reach this person quickly (such as by radio or land line), to request that emergency medical services be summoned. If, however, employees are able to contact emergency medical services directly, they must be allowed to do so in an emergency and not be required to contact a supervisor first.

3. Emergency procedures must include immediate steps to keep a stricken employee cool and comfortable once emergency service responders have been called. When necessary, employers must be prepared to transport employees safely to a place where they can be reached by an emergency medical provider.
4. Mobile crews must be provided with a map of their location or detailed directions that can be given to emergency responders.

Q. Acclimating Employees

1. Acclimatization is a process by which the body adjusts to increased heat exposure. The body needs time to adapt when working in hotter environments.
2. Employees are more like to develop heat illness if not allowed or encouraged to take it easy when a heat wave strikes or when starting a job that newly exposes them to heat.
3. Acclimatization is fully achieved in most people within 4 to 14 days of regular work involving at least 2 hours per day in the heat.
4. During heat waves and with new employees, supervisors must be extra vigilant to prevent heat illness.

a. A supervisor or their specified designee must closely observe employees in a concerted effort to prevent heart illness.

20.0 HOT WORK – Welding, Burning, Cutting, Etc.

A. Purpose

This program establishes the minimum requirements for safe welding, cutting, and heating.

B. Roles and Responsibility

Hot Work Permits shall be authorized by a qualified person.

C. Procedure

1. All personnel involved in performing welding, cutting, and burning shall be trained in the safe operation of their equipment, fuel gas systems, the process in which their equipment is used and the planning process for ensuring safe work practices.
2. Hot work is defined as any burning, welding, cutting or grinding which produces a potential ignition source (i.e. spark or flame).
3. Firefighting equipment designed for the type of fire expected shall be located within 10 feet of the work.
4. All flammable and combustible materials shall be removed to a distance of 25 feet or covered by fire resistant material before starting to weld or burn.
5. Pipelines and equipment containing flammable or combustible materials shall not be a part of the welding path.
6. The requirement for fire watch during welding or cutting operations will be determined by the pre-task hazard assessment.
7. Welders & Firewatchers shall have fire-extinguishing equipment readily available and be trained in its use. They shall be familiar with facilities for sounding an alarm in the event of a fire. They shall watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm.
8. A fire watch shall be maintained for a half-hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires. Firewatchers may have to be on different levels and possibly in other rooms depending on the configuration of the building.
9. If any hot work cannot be performed safely, then that work is not to be performed.
10. The welder shall wear proper personal protective equipment at a minimum:
    a. long sleeve shirt
    b. cutting goggles/welding hood
    c. gloves/aprons/capes
    d. clothing without frays or rips
    e. welding helmets as needed f.
    respirators as needed
8. At a minimum, employees that are working with welders shall wear long-sleeve shirts, and appropriately tinted glasses with side shields or welding eye goggles.
9. Welding curtains, drop cloths, and other materials used to protect people, products, materials, or equipment shall be made of flame-resistant cloth. Polyethylene or other plastic welding curtains and drop cloths shall be made of flame-resistant materials and shall have a flame spread

classification of 0-25 rating. Examples of flame-resistant fabrics include Nomex®, Kevlar®, and flame-retardant treated (FRT) cotton.

10. When the material being welded cannon be moved, all combustible material within 20 feet must be covered with fire blankets and/or removed from the area.
11. Welding curtains shall be used during welding and grinding operations to limit the potential of fire and the exposure of others to welding flash, rays, or sparks, and may be required in operating areas. Use translucent, flame-resistant welding curtains that filter ultraviolet radiation. They provide sufficient protection while permitting adequate light to the work area.
12. Hot Work shall not commence prior to permit completion and authorization. An authorized hot work permit may be required when work involves flames, sparks, or high temperature producing tools or equipment. Such equipment may include internal combustion engines, electrical tools, motors, and any spark-producing device
13. Hot work Permit shall contain at a minimum:
    a. Name and signature of permit issuer responsible to ensure safe working conditions for all employees involved.
    b. Document date & time that permit is valid.
    c. Boundary limitations.
    d. Requirements for firewatchers.
    e. Requirements for welding spark & slag containment.
    f. Firefighting training for firewatchers and person(s) involved in hot work activities.
13. The permit shall be visible at the work location.
14. Upon completion of hot work, the firewatcher, if required, must stay at the hot work location for at least 30 minutes.
15. Upon completion of the work, the permit will return to Site Supervision for one-year retention or until annual audit of this procedure.
16. When performing Hot work on painted or coated surfaces:
    a. Before welding, cutting or heating any surface covered by a coating whose flammability is not known, a test shall be made by a competent person to determine its flammability. Coatings shall be considered to be highly flammable when scrapings burn rapidly.
    b. If coatings may ignite, they shall be stripped from the area to be heated/burned/welded to prevent ignition (a minimum of 4 inches to each side of the location heated).
    c. If coatings may be toxic, the coating shall be stripped at least 4 inches from the area of heat application, or the employees shall be protected with appropriate respiratory protection. Half-mask cartridge respirators equipped with HEPA filters are the minimum acceptable respiratory protection that can be used when welding on surfaces with toxic coatings.
    d. When working in enclosed spaces on surfaces covered with toxic preservatives (i.e. lead, cadmium or zinc chromate paints, etc.), the coating shall be stripped at least 4 inches from the area of heat application. If this is not possible, the employees in the enclosed space shall be protected by air-supplied respirators.

e. When working in enclosed spaces on surfaces covered with coatings that have been determined to be other than toxic, the coatings shall be removed a sufficient distance from the area that is to be heated to ensure that the temperature of the un-stripped metal will not be appreciably raised. Artificial cooling of the metal surrounding the heated area may be used to limit the size of the area required to be stripped.

D. Arc Welding and Cutting

1. Connect welding leads to the welding machine by a male plug. Ensure that the female portion of the connector is the energized part of the set.
2. Turn off welding machines before leaving equipment or while pulling leads to a new location and in some cases until the welder is in position to make a weld. (In cases where the welder shall lie/lean on a grounded surface to perform a welding task, another person should start the machine when the welder is ready to strike an arc and begin the task.)
3. Do not support welding leads with tie wire. This practice damages the welding lead insulation. Support leads with nonconductive materials or insulated wire. Install welding leads so that they are not potential tripping hazards.
4. Eliminate the possibility of partially exposing a connection while pulling the leads. Male and female connectors of welding leads may need to be taped or otherwise restrained form separating. Welding leads should not be tied in a knot.
5. Remove the rod from the holder when unattended.
6. Do not weld on material or equipment suspended by a metallic support mechanism (choker, chain fall, and load line). This is undesirable because of the possibility of damage to the choker or the load line. When such an operation is required, the support shall include an insulating element to eliminate the possibility of welding current flowing through the support.

E. Portable Welding Machines

1. A driven ground rod or case ground to building steel is not required for mechanically driven welding machines.
2. When a portable welding machine includes a receptacle for convenience power, the receptacle shall be guarded with a ground fault circuit interrupter (GFCI) if the voltage is alternating current. If the voltage is direct current, the receptacle should be disabled and not be used.

F. Equipment and Inspection

1. Arc-welding and cutting equipment shall be industrial rated, in good condition, and meet local governing authority requirements regarding application, installation, and operation. Trained and qualified people shall make a complete preventive maintenance inspection.
2. Ground connections must be mechanically and electrically adequate to carry the current.
3. 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 leads.
4. It is not permissible to repair by splice or tape a damage that is within 10 ft. of the end of a lead; however, the lead may be cut and re-terminated to the connector.
5. Damaged cables are not to be used or repaired/protected except by insulation equivalent in performance to the original capacity.

6. Before each use, the following items shall also be inspected:
   a. Electrode holders for broken insulators or worn holders
   b. Oil and fuels on gas- or diesel-powered units
   c. Covers are in place where leads attach to welding machines
   d. All connections have no exposed current-carrying parts
   e. Defective equipment shall not be used.

G. Electric Shock Hazard

1. Almost all electric currents present some degree of potential shock hazard. Under optimum conditions, even welding voltages as low as 30 volts can be hazardous. Operating voltages listed on nameplates are usually much lower than open-circuit voltages, which should not exceed 100 volts DC or 80 volts AC.
2. Either AC or DC current can be used for welding, and, although both present serious shock hazard, AC is potentially more hazardous. Be certain not to use any equipment that is either wet or has been recently drenched. Welding units that are powered by AC shall be adequately grounded. To change polarity, the unit shall be shut down.
3. Electrodes shall never be changed with bare hands or wet gloves or when standing on a wet floor or grounded surface. Cables that become worn enough to present a hazard shall be replaced immediately. Keep welding cables away from power supply cables and high voltage wires. Do not dip hot electrode holders in water to quick cool them.
4. GFCIs shall not be used on welding machines with DC current outlets for cord plugs. They do not function properly in this application.
5. Extra precautions shall be taken when welding in humid or damp locations such as rubber pads or boots, to prevent electric shock.

H. Welding, Cutting and Heating in Enclosed Spaces

1. General mechanical or local exhaust ventilation shall be provided whenever welding, cutting, or heating is performed in areas with inadequate ventilation and in enclosed spaces. The ventilation shall be of sufficient capacity and so arranged as to produce the number of air changes necessary to maintain welding fumes and smoke within safe limits. (Levels below OSHA PELs and/or TLV's will be considered to be "safe limits" as described above. In some cases, OSHA Action Levels, excursion limits and STELs may be substituted as "safe limits"). The adequacy of the ventilation shall be determined by air monitoring.
2. Welding machines shall be left outside of a confined space and be blocked to prevent movement.
3. When sufficient ventilation, as described above, cannot be obtained, the employees shall be protected by appropriate respiratory protection.
4. Oxygen shall never be used to ventilate an area.
5. Employees performing welding and/or cutting operations on the materials listed below in enclosed spaces shall use local exhaust ventilation or the employees will be protected with airline respirators. Airline respirators shall also protect other employees working in the immediate area.
   a. Lead base metals or materials coated with lead-bearing materials.
   b. Cadmium bearing or cadmium coated materials.

c. Metals coated with mercury-bearing materials.

d. Beryllium-containing base or filler metals (because of its high toxicity, work involving beryllium shall be done with both local exhaust ventilation and air-supplied respirators).

I. Welding, cutting, and heating in open air / areas with adequate ventilation

1. Employees performing welding and/or cutting operations on the materials listed below in the open air shall be protected by air-purifying respirators (filter type). Air-purifying respirators shall also protect other employees working in the immediate area.
   a. Lead base metals or materials coated with lead-bearing materials.
   b. Cadmium bearing filler materials.
   c. Chromium bearing metals or metals coated with chromium-bearing materials.
   d. Metals coated with mercury-bearing materials.
   e. Beryllium-containing base or filler metals (Because of its high toxicity, work involving beryllium shall be done with both local exhaust ventilation and air-supplied respirators).

J. Compressed Gasses

1. Compressed gas cylinders shall be legibly marked with the chemical or trade name of the gas.
2. Motor vehicle transport of cylinders shall only be done with vehicles equipped with racks or other means of securing the cylinders.
3. Ensure that backflow preventers are in place before each use.
4. Cylinders must have the valve protective cover in place while being transported.
5. Cylinders must be secured from falling at all times & transported by OSHA compliant hand trucks.
6. Gas cylinders must be visually inspected daily for leaks, cracks, etc. Inspections will include the cylinder, safety relief devices, valves, protection caps and stems. If a cylinder is found to be defective, it should be “Red Tagged” with the issue noted & returned to the supplier.
7. Compressed gas cylinders are never allowed to be taken into a confined space.
8. Oxygen cylinders should not be stored within 20 feet of cylinders containing flammable gases.
9. Before a regulator to a cylinder valve is connected, the valve shall be opened slightly and closed immediately, known as “cracking” to ensure dust or dirt don’t foul the regulator.

K. Training and Documentation

1. Training shall be provided to each qualified employee who will approve hot work permits. Re-training shall be provided whenever inadequacies in the employee's knowledge or use of this program are identified.
2. Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training.

Appendix

HOT WORK PERMIT

WORK TO BEGIN_____

(DATE &TIME)

WORK TO END_____

(DATE & TIME)

WORK LOCATION: _____

WORK DESCRIPTION (Be Specific):

_____

_____

_____

☐ Oxy/Acetylene/LP Gas ☐Welding ☐ Other Torch ☐Solder ☐Grinding ☐Cut-off Saw ☐Other

PERSON(S) PERFORMING WORK: _____

SAFETYPRECAUTIONS

☐*Perform Explosibility Check (___%)

☐*Oxygen Content (_____%)

☐Clear Area of Flammable and Combustible Materials

☐Use Trained Fire Watch

☐Provide Fire Extinguisher (Type___) (Size____)

☐Provide Water Source

☐Keep Area Wet

☐*Ensure Adequate Ventilation

☐Purge System

☐Restrict Tools

☐Barricade Area

☐Post Signs

☐Ground Equipment

☐Cover Drains/Trenches

☐Sparks/Slag, etc.

☐Use Shield/Blankets Under/ Around Work

☐*Use Respiratory Protection

☐Use Non-Sparking Tools

☐Wear Special Clothing

*For confined space activities comply with Permit Required Confined Space procedures before proceeding. This permit alone is not authorization to proceed with confined space work

Permit Authorized by: _____ _____

Printed Name Signature

21.0 Housekeeping, Recycling & Sanitary Program

A Purpose

This program establishes minimum requirements for housekeeping onsite. Housekeeping is a fundamental activity and promotes safety and productivity. Bay City Boiler expects that all our worksites remain clean and orderly.

B Roles and Responsibility

1. Each employee is responsible for housekeeping.
2. All employees are responsible for maintaining a safe and clean working environment.
3. Anyone discovering unsafe conditions or broken equipment, furniture, or facilities must correct the problem or report it to the site supervisor to take corrective actions.
4. Housekeeping shall be addressed on a daily basis by supervisors to ensure a safe work environment and to eliminate injury causing conditions.

C. Procedure

1. Be considerate of others by leaving the general and common areas of the site in better shape than you found them.
2. Work areas are to be kept clean and orderly. Tools, wires, supplies, materials and loose objects are not to be left in disorder at the conclusion of the workday.
3. Work areas, passageways and stairways and other areas shall be kept free of debris and materials.
4. Clean paths, without obstruction, of entry to and egress from the work area are to be maintained at all times.
5. There shall be unobstructed access at all times to such areas as electrical panels, safety disconnect switches, fire extinguishers, emergency exits, etc.
6. Suitable containers shall be provided for waste disposal. Combustible waste, such as oily rags, paper, etc. shall be stored in a safe place such as covered metal containers. All containers shall be labeled to indicate the permissible contents.
7. Trash which does not contain any hazardous waste shall not be stored or disposed in bags or containers marked for hazardous waste.
8. Lunchroom area trash disposal cans shall be provided with covers.
9. Lunch and break areas shall be kept clean and free of all food scraps, wrappers, cups, and other disposable items.
10. The use of glass bottles should be discouraged.
11. Work areas shall be cleaned as often as necessary to eliminate tripping and fire hazards. Particular attention shall be focused to the area around scaffolds, ladders, ramps, stairs and electrical and mechanical equipment. Tools and loose materials shall also be removed if a hazard is created.
12. As practical, extension cords, wires, and electrical cables should be kept in an elevated position where they pose no potential danger to personnel and the extension cords are not likely to be damaged by activities or equipment.

13. During non-working hours electrical cords not being used to charge equipment should be picked up and stored properly.
14. Protruding nails shall either be removed or bent over in such a way that they no longer present a risk. This shall be done as the hazard develops and not at a later time.
15. When nails are removed from lumber, the nails shall be collected and disposed of properly to eliminate puncture hazards.
16. Storage areas shall be kept clean and materials neatly stacked or placed.
17. Assure subcontractors compliance with housekeeping policies on a daily basis
18. Spilled liquids or other materials must be cleaned up immediately.
19. Employees may not perform housekeeping duties at close distances to energized electrical contact hazards, unless adequate safeguards are in place.
20. A minimum of one separate toilet facility will be provided for every 20 employees for each sex.
21. Toilet facilities will be kept clean and kept in good working order.
22. A minimum of one washing station will be provided for every 20 employees.
23. Adequate water supply and soap or cleaning agent along with paper towels will be provided.
24. The cleaning station will be located so that any time a toilet is in use the user can readily wash.

D. Recycling

1. Every effort shall be made to recycle all recyclable materials, whenever possible.
2. All wastes shall be disposed of properly and segregated from recyclable materials if possible in order to reduce landfill volume and help protect the environment.
3. Contact local waste management and recyclers to ensure proper protocols are followed.

E. Training and Documentation

1. This program will be communicated to all new employees during New Employee Orientation and refreshed on an annual basis.
2. Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training.

22.0 Accident and Incident Investigations

A. Purpose

This program establishes minimum requirements for appropriate notification, investigation and documentation of all incidents including near misses. Prompt reporting is critical to responding, investigating and preventing the recurrence of incidents, injuries and work-related illnesses. Immediate reporting of all injuries and incidents allows more time to conduct an adequate investigation.

Management will investigate incidents in order to discover root cause(s) and implement corrective actions in order to prevent future incidents.

B. Roles and Responsibility

All employees have the responsibility to report all injuries, illnesses, and incidents regardless of severity of injuries, incidents and near misses immediately to their supervisor.

First and foremost, in case of an injury or incident, Supervisors are responsible for taking emergency action to have first aid administered and to obtain professional medical attention as soon as possible. In addition, supervisors must warn and protect other employees and personnel in the area from any apparent hazards.

C. Procedure

1. First Response
   a. **Call 911 immediately if serious** and contact your supervisor.
   b. Administer first aid and provide professional medical attention as soon as possible to the injured.
   c. If not a 911 emergency, transport the employee to the designated medical facility for the site.
   d. Protect other employees or equipment from the hazard.
   e. Management (or an authorized representative) must be present before you speak to anyone (if serious). Never speak to the media, refer them to management.
   f. Never sign anything. management is responsible for managing,communicating and approving interactions with all agencies, their representatives and the media.
2. Supervisory personnel will be primarily responsible for making an investigation of all incidents in their areas of responsibility. Incidents involving fire, death, serious injury, or extensive property damage will be investigated jointly by the supervisor, safety representative(s), management and/or insurance company representative.
3. Supervisor's Incident Report must be submitted to the corporate office immediately but no later than 24 hours after the accident. Senior management must be notified immediately if a serious accident or injury occurs.
4. Site Management will review all incident investigations.

5. Injuries, incidents and near misses will be tracked, root causes identified, and corrective measures put in place to prevent recurrence.
6. The Safety Committee will be charged with reviewing and approving the “Lessons Learned” on all incidents. Lessons learned will be communicated to all employees.
7. Workflow for Work Related Injury
   a. If the injured employee needs medical attention, send to a designated treatment facility.
   b. If the injured worker is held over at the medical facility or hospital, report is made to the Site Supervisor.
   c. If the employee refuses medical attention, a report must be made that the employee refused treatment and filed with the main office. The refusing employee’s signature must be documented.
   d. If the injury or accident appears questionable in nature, it must be documented in the incident report including why it may be questionable.
   e. If the employee went to a medical facility or hospital for treatment, a return to work order from the treating physician must be received before the employee can return to work. If the return to work slip notes modified duty is required, contact corporate claims office for further direction.
   f. Document all injuries and incidents with photographs.
   g. All injuries and incidents, whether minor or severe, must be reported.
   h. All injury and incident related documentation must be submitted to management within 24 hours.
   i. Subcontractor personnel must inform Bay City Boiler management about any incident or injury or emergency on site immediately or shortly thereafter. If emergency vehicles are called to the site, as soon as the call is made you must inform the site supervisor.
   j. If a subcontractor employee informs a Bay City Boiler employee of any incident or injury on site, immediately contact your supervisor.
8. Return to Work
   a. The supervisor must receive a return to work slip from the doctor.
   b. All employees seeking to return to work must be approved by Management.
   c. If the return to work slip notes modified duty is required, contact corporate claims office for further direction.
   d. If the return to work slip states, “modified duty,” assign the employee tasks that will meet the work restrictions indicated.
   e. If an injured employee wants to return to work without an okay from the doctor do not under any circumstances put him back to work. No exceptions.
9. Root Cause Analysis (RCA) Overview
   a. The goal of a Root Cause Incident Analysis is to help management understand the details behind each incident, identify all of the contributing factors, and to determine the root cause or causes that, if eliminated, would have prevented the incident or injury. By using a defined,

      consistent and reproducible analysis process, and completing the implementations of effective appropriate corrective actions, you can effectively prevent individual injuries and incident from

reoccurring and obtain the ultimate goal of eliminating all workplace injuries and incidents.

b. This RCA process must be a collaborative interview and evaluation exercise to ensure that all critical facts about the incident are systematically collected and processed.

c. It is the responsibility of the investigator (an individual or a team) to ensure that all data collected is evaluated both for content and objectiveness. Failure to ensure the data is correct and complete will result in a wrong conclusion, ineffective corrective actions and a probable repeat of the exact same injury or incident.

d. The purpose of this process is to identify accurate and effective corrective actions, it is not to identify or fault or assess blame. Those conclusions can be drawn after this process is followed; however, it is paramount that the investigative exercise stays unbiased and focused on the facts.

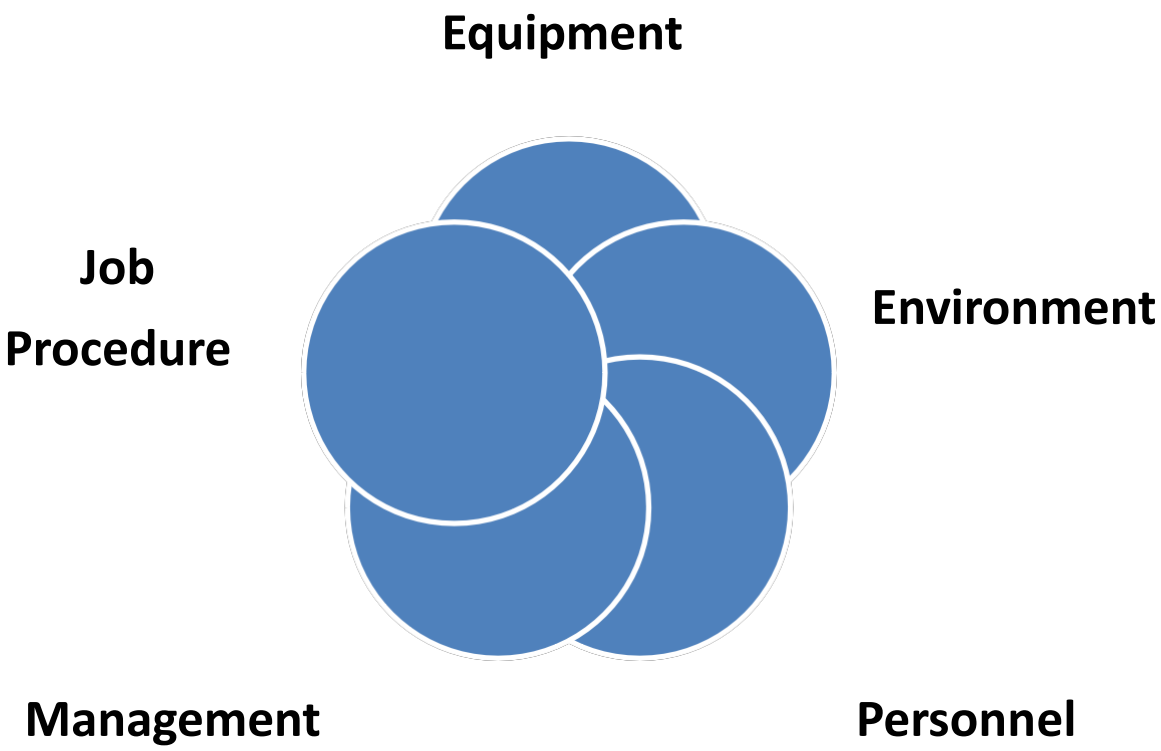
e. Complete the entire Injury & incident report and ensure that all data collected is accurate and unbiased.

D. Training and Documentation

1. This program will be communicated to all new employees during New Employee Orientation and refreshed on an annual basis.
2. Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training.
3. Lead Investigators must be trained in the proper use of this process.
4. If OSHA or any other regulatory agency must be notified, the notification shall be made by the Senior Manager to the local Cal-OSHA office.
5. OSHA 300 Log:
   a. The Bureau of Labor Statistic's Recordkeeping Guidelines for Occupational Injuries and Illnesses shall be strictly adhered applied in determining the recordability of occupational injuries and illnesses.
   b. If questions arise regarding recordability, the Claims Administrator must be contacted for a determination.
   c. Any attempt to falsify the occupational injury and illness records shall result in disciplinary action, up to and including termination.

Bay City Boiler

ROOT CAUSE ANALYSIS WORKSHEET & REPORT FORM



Root Cause Analysis Overview

1) The goal of a Root Cause Incident and Injury Analysis (RCIIA) is to help management understand the details behind each incident, identify all of the contributing factors, and to determine the root cause or causes that, if eliminated, would have prevented the incident or injury. By using a defined, consistent and reproducible analysis process, and completing the implementations of effective appropriate corrective actions, you can effectively prevent individual injuries and incidents from reoccurring and obtain the ultimate goal of eliminating all workplace injuries and incidents.

2) This RCA process must be a collaborative interview and evaluation exercise to ensure that all critical facts about the incident are systematically collected and processed.

3) It is the responsibility of the investigator (an individual or a team) to ensure that all data collected is evaluated both for content and objectiveness. Failure to ensure the data is correct and complete will result in a wrong conclusion, ineffective corrective actions and a probable repeat of the exact same injury or incident.

4) The purpose of this process is to identify accurate and effective corrective actions; it is not to identify or fault or assess blame. Those conclusions can be drawn after this process is followed; however, it is paramount that the investigative exercise stays unbiased and focused on the facts.

5) Complete the entire investigation worksheet below and ensure that all data collected is accurate and unbiased.

6) A lead person must be trained in the proper use of this process. In addition, all participants must be given a process overview on how the process works and the goal of obtaining a fact-based incident investigation.

Injury and Incident Report Form

#1- Employee / Incident Information:

Employee Name: _____

Date of Hire: _____ Job Title: _____

Total Years in Occupation: _____Shift Start Time: _____Shift End Time: _____

Exact location of incident (Bldg./Level/Area): _____

General activity at time of incident (i.e., concrete cleanup):_____

Specific task at time of incident (i.e., finishing, sweeping): _____

How long had the worker been performing specific task: _____

Typical task for the week: _____

Typical task for the day: _____

#2 - Injury / Illness Information

Date of Incident: _____ Day of Week: _____Time of Incident: _____ Type of Injury: _____ Part of body injured: _____ Employee's Direct Supervisor: _____ _____Working on a crew? Yes ☐ No ☐ Name of Witnesses (list):_____

PPE worn at time of incident (list):_____

#3 - Incident Timeline

Describe in detail the sequence of events involving this incident in as much detail as possible:

1.
2.
3.
4.
5.
6.

Equipment: This is to find out possible causes resulting from equipment or materials used.		Yes	No
1.	Was there an equipment failure? If yes, what caused the equipment to fail (answer below)?	☐	☐
2.	Was personal protective equipment used?	☐	☐
3.	Were proper tools or equipment being used?	☐	☐
4.	Was the incident related to the tool or tool selection?	☐	☐
5.	Was the incident related to the equipment or equipment selection?	☐	☐

6.	Did any condition in equipment, tools or materials contribute to the incident?	☐	☐
7.	Was the employee informed of the potential or existing conditions and the job procedures for completing the task?	☐	☐
8.	Was there an equipment inspection to detect the conditions?	☐	☐
9.	Was the correct equipment or tools used?	☐	☐
10.	Was the correct equipment or tools readily available?	☐	☐
11.	Did the employee know where to obtain equipment required for the job?	☐	☐

Contributing Factors:

Environment: This is used to find out what the physical conditions in the environment were like during the time of the accident.		Yes	No
1.	Did temperature or weather have an effect on the incident?	☐	☐
2.	Was poor housekeeping a problem?	☐	☐
3.	What were the physical conditions of the area when the accident occurred (answer below)?		
4.	Was there another construction activity in the area that contributed to the way the work was conducted, how work was scheduled, or altered the way tasks were done, etc.?	☐	☐
5.	Was the work area congested?	☐	☐
6.	Did noise, lighting, dust etc. have any effect on the incident?	☐	☐
7.	Were there any other hazards from the surrounding area that played a part in the incident?	☐	☐

Contributing Factors:

Personnel: This section is to examine both the physical and mental condition on the injured worker.		Yes	No
1.	Was the injured worker familiar with the job and procedures?	☐	☐
2.	Was the employee properly trained?	☐	☐
3.	Was fatigue a factor? How many hours have they worked in the past week? If yes, explain.	☐	☐

4.	Was the injured worker authorized and qualified to do this operation?	☐	☐
5.	Did the work require awkward postures, excessive stress or other access risk factors?	☐	☐
6.	Was there enough time to do the task safely?	☐	☐
7.	Assuming there was enough time to do the task safely, was there external pressure to cut costs, cut time etc. that would have impacted safety?	☐	☐
8.	Was there a bad attitude towards safety?	☐	☐

Contributing Factors:

Job Procedure: This pertains to the actual work being performed at the time the accident.		Yes	No
1.	Was a safe work procedure used?	☐	☐
2.	Had conditions changed to make the normal procedure unsafe?	☐	☐
3.	Were the appropriate tools and materials available?	☐	☐
4.	Were the appropriate tools and materials used?	☐	☐
5.	Was there a job hazard analysis? Were the protective measures not identified by the JHA?	☐	☐
6.	What was the injured worker doing at the time of the accident?	☐	☐
7.	Were approved procedures being followed?	☐	☐
8.	Could the location of the work area or access to the work area been improved?	☐	☐
9.	Was the hazard identified in safety inspections?	☐	☐
10.	Did the workers identify the hazards?	☐	☐
11.	Was training conducted?	☐	☐
12.	Was there adequate safety signage present?	☐	☐
13.	Were the protective measures not identified in safety inspections?	☐	☐
14.	Were written plans or procedures for protection present or available?	☐	☐
15.	Were the protective measures readily available?	☐	☐
16.	Did the worker use appropriate PPE?	☐	☐
17.	Did the worker follow the established procedures or requirements?	☐	☐
18.	Did the worker obey safety signs or barricades?	☐	☐
19.	Did the worker use appropriate tools or equipment?	☐	☐
20.	Did the worker use tools or equipment in a safe manner?	☐	☐
21.	Did the worker use good work positioning/postures while performing work?	☐	☐

Job Procedure: This pertains to the actual work being performed at the time the accident.		Yes	No
22.	Was there inadvertent error or not paying attention?	☐	☐
23.	Did the worker recognize the hazard?	☐	☐
24.	Did the worker perceive production pressures?	☐	☐
25.	Was there a bad attitude towards safety?	☐	☐

Contributing Factors:

Management: Management holds the legal responsibility for the safety of the jobsite; therefore, we need to examine the role of both the supervisors and management systems in place.		Yes	No
1.	Were safety rules communicated to and understood by all employees?	☐	☐
2.	Were they being enforced?	☐	☐
3.	Was there adequate supervision?	☐	☐
4.	Were workers trained to do the work?	☐	☐
5.	Had hazards been previously identified?	☐	☐
6.	Had procedures been developed to overcome them?	☐	☐
7.	Were unsafe conditions corrected?	☐	☐
8.	Are daily toolbox topics and hazards being communicated in toolbox meetings?	☐	☐
9.	Is safety being fully discussed in the foreman/sub meetings and are these meetings being held at least weekly?	☐	☐
10.	Is information from the foreman/sub meeting making it to craft workers?	☐	☐
11.	Are site orientations not being conducted, not effective or otherwise not addressing the hazard?	☐	☐
12.	Are pre-task meetings being held?	☐	☐
13.	If a new employee or task, were they properly trained before being allowed to work?	☐	☐
14.	Are items addressed in the safety inspections being addressed in a timely manner or otherwise being communicated to the correcting employer?	☐	☐
15.	Are workers taking the necessary steps to communicate hazards to supervisors or coworkers?	☐	☐
16.	Are hazards being communicated to all affected parties in a timely manner?	☐	☐
17.	Are there any other barriers to hazard communication on the project?	☐	☐

Contributing Factors:

Summary:

Please go through the last five sections of the Root Cause Analysis Worksheet and summarize all of the contributing factors to the incident.

	Contributing Factors	Corrective Action	Person Responsible	Due Date
1.				
2.				
3.				
4.				
5.				

Root Cause(s):	
1.	
2.	
3.	
4.	

Comments:

Final Injury & Incident Report Form (Page 1)

Department: _____

Injury Date: _____

Jobsite Injured at: _____

Occupation/Trade: _____

Type/Severity:

_____

_____

Incident Summary:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Contributing Factor(s):

_____

_____

_____

_____

_____

_____

_____

Root Cause:

_____

_____

_____

_____

Final Injury & Incident Report Form (Page 2)

Corrective Action Plan:	Person Responsible:	Due Date:

23.0 Job Hazard Analysis

A. Purpose

The Job Hazard Analysis (JHA) is a formal process by which personnel plan the work sequence, identify task specific hazards, assess the associated risk involved, eliminate the hazards or establish control measures to minimize the risk, document the results, and monitor the effectiveness of the control measures.

B. Roles and Responsibility

The Supervisor will perform a Job Hazard Analysis for each medium and high-risk task.

C. Procedure

1. Any actual or potential safety hazards shall be identified. Do not limit the analysis to daily operations.
    a. In a sequential manner, list all possible activities that will be included for the task. This shall include occasional maintenance and visits to the work area by third party individuals.
    b. The Supervisor shall visit the jobsite and perform an onsite hazard assessment.
    c. The Supervisor shall then check the items on the first page of the JHA for accuracy as deemed necessary.
2. After completing the JHA a briefing shall be conducted with the employees who will perform the work. The briefing shall consist of all the steps involved, the potential hazards, and how to mitigate the hazards.
3. JHA's shall be completed before starting any non-routine activity.
4. See JHA Form in this section.

D. Training and Documentation

1. This program will be communicated to all new employees during New Employee Orientation and refreshed on an annual basis.
2. Training Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training.
3. Completed JHAs shall be on file and subject to an annual review

Bay City Boiler
Job Hazard Analysis Worksheet

Job Title:	Date:
Job Description:	JHA Owner: Name: Contact #:
□ Routine □ Non-Routine	Revision Date:
Special Precautions:	Comments:
Minimum PPE Required:	

Sequence of Basic Job Steps	Potential Hazards*	Recommended Safe Job Procedures

*Codes for Potential Hazards:

Struck By (SB)		Caught On (CO)		Fall to Below (FB)	
Struck Against (SA)		Caught In (CI)		Overexertion	
Contacted By (CB)		Caught Between (CBT)		Exposure (E)	
Contact With (CW)		Fall - Same Level (FS)		Other	

24.0 Ladder Safety

A. Purpose

The purpose of this document is to establish minimum requirements for using ladders safely in the workplace. Before using ladders to perform work, all employees are expected to read and understand this policy for using ladders safely. This policy covers all types of ladders, including step, extension, and fixed ladders. Ladder users must be able to recognize and avoid ladder hazards and be aware of safe practices in setting up, storing, moving and working on ladders.

B. Roles and Responsibility

1. It is the responsibility of supervisors to ensure all employees have read and understand the contents of this policy before they are allowed to use a ladder. This document is included in new hire orientation training material.
2. It is the responsibility of all supervisors to provide ladder safety training to employees that don't follow safe ladder practices and provide discipline for repeated offenses.
3. It is the responsibility of all supervisors and employees to ensure that all ladders being used on projects are free from defects and in safe operating condition, before each use.
4. It is the responsibility of management to maintain records on ladder training.

C. Procedure

1. Only Class 1A (rated 300 pounds) fiberglass step and extension ladders shall be used.
2. All employees who use ladders shall have Ladder Safety Training during New Employee Orientation.
3. Ladder Safety Training will consist of recognition of possible hazards associated with ladder use, inspection, proper maintenance and safety precautions for each type of ladder to be used.
4. Ladders shall only be used for the purpose in which they were designed.
5. Employees must inspect ladders to be used for defects or possible hazards before each use. Ladders must be maintained free of grease, oil, and other slipping hazards. Ladders with loose parts or faulty rungs should be taken out of service immediately.
6. Ladders shall be inspected on an annual basis by a designated "competent" person.
7. Ladders that are taken out of service should be tagged "Defective" and removed from the work area and sent for repair or disposal.
8. In the event a ladder is involved in an incident that may affect safe operation, it shall be immediately removed from service and be inspected by a competent person, before being placed back into service.
9. Employees shall only work from step ladders, extension ladders and fixed ladders that are vendor supplied. Job-made ladders are not approved for use unless specifically approved by management. Ladders rungs, cleats, and steps shall be uniformly spaced when the ladder is in position for use.
10. Safe Ladder Setup:
    a. Inspect ladders for defects.

b. Ensure the ladder is rated for the intended use.
c. Ensure the ladder shall not be loaded beyond its rated weight capacity.
d. All ladders must be placed on a stable level surface.
e. Do not set ladders on boxes, blocks or other objects that might move.
f. Do not lean or reach out while standing on ladders.
g. Secure ladders whenever a danger of slippage might occur.
h. Do not use ladders in high wind or during inclement weather conditions.
i. Never set up ladders in front of or around doors unless the door is posted with a warning or locked.
j. Do not sit on ladders.
k. Use sturdy, over the ankle work boots in good condition when climbing or working on a ladder.

11. Climbing and Standing on Ladders Safely:
    a. Always face a ladder when climbing up or down.
    b. Do not carrying materials or tools when climbing a ladder.
    c. Use a tool belt, have someone hand you materials or use a rope or other safe means to pull materials up, never climb a ladder with tools or materials in your hands.
    d. Rungs and steps should be maintained in good useable condition and kept clear of grease, oil, wet paint, snow, and ice before climbing.
    e. Do not climb onto a ladder from the side or back.
    f. Do not slide down a ladder.
    g. Climb or stand on a ladder with your feet safely in the center of the rung to help maintain footing and balance.
    h. Never stand on the top two rungs or top cap of a stepladder.
12. Proper Use and Care of Ladders:
    a. Never use metal or aluminum ladders near electrical systems, panels of conduit or any other possible electrical source.
    b. Never use electrically powered tools when working on a metal ladder.
    c. Place warning signs or setup barriers around a ladder before use.
    d. Do not move a ladder while you or someone else is on it.
    e. Do not leave tools or materials on top of ladders.
    f. Only one person should be on a ladder at a time unless the ladder is specifically designed to do that.
    g. Do not use a ladder on a scaffold.
    h. Never rock or jump a ladder to move it.
    i. Store wood ladders where they will not be exposed to the elements.
    j. Make sure ladders are properly secured when transported.
    k. Do not paint ladders. Painting could hide potentially dangerous defects.
    l. Remove defective ladders from service.

13. Step Ladder Safety:
    a. Never use a stepladder over 20 feet in length.
    b. Always open a stepladder completely and make sure the spreader is locked before use.
    c. Do not stand higher than the second step from the top of a step ladder.
    d. Do not straddle a stepladder.
14. Extension Ladder Safety:
    a. The sections of an extension ladder should overlap enough to retain the strength and integrity of the ladder.
    b. Never splice or tie two short ladders together.
    c. When using a ladder for access to a landing, it must extend 3 rungs or 3 feet above the landing and secured at its top to a rigid support that will not deflect.
    d. To establish the proper climbing angle, use the 4:1 ratio. For every 4’ of vertical height, the ladder based shall be 1’ from the face of the climbing surface.
    e. The top of an extension ladder should rest against a flat, firm surface.
    f. Elevate and extend these extension ladders only from the ground.
    g. When practical, secure extension ladders at both the base and the top.
15. Extension Ladder Setup:
    a. Inspect for overhead obstructions and ensure no electrical hazards exist.
    b. Pick up the ladder and walk it to an upright position, making sure it will not contact structures or unsafe objects.
    c. Slide the bottom of the ladder outwards to the proper angle and set the feet correctly.
    d. Extend the ladder by pulling the extension line.
    e. Make sure the rungs on the upper half of the ladder are properly secured by the locking mechanism.
    f. Secure the rungs from the fly section to the rungs of the bed section with the lanyard or separate rope prior to climbing.
    g. Tie the ladder off or have someone steady the ladder as you climb it.
    h. Lay the ladder down when retracted and secure in a safe location.
16. Fixed Ladder Safety:
    a. Fixed ladders must be secured to the object they are attached to.
    b. Fixed ladders over 20 feet must have a safety cage surrounding the ladder.
    c. The safety cage should have 15" clearance to all points from the center.
    d. Defects in fixed ladders should be repaired as soon as possible and removed from service until repairs have been made.

25.0 Material Handling & Storage

A. Purpose

This program establishes minimum requirements for safe handling and storage of materials.

B. Roles and Responsibility

Supervisors shall ensure that only trained personnel perform material handling and handle hazardous materials.

C. Procedure

1. Supervisors shall give advance consideration to the size, shape, and weight of materials to be handled and plan the most efficient and safest method to accomplish the task. Proper tools shall be provided for the job, and alternate methods should be considered.
2. Supervisors shall ensure that the work fits the employee in terms of knowledge and physical abilities.
3. Mobile Lift wheels shall be locked and chocked when in operation.
4. Safe lifting techniques shall be employed according to the Back Injury Prevention Program.
5. Both temporary and permanent storage shall be neat and orderly. When planning material storage, a minimum of 36 inches of clearance shall be allowed under sprinkler heads. Automatic sprinkler controls and electrical panel boxes shall be kept free and unobstructed.
6. There shall be a three-foot unobstructed access way to fire hoses and extinguishers. Clear access to emergency exits and aisles shall be maintained. Areas immediately outside emergency exits shall be left clear for egress.
7. Material shall not be placed within 6 feet of any hoist way or inside floor opening or within 10 feet of an exterior wall which does not extend above the top of the material stored.
8. Storage bins and racks that are in good condition shall be used to make storing materials easier and reduce hazards. As necessary, storage racks shall be secured to the wall and/or floor as well as to each other. Damaged racks shall not be used for storage. Employees shall not be allowed to climb racks. Where warranted racks and bins shall have a weight limit and shall be labeled accordingly. Elevated floors shall also be labeled when necessary indicating their load capacities.
9. The safety of a manual lift depends not only on the weight of the load, but also the horizontal distance of the load from the employee, the vertical distance traveled, the frequency of the lift, and the dimension and weight distribution of the load. All loads that will be handled often and/or manually shall be stored as close to “waist” height as possible.

D. Training and Documentation

1. This program will be communicated to all new employees during New Employee Orientation and refreshed on an annual basis.
2. Training Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training.

26.0 Mobile Elevated Work Platforms (Scissor and Boom-Lifts)

A. Purpose

Persons using aerial work platforms, ladders, or rolling scaffold must ensure that the equipment and structural provisions for accessing and working at elevated levels and for overhead movement of materials meet industry safety standards and comply with Cal-OSHA General Industry (GISO) and Construction Safety Orders (CSO). The requirements for fall protection apply to work activities from elevated heights covered by the Elevated Work Program.

B. Roles and Responsibility

1. Authorized Person, Operator

a. Has a working understanding of this Elevated Work Program and has the knowledge and training necessary to perform the job safely.
b. Must safely operate aerial work platforms for which they are certified.
c. To be an Authorized Person for aerial work platforms, an individual must successfully complete training.
d. Must be authorized by his or her supervisor to operate equipment.
e. For scaffold use, an Authorized Person must successfully complete training and be authorized by the supervisor.

2. Competent Person

a. Responsible for identifying hazards by conducting hazard surveys; stopping or limiting work at the hazard site; supervising selection and use of aerial work platform PPE; and verifying that equipment is compliant and workers are trained.
b. Participates in investigations, conducts equipment inspections, and removes damaged equipment from service.
c. Authorized to take prompt corrective measures to eliminate or mitigate hazards and is knowledgeable in the application and use of equipment.

3. Project Management

Responsible for ensuring that elevated work is performed safely and that Aerial Work Platform (AWP) operators and users of ladders or scaffolds are properly qualified and authorized.

C. Procedure

This program applies to work on any aerial work platform used to raise or lower workers to perform tasks at elevated heights, as well as work requiring the use of ladders and rolling scaffolds and applies to:

1. Employees
2. Construction subcontractors
3. Non-construction subcontractors, vendors, and affiliates

D. General Requirements – Aerial Work Platforms

1. Aerial work platforms can be vertically adjusted by manual or powered means and may be self-propelled, towed, or manually moved. They include equipment such as scissor lifts, one-man-lifts, and boom lifts.
2. Aerial work platforms are operated only under the following conditions:
   a. Employees using any aerial work platform must be certified in the proper and safe use of the equipment. One certified operator must be stationed on the ground to perform any emergency duties. The ground operator may perform emergency duties for multiple aerial work platforms.
   b. All aerial work platforms must be inspected prior to each shift's use and must not be operated if found to be unsafe.
   c. No elevating work platform may be used on an incline over 5% or in winds that exceed 25 mph unless recommended for such use by the manufacturer.
3. All personnel on the work platform must wear an approved safety harness and adjustable lanyards properly restraining operators to an aerial platform anchorage device.
4. All powered aerial work platforms must have working upper and lower control devices.
5. Outriggers, if provided, must be used as recommended by the manufacturer.
6. Aerial work platforms equipped with outriggers must not be relocated while personnel are on the work platform in an elevated position and must not elevate personnel without the stability of outriggers.
7. Aerial lift operators will not use self-retracting lifelines (SRL) as part of a personal fall-protection system (PFPS) unless the use of self-retracting lifelines has been authorized by the elevated work platform's manufacturer.

E. Identification

1. The following must be permanently displayed on all aerial work platforms:
   a. Special warnings, cautions, or restrictions necessary for safe operations
   b. Make, model, and manufacturer's name and address
   c. Rated workload capacity
   d. Maximum platform height
   e. Statement that device is in accordance with ANSI standards
   f. Instructions to study operating manual
   g. Special instructions
2. Travel of aerial work platforms while employees, materials, tools, or equipment occupy that platform in an elevated position is permitted only if the following information is permanently attached to the unit:
   a. Maximum-rated load capacity at maximum height
   b. Maximum travel height
   c. Statement that the model has successfully passed the static stability test

F. General Requirements – Ladders

1. Safety hazards in the use of ladders can be substantially reduced by observing certain basic safety precautions noted below:
   a. Painters' stepladders longer than 3.7 m (12 ft.) must not be used.
   b. All markings, warnings, and labels (as originally applied) must be legible.
   c. Wooden ladders must not be painted.
   d. Ladders must be stored to prevent weathering, blistering, or cracking.
   e. Metal ladders are not to be used. If they must be used, they must be legibly marked with signs reading "Danger – Do Not Use Near Electrical Equipment."
   f. Portable straight and extension ladders must be equipped with slip-resistant shoes.
   g. Straight or extension ladders must be placed against a support at an angle such that the distance from the ladder base to the base of the support is one-fourth the working length of the ladder. (4:1 ratio)
   h. Secure straight or extension ladders when used to access high places.
   i. Face ladder rungs and use three points of contact when ascending or descending.
   j. Do not use a ladder as a scaffold.
   k. Do not place a ladder in front of a doorway, unless the door is blocked open, locked, labeled or guarded.
   l. Do not place ladders on anything unsecured or unstable bases to obtain additional height.
   m. Do not climb higher than the second step from the top of a ladder.
   n. Ladders with broken rungs or missing steps must not be used and are to be removed from service.
   o. Inspect all ladders before each use.
   p. Report any defective ladders to your supervisor.
   q. Supervisors must ensure that any ladder reported as defective or unsafe is removed from service.
2. When a worker's feet are six feet or more above the ground, and three points of contact (e.g., two feet and one hand) cannot be maintained when ascending or descending, a fall-arrest system is required.

G. General Requirements – Scaffolds

The following rules are required during the erection and use of scaffolds by all subcontractors:

1. A competent person must supervise the erection of scaffolds.
2. When rolling scaffolds are being used, wheels are locked.
3. Tubular welded rolling scaffolds require a horizontal/diagonal brace.
4. All rolling scaffolds must be fully planked while in use, and guardrails with toe boards must be in place at heights of 6 feet or more.
5. At all times when next to shaft openings and/or windows, proper guardrails with toe boards must be installed regardless of the scaffold platform height from the floor.

6. Properly secured ladders must be provided for all scaffolds.
7. Cross bracing does not take the place of a guardrail.
8. Guardrail systems include end-rails on all scaffolds.
9. Independent lifelines for each worker on a swing scaffold are required; they must be secured to a firm anchorage point separate from the scaffold anchorage.
10. Tie off or use outriggers on a scaffold higher than four times its minimum base length.
11. Construct scaffolds on a firm, stable base.
12. Never erect a scaffold without a base using screw jacks and sole plate. Never put an open pipe end directly on concrete, a wood support, asphalt paving, or soil, as it may shift during use.
13. Provide fall protection at all heights above 6 feet regardless of the type of scaffold.

H. Inspections

1. All Aerial Work Platforms (AWPs), ladders, and scaffolds must be inspected prior to use by each shift. For AWPs, the inspector must sign and date the logbook and note any deficiencies. Inspections must include recommended items in the manufacturer's manual.
2. All units must receive preventive maintenance at intervals no longer than is recommended in the manufacturer's manual.
3. Copies of all inspections, preventive maintenance, and work reports must be retained for at least five years.
4. An annual inspection of the unit must occur at least every 13 months. The inspection must be performed by a person qualified as a mechanic on the specific make and model of an aerial work platform.
5. All AWPs are labeled with a certificate of inspection indicating an AWP has received its required maintenance and service for both annual and frequent (in service for three months or 150 hours) inspections.
    a. AWP operators are required to perform a pre-use inspection of the equipment as well as an inspection of the work area where they will be operating the AWP.
    b. The inspection must be documented on the daily inspection checklists and the checklists must be kept on file by the AWP custodian.
6. Because aerial work platforms may become hazardous if maintenance is neglected or incomplete, all AWPs must be routinely inspected and maintained by an authorized AWP maintenance contractor.
7. If AWP components have been overloaded or stressed beyond capacity, or when there are other reasons to believe that there might be any damage to an aerial work platform, contact the maintenance company or the manufacturer for assistance when such issues are suspected.

D. Training and Compliance Documentation

1. Maintain safety training programs designed to instruct employees on safe work practices and procedures.
2. A list of all required safety training and records of that training are maintained by Management.
3. Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training.

27.0 New Employee Safety Orientation

A. Purpose

To ensure all employees are trained, informed and empowered employees. Training requirements include applicable laws and regulations, including Federal and State Standards, Labor Code, and California Title 8 General Industry and Construction Safety Orders.

B. Roles and Responsibility

1. All management and supervisory personnel have the responsibility, authority, and accountability for New Employee Safety Training.
2. Employees must complete orientation before work can begin.
3. Employees are responsible for complying with all aspects of the Injury & Illness Prevention Program, including compliance with all laws, rules and regulations, and for continuously utilizing safe work practices while performing their duties.

C. Procedure

1. All new employees will go through a safety orientation prior to starting work.
2. The IIPP/Code of Safe Practices and all other safety issues will be communicated in a form readily understandable for all employees.
3. Safety orientation will be given in the employee's normal speaking language including all policies and programs.
4. Bay City Boiler encourages communications from employees to their supervisors and/or safety representatives regarding unsafe or unhealthy working conditions.
5. Direct communication of safety matters in the field between employees and supervisors is required and encouraged.
6. Safety information is posted and distributed by the site supervisor.

D. Training and Documentation

1. New Employee Orientation shall be completed prior to starting work.
2. Safety Training requirements shall be reviewed at least annually.
3. Training shall be documented on the "New Employee Safety Orientation Form" and shall contain employee's name and signature; the name and signature of the trainers, the topics covered and the dates of training.

New Employee Safety Orientation

The following items will be verbally covered with each new employee by the Foreman on the first day of their employment.

Employee Name: _____ Start Date _____

Jobsite: _____ Position _____

Instruction has been received in the following areas:

- ☐ **1. Code of Safe Practices. ***
- ☐ **2. Hazard Communication Training materials. ***
- ☐ **3. Driving Safety Rules. ***
- ☐ **4. IIPP and Zero Tolerance Policy.**
- ☐ **5. Necessity of immediately reporting all injuries, no matter how minor.**
- ☐ **6. Expectations and method for reporting safety hazards.**
- ☐ **7. Emergency and First Aid procedures.**
- ☐ **8. Proper work clothing & required personal protective equipment.**
- ☐ **9. List all special equipment, such as lifts, employee is trained and authorized to use.**

*** Give a copy of these items to the employee**

I agree to abide by all Bay City Boiler safety policies and the Code of Safe Practices. I also understand that failure to do so may result in disciplinary action and possible termination.

Employee Signature _____ Date _____

28.0 Respiratory Protection & Personal Protective Equipment Program

A. Purpose

This program establishes minimum requirements for the use of appropriate PPE in order to reduce the hazard to personnel, visitors, subcontractors, engineers, inspectors, and anyone who has authorized access to the site.

B. Roles and Responsibility

1. Supervisors shall assure that PPE are provided at no cost to employees and used appropriately. Employee provided PPE is not allowed.
2. Management is responsible to administer or oversee the respiratory protection program and ensure that the required evaluations are completed to ensure program effectiveness.
3. All personnel, visitors, subcontractors, engineers, inspectors, and anyone who has authorized access to the site are responsible to use proper fitting PPE in accordance with company policies.
4. Employees are not allowed to work in or around Immediately Dangerous to Life and Health (IDLH) environments.

C. Procedure

1. Supervisors hall conduct a certified hazard assessment of the workplace to determine if hazards are present or likely to be present. If hazards are present, engineering and administrative controls should be implemented to eliminate the hazard. If engineering and administrative controls will not eliminate the hazard, the use of properly sized and fitted PPE shall be designated to protect employees.
2. Each employee who is required to wear PPE will be trained on the following:
    a. When PPE is necessary.
    b. What PPE is necessary.
    c. How to select don, doff, adjust, and wear the PPE.
    d. The limits of the PPE, including that defective or damaged PPE must be removed from service.
    e. PPE is maintained in a sanitary or clean condition, properly maintained over its useful life, and disposal of defective or worn PPE.
    f. Retrained if deemed necessary.
3. PPE will be issued by Bay City Boiler Supervisors.
4. After the first issuance of PPE, damaged, spent or ineffective PPE may be traded in for new PPE.
5. Hard hats are required at all times on the job site and:
    a. Shall comply with the requirements of the most current ANSI Z89.1 standard with the exception that class “C” hard hats shall not be allowed on site.

b. Any employee exposed to high voltage shall wear a hard hat that meets Di-electric Standards (constructed of non-conductive material). It is recommended that all hard hats purchased meet both the Z89.1 and Z89.2.

6. Eye protection (safety glasses, goggles, face shields, and/or hoods) is required at all times while working on the job.
   a) Safety glasses that comply with ANSI Z87.1.
   b) A protective face shield must be worn when operating a grinder, cut-off saw etc.
7. A proper protective dust mask/respirator must be worn when excessive dust or other airborne contaminants are present.
8. Sturdy footwear and proper clothing will be worn; this means clothes appropriate for the job. Footwear will meet specifications in ANSI Z41.1 for Safety-Toe Footwear.
9. PPE Categories for Working with Hazardous Materials
   a. Level A- This type of protection should be worn when the highest level of respiratory, skin, eye and mucous membrane protection is needed.
   b. Level B- Level B protection should be selected when the highest level of respiratory protection is needed, but a lesser level of skin and eye protection.
   c. Level C- This level of protection should be selected when the actual or potential airborne substance(s) is known, the concentration(s) is measured, the criteria for using air-purifying respirators are met and the skin and eye exposure is unlikely. Periodic air monitoring is necessary.
   d. Level D - Level D is primarily work-related clothing.
10. Hearing protection must be worn in designated areas as required in section 11 below.
11. Signs indicating hearing protection are required if:
    a. When noise levels reach 90 dba over any 8-hour time period. b.
    When noise levels reach 95 dba over any 4-hour time period. c.
    When noise levels reach 100 dba over any 2-hour time period.
    d. When noise levels reach 105 dba over any 1-hour time period.
    e. Exposure to impulsive or impact noise shall not exceed 140 dB peak sound pressure level.

D. Respiratory Protection Program

1. Occasionally work may necessitate the use of respirators to protect against air contaminants. Every effort to provide other means of protection, such as local exhaust ventilation, or substitution of less hazardous material, prior to requiring employees to wear respirators.
2. Bay City Boiler will provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace. We may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.
3. Bay City Boiler will provide respirators, training, and medical evaluations at no cost to the employee who is required to use respirators. The training will be comprehensive, understandable, and recur annually or more often if necessary.

4. Only parts approved for the specific respirator system shall be used for replacement.
5. Respirators shall be selected from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.
6. General Respiratory Protection Guidelines:
    a. Only respiratory equipment approved for that purpose shall be used and such equipment shall be approved by the National Institute for Occupational Safety and Health (NIOSH) in compliance with the conditions of its certification.
    b. Only parts approved for the specific respirator system shall be used for replacement.
    c. Ensure the respirator is clean, sanitary, and in good working order.
    d. Respirators that contain a tight-fitting face-piece must pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT) each time they are used.
    e. The Site Supervisor shall ensure that respirators are cleaned and disinfected following use.
    f. All filters, cartridges and canisters used in the workplace must be legibly labeled and color coded with the NIOSH approval label that must not be removed.
    g. Site supervisors will conduct periodic evaluations of the workplace to ensure that the written respiratory protection program is being properly implemented and to consult with employees to ensure that they are using the respirators properly.
7. Written information regarding medical evaluations, fit testing, and the respirator program shall be retained for 30 years after employment.
8. Respirator Selection:
    a. Respirator selection will be made in accordance with Cal/OSHA or ANSI Z88.2-1980 standards.
    b. The correct respirator shall be specified for each job.
    c. The individual issuing respirators shall be adequately trained to ensure that the correct respirator is issued for the intended service.
    d. The manufacturers' recommendations and literature will also be reviewed to determine if the respirator provides protection against the expected contaminants. For instance, dust masks do not provide protection against gasses or vapors.
9. Respirators for Immediately Dangerous to Life and Health (IDLH) Atmospheres:
    a. All oxygen-deficient atmospheres shall be considered IDLH.
    b. A full face-piece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes, or
    c. A combination full face-piece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.
    d. Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.
10. Respirators for atmospheres that are not IDLH.
    a. For protection against gases and vapors
        i. An atmosphere-supplying respirator; or

ii. An air-purifying respirator, provided that the respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant;

iii. If there is no ESLI appropriate for conditions in the workplace, then a change schedule will be implemented for canisters and cartridges based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life.

b) For protection against particulates

i. An atmosphere-supplying respirator; or

ii. An air-purifying respirator equipped with a filter certified by NIOSH under 30 CFR part 11 as a high efficiency particulate air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH under 42 CFR part 84; or

iii. For contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.

11. Medical Evaluation Procedures

a. Employees shall not be assigned to tasks requiring the use of respirators unless it has been determined that they are physically able to perform the work while using the required respiratory equipment.

b. Bay City Boiler shall identify a Physician or other Licensed Health Care Professional (PLHCP) to perform medical evaluations.

c. The medical evaluation shall include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

d. Medical questionnaires and examinations shall be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee.

e. The employee shall have an opportunity to discuss the examination results with the PLHCP.

f. The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:

i. The type and weight of the respirator to be used by the employee;

ii. The duration and frequency of respirator use (including use for rescue and escape);

iii. The expected physical work effort;

iv. Additional protective clothing and equipment to be worn;

v. Temperature and humidity extremes that may be encountered.

vi. A copy of this written respiratory protection program and a copy of the OSHA regulations if they do not already have them.

g. In determining the employee's ability to use a respirator, management shall obtain a written recommendation regarding the employee's ability to use the respirator from a PLHCP.

h. The recommendation shall provide the following information:

i. Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator;

ii. The need, if any, for follow-up medical evaluations; and

iii. A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

12. Management hall provide additional medical evaluations that comply with the requirements of this section if:
    a. An employee reports medical signs or symptoms that are related to ability to use a respirator; or
    b. A PLHCP or supervisor informs the employer that an employee needs to be reevaluated; or
    c. Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation; or
    d. A change occurs in workplace conditions (e.g., physical work effort, protective clothing, and temperature) that may result in a substantial increase in the physiological burden placed on an employee.
13. Fit Testing shall occur:
    a. prior to initial use of the respirator, or
    b. whenever a different respirator face-piece (size, style, model or make) is used, or
    c. at least annually or
    d. whenever an employee reports or the PLHCP or the supervisor makes visual observations of changes in the employee's physical condition that could affect respirator fit, such as but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight, or
    e. If after passing a QLFT or QNFT, the employee subsequently notifies the program administrator or supervisor or PLHCP that the fit of the respirator is unacceptable. The employee shall be given a reasonable opportunity to select a different respirator face-piece and to be retested
14. The fit test shall be administered using an OSHA-accepted QLFT or QNFT protocol.
15. Usage Rules
    a. Supervisors shall not permit respirators with tight-fitting face-pieces to be worn by employees who have:
        i. Facial hair that comes between the sealing surface of the face-piece and the face or that interferes with valve function; or
        ii. Any condition that interferes with the face to face-piece seal or valve function
16. If an employee wears corrective glasses or goggles or other personal protective equipment, we shall ensure that such equipment is worn in a manner that does not interfere with the seal of the face-piece to the face of the user.

17. For all tight-fitting respirators, we shall ensure that employees perform a user seal check each time they put on the respirator.
18. Appropriate surveillance shall be maintained of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, we shall reevaluate the continued effectiveness of the respirator.
19. When not in use, respirators shall be stored to protect against dust, sunlight, extreme temperatures, excessive moisture, or damaging chemicals. Plastic zip lock bags are suitable for storage.
20. Employees must leave the respirator use area:
    a. To wash their faces and respirator face-pieces as necessary to prevent eye or skin irritation associated with respirator use; or
    b. If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face-piece; or
    c. To replace the respirator or the filter, cartridge, or canister elements.
    d. If the employee detects vapor or gas breakthrough, IDLH conditions, changes in breathing resistance, or leakage of the face-piece, we will replace or repair the respirator before allowing the employee to return to the work area.
21. Maintenance, Inspection and Care of Respirators
    a. All respirators used in routine situations shall be inspected before each use and during cleaning.
    b. Before each use, a check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the face-piece, check of elastomeric parts for pliability and signs of deterioration, head straps, valves, connecting tube, and cartridges, canisters or filters.
    c. Respirators are cleaned and disinfected using procedures recommended by the respirator manufacturer.
    d. Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.
    e. Respirators issued to more than one employee shall be cleaned and disinfected before being worn by different individuals.
    f. Respirators used in fit testing and training shall be cleaned and disinfected after each use.
    g. Respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be packed or stored to prevent deformation of the face-piece and exhalation valve.

E. Training and Documentation

1. Basic advisory information on respirators, as presented in Appendix D of Section 5144 of the California Code of Regulations (8CCR~5144), shall be provided to employees who wear

respirators when such use is not required by this section or by.

2. Training shall ensure that each employee required to use a respirator can demonstrate knowledge of at least the following:
   a. Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
   b. What the limitations and capabilities of the respirator are;
   c. How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
   d. How to inspect, put on and remove, use, and check the seals of the respirator;
   e. What the procedures are for maintenance and storage of the respirator;
   f. How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
3. Records of medical evaluations must be retained and made available in accordance with section 3204 (8 CCR~3204) of the California Code of Regulations.
4. Records of the qualitative and quantitative fit tests administered to an employee include:
   a. The name or identification of the employee tested;
   b. Type of fit test performed;
   c. Specific make, model, style, and size of respirator tested;
   d. Date of test;
   e. The pass/fail results for QLFTs or the fit factor and strip chart recording or other recording of the test results for QNFTs.
5. Fit test records shall be retained for respirator users until the next fit test is administered.
6. Annual refresher training required.
7. PPE Training on selection and proper use will be documented as required.
8. Employees noted not using PPE in a proper manner will be retrained.

29.0 Record Keeping Requirements

A. Purpose

This procedure describes the records requirements for all injuries and illnesses classified as needing medical treatment and all incidents of Lost Work Day Cases (LWDC), Restricted Work Day Cases (RWDC), Fatalities, and occupational related illnesses that shall be communicated to Cal/ OSHA.

B. Roles and Responsibility

Management is responsible for creating and maintaining these records.

C. Procedure

1. All incidents must be reported immediately.
2. An OSHA 301 Injury and Illness Incident Reporting Form must be completed by supervisor when a recordable work-related injury or illness has occurred as required as defined in CA Labor Code Section 5401(a).
3. The decision tree for recording work-related injuries and illnesses below shows the steps involved in making this determination:

Decision Tree

NO ← Did the employee experience an injury or illness?

↓

YES

↓

NO ← Is the injury or illness work-related?

↓

Yes

↓

Is the injury or illness a new case? **NO** → Update the previously recorded injury or illness entry if necessary

YES

↓

NO ← Does the injury or illness meet the general recorded criteria or the application to specific cases? → **YES**

↓ ↓

Do not record the injury or illness

Record the injury or illness

4. These reports shall be logged onto the OSHA 300 Log,
5. These reports are retained on file for 5 years following the year in which incident occurred.
6. Directions for completing the log are found on the back of the log and in 29 CFR 1904. Copies of completed OSHA 300 forms for the previous year shall be sent to each facility for posting by January 31st each year.
7. These records are governed by Cal/OSHA Chapter 7, Division of Labor Statistics and Research; Subchapter 1. Occupational Injury and Illness Reports and Records; Article 2. Employer Records of Occupational Injury or Illness; §14300.7.

D. Document Retention Schedule

Completed OSHA 301 forms are retained on file for 5 years following the year in which incident occurred.

30.0 Safe Scaffold Use Policy

A. Purpose

The purpose of this program is to establish safety guidelines that comply with T8CCR 1637.1–1666 and protect personnel who perform work on scaffolding.

B. Roles & Responsibilities

It is the responsibility of management to enforce the policy and for all employees and contractors to follow the contents. This policy applies to all employees and contract personnel.

C. Procedure

This program establishes minimum safety expectations and procedures for employees and contractor personnel who perform work on scaffolding. This policy is focused on general safety scaffolding work practices, and training requirements of personnel to enable their ability to recognize unsafe scaffolding and to execute their responsibilities for safe scaffold use and work practices.

1. Program Responsibilities

Project Manager is responsible to:

a. Designate and ensure the person designated as “Competent Scaffold Inspector” is adequately trained and experienced to identify hazards and has the authority to take prompt and corrective measures to eliminate hazards.

b. Ensure scaffolding and related equipment provided at the jobsite is OSHA and ANSI compliant and is inspected/cleared daily for safe use by the designated scaffolding competent person.

c. Ensure employees and sub-contractors are operating safely and in accordance with this policy by performing periodic reviews and audits.

d. Identify employees/personnel who are affected by this program and ensure they receive the required training and employ appropriate personal protective equipment.

e. Provide communication between employees and management concerning scaffolding safe work practices.

f. Respond to the Competent Persons’ notification of scaffolding deficiencies and correct immediately.

2. **Affected personnel are responsible to**:
   a. Complete all required training prior to performing work on or near scaffolding.
   b. Wear and employ required personal protective equipment.
   c. Not use a scaffold if it has not been inspected/cleared for safe use by the designated scaffold competent person.
   d. Immediately report any scaffolding safety issues to a supervisor.

3. **Training Requirements**

   Employees performing work duties on scaffolding must be trained by a person who is qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. The training must include:
   a. Electrical hazards, fall hazards, and falling object hazards in the area.
   b. The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling fall protection and falling object protection systems.
   c. Proper use of the scaffold and proper handling of materials on the scaffold.
   d. The maximum intended load and load carrying capacities of the scaffolding.
   e. The relevant requirements of the OSHA scaffolding standard.

4. **Training/Retraining Frequency**

   Scaffolding users must be trained before their first assignment to work using the scaffold, and when:
   a. Changes at the jobsite present a hazard about which the jobsite personnel have not been previously trained.
   b. Changes in the type of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which the personnel at the jobsite have not been previously trained.
   c. Inadequacies in an affected employee's work involving scaffolds indicating that the employee has not retained the requisite proficiency for working on the scaffold.

5. **Personal Protective Equipment (PPE)**

   Employees will be trained on the site-specific hazards of the area, use of the scaffold and the PPE required for their safety while using a scaffold.
   a. PPE worn at jobsite must be ANSI certified.
   b. For specific PPE refer to your Supervisor.
   c. The competent person will evaluate hazards to ensure that proper protection is provided.

6. **Scaffolding Inspections**

   Scaffolding inspections shall be completed and documented by the designated scaffold competent person. These inspections should occur in accordance with OSHA

regulations and by the manufacturer's documentation. Inspections must occur in the following situations:

a. After scaffolding construction, prior to employees accessing the scaffolding.
b. Prior to every work shift scaffolding inspection shall be documented.
c. Whenever employees cite concerns with the scaffolding.
d. After any occurrence which could affect a scaffold's structural integrity.

7. General Scaffold Requirements

1. The design working load of ladder stands shall be calculated on the basis of one or more 200-pound persons together with 50 pounds of equipment each.
2. The design load of all scaffolds shall be calculated on the basis of:
   (A) Light -Designed and constructed to carry a working load of 25 pounds per square foot.
   (B) Medium -Designed and constructed to carry a working load of 50 pounds per square foot.
   (C) Heavy -Designed and constructed to carry a working load of 75 pounds per square foot.
3. All ladder stands, and scaffolds shall be capable of supporting at least 4 times the design working load.
4. The maximum work level height shall not exceed 3 times the least base dimension below the platform. Where the basic mobile unit does not meet this requirement, outrigger frames shall be employed to achieve this least base dimension, or provisions shall be made to guy or brace the unit against tipping.
5. The minimum platform width for any work level shall not be less than 20 inches for mobile scaffolds (towers). Ladder stands shall have a minimum step width of 16 inches.
6. The supporting structure for the work level shall be rigidly braced, using cross bracing or diagonal bracing with rigid platforms at each work level.
7. The steps of ladder stands shall be slip-resistant.
8. The work level platform of scaffolds (towers) shall be the full width of the scaffold, except for necessary openings. Work platforms shall be secured in place. All scaffold platforms shall meet the requirements of the Construction Safety Orders, Section 1637.
9. All scaffold work levels 6 feet or higher above the ground or floor shall have a toeboard at locations where persons are required to work or pass under the scaffold.
10. All scaffold work levels 30 inches or higher above the ground or floor shall have guardrail protection that meets the requirements of Sections 3209 and 3210.
11. Wheels or casters shall be properly designed for strength and dimensions to support 4 times the design working load.

12. All scaffold wheels, casters and swivels shall be provided with a positive locking device, or other effective means to prevent movement of the scaffold.
13. Ladder stands shall have at least 2 locking casters or other means of locking the unit in position. If only 2 casters are used, they shall be of the directional type and if 4 casters are used, at least 2 of the 4 shall be of the swivel type.
14. Locking devices shall be kept in the locked position when workers are climbing or working on scaffolds and ladder stands.
15. Where leveling of the elevated work platform is required, screw jacks or other similar means for adjusting the height shall be provided in the base section of each mobile unit. The screw jack shall extend into its leg tube at least 1/3 its length, but in no case shall the exposed portion of the screw jack exceed 12 inches.
16. A climbing ladder or stairway shall be provided for proper access and egress and shall be affixed or built into the scaffold and so located that its use will not have a tendency to tip the scaffold. A landing platform shall be provided at intervals not to exceed 30 feet.

8. General Safety Scaffolding Work Practices

Personnel working on/or near a scaffold shall observe and adhere to the following general scaffolding safe work practices:

a. The footing or anchorage for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as barrels, boxes, loose bricks, or concrete blocks shall not be used to support scaffolds or planks.
b. Guardrails and toe boards must be installed on all open sides and ends of platforms more than 7-1/2 feet above the ground or floor and 100% around the perimeter of designated walkways.
c. Scaffold access ladders, horizontal members, and stairways must provide safe and unobstructed access to all platforms and must be located so that its use will not disturb the stability of the scaffold.
d. Scaffolds and their components must be capable of supporting without failure at least 4 times the maximum intended load.
e. Scaffold, including accessories such as braces, brackets, trusses screw legs, ladders, couplers, etc. damaged or weakened from any cause must be repaired or replaced immediately. The scaffolding shall not be used until repairs have been completed.
f. The poles, legs, or uprights of scaffolds must be plumb and securely and rigidly braced to prevent swaying and displacement.
g. Planking or platforms must be overlapped (minimum 12 inches) or secured from movement.

h. Scaffold planks must extend over their end supports not less than 6 inches or more than 18 inches.
i. Overhead protection must be provided on a scaffold exposed to overhead hazards.
j. Scaffolding shall be maintained a safe distance from energized power lines.
k. Ladders and other devices shall not be used to increase working heights on scaffold platforms.
l. Loose materials, debris, and/or tools shall not be accumulated to cause a hazard.
m. When hazards of falling overhead objects are present, the area immediately below and adjacent to the scaffold shall be barricaded.

9. Scaffolding Use Procedure

Scaffold Design and Erection

a. Scaffolding shall be designed by a qualified person representing the certified scaffold erection company.
b. Scaffolding shall be designed in accordance with OSHA standards and scaffolding selected shall be appropriate for the type of work being performed.
c. Scaffolding erection personnel shall have training, and qualification of their employer.
d. Training qualifying records of personnel involved in scaffolding erection shall be made available upon request.

10. Pre-Use Inspection and Personnel Training

Prior to the scaffolding first use, the PM designated Site-Specific Scaffolding Competent Person shall:

a. Be capable of identifying and promptly correcting hazards.
b. Conduct an inspection and approve the scaffold for use.
c. Provide site personnel training on site-specific hazards and safe scaffold use. The training shall be documented; records retained in project files.
d. Inspect scaffolds for visible defects before each shift and after any alteration.
e. Contact PM to ensure defective parts are immediately repaired.
f. Determine fall protection requirements.
g. Train scaffold users to recognize hazards.
h. Determine if scaffolding is safe for work during storms or high winds.
i. Defective or unsafe scaffold shall be tagged “unsafe for use” and removed from service.

11. Periodic Inspections

Competent Person shall:

a. Prior to every work shift, inspect the scaffold and approve for use.

b. Retain records of inspections, approvals for site specific use, deficiencies identified and communication pertaining to scaffold repairs.

12. Scaffold Users

Prior to use, personnel shall receive scaffold user Site Specific

Training that shall include:

a. Requirements for working on scaffolding on site.
b. Access, egress and working requirements.
c. Safe material handling.
d. Emergency egress.
e. Hazard Recognition:
    i. Falls from elevation and personal fall arrest systems use.
    ii. Bad planking.
    iii. Scaffold collapse.
    iv. Getting struck by falling tools or debris.
    v. Possibilities of electrocution.

13. Inclement Weather and Seismic Activity

1. The Competent Person shall determine when the scaffolding user personnel's safety might be affected and has the authority to stop work on the scaffold during inclement weather and/or seismic activity occurrences. When advised by the Competent Person during the following conditions, personnel shall stop using the scaffold and wait for the competent person's clearance before returning to work.
    a. Seismic Activities.
    b. High Winds.
    c. Personnel shall wait a suitable amount of time after storm passage to recommence work.
2. The Competent Person shall inspect the scaffolding for visible defects after any occurrences which might affect the stability of the scaffolding structure.

31.0 Safety Committee Process

A. Purpose

This program ensures engagement across the organization in an effort to improve the safety program and safety culture on all worksites.

B. Roles and Responsibility

Management will ensure input into the safety committee meetings is achieved across the workforce, supervisors and management.

C. Procedure

1. Members on the committee will comprise a cross representation of the workforce, supervisors and management.
2. Meetings will be held at least quarterly.
3. They will provide guidance and support to the safety programs.
4. They will lead the development and facilitate the implementation of safety management improvements.
5. They will review all incidents, near-miss reports and trend analysis, inspections, and safety issues that are brought to their attention.
6. They will review safety training programs and compliance.
7. They may develop and approve additional safety recognition programs.

D. Training and Documentation

Meetings will be documented by:

1. Agenda
2. Meeting Minutes
3. Action items tracked to closure

32.0 Safety Over/Near Water

A. Purpose

The purpose of this procedure is to establish guidelines to protect all employees engaged in work activities over or near water where the danger of drowning exists including within 15 feet of an unprotected edge over water or on a slope where a fall into water could result.

B. Roles and Responsibility

Site Supervisor is responsible for implementing and maintaining this program.

C. Procedure

1. The following lifesaving equipment shall be available for all waterfront areas where personnel perform work tasks and/or may be present as a result of work related duties, irrespective of the presence of passive fall prevention equipment, such as guardrails.

    a. Ring buoys

        i. U. S. Coast Guard approved 30-inch ring buoys with at least 90 feet of 600-pound capacity line shall be readily available for emergency rescue operations. The distance between ring buoys shall not exceed 200 feet. Buoys shall be visually inspected monthly.

    b. Personal Floatation Devices (PFDs)

        i. U. S. Coast Guard approved personal flotation devices of a type that will support an unconscious person's head above water.

        ii. Each personal flotation device shall be maintained in safe condition and shall be visually inspected monthly.

        iii. Prior to and after each use, the buoyant work vests or life preservers shall be inspected for defects which would alter their strength or buoyancy. Defective units shall not be used.

D. Training and Documentation

1. Training shall be provided to all new employees and annually thereafter.
2. Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training.
3. Training shall include:
    a. When PFD's must be utilized
    b. Proper donning and fitting of PFD's used at the facility c.
    Limitations of PFD's used at the facility
    d. Deployment and retrieval of ring buoys from shore e.
    Proper inspection of PFD's and buoys

33.0 Safety Recognition Program

A. Purpose

This program encourages employee participation in the safety program by recognizing positive actions and behaviors in an effort to reinforce an injury-free safety culture.

B. Criteria

The following criteria are guidelines of a successful Safety Recognition Program. To be effective, safety recognitions must be administered consistently, fairly and without bias. Typical boundary conditions for distributing recognitions should include:

1. Non-entitlement; every recognition is earned and documented.
2. Spontaneous & timely award of all recognitions.
3. Immediate & Milestone based; milestone recognitions must not be held due to safety performance and regardless if an injury occurs or not, in order to prevent the non-reporting of injuries in order to obtain rewards.
4. A program administrator must be identified and empowered to manage the program effectively and fairly.
5. All employees are eligible for recognition.
6. All employees are eligible to award or suggest the recognition of fellow employees.
7. Where possible, recognitions should try to bring “home” the safety message that the employee was recognized at work as being a safety role model.

C. Recognition Guidelines:

Recognitions should be used to show appreciation to those employees/workers that meet any of the following recognition criteria:

1. Role Modeling Safe Behaviors.
2. Caught “doing everything right.”
3. Going “above & beyond” their normal work duties in the name of safety.
4. Being creative in preventing injuries and incidents.
5. Making safety suggestions to help improve the safety program or conditions.
6. Excellent Housekeeping.
7. Excellent Pre-Task Planning.
8. Considered to be Safety Role Models or Safety Champion by their coworkers.
9. Create a safety invention or idea.
10. Exhibit Safety Leadership traits.
11. Stopped unsafe acts or corrects unsafe conditions unsolicited.
12. Proactive safety engagement in engineering, planning and execution.

D. Documentation

Documenting employee safety recognition is not required by regulation. However, documenting the positive acts and role modeling efforts of employees and the effect they have on the safety program and culture is an excellent way to track employee engagement and identify those employees that strive to improve safety performance.

34.0 Spill Prevention & Response Policy

A. Purpose

To establish a policy that will establish the minimum expectations for the protection of personnel and the environment on all projects. Our goal is to ensure the safest working environment possible.

B. Roles and Responsibility

Project management, supervision and the workforce are all responsible for ensuring that all chemicals are stored, handled and used in a healthful and environmentally safe and compliant manner.

C. Procedure

Spill Prevention & Hazardous Substance Management: All hazardous substances, including chemical wastes, are to be managed in a way that prevents exposure to employees and accidental release into the environment. The following general requirements are to be followed and include:

a. Container Management:

1. All hazardous substance containers must be in good condition and compatible with the materials stored within.
2. All hazardous substance containers must be accessible and spacing between containers must provide sufficient access to perform periodic inspections and respond to releases.
3. Empty hazardous substance containers (drums) must have all markers and labels removed and the container marked with the word ‘empty’.
4. Any spills on the exterior of the container must be cleaned immediately.
5. Flammable materials stored or dispensed from drums or totes must be grounded to prevent static spark.
6. Do not overfill waste drums. 4” of headspace must remain to allow for expansion.
7. [Other site-specific practices].

b. Good Housekeeping:

1. All hazardous substances must be stored inside buildings or under cover.
2. Store hazardous substances not used daily in cabinets, or in designated areas.
3. All chemicals that are transferred from larger to smaller containers must be transferred by use of a funnel or spigot.
4. All hazardous substance containers should be closed while not in use.
5. Use drip pans or other collection devices to contain drips or leaks from dispensing containers or equipment.

6. Implement preventative maintenance activities to reduce the potential for release from equipment.
7. Immediately clean up and properly manage all small spills or leaks.
8. Periodically inspect equipment and hazardous substance storage areas to ensure leaks or spills are not occurring.
9. Use signage to identity hazardous substance storage or waste collection areas.
10. Keep all work areas and hazardous substance storage areas clean and in good general condition.
11. [Other site-specific practices]

c. Secondary Containment:

1. Store all bulk chemicals (≥55 gallons) within appropriate secondary containment, or any sized chemical if there is a potential for release to the environment.
2. Secondary containment should be checked periodically, and any spills identified in secondary containment must be immediately cleaned up and removed.
3. [Other site-specific practices]

d. Marking/Labeling:

1. Ensure all hazardous substances, including chemical wastes, are properly marked and labeled in accordance with all federal, state and local regulations.
2. Ensure that hazardous substances transferred to small containers are marked with the chemical's name (example - “Isopropyl Alcohol”) and hazard (example - “Flammable”).
3. [Other site-specific practices]

e. Employee Training:

1. All employees must receive periodic training on the proper handling of hazardous substances; spill prevention practices, and emergency response procedures. Training must include a review of the spill prevention and emergency response plan, and a review of location and use of emergency response equipment.
2. Training can be recorded through safety training, safety committee meetings, toolbox meetings, staff training logs, or other equivalent record keeping.

f. Spill Response Equipment:

1. Spill response equipment must be maintained and located in areas where spills are likely to occur. Spill kits should provide adequate response capabilities to manage any anticipated spill or release.
2. The following general requirements are to be followed. They include:
    a. Stock spill clean-up kits that are compatible with the hazardous substances stored on site;

b. Locate spill kits in areas where spills are likely to occur (loading docks, chemical storage areas, locations where hazardous substance are being transferred);
c. Spill kits should be sized to managing an anticipated release (spill equal to the largest container);
d. Emergency response equipment should be inspected periodically to ensure that the spill kit is complete.

g. Spill/Chemical Release Communication Protocols

1. All chemical spills or releases to the environment shall be reported to project management immediately upon awareness of the incident. Project management is responsible for any regulatory reporting requirements.
2. Safe and effective spill response measures shall be implemented immediately by the trained and authorized first responders in an effort to limit personnel exposure and any resulting environmental impact.
3. Follow all specific spill response measures by first donning all required PPE and following specific spill response procedures.
4. Notify project management on status of spill and ongoing operations on a routine basis, until response measures are complete, and all hazards and environmental impacts have been mitigated to safe levels.

35.0 Silica Exposure Prevention Program

A. Purpose

1. This Silica Exposure Prevention Program was developed to prevent employee and subcontractor exposure to hazardous levels of respirable crystalline silica. Respirable crystalline silica exposure at hazardous levels can lead to lung cancer, silicosis, chronic obstructive pulmonary disease, and kidney disease. This program is intended to meet the requirements of the respirable crystalline silica Construction Standard (29 CFR 1926.1153) established by the Occupational Safety and Health Administration (OSHA) and California Title 8, Section 1532.3, Occupational Exposures to Respirable Crystalline Silica.
2. All work involving chipping, cutting, drilling, grinding, or similar activities on materials containing crystalline silica can lead to the release of respirable-sized particles of crystalline silica (i.e. respirable crystalline silica). Crystalline silica is a basic component of soil, sand, granite and many other minerals. Quartz is the most common form of crystalline silica. Many materials found on constructions sites include crystalline silica; including but not limited to – cement, concrete, asphalt, pre-formed structures (inlets, pipe, etc.) and others. Consequently, this program has been developed to address and control these potential exposures to prevent employees from experiencing the effects of occupational illnesses related to respirable crystalline silica exposure.

B. Scope

This Silica Exposure Prevention Program applies to all employees who have the potential to be exposed to respirable crystalline silica when covered by the OSHA Standard. The OSHA Respirable Crystalline Silica Construction Standard applies to all occupational exposures to respirable crystalline silica in construction work, except where employee exposure will remain below 25 micrograms of respirable crystalline silica per cubic meter of air (25 µg/m3) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

C. Roles and Responsibility

1. Supervisor
   a. Conduct job site assessments for silica containing materials and perform or coordinate employee respirable crystalline silica hazard assessments to determine if an employee's exposure will be above 25 µg/m^3 as an 8-hour TWA under any foreseeable conditions.
   b. Select and implement into the project's Exposure Control Plan (ECP) the appropriate

control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written ECP, exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.

NOTE: OSHA's Construction Standard Table 1 (provided below) is a list of 18 common construction tasks along with acceptable exposure control methods and work practices that limit exposure for those tasks.

c. Ensure that the materials, tools, equipment, personal protective equipment (PPE), and other resources (such as worker training) required to fully implement and maintain this Silica Exposure Prevention Program are in place and readily available if needed.

d. Ensure that the Project Manager, Site Managers, Competent Persons, and employees are educated in the hazards of silica exposure and trained to work safely with silica in accordance with OSHA's Respirable Crystalline Silica Construction Standard and OSHA's Hazard Communication Standard. Managers and Competent Persons may receive more advanced training than other employees.

e. Assist Operations and Human Resources with maintaining written records of training (for example, proper use of respirators), ECPs, inspections (for equipment, PPE, and work methods/practices), medical surveillance (under lock and key), respirator medical clearances (under lock and key) and fit-test results.

f. Conduct an annual review (or more often if conditions change) of the effectiveness of this program and any active project ECP's that extend beyond a year. This includes a review of available dust control technologies to ensure these are selected and used when practical.

g. Coordinate work with other employers and contractors to ensure a safe work environment relative to silica exposure.

2. Project Managers / Foremen

a. Ensure all applicable elements of this Silica Exposure Prevention Program are implemented on the project including the selection of a Competent Person.

b. Assist the Supervisor in conducting job site assessments for silica- containing materials and perform employee respirable crystalline silica hazard assessments to determine if an ECP, exposure monitoring, and medical surveillance is necessary.

c. Assist in the selection and implementation of the appropriate control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.

d. Ensure that employees using respirators have been properly trained, medically cleared, and fit-tested in accordance with our Respiratory Protection Program. This process will be documented.

e. Ensure that work is conducted in a manner that minimizes and adequately controls the risk

to workers and others. This includes ensuring that workers use appropriate engineering controls, work practices, and wear the necessary PPE.

f. Where there is risk of exposure to silica dust, verify employees are properly trained on the applicable contents of this program, the project-specific ECP, and the applicable OSHA Standards (such as Hazard Communication). Ensure employees are provided appropriate PPE when conducting such work.

3. Competent Person
   a. Make frequent and regular inspections of job sites, materials, and equipment to implement the written ECP.
   b. Identify existing and foreseeable respirable crystalline silica hazards in the workplace and take prompt corrective measures to eliminate or minimize them.
   c. Notify Supervisor of any deficiencies identified during inspections in order to coordinate and facilitate prompt corrective action.
   d. Assist the Supervisor in conducting job site assessments for silica containing materials and perform employee respirable crystalline silica hazard assessments to determine if an ECP, exposure monitoring, and medical surveillance is necessary.
4. Employees
   a. Follow recognized work procedures (such as the Construction Tasks identified in OSHA's Construction Standard Table 1) as established in the project's ECP and this program.
   b. Use the assigned PPE in an effective and safe manner.
   c. Participate in respirable crystalline silica exposure monitoring and the medical surveillance program.
   d. Report any unsafe conditions or acts to the Site Supervisor and/or Competent Person.
   e. Report any exposure incidents or any signs or symptoms of silica illness.

D. Definitions

Action Level means a concentration of airborne respirable crystalline silica of 25 µg/m^3, calculated as an 8-hour TWA.

Competent Person means an individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them.

Employee Exposure means the exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator.

High-Efficiency Particulate Air (HEPA) Filter means a filter that is at least 99.97 percent efficient in removing monodispersed particles of 0.3 micrometers in diameter.

Objective Data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process,

task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Permissible Exposure Limit (PEL) means the employer shall ensure that no employee is exposed to an airborne concentration of respirable crystalline silica in excess of 50 µg/m^3, calculated as an 8-hour TWA.

Physician or Other Licensed Health Care Professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by the Medical Surveillance Section of the OSHA Respirable Crystalline Silica Standard.

Respirable Crystalline Silica means Quartz, Cristobalite, and/or Tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable particle size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality-Particle Size Fraction Definitions for Health-Related Sampling.

Specialist means an American Board-Certified Specialist in Pulmonary Disease or an American Board-Certified Specialist in Occupational Medicine.

E. Requirements

1. Specified Exposure Control Methods

   When possible and applicable, Bay City Boiler will conduct activities, with potential silica exposure, to be consistent with OSHA's Construction Standard Table 1. Supervisors will ensure each employee and subcontractor, under their supervision, and engaged in a task identified on OSHA's Construction Standard Table 1, fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task on Table 1. Exception would be if

   Supervisors have assessed and limited the exposure of the employee to respirable crystalline silica in accordance with the Alternative Exposure Control Methods section of this program.

2. Possible tasks performed by employees may include those identified on the Construction Standard Table 1, listed below:

Table 1: Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
1	Stationary masonry saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
2a	Handheld power saws (any blade diameter) when used outdoors	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
2b	Handheld power saws (any blade diameter) when used indoors or in an enclosed area	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
3	Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less) for tasks performed outdoors only	Use saw equipped with commercially available dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	None	None
4a	Walk-behind saws when used outdoors	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None

Table 1: Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica (Cont.)

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
4b	Walk-behind saws when used indoors or in an enclosed area	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
5	Drivable saws for tasks performed outdoors only	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
6	Rig-mounted core saws or drills	Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
7	Handheld and stand-mounted drills (including impact and rotary hammer drills)	Use drill equipped with commercially available shroud or cowling with dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	None	None
8	Dowel drilling rigs for concrete for tasks performed outdoors only	Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask

Table 1: Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica (Cont.)

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
9a	Vehicle-mounted drilling rigs for rock and concrete	Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.	None	None
9b	Vehicle-mounted drilling rigs for rock and concrete	Operate from within an enclosed cab and use water for dust suppression on drill bit.	None	None
10a	Jackhammers and handheld powered chipping tools when used outdoors	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10b	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10c	Jackhammers and handheld powered chipping tools when used outdoors	Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask

Table 1: Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica (Cont.)

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
10d	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
11	Handheld grinders fo mortar removal (i.e. tuckpointing)	Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	Powered Air-Purifying Respirator (PAPR) with P100 Filters
12a	Handheld grinders fo uses other than morta removal for tasks performed outdoors only	Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
12b	Handheld grinders fo uses other than morta removal when used outdoors	Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	None	None

Table 1: Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica (Cont.)

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
12c	Handheld grinders for uses other than mortar removal when used indoors or in an enclosed area	Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's Instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
13a	Walk-behind milling machines and floor grinders	Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
13b	Walk-behind milling machines and floor grinders	Use machine equipped with dust collection system recommended by the manufacturer. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	None	None
14	Small drivable milling machines (less than half-lane)	Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None

Table 1: Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica (Cont.)

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
15a	Large drivable milling machines (half-lane and larger) for cuts of any depth on asphalt only	Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions.	None	None
15b	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions.	None	None
15c	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None
16	Crushing machines	Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points). Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote-control station.	None	None

Table 1: Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica (Cont.)

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
17a	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe- ramming, rock ripping) or used during demolition activities involving silica- containing materials	Operate equipment from within an enclosed cab.	None	None
17b	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe- ramming, rock ripping) or used during demolition activities involving silica- containing materials	When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
18a	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	Apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
18b	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None

3. When implementing the control measures specified in Table 1, Supervisors shall:
   a. For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust (dustless tools).
   b. For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust.

c. For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:
   i. Is maintained as free as practicable from settled dust.
   ii. Has door seals and closing mechanisms that work properly.
   iii. Has gaskets and seals that are in good condition and working properly.
   iv. Is under positive pressure maintained through continuous delivery of fresh air.
   v. Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 μm range (e.g., MERV-16 or better).
   vi. Has heating and cooling capabilities.

d. Where an employee performs more than one task included on OSHA's Construction Standard Table 1 during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

4. Alternative Exposure Control Methods

Alternative Exposure Control Methods apply for tasks not listed in OSHA's Construction Standard Table 1, or where cannot fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1. First, we will assess the exposure of each employee who is or may reasonably be expected to be exposed to respirable crystalline silica at or above the Action Level in accordance with either the Performance Option or the Scheduled Monitoring Option.

a. Performance Option**.** Assess the 8-hour TWA exposure for each employee based on any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to respirable crystalline silica.

b. Scheduled Monitoring Option:

   i. Perform initial monitoring to assess the 8-hour TWA exposure for each employee based on one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, and in each work area. Where several employees perform the same tasks on the same shift and in the same work area, Supervisors will plan to monitor a representative fraction of these employees. When using representative monitoring, we will sample the employee(s) who are expected to have the highest exposure to respirable crystalline silica.

   ii. If initial monitoring indicates that employee exposures are below the Action Level, we will discontinue monitoring for those employees whose exposures are represented by such monitoring.

   iii. Where the most recent exposure monitoring indicates that employee exposures are at or above the Action Level but at or below the PEL, we will repeat such monitoring within six months

of the most recent monitoring.

iv. Where the most recent exposure monitoring indicates that employee exposures are above the PEL, we will repeat such monitoring within three months of the most recent monitoring.

v. Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the Action Level, we will repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the Action Level, at which time we will discontinue monitoring for those employees whose exposures are represented by such monitoring, except when a reassessment is required.

vi. We will reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the Action Level, or when management has any reason to believe that new or additional exposures at or above the Action Level have occurred.

vii. We will ensure that all respirable crystalline silica samples taken to satisfy the monitoring requirements of this program and OSHA are collected by a qualified individual (i.e. a Certified Industrial Hygienist) and the samples are evaluated by a qualified laboratory (i.e. accredited to ANS/ISO/IEC Standard 17025:2005 with respect to Crystalline Silica analyses by a body that is compliant with ISO/IEC Standard 17011:2004 for implementation of quality assessment programs).

viii. Within five working days after completing an exposure assessment, Bay City Boiler will individually notify each affected employee in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees.

ix. Whenever an exposure assessment indicates that employee exposure is above the PEL, Bay City Boiler will describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

x. Where air monitoring is performed, we will provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to respirable crystalline silica. When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required for any workplace hazard, we will provide the observer with protective clothing and equipment at no cost and shall ensure that the observer uses such clothing and equipment.

xi. Once air monitoring has been performed, Management will determine its method of compliance based on the monitoring data and the hierarchy of controls. Engineering and work practice controls will be used to reduce and maintain employee exposure to respirable crystalline silica to or below the PEL, unless it can be demonstrated that such controls are not feasible. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, management will use them to reduce employee exposure to the lowest feasible level and shall supplement them with the use of respiratory protection.

xii. In addition to the requirements of this program, we will comply with other programs and OSHA standards (such as 29 CFR 1926.57 [Ventilation]), when applicable where abrasive blasting is conducted using crystalline silica-containing blasting agents, or where abrasive blasting is conducted on substrates that contain crystalline silica.

4. General Control Method Requirements
   a. Bay City Boiler will provide control methods that are either consistent with Table 1 or otherwise minimize worker exposures to silica. These exposure control methods can include engineering controls, work practices, and respiratory protection. Control methods to be used when Table 1 is not followed will be documented as part of a Silica Written Exposure Control Plan (see Appendix I).
   b. When local exhaust ventilation (LEV) is used, the following systems and safe work practices must be followed:
      i. Vacuum attachment systems used to capture and control the dust at its source whenever possible.
      ii. Tools and equipment operated and maintained as recommended by manufacturers.
      iii. Workers and supervisors are trained on how to properly use and maintain the equipment.
   c. When water spray systems are used for wet dust suppression (WDS), the following safe work practices must be used:
      i. Pressure and flow rate of water will be controlled in accordance with tool manufacturers' specifications.
      ii. When sawing concrete or masonry, use only saws that provide water to the blade.
      iii. Wet slurry will be cleaned from work surfaces when the work is completed, using a wet vacuum or wet sweeping.
   d. When barriers or enclosures are used, the following safe work practices must be used:
      i. The competent person will determine the type and design of barrier or enclosure (based on the work activity and the work area) and ensure it is constructed in accordance with the work plan.
      ii. Commercially available negative air units will be used when constructing a full enclosure.
   e. Workers will wear protective clothing as specified in task-specific work procedures to prevent contamination of worker clothing. Workers will not use compressed air to clean themselves, their clothing, or their equipment.
   f. After performing in work areas with potential exposure to respirable crystalline silica, employees must wash their hands before eating, drinking, or smoking.
5. Respiratory Protection
   a. Where respiratory protection is required by this program, e will provide each employee an appropriate respirator that complies with the requirements of the company's Respiratory Protection Program and the OSHA Respiratory Protection Standard (29 CFR 1910.134).
   b. Respiratory protection is required where specified by the OSHA Construction Standard Table 1, for tasks not listed in Table 1, or where the company has not fully and properly implemented the engineering controls, work practices, and respiratory protection described in Table 1.
   c. Situations requiring respiratory protection include:
      i. Where exposures exceed the PEL during periods necessary to install or implement feasible

engineering and work practice controls.

ii. Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering and work practice controls are not feasible.

iii. During tasks for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL.

6. Housekeeping

a. We do not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to respirable crystalline silica unless wet sweeping, HEPA-filtered vacuuming, or other methods that minimize the likelihood of exposure are not feasible.

i. The use of sweeping compound (e.g. non-grit, oil- or wax-based) is an acceptable dust-suppression housekeeping method.

b. We do not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to respirable crystalline silica unless:

i. The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or

ii. No alternative method is feasible.

7. Written Exposure Control Plan

a. When employee exposure on a construction project is expected to be at or above the Action Level, a written Exposure Control Plan (ECP) will be established and implemented with the following elements:

i. A description of the tasks in the workplace that involve exposure to respirable crystalline silica.

ii. A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task.

iii. A description of the housekeeping measures used to limit employee exposure to respirable crystalline silica.

iv. A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other employers or sole proprietors.

b. The written ECP will designate a Competent Person to make frequent and regular inspections of job sites, materials, and equipment to ensure the ECP is implemented.

c. The written ECP will be reviewed at least annually to evaluate the effectiveness of it and update it as necessary. The written ECP will be readily available for examination and copying, upon request, to each employee covered by this program and/or ECP, their designated representatives, and OSHA. Refer to the Appendix I for a written ECP template.

8. Medical Surveillance

a. Medical surveillance will be made available for each employee who will be required to use a respirator for 30 or more days per year due to their respirable crystalline silica exposure.

b. Medical surveillance (i.e. medical examinations and procedures) will be performed by a PLHCP and

provided at no cost to the employee at a reasonable time and place.

c. Management will make available an initial (baseline) medical examination within 30 days after initial assignment, unless the employee has received a medical examination that meets the requirements of the OSHA Respirable Crystalline Silica Construction Standard within the last three years. The examination shall consist of:

   i. A medical and work history, with emphasis on past, present, and anticipated exposure to respirable crystalline silica, dust, and other agents affecting the respiratory system in addition to any history of respiratory system dysfunction, including signs and symptoms of respiratory disease (e.g., shortness of breath, cough, wheezing), history of tuberculosis, and smoking status and history.

   ii. A physical examination with special emphasis on the respiratory system.

   iii. A chest X-ray (a single posterior-anterior radiographic projection or radiograph of the chest at full inspiration recorded on either film [no less than 14 x 17 inches and no more than 16 x 17 inches] or digital radiography systems) interpreted and classified according to the International Labor Office (ILO) International Classification of Radiographs of Pneumoconiosis by a NIOSH-certified B Reader.

   iv. A pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) and FEV1/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH-approved spirometry course.

   v. Testing for latent tuberculosis infection.

   vi. Any other tests deemed appropriate by the PLHCP.

d. Bay City Boiler ill make available medical examinations that include the aforementioned procedures (except testing for latent tuberculosis infection) at least every three years. If recommended by the PLHCP, periodic examinations can be more frequently than every three years.

e. Bay City Boiler will ensure that the examining PLHCP has a copy of the OSHA Respirable Crystalline Silica Construction Standard, this program, and the following information:

   i. A description of the employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to respirable crystalline silica.

   ii. The employee's former, current, and anticipated levels of occupational exposure to respirable crystalline silica.

   iii. A description of any personal protective equipment (PPE) used or to be used by the employee,
   including when and for how long the employee has used or will use that equipment.

   iv. Information from records of employment-related medical examinations previously provided to the employee and currently within the control of Bay City Boiler .

f. Management will ensure that the PLHCP explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed. The written report shall contain:
   i. A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to respirable crystalline silica and any medical conditions that require further evaluation or treatment.
   ii. Any recommended limitations on the employee's use of respirators.
   iii. Any recommended limitations on the employee's exposure to respirable crystalline silica.
   iv. A statement that the employee should be examined by a specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

g. Bay City Boiler will also obtain a written medical opinion from the PLHCP within 30 days of the medical examination. The written opinion shall contain only the following to protect the employee's privacy:
   i. The date of the examination.
   ii. A statement that the examination has met the requirements of the OSHA Respirable Crystalline Silica Construction Standard.
   iii. Any recommended limitations on the employee's use of respirators.

h. If the employee provides written authorization, the written opinion shall also contain either or both of the following:
   i. Any recommended limitations on the employee's exposure to respirable crystalline silica; and/or
   ii. A statement that the employee should be examined by a specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

i. If the PLHCP's written medical opinion indicates that an employee should be examined by a specialist, Bay City Boiler will make available a medical examination by a specialist within 30 days after receiving the PLHCP's written opinion. Company will ensure that the examining specialist is provided with all of the information that the employer is obligated to provide to the PLHCP.

j. Company will ensure that the specialist explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of the examination. The written report will contain:
   i. A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to respirable crystalline silica and any medical conditions that require further evaluation or treatment.
   ii. Any recommended limitations on the employee's use of respirators.
   iii. Any recommended limitations on the employee's exposure to respirable crystalline silica.

k. Bay City Boiler will obtain a written opinion from the specialist within 30 days of the medical examination. The written opinion shall contain the following:
    i. The date of the examination.
    ii. Any recommended limitations on the employee's use of respirators.
    iii. If the employee provides written authorization, the written opinion shall also contain any recommended limitations on the employee's exposure tor respirable crystalline silica.

9. Hazard Communication
    a. We have included respirable crystalline silica in the company's Hazard Communication Program established to comply with the OSHA Hazard Communication Standard.
    b. We will ensure that each employee has access to labels on containers of crystalline silica and those containers' respective Safety Data Sheets (SDS's).
    c. All employees will be trained in accordance with the provisions of the OSHA Hazard Communication Standard. This training will cover concerns relating to cancer, lung effects, immune system effects, and kidney effects.
    d. We will ensure that each employee with the potential to be exposed at or above the Action Level for respirable crystalline silica can demonstrate knowledge and understanding of at least the following:
        i. The health hazards associated with exposure to respirable crystalline silica.
        ii. Specific tasks in the workplace that could result in exposure to respirable crystalline silica.
        iii. Specific measures e has implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators to be used.
        iv. The contents of the OSHA Respirable Crystalline Silica Construction Standard.
        v. The identity of the Competent Person(s) designated by e**.**
        vi. The purpose and a description of the company's Medical Surveillance Program.
    e. We will make a copy of the OSHA Respirable Crystalline Silica Construction Standard readily available without cost to any employee who requests it.

10. Recordkeeping
    a. e will make and maintain an accurate record of all exposure measurements taken to assess employee exposure to respirable crystalline silica. This record will include at least the following information:
        i. The date of measurement for each sample taken.
        ii. The task monitored.
        iii. Sampling and analytical methods used.
        iv. Number, duration, and results of samples taken.
        v. Identity of the laboratory that performed the analysis.
        vi. Type of personal protective equipment (PPE), such as respirators, worn by the employees monitored.
        vii. Name, employee number, and job classification of all employees represented by the monitoring, indicating which employees were monitored.
    b. e will ensure that exposure records are maintained and made available in accordance with 29 CFR

1910.1020 and Title 8, Section 1532.3, Occupational Exposures to Respirable Crystalline Silica.

c. Exposure records will be kept for at least 30 years.

d. e shall make and maintain an accurate record of all objective data relied upon to comply with the requirements of the OSHA Respirable Crystalline Silica Construction Standard. This record shall include at least the following information:

   i. The crystalline silica-containing material in question.
   ii. The source of the objective data.
   iii. The testing protocol and results of testing.
   iv. A description of the process, task, or activity on which the objective data were based.
   v. Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

e. We will ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020 and Title 8, Section 1532.3, Occupational Exposures to Respirable Crystalline Silica. Objective data records will be kept for at least 30 years.

e. We will make and maintain an accurate record for each employee enrolled in the Medical Surveillance portion of this program. The record shall include the following information about the employee:

   i. Name and social security number.
   ii. Copy of the PLHCPs' and/or Specialists' written medical opinions.
   iii. A copy of the information provided to the PLHCPs and Specialists.

f. e will ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020 and Title 8, Section 1532.3, Occupational Exposures to Respirable Crystalline Silica. Medical records will be kept under lock and key for at least the duration of employment plus 30 years. It is necessary to keep these records for extended periods because Silica-related diseases such as cancer often cannot be detected until several decades after exposure. However, if an employee works for an employer for less than one year, the employer does not have to keep the medical records after employment ends, as long as the employer gives those records to the employee.

F. Training and Documentation

1. All employees who have the potential to be exposed at or above the Action Level for respirable crystalline silica will be provided training on this policy.
2. This program will be reviewed and evaluated on an annual basis by management or more often due to changes to operations, or another applicable OSHA Standard requires an immediate re-validation of this program.
3. Documentation shall contain employee's name and signature; the name and signature of the trainer(s), and the dates of training.

APPENDIX I

Silica Exposure Prevention Program

Written Exposure Control Plan (ECP) Template

Bay City Boiler & Engineering Silica Written Exposure Control Plan				
Address/Location	**Date Range for Plan**	**Competent Person or Area Supervisor**		
Regulated and/or Restricted Area(s)				
Silica-containing Materials Encountered or Used				
Task	**Specific Exposure Control Method (from approved methods Table 1)**	**Engineering Controls**	**Administrative Controls (Including Work Practices and Cleaning Methods)**	**Personal Protective Equipment (Including Respiratory**

36.0 Trenching and Excavation Policy

A. Purpose

The purpose of this procedure is to establish minimum guidelines to protect all employees engaged in work activities where trenching and excavations are required or present.

B. Roles and Responsibility

Project Management is responsible for implementing and maintaining this program. All employees are required to comply with the contents of this policy.

C. Procedure

1. All work performed in excavations five feet or greater in depth shall be in accordance with this policy.
2. **Definitions:**
   a. **Benching -** means a method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near vertical surfaces between levels.
   b. **Cave-in -** means the separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.
   c. **Competent Person** - means one who is capable to identify existing and predictable hazards in the surroundings or working conditions that may affect employees and the general public, and who has authority to take prompt corrective measures to eliminate them.
   d. **The Competent Person(s):**
      i. Must be trained in and knowledgeable of excavation and trenching standard and other programs that may apply.
      ii. Must be capable of recognizing hazardous conditions and must have authority to stop work and ensure that hazards are corrected.
      iii. Performs and documents the 'Daily Excavation Inspection' and knows when inspections should be performed.
      iv. Must assure that the location of underground installations or utilities have been properly located.
      v. Must identify and ensure the use of adequate protective systems, work methods and personal protective equipment (PPE) on the excavation site.
   e. **Excavation** - means any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

f. **Registered Professional Engineer (RPE)** - means a person who is registered as a professional engineer.

g. **Shield (shield system)** - means a structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees with the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Also known as trench boxes or trench shields.

h. **Shoring (shoring system)** - means a structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

i. **Sloping (sloping system)** - means a method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline varies with differences in such factors as the soil type, environmental exposure conditions, and application of surcharge loads.

j. **Soil Type A** - Most stable: clay, silty clay, and hardpan (resists penetration). No soil is Type A if it is fissured, is subject to vibration of any type, has previously been disturbed, or has seeping water.

k. **Soil Type B** - Medium stability: silt, sandy loam, medium clay and unstable dry rock; previously disturbed soils unless otherwise classified as Type C.

l. **Soil Type C** - Least stable: gravel, loamy sand, soft clay, submerged soil or dense, heavy unstable rock, and soil from which any water is seeping.

m. **Soil - Mixed Types** (Layered Geological Strata) - The soil must be classified on the basis of the soil classification of the weakest soil layer. Each layer may be classified individually if a more stable layer lies below a less stable layer, i.e. where a Type C soil rests on top of stable rock.

n. **Trench (trench excavation**) - means a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench is not greater than 15 feet. If forms or other structures are installed or constructed in an excavation as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet or less, the excavation is also considered to be a trench.

D. Requirements

1. **Locate:** Underground utilities must be located (call 811 DIG) and marked before excavation begins. A competent person shall be identified by name on the dig permit for all excavations with a depth of four feet or greater at any portion that personnel may enter. The location of sewers, telephone, fuel, electric, water lines, or any other underground installations that may be encountered during excavation work must be determined and marked prior to opening an excavation.

2. Project Management shall make arrangements as necessary with the appropriate utility agency for the protection, removal, shutdown, or relocation of underground installations. If it is not possible to establish the exact location of these installations, the work may proceed with caution if detection equipment or other safe and acceptable means are used to locate the utility, such as potholing and hand digging.
3. Excavations must not endanger the underground installations, or the employees engaged in the work. Utilities left in place should be protected by barricades, shoring, suspension or other means as necessary to protect employees.

E. Protection of the Workforce and Public

1. Excavations must be isolated from public access by a substantial physical barrier. Barricades, lighting and posting shall be installed as appropriate prior to the start of excavation operations.
2. All temporary excavations of this type shall be backfilled as soon as possible. Guardrails, fences, or barricades should be installed around excavations adjacent to walkways, roads, paths or other traffic areas.
3. Use of barricade tape alone is not considered a sufficient method of isolation when the excavation is unattended.
4. Warning lights or other illumination shall be used as necessary for the safety of the public at night.
5. Wells, holes, pits, and similar excavations must be effectively barricaded or covered and posted.
6. Walkways or bridges used by the general public to cross excavations must be equipped with standard guardrails.
7. The need for (type & quantity) emergency response equipment shall be made by the project management team during the planning stage and any required emergency response equipment must be onsite before work begins for those activities warranting specialized emergency response equipment.

F. Surface Encumbrances

1. All equipment, materials, supplies, buildings, roadways, trees, utility vaults, boulders, etc. that could present a hazard to employees working in the excavation must be removed or supported as necessary to protect employee.

G. Soil Classification

1. The competent person in charge of the excavation shall be responsible for determining the soil type. All previously disturbed soil is automatically considered Type B or C soil. Soil may be considered Type C by default and no additional tests required. To classify

soil as type B the competent person shall use a visual test coupled with one or more manual tests.

H. Visual test

1. Evaluate the conditions around the site including the soil adjacent to the site and the soil being excavated. Identify any signs of vibration.
2. Check for crack-line openings along the failure zone, look for existing utilities that indicate that the soil has been previously disturbed, and observe the open side of the excavation for indications of layered geologic structuring.
3. Look for signs of bulging, boiling, or sloughing, as well as signs of water seepage from the sides or bottom of the excavation.
4. The area adjacent to the excavation should be evaluated for foundations or other intrusions into the failure zone, and the evaluator should check the spoil distance from the edge of the excavation.
5. Any one of the following will cause soil to be classified as Type C.
   a. Water seepage into excavation.
   b. Vibration from road traffic or equipment.
   c. Signs of bulging, boiling, or sloughing.
   d. Crack lines along failure zone.

I. Manual tests

1. **Thumb penetration test:**
   a. Attempt to press the thumb firmly into the soil in question.
   b. If the thumb penetrates no further than the length of the nail, it is probably Type B soil.
   c. If the thumb penetrates the full length of the thumb, it is Type C.
   d. It should be noted that the thumb penetration test is the least accurate testing method.

2. **Dry strength test:**
   a. Take a sample of dry soil. If it crumbles freely or with moderate pressure into individual grains it is considered granular (Type C).
   b. Dry soil that falls into clumps that subsequently break into smaller clumps (and the smaller clumps can only be broken with difficulty) it is probably clay in combination with gravel, sand, or silt (Type B).

3. **Plasticity or Wet Thread Test:**
   a. Take a moist sample of the soil.
   b. Mold it into a ball and then attempt to roll it into a thin thread approximately 1/8 inch in diameter by two inches in length.

c. If the soil sample does not break when held by one end, it may be considered Type B.

d. A pocket penetrometer, shear vane, or torvane may also be used to determine the unconfined compression strength of soils.

J. Protective Systems

1. In excavations greater than 5 feet in depth a method to protect people entering the excavation from cave-in must be employed. Acceptable protective methods include sloping, benching, shielding and shoring.
2. Excavations under the base of the footing of a foundation or wall require a support system designed by a registered professional engineer.
3. Sidewalks, pavement, utility vaults or other similar structures shall not be undermined unless a support system or another method of protection is provided to protect employees from their possible collapse.
4. Sloping or benching is often the preferred methods of protection; however, shoring or shielding is used when the location or depth makes sloping to the allowable angle impractical.
5. Protection of Adjacent Structures may be required and determined by a registered professional engineer before excavations activities can begin.

K. Sloping

1. Maximum allowable slopes for excavations less than 20' based on soil type and angle to the horizontal are as follows:
   a. Type B soil must have walls sloped to a maximum angle of 45-degrees (1:1 slope) from horizontal in all directions.
   b. Type C soil, must have walls sloped at a maximum angle of 34-degrees (1:1.5 slope) from horizontal in all directions.

2. Benching
   a. In Type B soil, the vertical height of the benches must not exceed 4 feet.
   b. Benches in increments of 2 feet or less is preferred. The angle developed by the edge of the benches must not exceed the maximum allowable slope for that soil type (Type B soil 45-degrees).

Benching is not permitted in Type C soil.

L. Shielding

1. Trench boxes or trench shields are intended to protect workers from cave-ins and similar incidents.
2. The trench shield is lowered into the excavation and workers may then enter the protected area within the shield.
3. Only trench shields designed or certified by a registered professional engineer may be used.

4. The use is limited to those trenches for which the shield is certified (e.g. maximum depth and material).
5. The manufacturer must approve any modifications to the shields.
6. The excavated area between the outside of the trench box and the face of the trench should be as small as possible.
7. The space between the trench box and the excavation side should be backfilled to prevent lateral movement of the box.
8. Trench boxes may be used in combination with sloping and benching. The box must extend at least 18 inches above the surrounding area if there is sloping toward the excavation. This can be accomplished by providing a benched area adjacent to the box.
9. Shields may be placed two feet above the bottom of an excavation, provided they are calculated to support the full depth of the excavation and there is no caving under or behind the shield.
10. Workers must enter and leave the shielded area in a protected manner, such as by a ladder or ramp. Workers may not remain in the shielded area while it is being moved.

M. Shoring

1. Hydraulic shoring is permitted as workers do not have to enter the trench to install it. It is gauge-regulated and ensures even distribution of pressure along the trench line and can be adapted to various trench depths and widths.
2. All shoring shall be installed from the top down and removed from the bottom up. Hydraulic shoring shall be checked at least once per shift for leaking hoses and/or cylinders, broken connections, cracked nipples, bent bases, and any other damaged or defective parts.
3. The top cylinder of hydraulic shoring shall be no more than 18 inches below the top of the excavation.
4. The bottom of the cylinder shall be no higher than four feet from the bottom of the excavation.
5. Only two feet of trench wall may be exposed beneath the bottom of the rail or plywood sheeting.
6. Three vertical shores, evenly spaced, must be used to form a system.
7. Wales are installed no more than two feet from the top, no more than four feet from the bottom, and no more than four feet apart, vertically.

N. Inspections

1. Frequent inspection of the excavation and surrounding area by the Competent Person is critical to ensure the safety of the workers involved in work within the trench.
2. The Competent Person must conduct inspections of the entire excavation site:

a. Daily and before the start of each shift.
b. As dictated by the work being done in the trench.
c. After every rainstorm.
d. When fissures, tension cracks, sloughing, undercutting, water seepage, bulging at the bottom, or other similar conditions occur.
e. When there is a change in the size, location, or placement of the spoil pile.
f. When there is any indication of change or movement in adjacent structures.

O. Temporary spoils

1. Shall be placed no closer than 2 feet from the surface edge of the excavation.
2. The distance is measured from the nearest base of the spoil to the cut.
3. This distance should not be measured from the crown of the spoil deposit.
4. This distance requirement ensures that loose rock or soil from the temporary spoil will not fall on employees in the trench.
5. The spoil should be placed so that it channels rainwater and other run-off water away from the excavation.
6. Spoil should be placed so that it cannot accidentally run, slide, or fall back into the excavation.

P. Surface Crossing of Trenches

1. Surface crossing of trenches should not be made unless absolutely necessary.
2. If crossing is absolutely necessary, they are only permitted under the following conditions:
   a. Vehicle crossings must be designed by and installed under the supervision of a registered professional engineer.
   b. Walkways or bridges must have a minimum clear width of 20 inches, be fitted with standard rails, and extend a minimum of 24 inches past the surface edge of the trench.

Q. Ingress and Egress

1. Trenches 4 feet or more in depth shall be provided with ladders or other fixed means of egress.
2. Spacing must be such that a worker will not have to travel more than 25 feet to the nearest means of egress. Ladders must be secured and extend a minimum of 36 inches above the landing. Metal ladders are not permitted.
3. When excavations exceed 6 feet in depth, a fall protection plan must be put into place and enforced, before employees are allowed to work near the excavations leading edge.

R. Exposure to Vehicles

1. Employees exposed to vehicular traffic shall be provided with and required to wear Type II reflective vests during the day or Type III reflective garments at night or other suitable garments marked with or made of reflectorized or high-visibility materials. Trained flag persons, signs, signals, and barricades shall be used when necessary.
2. All equipment must have working back up alarms at all times and visual warning lights when in operation.

S. Exposure to Falling Loads

1. Employees are not allowed in the excavation while heavy equipment is digging. Employees must not work under loads being lifted or moved by heavy equipment used for digging or lifting.
2. Employees are required to stand away from equipment that is being loaded or unloaded to avoid being struck by falling materials or spillage.

T. Hazardous Atmospheres and Confined Spaces

1. If there is any possibility that the trench or excavation could contain a hazardous atmosphere, such as areas around the use of internal combustion engines or naturally occurring hazards, atmospheric testing must be conducted prior to entry, especially in excavations or shafts.
2. Conditions that might warrant atmospheric testing would be if the excavation was made in a landfill area or in contaminated soils, or the excavation is adjacent to sources of contamination (e.g. hazardous gases, sewage, fuel leaks, etc.).
3. Testing shall be conducted before employees enter the trench and should be done continuously to ensure that the trench remains safe.
4. Employees required to wear respiratory protection must be trained, fit-tested, and medically qualified.
5. Trenches and excavations with hazardous concentrations of airborne contaminants or oxygen deficient atmospheres qualify as confined spaces. When this occurs, compliance with the Confined Space Program is also required.
6. Employees shall not be permitted to work in hazardous and/or toxic atmospheres. These include atmospheres with:
   a. Less than 19.5% oxygen.
   b. A combustible gas concentration greater than 20% of the lower flammable limit.
   c. Concentrations of hazardous substance that exceed those specified in the threshold.
7. Limit Values for airborne contaminants established by the ACGIH.

U. Standing Water and Water Accumulation

1. Workers must not enter or work in excavations with standing water or in which water is accumulating unless adequate protection is provided.
2. Protective methods for these circumstances must include:
   A. Use of special support or shield systems approved by a registered professional engineer. Water removal equipment used and monitored by a competent person.
   B. During rainstorms employees must exit the trench. The excavation must be carefully inspected by a competent person after each rain and before employees are permitted to re-enter the trench.
   C. Protective measures such as diversion ditches and dikes should be used to limit surface runoff water from entering the excavation.

V. Training and Documentation

1. This program will be communicated to all new employees during New Employee Orientation and upon assignment of excavation duties and documented.
2. Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training.

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37 .0 Vehicle Safety Program

A. Purpose

To provide minimum requirements for the safe operation of company vehicles.

B. Roles and Responsibility

Vehicles used to transport personnel shall only be operated by an authorized and qualified operator and only used for its intended purpose. A qualified operator shall possess a vehicle operator's license valid for use on public roadways in California and be appropriate for the equipment being operated.

C. Procedure

1. Employees shall not operate any vehicle while under the influence of drugs or alcohol.
2. Vehicles that transport personnel shall be inspected as follows:
   a. An initial inspection shall be done before a new vehicle is placed in service.
   b. Daily pre-use inspections shall be conducted by the vehicle operator.
3. Operators must always obey posted site rules and posted control signs including posted speed limits.
4. Passengers and Operators must always maintain vehicles in safe working order, and:
   a. Observe the posted traffic signs and follow all safety precautions.
   b. Practice defensive driving techniques and role model safe behaviors.
   c. Use hands free devices when driving. .
   d. Wear seat belts and/or shoulder harnesses as provided at all times and allow only the number of passengers for whom there are seat belts.
5. Vehicles shall not be put into motion until all passengers are securely seated, with seat belts secured - one per passenger.
6. Passengers and Operators are not allowed to be transported in the same compartment with materials or equipment. All materials and equipment must be adequately secured to prevent movement.
7. Transporting passengers in truck beds is not be allowed.
8. All Vehicle related incidents or accidents must be reported immediately to management.

D. Training and Documentation

1. Training will be included in New Employee Orientation, completed prior to starting work.
2. Training Documentation shall contain employee's name and signature; the name and signature of the trainers, and the dates of training
3. Training shall be reviewed at least annually.

38.0 Wildfire Smoke Prevention Policy

A. Purpose

To establish minimum requirements for protecting employees from wildfire smoke hazards in the workplace in compliance with Title 8 Cal. Code of Regulations 5141.1, Protection from Wildfire Smoke.

B. Scope

1. This section applies when:

a. The current Air Quality Index (AQI) for PM2.5 is 151 or greater, regardless of the AQI for other pollutants; and

b. Outdoor work is performed, and you can reasonably anticipate that employees may be exposed to wildfire smoke.

2. The following workplaces and operations are exempt from this section:

a. Enclosed buildings or structures in which the air is filtered by a mechanical ventilation system and the employer ensures that windows, doors, bays, and other openings are kept closed to minimize contamination by outdoor or unfiltered air.

b. Enclosed vehicles in which the air is filtered by a cabin air filter and the employer ensures that windows, doors, and other openings are kept closed to minimize contamination by outdoor or unfiltered air.

c. Management can demonstrate that the concentration of PM2.5 in the air does not exceed a concentration that corresponds to a current AQI of 151 or greater by measuring PM2.5 levels at the worksite in accordance with Appendix A (attached in this document) to Title 8 Section 5141.1.

d. Employees exposed to a current AQI for PM2.5 of 151 or greater for a total of one hour or less during a shift.

e. Firefighters engaged in wildland firefighting.

C. Roles and Responsibilities

1. Management

a. Ensure all employees are trained and knowledgeable in the requirements detailed in this policy.

b. Responsible for identifying if harmful exposure levels exist daily. Woke with Supervision to ensure effective implementation of this policy.

c. Ensure the written protection program be made available to employees and their designated representatives

d. Shall make this Protection from Wildfire Smoke program available, upon request, to employees, their designated representatives, OSHA, and NIOSH.

e. Responsible for reviewing and updating this policy as required/necessary.

2. Supervision

a. Responsible for understanding and implementing this policy as required.

b. Responsible for identifying if harmful exposure levels exist daily. Management & Supervision shall determine employee exposure to PM2.5 for worksites covered by this section before each shift and periodically thereafter, as needed to protect the health of the employee, by any of the following methods:

c. Check AQI forecasts and the current AQI for PM2.5 from any of the following: U.S. EPA AirNow website, U.S. Forest Service Wildland Air Quality Response Program website, California Air Resources Board website, local air pollution control district website, or local air quality management district website; **or**

d. Obtain AQI forecasts and the current AQI for PM2.5 directly from the EPA, California Air Resources Board, local air pollution control district, or local air quality management district by telephone, email, text, or other effective method; **or**

e. Measure PM2.5 levels at the worksite and convert the PM2.5 levels to the corresponding AQI in accordance with Appendix A.

f. Responsible for checking a reputable air quality web site such as https://www.airnow.gov/index.cfm?action=airnow.local_state in the state of California each morning as part of the Daily Job Planning and whenever the air quality may change

g. Responsible for following the requirements in this program and to provide proper personal protective equipment to personnel.

3. Employees

a. Responsible for applying the knowledge learned in training and complying with this policy as required.

b. Responsible for assessing their own safety and communicating concerns to their immediate supervisor as soon as possible and evacuating unsafe conditions.

D. Communications

1. Management shall establish and implement a system for communicating wildfire smoke hazards in a form readily understandable by all affected employees, including provisions designed to encourage employees to inform the employer of wildfire smoke hazards at the worksite without fear of reprisal.
2. The system shall include effective procedures for:
   a. Informing employees of:
      (1) The current AQI for PM2.5 as identified in subsection (c); and
      (2) Protective measures available to employees to reduce their wildfire smoke exposures.

b. Encouraging employees to inform the employer of:
   (1) Worsening air quality; and
   (2) Any adverse symptoms that may be the result of wildfire smoke exposure such as asthma attacks, difficulty breathing, and chest pain.

E. Training

1. Training shall be provided to employees with effective information and training on hazards of wildfire smoke, how to obtain the exposure information and means of mitigation including suspension of work in areas with a concentration AQI of 500 or greater.
2. All personnel will be trained in the contents of Appendix "B" of Section 5141.1, located at the end of this policy.
3. Employees shall be trained in the physical, health hazards wildfire smoke can have, as well the measures they can take to protect themselves from these hazards, including:

   a. Specific procedures to protect employees from exposure to wildfire smoke, which include:
      (1) Appropriate safe work practices
      (2) Emergency procedures for evacuating unsafe work areas
      (3) Proper PPE to be used

F. Procedures

1. This procedure allows for the use of N95 respirators for the protection of hazards generated from wildfire smoke.
2. If the AQI is above 150, N95 Respirators will be made available and use is suggested.
3. If the AQI reaches 500, work shall be suspended or relocated to an area of lower AQI.
4. For voluntary use of filtering facepieces, such as N95 respirators, some of the requirements of section 5144 do not apply, including the requirements for fit testing and medical evaluations.
5. Where the current AQI for PM2.5 exceeds 500, respirator use is required in accordance with section 5144. The employer shall provide respirators with an assigned protection factor, as listed in section 5144, such that the PM2.5 levels inside the respirator correspond to an AQI less than 151.
6. Obtain NIOSH approved N95 Respirators
7. N-99, N-100, R-95, P-95, P-99 or P-100 Respirators are also approved if N95's become unavailable.
8. Determine AQI in work area https://airnow.gov/ before work begins.
9. Keep abreast of changing conditions and check https://airnow.gov/ as needed
10. Utilize AQI Chart below as a reference point for determining safe AQI levels.

Air Quality Index Reference Chart

Air Quality Index (AQI) Values	Levels of Health Concern	Colors
When the AQI is in this range:	*..air quality conditions are:*	*...as symbolized by this color:*
0 to 50	Good	Green
51 to 100	Moderate	Yellow
101 to 150	Unhealthy for Sensitive Groups	Orange
151 to 200	Unhealthy	Red
201 to 300	Very Unhealthy	Purple
301 to 500	Hazardous	Maroon

G. Recordkeeping

1. Documentation of safety and health training requirements:
    a. Employee name or other types of identifiers,
    b. Training dates,
    c. Type(s) of training, and
    d. Training providers
2. All documentation shall be maintained for at least one (1) year.

Additional Information & References

Documents & External References

- **Cal-OSHA 5144 Respiratory Protection** https://www.dir.ca.gov/title8/5144.html
- **OSHA** https://www.osha.gov/video/respiratory_protection/voluntaryuse_transcript.html
- **Air Now** https://www.airnow.gov/index.cfm?action=airnow.local_state
- **State of California Department of Industrial Relations** https://www.dir.ca.gov/dosh/doshreg/Protection-from-Wildfire-Smoke/
- https://ohsonline.com/Articles/2011/05/01/Voluntary-Use-of-Respirators.aspx
- https://hrwatchdog.calchamber.com/2019/08/california-emergency-wildfire-smoke-regulation-now-in-effect/
- 3M https://www.respexam.com/reports/inventory.asp

Definitions

Term	Description
Air Quality Index (AQI)	The AQI is an index for reporting daily air quality. It tells you how clean or polluted your air is, and what associated health effects might be a concern for you. The AQI focuses on health affects you may experience within a few hours or days after breathing polluted air.
N95	An N95 respirator is a respiratory protective device designed to achieve a very close facial fit and very efficient filtration of airborne particles.
Medical Evaluation	The medical evaluation is a questionnaire located in Appendix C of the OSHA respiratory protection standard that the employee completes. A physician or licensed health care professional (PLHCP) must review it to assess whether: A follow-up exam with a physician is required for that worker. B The worker is cleared for respirator use with no restrictions
Permissible Exposure Limit (PEL)	The legal limit in the U.S. for maximum concentration of any chemical in the air to which a worker may be exposed continuously for eight hours without any danger to health and safety.
Voluntary Use	Not required by the employer and the atmospheric hazard is not such that that it is required to be worn

Appendix A.

Protection from Wildfire Smoke Measuring PM2.5 Levels at the Worksite (Mandatory if an Employer Monitors with a Direct Reading Instrument)

(a) An employer may use a direct-reading particulate monitor to determine PM2.5 levels for section 5141.1, if the employer can demonstrate that it has complied with this appendix and selected a monitor that:

(1) Does not underestimate employee exposures to wildfire smoke; or

(2) May underestimate wildfire smoke exposures, but the employer has obtained information on the possible error of the monitor from the manufacturer or other published literature and has accounted for the error of the monitor when determining exposures to PM2.5 to ensure that employee exposure levels are not underestimated.

(b) The monitor shall be designed and manufactured to measure the concentration of airborne particle sizes ranging from an aerodynamic diameter of 0.1 micrometers up to and including 2.5 micrometers. The employer may use a monitor that measures a particle size range beyond these limits, if the employer treats the results as the PM2.5 levels.

(c) The employer shall ensure that the monitor it uses is calibrated, maintained, and used, including the use of necessary accessories, in accordance with the manufacturer's instructions for accurately measuring PM2.5 concentrations.

(d) The employer shall use the following table to convert the PM2.5 concentration to the AQI for PM2.5.

PM2.5 in Micrograms per Cubic Meter ($\mu g/m^3$)	*Air Quality Index (AQI) Categories for PM2.5*
0 to 12.0	0 to 50
12.1 to 35.4	51 to 100
35.5 to 55.4	101 to 150
55.5 to 150.4	151 to 200
150.5 to 250.4	201 to 300
250.5 to 500.4	301 to 500

(e) The person supervising, directing, or evaluating workplace monitoring for PM2.5 shall have the training or experience necessary to apply this section and to ensure the correct use of the monitor and the interpretation of the results, so that exposures are not underestimated.

Appendix B

Mandatory Training

Appendix B to Section 5141.1. Protection from Wildfire Smoke Information to Be Provided to Employees

(a) The health effects of wildfire smoke.

- Although there are many hazardous chemicals in wildfire smoke, the main harmful pollutant for people who are not very close to the fire is “particulate matter,” the tiny particles suspended in the air.
- Particulate matter can irritate the lungs and cause persistent coughing, phlegm, wheezing, or difficulty breathing. Particulate matter can also cause more serious problems, such as reduced lung function, bronchitis, worsening of asthma, heart failure, and early death.
- People over 65 and people who already have heart and lung problems are the most likely to suffer from serious health effects.
- The smallest -and usually the most harmful -particulate matter is called PM2.5 because it has a diameter of 2.5 micrometers or smaller.

(b) The right to obtain medical treatment without fear of reprisal.

- Employers shall allow employees who show signs of injury or illness due to wildfire smoke exposure to seek medical treatment and may not punish affected employees for seeking such treatment. Employers shall also have effective provisions made in advance for prompt medical treatment of employees in the event of serious injury or illness caused by wildfire smoke exposure.

(c) How employees can obtain the current Air Quality Index (AQI) for PM2.5.

- Various government agencies monitor the air at locations throughout California and report the current AQI for those places. The AQI is a measurement of how polluted the air is. An AQI over 100 is unhealthy for sensitive people and an AQI over 150 is unhealthy for everyone.
- Although there are AQIs for several pollutants, Title 8, section 5141.1 about wildfire smoke only uses the AQI for PM2.5.
- The easiest way to find the current and forecasted AQI for PM2.5 is to go to www.AirNow.gov and enter the zip code of the location where you will be working. The current AQI is also available from the U.S. Forest Service at https://tools.airfire.org/ or a local air district, which can be located at www.arb.ca.gov/capcoa/dismap.htm. Employees who do not have access to the internet can contact their employer for the current AQI. The EPA website www.enviroflash.info can transmit daily and forecasted AQIs by text or email for particular cities or zip codes.

(d) The requirements in Title 8, section 5141.1 about wildfire smoke.

- If employees may be exposed to wildfire smoke, then the employer is required to find out the current AQI applicable to the worksite. If the current AQI for PM2.5 is 151 or more, the employer is required to:
    - Check the current AQI before and periodically during each shift.
    - Provide training to employees.
    - Lower employee exposures.
    - Provide respirators and encourage their use.
- (e) The employer's two-way communication system.
- Employers shall alert employees when the air quality is harmful and what protective measures are available to employees.

- Employers shall encourage employees to inform their employers if they notice the air quality is getting worse, or if they are suffering from any symptoms due to the air quality, without fear of reprisal.
- The employer's communication system is: _____
  _____
  _____

(f) The employer's methods to protect employees from wildfire smoke.

- Employers shall take action to protect employees from PM2.5 when the current AQI for PM2.5 is 151 or greater. Examples of protective methods include:
  - Locating work in enclosed structures or vehicles where the air is filtered.
  - Changing procedures such as moving workers to a place with a lower current AQI for PM2.5.
  - Reducing work time in areas with unfiltered air.
  - Increasing rest time and frequency and providing a rest area with filtered air.
  - Reducing the physical intensity of the work to help lower the breathing and heart rates.
- The employer's control system at this worksite is: _____
  _____
  _____

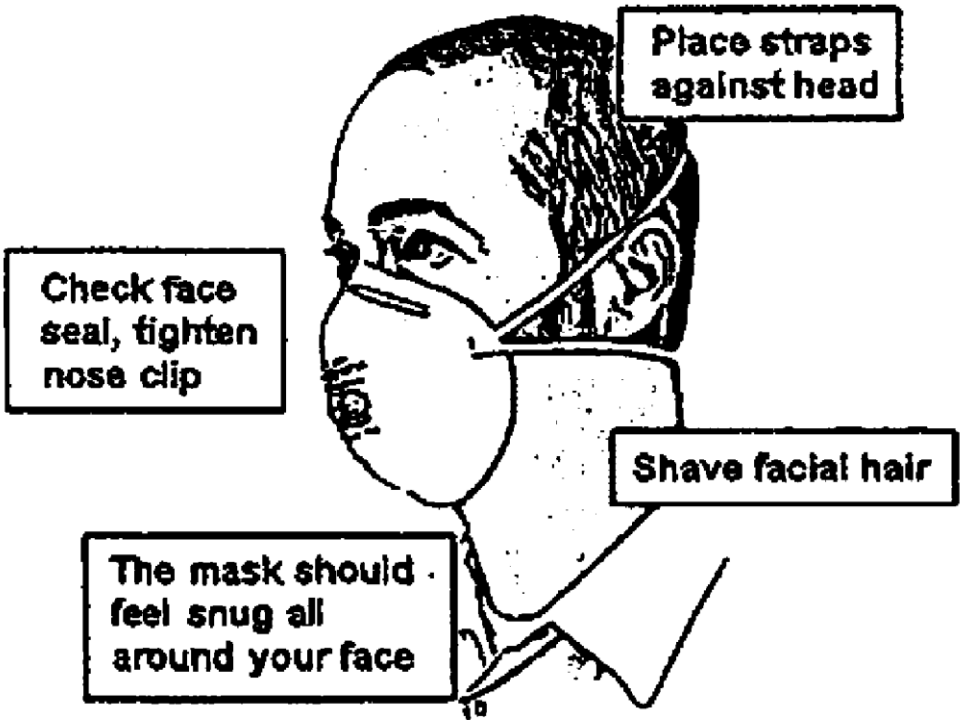
(g) The importance, limitations, and benefits of using a respirator when exposed to wildfire smoke.

- Respirators can be an effective way to protect employee health by reducing exposure to wildfire smoke, when they are properly selected and worn. Respirator use can be beneficial even when the AQI for PM2.5 is less than 151, to provide additional protection.
- When the current AQI for PM2.5 is 151 or greater, employers shall provide their workers with proper respirators for voluntary use. If the current AQI is greater than 500, respirator use is required.
- A respirator should be used properly and kept clean.
- The following precautions shall be taken:
  - Employers shall select respirators certified for protection against the specific air contaminants at the workplace. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Center for Disease Control and Prevention certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will list what the respirator is designed for (particulates, for example).
- Surgical masks or items worn over the nose and mouth such as scarves, T-shirts, and bandannas will not provide protection against wildfire smoke. **An N95 filtering facepiece respirator, shown in the image below, is the minimum level of protection for wildfire smoke.**
  - Read and follow the manufacturer's instructions on the respirator's use, maintenance, cleaning and care, along with any warnings regarding the respirator's limitations. The manufacturer's instructions for medical evaluations, fit testing, and shaving should also be followed, although doing so is not required by Title 8, section 5141.1 for voluntary use of filtering facepiece respirators.
  - Do not wear respirators in areas where the air contains contaminants for which the respirator is not designed. A respirator designed to filter particles will not protect employees against gases or vapors, and it will not supply oxygen.
  - Employees should keep track of their respirator so that they do not mistakenly use someone else's respirator.
  - Employees who have a heart or lung problem should ask their doctor before using a respirator.

(h) How to properly put on, use, and maintain the respirators provided by the employer.

- To get the most protection from a respirator, there must be a tight seal around the face. A respirator will provide much less protection if facial hair interferes with the seal. Loose-fitting powered air purifying respirators may be worn by people with facial hair since they do not have seals that are affected by facial hair.
- The proper way to put on a respirator depends on the type and model of the respirator.
- For those who use an N95 or other filtering facepiece respirator mask that is made of filter material:

- Place the mask over the nose and under the chin, with one strap placed below the ears and one strap above.
- Pinch the metal part (if there is one) of the respirator over the top of the nose so it fits securely.



Drawing Showing Proper Fitting of a Filtering Facepiece Respirator (shaving is not required for voluntary respirator use)

- For a respirator that relies on a tight seal to the face, check how well it seals to the face by following the manufacturer's instructions for user seal checks. Adjust the respirator if air leaks between the seal and the face. The more air leaks under the seal, the less protection the user receives.
- Respirator filters should be replaced if they get damaged, deformed, dirty, or difficult to breathe through. Filtering facepiece respirators are disposable respirators that cannot be cleaned or disinfected. A best practice is to replace filtering facepiece respirators at the beginning of each shift.
- If you have symptoms such as difficulty breathing, dizziness, or nausea, go to an area with cleaner air, take off the respirator, and get medical help.

39.0 Zero Tolerance Policy

A. Purpose

To establish a Zero Tolerance Policy that will establish the minimum expectations for the Occupational Health & Safety of all employees and contractors working on e projects.

B. Roles and Responsibility

Zero tolerance means that failure to follow a written requirement; rule, law, program or policy that is designed to prevent injuries or incidents, will not be tolerated and effectively applies to all employees and subcontract personnel.

C. Procedure

1. **The following violations will be investigated, and any disciplinary actions enforced by management, which may be grounds for immediate termination:**
   a. Drugs or alcohol on site.
   b. Fighting, threatening or endangering others.
   c. Removing or bypassing safety devices on power tools or equipment; i.e., removing or pinning saw guards, removing safety spring on nail guns, etc.
   d. Failure to follow a fatality prevention program. e.

   Knowingly violating a written rule or procedure.

2. **Drug & Alcohol Policy**
   a. Our job site is a Drug & Alcohol-Free Zone!
   b. Zero tolerance for anyone being under the influence of Drugs or Alcohol.
   c. Violations of this policy will result in disciplinary action, including termination.

3. **Graffiti**
   a. The use of graffiti anywhere on site will be considered a Zero Tolerance violation which will result in disciplinary action, up to and including termination.

D. Discipline Program

The discipline program consists of 2 levels of engagement based on severity.

1. **Minor Offense** (within same calendar year)
   a. 1st Offense: Verbal warning and retraining
   b. 2nd Offense: Written Warning
   c. 3rd Offense: 1 week off without pay and retraining
   d. 4th Offense: Termination
2. **Major Offense** (practices endangering the individual or others)
   a. 1st Offense: Written Warning
   b. 2nd Offense: 2 weeks off without pay and retraining
   c. 3rd Offense: Termination
3. **Fatality Prevention Offense**
   a. 1st Offense: 2 weeks off without pay and retraining

b. 2nd Offense: Termination

E. Training and Documentation

1. New Employee Orientation shall include this Zero Tolerance Policy.
2. All employees will be trained annually on this policy.
3. Documentation shall contain employee's name, the signature of the trainers, and the dates of training**.**

40.0 Pandemic Preparedness and Response Policy

A. Purpose:
To provide guidance on managing and strategizing responses within the company and working in conjunction with external agencies to respond effectively and timely in the event of a communicable disease that impacts or potentially impacts the workplace.

B. Scope
This document applies to any communicable disease event that affects employees and/or contingent workers.

C. Roles & Responsibilities
The Human Resources Manager is responsible for ensuring this policy is maintained and executive management is responsible for ensuring enforcement in the office and field operations.

D. Program Elements Requirements

- **a. Investigation:** Actions to be taken when notified that individuals may have been exposed to a communicable disease in the workplace
  - i. Collect high level information:
    1. Disease type and health concerns
    2. Location of exposure
    3. Dates of potential exposure and number of affected persons if known
  - ii. Notify Management/HR/Safety with known high level information, e.g., “Potential communicable disease exposure at X site”.
  - iii. Contact health officials to discuss what information and possible actions are needed
    1. Occupational Health Clinic
    2. County Health Services
    3. Potential actions to take:
       a. Confer with local Department of Public Health
       b. Identify the geographic location(s)
       c. Index case details where possible, status updates
       d. Timing, and circumstances in which communicable disease exposure(s) may have occurred.
       e. Communications & notifications
          i. Develop factual content with information from Pandemic Experts
          ii. Determine to whom information is disseminated and how
  - iv. Determine if other necessary actions are needed, such as disinfection of certain workplaces etc.
  - v. Potential Stakeholders: Consider the following persons for inclusion in meetings, assistance with communications, and/or informing of the event. Decision is based on
       a. Level of risk (real or perceived)
       b. If disease is endemic to the location
       c. Cultural considerations
       d. Level of disruption to business)e.g.,
          i. Number of persons potentially impacted
          ii. Communicability of disease
  - vi. List of Potential Stakeholders
       a. Site Managers (always informed)
       b. Legal (informed as needed)
       c. Business Unit Representatives (Supervisor, Senior Leader) or Human Resources (HR)
       d. Emergency Response Program Owner – or assign some responsible to lead the efforts

- **b. Privacy: HIPAA Protections**

i. All communications regarding a communicable disease event must adhere to Privacy Standards, Code of Conduct, and local Privacy Laws; i.e., information is provided to those only with a business need to know.
ii. Therefore, the specifics of information provided will vary between roles. Email with personal identifiers must be "hard deleted" from email/computer as soon as no longer needed. should include this direction in communications that contain personal identifiers or if there is potential to identify specific persons.
iii. Public Health Departments are the only entity that may communicate case identification ("Index case") and only when required by law. Under no circumstances should the employee's name (Index Case) be released unless expressly directed by a government agency.
iv. The identification of the person(s) who is (are) considered to be the index case (source of the infectious disease) and who may have been involved in the transmission of an infectious disease is *not* to be shared with others except in the following circumstance
    1. When directed and authorized by the local public health authority to assist with contact investigation, may be provided the identity of the index case to identify potentially affected business groups, individuals, and/or areas in which exposure may have occurred.
    2. Verbal communication is best rather than email. In situations where the local public health authority does not respond in a timely manner, the decision to provide the name to Management staff for contact investigation must be made.
v. Personal information of affected individuals is never included in stakeholder communications, including emails, memos, or conversations. Carefully consider how much detailed information is communicated about affected person(s) and work location.
vi. When the Public Health Department is not directly involved and contact investigation is advised, patient consent is required to release the identity of the index case. Examples are when a person is seen by their Physician or Occupational Health Clinic.
vii. All communications are sent via encrypted email if possible. If email encryption or other process is not available communications should be via phone call
viii. If it is suspected that a person is intentionally infecting others with a communicable disease (such as a disgruntled employee or as a terrorist act), the local Public Health Department and law enforcement **must** be notified as this activity can be a criminal act.

c. Communications

i. For Impacted Employees
    a. Public Health Departments may ask to assist with notification of employees who might have been exposed to a reportable communicable disease in the workplace. The notifications may be done directly by (under the direction of the Public Health Department) or done in conjunction with Public Health who may come to the site to oversee the process.
    2. Communication should include information on the possible exposure event:
        a. Disease and dates of possible workplace exposure (disease and dates)
        b. Disease information: what it is, how it is transmitted, symptoms, risks/concerns, what to do, etc.
        c. Actions employee may need to take
        d. References for additional information
        e. If TB may include information on next steps, e.g., information meetings and/or TB testing locations
ii. For General Communications
    1. The decision for other communications is dependent upon a variety of factors including the number of exposed individuals, the number of sites involved, the number of confirmed cases, and the potential severity of the infectious disease/illness etc. Additional communication may be warranted to the impacted site. Key messages should be obtained from a public health resource and vetted by a Medical Director, Epidemiologist, and/or Registered Nurse, as well as a communications representative.
    2. Depending on the situation a risk communication to the impacted group should be considered to allay employees' concerns. The risk communication message should be approved by and reviewed by executive management.

E. Roles & Responsibilities

a. Core Response Team

i. Collection and documentation of event facts
ii. Develop course of action plan; may be in collaboration with local Public Health Department(s)
iii. Identifies the geographic location(s), events, timing and circumstances in which infectious disease exposures may have occurred.
iv. Ensures compliance with company privacy rules and local privacy laws. Any exceptions are according to Public Health Department or other local laws and must be documented.
v. Provide regular updates to potential stakeholders as situation requires.

b. Core Response Team Members (suggested representatives)

i. Occupational Health Representative (Physician/Nurse
ii. Executive Management
iii. Human Resources
iv. Medical Case Manager from Insurance Company
v. Attorney
vi. Health Dept Representative where possible

F. References

a. Centers for Disease Control and Prevention. www.cdc.gov
b. Occupational Safety & Health Administration. www.osha.gov

G. Appendices

a. Appendix "A": COVID-19 Exposure Control JHA
b. Appendix "B": Field Sanitization Guidelines

Appendix A
COVID-19 Exposure Control Job Hazard Analysis

Task	Hazard	Controls
General	COVID-19 Exposure	No employee should report to work if they are experiencing any symptoms associated with the COVID-19 virus. Where possible establish alternate days or extra shifts to reduce total workers on project. Coordinate and communicate with general contractors about their exposure control plan regarding, large gatherings (maintain social distancing) and promoting best practices. If an employee has had a known exposure to or, has been in contact with someone who is symptomatic or has been diagnosed with the COVID-19 virus, he or she will not be allowed onto the project and must follow current CDC guidelines. Employees who appear to have symptoms associated with the COVID-19 virus will be removed from the project and not allowed to return until cleared by their medical provider. Employees who have been determined to be eligible to work remotely and can accomplish his or her responsibilities will not be allowed on-site without approval from their respective manager. Essential employees who must be on-site will follow the CDC guidelines of social distancing (6'). This includes accessing and egressing the project through designated entry and exit points.

		Employees are to wash their hands with soap and water before and after touching their face or eyes, eating or drinking, after smoking, after sneezing, blowing nose, coughing, using toilet facilities or removing their gloves. Workers should refrain from touching their face. Field leadership should provide a lined trash receptacle and designate it for disposal of any leftover food or trash from lunch/meal containers or used PPE. Field leadership should provide lined PPE containers for vests and gloves that shall be delivered to a designated location for cleaning or replacement at the end of each shift. All liners must be disposed of at the end of each shift by personnel in protective PPE. No sharing of food will be allowed.
Meetings (Tailgate/Stretch & Flex)	COVID-19 Exposure	Communicate CDC, WHO, and county health organizations guidelines, mandates, or directives, daily. All mass, all-hands type meetings shall be avoided. Tailboard/Daily Huddle meetings shall be held outdoors when possible and all persons shall maintain a minimum of 6' separation.

		Attendance rosters and sign-in sheets shall be discontinued. In lieu of these, the Managers shall take a photo of the group to document attendance. Project coordination meetings shall be limited to call-in or online when possible. Meeting attendance shall be limited to <10 persons and shall be conducted in an area where the 6' social distancing can be maintained. General Foremen shall provide Foremen with necessary information to pass on to their respective crews. Foreman shall ensure that employees are able to maintain the 6' social distancing requirement when working or taking breaks.
Project Access/Egress	COVID-19 Exposure	Possible Methods to avoid exposures: Take temperatures of all employees prior to allowing on site. Until hands free temperature devices are available, employees are to provide personal temperature devices and validate non-fever conditions (<100.0 degrees per CDC guidelines) to the job site supervision at the job site. If temperature exceeds 100.0 degrees per CDC guidelines, you will not be permitted on the project. Ensure social distancing is implemented while taking temperatures.

		Stretch & Flex activities must occur at the crew level and in an area where the 6’ social distancing requirement can be met. Project leadership shall work with client/owner representatives to schedule work activities and shift schedules to minimize required on-site personnel and trade stacking. Site supervision will ensure any lunch or break areas can accommodate social distancing requirement (6’). This area must be cleaned and disinfected after each use. See attached Field Sanitization Guidelines. Site supervision will coordinate with client/owner representatives to designate entry/exit routes in order to eliminate bottlenecks in line while also maintaining social distancing requirements. Projects where employees are required to enter or exit through areas open to the general public shall minimize their time in those areas and maintain the 6’ social distancing requirement. Employees required to utilize man-lifts to access decks will limit capacity to 3 people (excluding operator) and avoid close contact with other personnel. Supervision to discourage the use of man-lifts when stairs are available.

Personal Protective Equipment Use	COVID-19 Exposure	Employees shall ensure that all PPE is kept clean and in serviceable condition. Hard hats shall be sanitized at the end of each shift. See attached Field Sanitization Guidelines. Safety glasses should be cleaned regularly throughout the shift with approved Isopropyl wipes including the frame and stems. See Appendix "B" for "Field Sanitization Guidelines". Gloves shall be new at the beginning of the shift and replaced at each break or after touching common use surfaces. Gloves shall be sanitized at the end of each shift. See attached Field Sanitization Guidelines. Disposable Latex or Nitrile gloves may be used as outer covering for cut resistant or leather gloves but must be disposed of after each use. Ear plugs must be inserted or removed with clean washed hands and replaced daily or if dropped on the ground or other surface. Muff type hearing protection must be cleaned before each use and after being dropped or laid down on any common use surface.

		Vests or other high visibility garments should be sanitized at the end of each shift. See attached Field Sanitization Guidelines. Fall protection equipment shall be wiped down with soap and water after each use. See attached Field Sanitization Guidelines. Face masks or face shields shall be wiped down with soap and water or other disinfecting agent prior to and after each use. Face masks or shields will be issued to the individual employee and shall not be shared. See attached Field Sanitization Guidelines for more information. Respiratory protection equipment will be in STRICT accordance with CCR, Title 8, Section 5144. The CDC, WHO and OSHA does not currently recommend that healthy people wear face masks. If the task requires the mask to be worn, then you must follow the guidelines in the Respiratory Protection Program.
MEWP Use	COVID-19 Exposure	Mobile Elevated Work Platforms shall be sanitized at the end of each shift or after each operator use. See attached Field Sanitization Guidelines. Employees required to utilize man-lifts to access decks will limit capacity to 3 people (excluding operator) and avoid close contact with other personnel.

		Any aerial lift is limited to 1 person. The use of double bucket (2 men in a bucket) is strictly prohibited.
Ladders	COVID-19 Exposure	Ladders are to be sanitized at the end of each shift and prior to being used by another employee. See attached Field Sanitization Guidelines.
Confined Spaces	COVID-19 Exposure	Confined space operations will be prohibited
Material Handling	COVID-19 Exposure	Hand hold areas on material/debris bins shall be sanitized at the end of each shift. See attached Field Sanitization Guidelines. Wooden bins should be avoided, but if necessary, hand hold areas should be sprayed with disinfectant aerosol at the end of each shift. Employees shall not dispose of food waste or lunch containers in debris/material carts. Drinking water will be strictly limited to bottled water. Water dispensing coolers are not allowed. Employees are required to remove gloves and sanitize hands prior to grabbing water bottles for use.
Toilet & Hand Washing Facilities	COVID-19 Exposure	Supervision shall ensure adequate toilet and hand washing facilities are available based on a 20 to 1 ratio or fraction thereof. Toilets are 20 to 1 per sex or fraction thereof.

		Toilet facilities shall be pumped on a (daily/48hr/weekly) cycle and sanitized at the end of each shift. Restrooms must have alcohol based antibacterial hand sanitizer available. Supervision should make every effort to provide toilet paper and disposable hand towels to individual employees (1 roll per person as needed, etc.) Employees shall avoid using of community-use toilet paper and hand towels. Employees shall wash their hands with soap and water for a minimum of twenty seconds after visiting toilet facilities. Employees observed not following hand washing requirements will be removed from the project.
Safety Audits	COVID-19 Exposure	Audits/Observations must be verbalized between the employee and manager maintaining social distancing requirements. Photos can be taken from a safe distance for upload. Daily Safety Huddles or Weekly Safety Meetings should be documented with photos. Ensure devices are disinfected each day. See attached Field Sanitization Guidelines.
Hand and Power Tools	COVID-19 Exposure	The transfer of tools, radios, cell phones, materials, documents, or etc. shall be sanitized prior to transfer. No direct (handshake) transfer is allowed.
Field Office Staff	COVID-19 Exposure	Have hand sanitizers available at all doors.

		Wash hands regularly for no less than 20 seconds. Use electronic communication where possible. Do not shake hands. Use hand sanitizer after any contact with other employee's body, materials, tools, or documents. Maintain social distance. Limit physical contact with others. Direct employees to increase personal space (to at least 6 feet). Employees are to wash their hands with soap and water before and after touching their face or eyes, eating or drinking, after smoking, after sneezing, blowing nose, coughing and using toilet facilities. Workers should refrain from touching their face. Do not allow people to congregate during lunch and break or in break areas. Must maintain social distancing requirements. Disinfect work area after each shift. See attached Field Sanitization Guidelines. Regularly Sanitize door handles including Entrance doors, Refrigerators, Microwaves, and worksurfaces etc. See attached Field Sanitization Guidelines.
Task	Hazard	Controls

Other		

Appendix "B"
Field Sanitization Guidelines

Tools / Equipment

Shall be wiped down with soap and water or disinfecting wipes prior to use. Use of a bleach solution is not recommended on tools.

Phones/Tablets/Radios/Other Mobile Electronic Equipment

Shall be wiped down using disinfecting wipes prior to use. No sharing of devices is allowed.

Hard Hats

Wipe down hard hat exterior with water and soap or a cleaning solution, scrubbing with a soft brush or sponge. Do not dry with heaters hard hat can be reassembled before or after drying. Prior to re-use, conduct checks as recommended by the manufacturer's manual to assure that the hard hat is in working condition.

Garments

Garments worn off the project must be laundered prior to returning to work.

If garments are left at the project, they will be placed in the designated lined container for cleaning.

Eyeglasses / Face Shields

Safety glasses should be cleaned regularly throughout the shift with approved Isopropyl wipes including the frame and stems.

Face masks or face shields shall be wiped down with soap and water or other disinfecting agent prior to and after each use. Face masks or shields will be issued to the individual employee and shall not be shared.

Refueling Operations

Ensure hands are sanitized after any refueling operation

Gloves

Gloves shall be new at the beginning of the shift and replaced at each break or after touching common use surfaces. Gloves will be placed in a designated lined container for cleaning.

Fall Protection

Fall protection equipment shall be wiped down with soap and water after each use.

Project Trailers, Plan Shacks and Other Common Areas

Surfaces shall be wiped down with soap and water or other disinfecting agent prior to each use. To include, but not limited to, the following:

- **Handrails in stairways and walkways**
- **Gang box handles**
- **Entry gates**
- **Doors**
- **Interior and exterior doorknobs, handles, locks**
- **Lunch areas, conference rooms and other tables/chairs (including backs and arms)**
- **Shared hand/power tools, battery charging stations, etc.**
- **Restrooms – including handles, seats, locks, hand-wash stations, and soap dispensers**
- **Climate control/thermostat knobs**
- **Call buttons for elevators/personnel hoists**
- **Light switches**
- **Plan tables**
- **Printers**
- **Microwave ovens**
- **Coffee makers**
- **Laptops / cell phones/ tablets (do not use soap and water, use other disinfecting agents)**
- **Other shared/common areas**

In addition to the above preventative cleaning and disinfecting measures, in the event of a suspected or laboratory-confirmed case of COVID-19 on the project, please follow these guidelines as established by the CDC to clean and disinfect your jobsite:

- **Temporarily close off areas used by the ill individual**
- **Use appropriate PPE – disposable gloves and gowns**
- **Wait as long as practical before cleaning and disinfecting to minimize potential for exposure to respiratory droplets**
- **Open outside doors and windows to increase air circulation in the area**
- **Clean and disinfect all areas used by the ill individual, focusing on frequently touched surface.**